

# *Advertising Concepts Evolution and Benefits of Promotion Robots in the Digital Economy*

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**Abstract**— The article explores the evolution of advertising concepts and defines specification of the new concept evolving in the conditions of the information society and the digital economy. The authors note that advertising can be considered as information provided as a gift for potential customers. It supports production expansion and stimulates consumer spending. The concept of gift in advertising is defined as the non-market tool which is not based on the market price, implemented in the framework of a company’s competitive strategy. New industrialization transforms all sectors of the economy. A human is replaced by a robot in many activities. At the same time few studies have discussed the possibility of using a robot for advertising. In fact, it remains unknown how a robot can contribute to advertising contexts. The article aims to determine the ways how companies can use promotion robots and the effect of their use in advertising. The authors apply the case study method based on the secondary data analysis. The paper focuses on promotion robots, manufactured by Promobot, a company located in the Perm Krai of Russia. It is concluded that the use of promotion robots in advertising has several advantages: attracting the visitors’ attention, automating the promotion activities, and increasing consumer loyalty. It is estimated that the use of promotion robots contributes to an increase in sales ranging from twenty percent to several times.

**Keywords**— *digital economy technologies, new industrialization; gift concept in advertising; promotion robot; Promobot.*

## I. INTRODUCTION

It is known that advertising has emerged as a natural consequence of the market relations development. A brand-new historic stage of advertising evolution is attributed to the new industrialization. The need to refocus the economy from

the technocratic and static model to the dynamic one becomes more urgent in the new conditions.

Digital economy is based on the introduction of the innovative breakthrough technologies: nanotechnology, robotics, genetic engineering and biotechnology, cloud technologies and big data, cognitive science and neurotechnology [1]. Lapidus defines Industry 4.0 as “a set of relations evolving in production processes associated with the infusion of digital technologies (Industry 4.0 technologies), aimed at improving the competitiveness of a business and a country” [2]. The development and involvement of these technologies signifies the new industrial revolution, which changes remarkably the face of all industries and sectors of the economy. As the result of this industrial revolution industries obtain digital platforms and artificial intelligence used both in production processes and management. Marketing and advertising are also changing under the influence of digitalization. The most obvious manifestation of the impact of new industrialization on advertising is the use of robots which is growing exponentially. The article aims to determine the trend of the advertising concepts evolution and to estimate the impact of new industrialization on the advertising transformation implying the use of promotion robots. The latter is achieved on the basis of the case study.

## II. LITERATURE REVIEW

Both Russian and foreign economic literature suggest a number of different definitions of advertising. The definitions can be arranged into three main groups in accordance with three basic concepts, which can be conventionally identified as: commercial marketing; social and psychological; universal. That being sad, it should be noted that a “non-marketing”

advertising concept of course cannot exist, since advertising is, first of all, a function and an element of marketing.

Most definitions in the commercial marketing concept framework refer to advertising as one of the four core elements of the marketing mix (product, price, distribution, advertising) and define advertising as paid, unidirectional and non-personal communication of information through mass media and other channels agitating in favor of a particular product, brand, or a company. Thus, commercial nature of the advertisement is emphasized. Reeves noted the commercial and the promotional nature of advertising and relation of advertisement to commercial propaganda. Advertising, in his opinion, is the art of introducing a unique selling proposition into the conscience of the greatest number of people at the lowest cost. Advertising, therefore, is commercial propaganda [3].

The social and psychological concept of advertising is represented by definitions that emphasize the importance of the communication role of advertising and its social specifics. Arkhipov defines advertising as an idea that needs to be conveyed to the consumer [4]. Friedlander believed that the ultimate goal of any advertising is to influence the human consciousness to such extent that the message will induce the receiver to commit a certain act, most often - purchasing the product [5].

Indeed, in order to turn a person into a potential consumer first, and then into a customer, a company needs to influence consumer consciousness in such a way that would form the conviction that the object of the advertisement meets his needs. And only after that a particular effect of advertising can be expected. Kotler believes that advertising is a non-personal communication through paid media with a clearly specified source of funding [6]. This framework distinguishes advertising from other promotion activities [7].

Sandage, Fryburger and Rotzoll define advertising as “a form of communication that attempts to translate the quality of goods and services, as well as ideas into the language of the needs and demands of the consumer” [8]. Schönert emphasizes the communication function of advertising by noting that commercial results are secondary and only result from effective communication links [9]. The social aspect of the advertising definition is vividly represented in the concept proposed by McLuhan, who noted that advertising is a compressed image of modern life that accumulates the feelings and experience of the whole society [10].

The concept of the universal nature of advertising attracts the increasing attention from representatives of various branches of science. It can be attributed to the fact that such a complex object of study as advertising requires a detailed research of its various aspects arising in the process of production, promotion and consumption of different types of advertising information. Apart from that, it should be noted that a wide range of heterogeneous groups of people with a different objectives and interests get involved in the processes mentioned [11]. According to this concept, advertising activity is not limited to commercial interests of companies together with social and psychological aspects of the communication process. Therefore, the expanded interpretation of advertising can be considered to have substantial grounds.

The representatives of the American Marketing Association believe that advertising refers to any paid form of non-personal representation and promotion of ideas or services on behalf of a specified or otherwise known backer. According to Segal, a French expert in advertising images, “advertising has long been known as not just a concept of trade and exchange. It is a concept in politics, a concept in public relations, a concept of public morality,” as cited in [12].

Taking the abovementioned approaches into consideration, advertising can be regarded as an information output used to reach out potential consumers. It contributes to the production expansion and intensifies competition, stimulates consumer spending. It reflects and represents the real or virtual purchasing power of the society.

On the other hand, a few experts argue by noting that advertising is useless in their opinion, just a “costly affair”, too expensive in the modern conditions of risks, uncertainty and market instability. According to the “opponents of advertising”, advertising or promotion in general substitutes the core business function of sales with the psychological impact on consumers. Then, it is concluded that advertising is only associated with unnecessary additional costs.

From the consumers’ point of view, some experts express concerns that the widespread dissemination of advertising threatens people with the totalitarian oppression [13]. Galbraith as one of the most famous economists who claim that advertising shapes consumer tastes has put the idea in the following way: “The institutions of modern advertising cannot accept the fact that a wish, a need or desire can emerge independently, since their main function is to create wants, generate needs that haven’t existed before. This is done by the manufacturers of the goods or on their behalf. The costs of manufacturing a good are not any more important in the strategy of a modern enterprise than the cost of creating the need for the product” [14].

The ambiguity of approaches to advertising can be attributed to the exceptional variety of forms of advertising application, as well as its complex nature.

A peculiar feature of modern advertising is its new role in managing the economic activity of an industrial enterprise. The essence of the new role is that advertising while being a part of the marketing system at the same time overrides the narrow framework of the market demand management. The brand-new role of advertising is attributed to structural changes in the global market in the age of new industrialization, which has significantly influenced the scope of marketing.

The age of information-based marketing signifies the shift in the strategic focus from managerial rationality to other business efficiency prerequisites found in the external environment and not inside the enterprise. An enterprise is now treated as an open system and its success is attributed to how well the company “constructs” its environment.

Increasing saturation of the basic markets associated with common needs of the society has become an important reason that led to the change in the role of advertising in the complex of business activities. Within the framework of marketing as a market management concept, advertising strategy used to follow the “majority orientation” principle in order to ensure that the product is tailored to the preferences of the consumer

majority. Nowadays companies pay special attention to consumer personalization. Standardization has ceased to be a prerequisite for economies of scale. Advertising allows companies to solve two tasks that may seem completely opposite: to preserve the advantages of standardization and at the same time meet personal requirements of a particular customer.

In our opinion, advertising is a complex activity carried out by an enterprise aimed at identifying potential consumers and shaping the market demand in order to use this basis to achieve results exceeding the market average. However, we should clearly distinguish the sides forming the dualism of advertising: advertising is an important part of the marketing strategy of an enterprise and at the same time it goes beyond the market mechanism of economic reproduction.

In our opinion, advertising in its status discussed in the paper is no longer subject to market mechanism. It rather follows the gift economy principles, that can be defined as a set of consistent patterns describing non-market exchange, not based on the market price. The concept of gift can be applied to managing reproduction in an enterprise if and when market mechanism fails.

The dualism of advertising is predetermined by the fact that advertising, being a necessary component of the marketing mix, is at the same time opposed to equivalent market exchange regulated by the price mechanism. However, in our opinion, advertising has exceeded the narrow framework of market mediation, and undertakes the reproduction function within an enterprise as an open system. The expansion happens due to the possibility to directly influence the consumer, “create” and shape the demand and integrate these activities into the production system of an enterprise. Thanks to advertising, production and consumption form an organic unity that is based on personalization. It is due to personalization that consumption is included in the reproduction chain.

Advertising helps companies to shape the demand and “create a consumer”: from the producer’s point of view, “customer-oriented” approach no longer means the implementation of only those projects that have received approval in the market i.e. wanted by the consumers. Producers also target those potential market segments that require first to create the demand before introducing the product. Traditional sales forecast methods turn out to be ineffective in modern context. Advertising can be considered more efficient not when and because it is included in the overall process of developing a product and its promotion, but when it helps to ensure long-term reproduction in an enterprise. The latter becomes possible if advertising is used in a strategic way to create and prepare the long-term consumer base.

Advertising defines a new economic model in the modern information society. It is a model where consumption outruns accumulation, intensive consumption leads to chronic inflation and it becomes meaningless to save money. Most buyers want to consume now and avoid saving. The same applies for companies that apply intensive investment strategies.

Advertising is not a passive form of economic waste or diseconomy. Neither is it a form of excessive consumption or altruism. The characteristic features mentioned are opposed to

active manufacturing with the goal of balancing the internal and external activities of an enterprise. It should be stated that advertising is an active mode of consumer relations in the functional structure of an enterprise. Thus, it doesn’t belong to the framework of “the economy of abundance” – as opposed to the concept of economic scarcity – and definitely doesn’t fall within “the economy of wasteful expense.” It rather stands for systematic strategic production and marketing management applied to goods and services.

As an integral part of the marketing system, advertising covers all the aspects of an enterprise’s activities. It is an indispensable factor in an enterprise as an open system, which it “functionally” crowns: advertising stimulates sales, establishes personal relations with the consumer promoting personal sales, creates and supports goodwill and mutual understanding between the company and the public.

Applying the terms of an economy driven by the laws of supply and demand, advertising has become the “most democratic” of all goods, the only product supplied as a “gift” and accessible to everyone. Goods are sold while advertising is provided to customers [15]. This relation makes advertising closely related to the archaic gift economy. According to the model, the goal is to turn commercial transactions into personal relations. In order to provide advertising to customers free of charge, an enterprise has to allocate more and more funds for the “personalization” of goods and for the distribution of advertising. The funds even often exceed investments in research and development. Advertising may execute a function which is not any less fundamental and objective than that of advancement in science and technology that satisfies material needs.

It not so much the information about the product benefits contained in the advertisement that has the major impact on the buyer. The buyer is rather sensitive to the hidden incentives associated with the care and the gift, to the attention received while being convinced and stimulated. As a result, the product is becoming increasingly more valuable in the eyes of consumer with additional value connected not with its internal qualities or the price of the offer, but with how the company takes care of the consumer through product marketing.

When discussing the concept of advertising within the gift economy, we draw the logical reasoning from the following collision. The classical laws of theoretical economics describe the development and functioning of a well-established economic system based on the market equilibrium concept. At the same time, gift economy, by definition of its main concepts, describes the marginal economic system which is structurally based on the escalating costs and losses. Those assumptions, or prerequisites, will mean that the margins of abstinence, limiting costs and expenses will also be expanding. The analysis, in our opinion, can thus be based on the following fundamental point.

The gift concept doesn’t follow the universal law of value, which postulates that all products produced in the economy are compared and equalized on the basis of their exchange value. The gift is subject to the laws of marginal analysis. The core principles of marginal analysis include the concepts of limited means with alternative ways of use aimed at achieving the goals, and maximization as the basis for equalizing the

marginal values: utility, costs, productivity, output, income, capital efficiency, etc.

In particular, this means that within the production model of the new industrialization advertising as a gift-giving activity provides producers with additional market power to get consumers involved in the product development (ideas and prototypes), as well as promotion (word-of-mouth and social media) [16]. Moreover, the principles of the gift economy imply that a receiver of a gift should return a gift or a favor to the giver. In this way, sellers induce customer loyalty if they manage to get consumers feel obliged.

The following comparison of acts in the conditions of scarcity and limited availability of economic benefits can be used as an example of reasoning. Archaic economies had a common practice of potlatch – ritualistic and often seemingly meaningless excessive expenses and spending. Modern information economy is based on the concept of analysis of the available limits and marginal values. We can assume that there is common basis for the gift as the basic concept of the archaic economic societies and the laws of marginal analysis peculiar to modern economic life in the Industry 4.0 conditions.

Advertising expands its functions and evolves from a tool of sales promotion to a brand-new complex activity. Firstly, it is a management concept covering all stages of business processes in an organization. Secondly, we should note the perception of advertising as the only product provided as a gift and available to everyone. Thirdly, advertising is a means used to personalize the supply of goods and services to consumers using modern digital technologies, analyzing big data, scanning the traits of a customer in the social media, etc. The gift concept allows us to justify the irrational advertising costs, estimate advertising efficiency and returns.

The modern information economy is switching from the concept of Web 2.0 – when internet users create information content themselves – to the Web 3.0 concept of collaboration-based content creation. Internet 3.0 implies technological, social and cultural integration that excludes human from some of the actions and operations. The new industrial revolution allows companies to replace advertising experts with robots in a number of activities and functions.

It is considered, that a robot can attract people with its presence and interaction, but it remains unknown whether it can improve the efficiency of advertisements in real environments [17]. There are four main aspects of a robot's role in advertising associated with its interaction with customers: getting customers' attention, slowing them down and stopping them interrupting their walking, attracting customers to the advertising system, and recommending promotional items or goods. A robot has a definite advantage over a human performing the same tasks: a robot will attract passers-by as a novelty and stir interest of ordinary people in a store, an exhibition or another context.

Previous studies have revealed that social robots can be used in the context of social care looking after the elderly people and children. They can act as museum guides and receptionists. The previous studies focused mainly on the technical aspects of robot development and human-robot interactions in a particular situation. The researchers have contributed to advancing the technologies in many ways:

increasing robot autonomy and the possible range of their services. On the other hand, few studies have explored the possibility of using a social robot in advertising. In fact, it remains unknown how a social robot can contribute to advertising contexts [17].

### III. RESEARCH METHODS

The article aims to determine the ways how companies can use robots in promotion and advertising activities, as well as the effect of their use analyzing the example of promotional robots, manufactured by Promobot, a producer located in the Perm Krai of Russia.

The conceptual framework for the analysis of advertising carried out by the authors is based on the e gift economy. The following core assumptions help the authors to define the role of advertising in the concept of the gift economy. Advertisement can be considered a commodity itself: complementary to the products and services marketed by producers but at the same time independent in its form. It is provided to consumers free of charge. Modern advertising activities make communication personalized to a greater extent [18]. Application of the gift economy concept allows authors to explain the use of innovative and expensive technological solutions – such as robots – in advertising.

The International Organization for Standardization (ISO) defines a robot as an actuated mechanism programmable to move in two or more axes with a certain degree of autonomy, moving within its environment, to perform intended tasks [19]. According to the forecasts of the International Federation of Robotics, the global market for service robots will amount to \$ 60 billion by 2024. The major players in the service robots market include Intuitive Surgical Inc, iRobot and Google from the USA, DJI of China and Kuka of Germany [20]. Apart from that, a significant role belongs to several hundred startups from different countries. Promobot, a Russia-based producer, is among the latter. The company released a promoter robot in 2014. The robot is marketed as “promobot” – an autonomous robot for business. It is intended to work in the areas with high concentration of people dealing with tasks involving interactions with humans. The robot answers questions about the company's products and performs specific business tasks. It also supports integration with external devices and systems. It has built-in sensors and a custom-built movement system that allow the robot to move avoiding collisions. It does not require an operator or a human companion to perform the tasks that have been programmed. The robot recognizes a person and understands speech which allows it to establish and develop targeted interaction taking into account gender, age and mood of the interlocutor. The software basis comprises the neural network technology and the built-in linguistic database in seven languages that help the robot not only to conduct a targeted dialogue with the interlocutor, answering the questions, but also enrich communication with jokes and compliments. A video showing promobot on the street in Perm was posted on social media in 2016. After that, the company has received orders from all over the world including Brazil, Canada, Romania, Kuwait, Germany, Kazakhstan, etc. Promobot supplied 2.8 thousand robots to the USA in 2018 that amounted to 56.7 million dollars [21]. As of 2018, the company produces four types of service robots: the museum guide, the concierge, the

consultant (to be used in a bank or a retail store), assistant to students in universities.

The Promobot company has been chosen for the case study because its product range includes service robots that enjoy market demand. The objective of the case study is to identify the advantages and effects of using a robot in advertising and promotion of goods and services. Thus, the research method relies on the analysis of secondary data on the use of robots in promotion and advertising activities.

#### IV. RESULTS OF THE STUDY

The promobot being used in advertising attracts the maximum audience to the promotion activities [22]. Representatives of the company arranging promotion can be completely excluded from communication process. The promobot is completely autonomous which makes it different from many other solutions marketed by rivals of the Promobot company. The producer emphasizes the fact that 80% of the components used in the production of the robots are made in Russia. Due to the resulting advantage in price, the robot is not only the most common solution on the Russian market, but it is also exported to 26 countries. The first promobot was used in a flower shop, where it moved around exclaiming promotional messages and jokes. As a result, the revenue of the flower shop increased by 3 times [21].



Fig. 1. Commercial promobot design

Hotels that use promobots report a general increase in the quality of service and an additional influx of guests. Promobots also work in museums, cinemas and exhibition centers. Car dealers use the robots to provide consultation to the visitors on the models of cars. It takes no more than half an hour to “teach” a robot before it knows everything about the cars available for purchase, about their features and engines, as well as the configuration of a particular vehicle. Robots are also used in shopping malls to help visitors find their way and learn about the stores that offer discounts and promotions.

A business center in China has bought promobots to be used on every floor to provide information to the visitors and accompany them to the store and the department they need.

Operators of retail outlets configure promobots to promote different products depending both on the needs of a particular customer and the current offers of the seller. In many cases, promobots are used to advertise premium products. The robot is located next to the shelves and invites customers to explore the product range. For example, the robot was able to increase brand awareness and sales by 30-50% depending on the day of the week, when it was configured to promote Swiss chocolate,

which is 30-40% more expensive the one which was usual for the customers [22].

Promobots are used in Russia by both large corporations and institutions – including Sberbank, Beeline telecom operator, Semya retail chain – and small businesses represented by event agencies, local home appliances stores, etc. The largest customer of promobots is the SAN Group operating household appliances store in different regions of Russia.

The main effects of the use of a promobot can be identified based on the experience of its users:

- Attracting customer traffic. A robot can become trademark and a special feature of a company differentiating it from competitors. Robots show customers that they represent a high-tech business that follows the latest market trends and implements state of the art solutions. Customers will appreciate the quality of service, while communication with the robot will generate word of mouth.
- Automating consultation process. It takes 30 minutes to upload the data and program the robot. After that, the robot will share its expertise with customers and answer all their questions without hesitation and with a smile.
- Increasing customer loyalty. The robot’s communication system is developed with due regard to an interlocutor’s attitude. The mood of a person gets better as he or she is talking to the robot. The communication is designed in such a way that the customer always leaves satisfied, regardless of the initial attitude towards the product under discussion.

#### V. CONCLUSIONS

It has been identified in the scope of the study that the task of improving the traditional concepts of advertising is getting more urgent in connection with the general modern trends of information technologies being implemented in various sectors of the economy. The new industrial revolution that introduces digital economy requires new approaches to using and managing its benefits.

The literature review shows the change in advertising concept perception. While advertising is still considered an integral part of the marketing mix, the understanding of its role is not limited to market-based regulation of production. Advertising acts as a reproduction mechanism in an enterprise regarded as an open system. According to the modern concept, advertising is considered a special product not associated with the market price – a gift [23].

The main advantages of using robots in advertising are identified: attracting attention and increasing customer traffic, low-cost automation of consultations for customers, increasing customer loyalty, and higher profitability of promotion. The use of promotion robots produced by the Russian company Promobot has proven its efficiency with the growth of revenues reported by companies operating in various sectors including trade, hotel industry, financial institutions.

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