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Application of information technologies in marketing: experience of developing countries

Aplicação das tecnologias da informação no marketing: experiência dos países em desenvolvimento

LEONOW, Alexander I. 1; KONIAGINA, Mariia N. 2; PETROVA, Svetlana V. 3; GRUNT, Elena 4V.; KERIMKHULLE, Seyit Ye. 5 & SHUBAEVA, Veronika G. 6

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ABSTRACT:

This article systematizes and highlights the experience of developing countries in the field of information technology in marketing. Means of digital marketing are considered for various market types, classified according to the principle of need in marketing. Objective marketing needs reflect the extent to which marketing is successful in a particular market context. In this regard, there is a need to determine the market context, as well as those marketing tools, which are appropriate and effective in a particular market context.

Keywords: information technologies, marketing, objective necessity in marketing, marketing communications, strategy

RESUMEN:

Este artigo sistematiza e destaca a experiência dos países em desenvolvimento no campo da tecnologia da informação em marketing. Os meios de marketing digital são considerados para vários tipos de mercado, classificados de acordo com o princípio da necessidade em marketing. As necessidades de marketing objectivo reflectem a medida em que o marketing é bem sucedido num determinado contexto de mercado. A este respeito, há uma necessidade de determinar o contexto do mercado, bem como as ferramentas de marketing, que são apropriados e eficazes em um contexto de mercado particular.

Palabras clave: tecnologias da informação, marketing, necessidade

1. Introduction

Marketing penetrated into all modern areas of life, and became an integral part of the business. The question of need for marketing, advertising, and various related technologies is considered from the point of view of sellers. It is believed that the degree of aggressiveness of marketing tools is directly proportional to their impact. For the buyer, the answer to the question of the need for marketing is not obvious - often with the help of marketing, in particular advertising, various needs are imposed.

The use of information marketing technologies, for example, contextual advertising has become the standard for business. In crisis markets, sellers aggressively use such tools without any doubt. Buyers, on the contrary, react differently on such tools.

The general idea of modern marketing is that it is necessary to use appropriate and effective marketing means in each specific market (Leonow, 2018). First, there is a need to define the classification characteristics of the market environment, make the appropriate classification. Then, determine the feasibility of using certain tools in each context.

However, there is a methodological problem. The decision on choosing and applying means to satisfy the objective marketing need is made subjectively. Unlike the "objective necessity" in marketing, the "subjective need" reflects the perception of marketing by the decision maker in the company.

Thus, the marketing activities can only be considered in the context of objective marketing needs. That reflects the extent to which marketing is a success factor in a particular market context. In this regard, there is a need to determine the market context, as well as those marketing tools, the use of which is appropriate and effective in a particular market context.

Although, without the processing of large amounts of information as well as the use of information technology, it is impossible to define the market context and to conduct research. Information technology in marketing helps gathering information about consumer preferences and needs. It is also a tool for generating needs for a product or service.

At the present stage of development of the digital society, marketing (including advertising) have become personalized. Therefore, common technologies might not be sufficient to promote goods and services for developing countries. In addition, the researchers do not take into account the financial position of the company promoting its products and services. These contradictions were the reason for the study, the purpose of which is to differentiate the use of information technology in marketing on the example of developing countries. In the article the following methods were applied. Systematization, generalization, grouping, speculative analysis, as well as a survey of expert opinion.

The article discusses the use of marketing information technology for developing countries.

2. Literature review

One of the first works on the use of information technologies in marketing was the work of Little, (1994).

In the modern world, information technologies are used both for market research and for the promotion of goods and services (in the broadest sense: including for the purposes of image formation). In (Litan & Olaru, 2010), it is shown that (as applied to market research), there are main information marketing technologies at the current stage of development. Which include online surveys, Internet advertising, a set of geographical studies, statistical analysis of big data. In the field of using big data, in addition to the technologies already mentioned, viral advertising videos are used, combining humor, pleasure and training. There is also analysis of the actions of site users which helps generate an individual offer for each client. It also makes advertising more effective because of its personalization, for example, displaying various types of advertisements depending on the interests of customers. A company might manage its development more easily by defining the demand for a product.

Due to the information technologies, a new direction in marketing has appeared - e-marketing. This provides an opportunity for advertising activity in any place and time, increases the overall advertising potential. It also increases revenues for companies and reduces environmental pollution and energy consumption (Sanaei & Sobhani, 2018).

However, very often traditional approaches to market research may be untenable (Shugan, 2004). It is shown that digital marketing is mainly focused on marketing through digital multimedia devices such as smartphones. Technologies also generate many applications that can have a significant impact on existing markets (Afanasenko & Borisova, 2016). These include, first of all, interactive technologies, the purpose of which is to set up quickly a marketing strategy, identifying people at certain time and under special demand conditions. For example, advanced search services, biometrics and smart maps, increased computation speed, mobile commerce and GPS tracking.

At the present stage of marketing development in the scientific literature, the term information and communication technology is used, thereby emphasizing the importance of consumer

response. In (Mairead et al., 2008), it is shown that information and communication technologies have changed the entire paradigm of marketing communications. In the past, the customer response to a particular marketing technology was reflected in the level of demand for a product/service. Nowadays, demand is determined by the joint interaction of potential buyers. At the same time, information technologies allow to release the potential of traditional marketing tools in collaboration with them.

In (Labrecque et al., 2013) it is shown that consumer demand in the digital age is formed due to factors whose cumulative effect is not clear nowadays:

cumulative online consumer actions (posts, comments and likes on Facebook or another social network).

generalized consumers attitude to marketing and advertising technologies. For instance, consumers receive information, and they are aware that it belongs to their search patterns. In this case, it is unknown whether consumers will consider such information as relevant one. It is also unknown whether consumers are aware that marketers use network connections as a tool for marketing expanding. There is also a need to research how consumers might share information with marketers, and perceived benefits and risks of this information. What conditions will satisfy the voluntary experts to participate in online product forums or create product reviews? Are consumer reviews more influential on firm value in comparison to professional reviews? There are relationships between consumers who create feedback and consumers who rely on that feedback. Will these relationships be parallel to the traditional relationship between consumer and seller? Otherwise, new forms might appear.

- subjective consumer attitudes to marketing and advertising technologies. The degree to which technology improves or limits communication between users. It should also be studied how technologies affect perceptions of self-efficacy, competence, generation of common knowledge and consumer perception of empowerment. How different personality traits or psychological conditions soften the reaction of consumer on various types of product reviews?
- the impact of individual Internet people on demand. What is the marketing impact of good relationships with influential bloggers for the company? What is the impact of social media crises on markets and brands?
- the impact of user interaction. Which social and political interest groups appear in online communities? What are the consequences that arise from differences in the social strata of the community? There are consumers, who try to destroy a brand or company on the Internet. Do target companies have the opportunity to learn from such consumers? How different reactions and strategies influence community development on anti-brand pages.

At the moment, the cumulative effect of these factors on demand is unclear. The scientific literature presents theoretical models (Stone et al., 2007) of assessing the subjective usefulness and effectiveness of marketing information analysis systems. It is demonstrated that the following indicators affect the perceived effectiveness of the marketing organization. Organizational characteristics, individual characteristics, information quality, system or service quality. Also tasks, which are performed using the system. These indicators also indirectly affect performance (i.e. perceived usefulness) and attitudes to the use of the system.

Modern marketing information technologies are inseparable from production processes. Effective marketing is based on a logical approach to the entire technological cycle, development and training of the workforce (Venkatesh, 2009; Keyes, 2016).

After summarizing the literature data, it could be noted that the main prerequisite for these studies is the idea that information technologies work in the same way in any market context. Only a few researchers consider geographic factors as the decision-making factors of a potential client. Hence, in (Temjanovski & Marjanov, 2016), the importance of using geo-information marketing systems is shown. The need to use various information technologies for countries with different levels of development and income levels of the population is established.

The Internet, including the mobile, has become the driver that can significantly reduce the civilizational gap between developed and developing countries (Afanasenko & Borisova, 2018). Information and communication technologies and access to the Internet have radically changed the economies of developing countries. Additionally, the digital gap in developing countries is exacerbated by the cultural characteristics and current problems of developing countries. Often the prospects of using the Internet are not clear to local leaders, since the most pressing problems are the provision of vaccines, products and electricity (The Global Information Technology Report,

2016). At the same time, many companies believe that product promotion methods that have proven themselves in one market context can be used without corrections in another market context.

Traditionally, market economy countries are classified as developed and developing. However, such differentiation is not a sufficient distinguishing feature for analyzing marketing performance in developing markets. A number of significant factors should be taken into account in order to achieve this purpose. Firstly, at the present stage of development of the digital society, marketing and advertising have become personalized. Therefore, general technologies may not be sufficient to promote goods and services for developing countries.

Secondly, the resource aspect (access to resources) substantially determines the marketing activities. Which, on the one hand, is significant for such resource-intensive areas as IT development and implementation. On the other hand, the financial condition of the company should be taken into account in a crisis environment.

Thirdly, developing markets are quite heterogeneous in terms of the quality and content of marketing activities and tools. Thus, differences in the banking sector and retail trade in developing and developed markets are hardly significant (for example, in terms of IT marketing tools).

These contradictions were among the reasons for this study. The purpose of which is to differentiate the scope of information technology in the field of marketing on the example of developing countries.

3. Research methods

Information base for research - data, presented in publications of practitioners and market experts, such as Lauren I. Labrecque (2013), Daniela Litan, Stefan Olaru (2010), and others materials from The Global Information Technology Report 2016. Methods of analysis, synthesis, generalization became the basis for the study of the application of information technologies in the field of marketing in developing countries.

The managers of Russian companies were researched in 2015-2017. The research was conducted through a series of in-depth interviews. The research was conducted to study marketing activities during the crisis. The results of the study were reflected in the publications of the authors earlier.

4. Research results

In recent years, marketing has been developing unevenly in different economic systems. Therefore, there is no consensus among scientists regarding the definition of the modern marketing paradigm, which would equally take into account the digital component in modern marketing - a stratum that is only to be understood.

The use of information technologies in the field of marketing and advertising should be considered both from the standpoint of the existing market context and from the standpoint of determining the position of the firm in this market. First of all, it is necessary to consider the market context and classify developing markets according to the degree of objective marketing need. Depending on the role of marketing versus non-marketing driving forces in a given market.

Objective necessity in marketing is the level of market maturity. Reflecting the role of marketing and non-marketing factors in the development of a specific market. Such as consumers, competition, administrative resources, government regulation. According to this criterion, we can distinguish three conditional types of the market-cluster. With high, medium and low levels of objective necessity in marketing. In developing markets, both the objective necessity in marketing and the use of information technology are very heterogeneous. Therefore, further analysis should be concentrated and carried out in each of these clusters.

Stable and crisis positions of the company are considered. It should be noted that regardless of the market context, the crisis of the company is characterized by the use of short-term marketing strategies and tools, and for stable - long-term ones.

This approach is based on the following. The effectiveness of marketing activity corresponds to the degree of implementation of marketing orientation. The effectiveness as well correlates with the objective necessity in marketing in this market context. In addition, the objective necessity in marketing is under significant influence of the transition state of the economy. There is no single, universal indicator of the effectiveness of marketing policy.

The development of the concept of efficiency in marketing should also take into account the features of the information society and the digital economy, as well as forecasts for the development of markets and market transactions.

Table 1Type of marketing in various markets

Objective necessity in marketing	
Low	The role of marketing factors in this market is as low as possible. Comparative advantages, resources and access to them, administrative resources and access to them might be more significant. Companies can work in the field of B2B, and in the field of B2C, while occupying, as a rule, a monopoly position. The role of the consumer in this market is of little significance. Such tools as marketing positioning, marketing strategy, as well as the marketing system, as a rule, are absent.
Middle	Perhaps the term "developing markets" applies specifically to this cluster, in the understanding of transitology. Marketing factors are becoming more significant. However, in general, the marketing environment is still immature. Professional use of marketing tools allows companies to achieve success in the market.
High	The market is saturated. The role of the consumer is great. The competitive environment is saturated; the marketing activities of companies are professional and consistent. The company does not have a monopoly position, the consumer has a choice, there are substitute products, incl. in related markets. Switching barriers are relatively low. Economic factors of consumer choice are not always the most significant. In general, marketing factors play a much more important role in this cluster than non-marketing ones. Marketing tools determine market success. These are B2C markets, services, competition with international companies.

The following aspects determine the marketing effectiveness of a particular company. The role of marketing factors in each of the clusters. The compliance of marketing activities with objective necessity in marketing. Thus, the assessment of the effectiveness of marketing activities should take into account the objective necessity in marketing and its tools. From this point of view, marketing activity in general and the use of IT tools in it, in particular, should be carried out in the following way. The adequacy of the marketing activity should correspond to the level of market maturity. On the contrary, marketing activity should not be carried out by correlating some companies with others (more or less professional in terms of marketing).

In the previous study, it was concluded that the cluster with the highest level of objective necessity in marketing corresponds to developed markets (Leonow, 2018). Some obvious differences appear in clusters with a lower objective necessity in marketing (the role of marketing factors is secondary in these clusters). As a result, (at least some of) marketing (including IT) technologies also play a clearly inferior role in companies of cluster 1 and 2.

The basic marketing and advertising information technologies are considered and the appropriate means for each cluster are determined. The main trends of marketing and advertising information technologies are:

- 1) Content-marketing;
- 2) Big Data sets of information of especially large volumes. Personalization and predictive analytics allow to effectively increase sales. The use of machine learning makes these techniques even perfect;
- 3) Marketing automation (including CRM Customer Relationship Management, behavioral email marketing and web personalization).

As well as content marketing, automation has been in the top 3 trends over the past five years.

4) Mobile marketing (mobile advertising, site and application optimization). Conversion rates for online stores on mobile devices are lower than on computers.

- 5) SMM Social Media Marketing (promotion through social networks). The use of social networks grows steadily, though lately the popularity of some platforms has declined. For example, Twitter and Facebook are losing their positions in Western markets, while Snapchat, Instagram and Pinterest, on the contrary, are gaining popularity.
- 6) Conversion Rate Optimization (CRO). A data-driven approach to CRO can help many brands steadily increase sales. For further development in this direction it is necessary to conduct more tests, because in 1/3 of cases they significantly affect the growth of indicators.
- 7) The Internet of things (IoT). Over the past 2-3 years, IoT has entered the list of the most important marketing technologies; hence, it occupies a rather high position in the ranking.
- 8) Search engine optimization. Mobile SEO technology is of particular importance since Google announced the introduction of mobile index and accelerated mobile pages (AMP)
- 9) Portable devices (Apple Watch, trackers). These devices are now extremely popular among users all over the world. In the future, their importance for marketing will only grow;
- 10) Paid search (Google AdWords Pay Per Click). Google AdWords is the most popular PPC ad format in the world. When planning a strategy, companies should take into account the mobile-first search engine approach;
- 11) Online PR. Today is inextricably linked with content marketing, SEO and SMM;
- 12) Communities. Trend niches and vertical communities are popular;
- 13) Display advertising (banners on publishers' websites, advertising networks in social networks, including retargeting and programmatic). These include banners on publisher websites, as well as social media advertising networks;
- 14) Cooperation. This trend includes affiliate programs and co-marketing.
- 15) Informational and analytical work. A number of new tools that improve the performance of traditional means. For example, traditional scoring methods for evaluating the attractiveness of potential customers in B2B markets, along with IT, are used in the form of psycho-scoring to assess the attractiveness of B2C clients of banks);
- 16) Internet claim work (ORM, SERM-technology). Thus, successful marketing communications are built on the following main trends. Constant study and introduction of innovations, the ability to forget past experience and retrain, the creation of brand communication, general corporate creativity and the generation of new ideas. In addition, this area requires a constant search for investors and raising funds for development, which will increase the conversion from consumers.

The use of marketing information technologies in the framework of crisis marketing is also associated with the criterion of an objective necessity in marketing. The crisis environment reinforces the role of these technologies (including IT): in a cluster with relatively low demand for marketing, there is a number of empirical evidence of a reduction in IT marketing costs. Information marketing tools for each of the clusters are defined (table 2).

Table 2Information marketing technologies for each of the clusters

Information marketing technologies
Media channels;
Banner advertising (on portals, advertising networks). The advantage of such advertising is that it gives a wide coverage in a short period;
Teaser ads. This one gives the opportunity to get cheap extra wide coverage. However, one must be careful with this, as it often covers low-end advertising products. Therefore, placing ads near such advertising might damage the reputation of one's business;
Binding to the subject of the portal. If, for example, someone is looking for a bed on the Internet, this product can be advertised on the website of the online store;
Skype advertising;
On Facebook, one can apply a subspecies of native advertising, which impersonates itself on the content that supposedly should be there. In social networks it is also possible to target advertising to a specific audience.

	Video advertising (YouTube, Fs.to, Megogo.net and other video hosting sites). On YouTube, for example, one only pays for people who have watched a video to the end (a video of no more than 30 seconds).
	Branding gives good eye contact and good coverage. However, it is aimed at long work. This is a kind of preparation for the purchase. Email marketing.
Middle	joint corporate events, other events, professional photo shoots for holidays or in the interests of public opinion; friendly relations between counterparties;
	- monitoring reviews in the media, on the official websites of the enterprise itself and its counterparties;
	- active participation in partner advertisements or electronic publications and their thorough verification;
	- partners, as well as competitors;
	- organization of joint entertainment and educational trips for own staff and clients (going to the cinema, trips to festivals, exhibitions and fairs, conferences, trainings, etc.);
	- creation of joint platforms for learning, sharing experiences, events, news in a particular area for stakeholders;
	- joint consideration of controversial, conflict issues of the current situation in the enterprise itself, with partners or competitors.
Low	low-budget ways to effectively promote the company's products, to attract customers at minimal cost, and in some cases, those that do not require any costs. Among such tools: stickers with the logo of the organization; sending information and promotional materials; viral marketing (viral videos on the Internet); advertising on the company's transport; use of reference books; outrageous marketing (outrageous promo) secret buyers; use of the Internet (site, SMM, articles, blogs, contextual advertising); advertising on asphalt; posting ads or placing them in free newspapers, etc.

It should be noted that the purpose of marketing planning is to determine the company's position at the moment, the directions of its activities and means of achieving goals. The marketing plan is central to the implementation of income-generating activities. It serves as the basis for all other activities of the company, for example, production planning, cash flow, the size and nature of the workforce.

5. Discussion

The following distinctive features characterize the digital marketing era: globalization of business areas; shift of key value from producers to consumers; personalization of interaction and transition to marketing both vertical (company-consumer) and horizontal (consumer-consumer); reduction of transactional and transformational costs. Digital marketing has specifics, such as the emergence of new marketing campaign tools. Thus, there is a combination of traditional methods of marketing and the latest information technologies.

There are three main areas of Internet marketing, and it is advisable to consider its tools and features. These areas include marketing research from the perspective of the manufacturer and seller of products; promotion campaign; the organization of commerce through the Internet; maintaining constant communication with the consumer.

Despite the fact that digital marketing has many tools, they should be used in accordance with the market context and the position of the company. In general, for a company that is in a crisis, it is typical to use short-term strategies, to reduce advertising costs and to simplify the marketing tools used, regardless of the market context.

At the same time, the use of a full range of promotion tools is typical for a cluster with a maximum necessity in marketing. Such a market is characterized by the use of non-traditional marketing tools, entertainment content in advertising, viral marketing, extravagant advertising slogans, etc. The less necessity in marketing, the more "classic" means of product promotion and less entertaining content. In addition, the presence of native advertising, a kind of ambient marketing, that takes the form and characteristics of the platform on which it is located. Native

advertising can be made in the form of an article, tests, blog, photo, video, audio, interactive. The goal of native advertising is to increase the number of clicks, sales, and other targeted actions by creating a natural, unobtrusive advertising environment. Therefore, in native advertising there is a small call to action (to buy), but in a somewhat veiled form.

It should be borne in mind that marketing tools on the Internet are currently considered as the most important elements of the company's marketing mix not only during the crisis, but also in the post-crisis period. Building effective communications with customers, constant communication with them (for example, through blogs or social networks) is very important in the framework of modern marketing. The main direction in this case should be given in providing the most complete and reliable information about the proposed product and the activities of the enterprise.

6. Conclusions

In relation to the marketing activities of companies in developing countries, conducting promotion campaigns is an important direction of digital marketing. As one of the most important components of the commercial activities of any company. Under conditions of informatization of the society, the Internet and other digital channels change the forms and methods of marketing activities, and become the impetus for the emergence of a new form.

The main trends in the development of digital marketing in developing and economically developed countries are similar. Concerning developing markets, these trends are:

- the widespread introduction of the native type of the site (interactive, universal, emotional content of the site, the presence of bright pictures on the site; video on the site; the site is adapted to mobile traffic);
- The use of geo-targeting (a significant increase in the number of companies using its capabilities);
- The introduction of gamification;
- Development (sophistication) of tools for significantly better user analysis;
- Formation and development of the data market, the emergence of new opportunities for access to personal data and at the same time the increased cost of access to them;
- Artificial Intelligence (DNP Platforms)
- Digitalization of marketing;
- Voice bots;
- Internet of things;
- Drones;
- Interaction of digital programs (API-programs).

Digital marketing is beginning to use traditional forms of advertising, fulfilling the task of attracting the attention of the audience to entry into the virtual world. Examples are QR codes in advertising posters and magazines, accelerating the pace of adaptation of new technologies, changes in consumer behavioral patterns and the availability of cross-platform content (a combination of several sites). These changes lead to the formation of a new cycle of media consumption. The number of "smart devices" (smartphones, televisions, tablets) is growing, through which the digital media product is consumed. This means that favorable conditions are being created for marketers. Sales of smartphones ahead of sales of ordinary phones. The laptop segment is expanding with Internet tablets and electronic readers. There is a growing demand for applications, streaming video and audio, games and electronic versions of media and books, a growing level of penetration of social networks and related marketing activities. As users adapt to digital consumption and content delivery technologies, the level of requirements and expectations related to products, companies and agencies in the field of media and cross-platform ecosystems grows.

Despite the fact that the arsenal of digital marketing is very large, it should be noted that they should be used in accordance with the market context and with the state of the company. The use of short-term strategies, reduction of advertising costs and simplification of the marketing tools, regardless of the market context, characterize a company that is in a crisis.

At the same time, the use of the full range of promotion tools is specific to a high cluster of marketing needs. Such a market is characterized by the use of non-traditional marketing tools, entertainment content in advertising, viral marketing, extravagant advertising slogans, etc. The

less need for marketing, the more "classic" means of product promotion and less entertaining content. As for the native advertising, a kind of ambient marketing, it takes the form and characteristics of the platform on which it is located.

It is possible to consider the general features and trends for developed and developing countries only in relation to the cluster with the maximum objective necessity in marketing. IT in marketing activities hardly confirms this conclusion in markets where the need for marketing is less significant.

Based only on the used research tools, it cannot be stated what tools are used more or less often. As well as there is no data on their performance (this assessment itself is difficult in terms of the possibility of universalizing the conclusions).

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^{1.} Department for Management and Enterpreneurship, RANEPA, Moscow, Russian Federation, lexander.leonov70@bk.ru

^{2.} Department of Banking, Financial Markets and Insurance, Saint-Petersburg State University of Economics, Saint-Petersburg, Russian Federation

^{3.} Department of Law, theory of law and state, history and philosophy, Sochi State University, Sochi, Russian Federation

^{4.} Department of Applied sociology, Ural Federal University named after the first President of Russia B. N. Eltsin, Yekaterinburg, Russian Federation

- 5. Department of Information Systems, L.N.Gumilyov Eurasian National University, Nur-Sultan, Kazakhstan
- 6. Department of Marketing, Saint-Petersburg State University of Economics, Saint-Petersburg, Russian Federation

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