

Big Data Driven Marketing

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Abstract — The transformation of many areas of activity occurs during the economy digitalization. One of these popular areas of activity is marketing. Marketing is an integral part of any business. The main trend of the economy digitalization is Big Data or Data Science. The capacity of Big Data in marketing is tremendous because data are always generated and collected in real-time, and now the marketing industry can identify what the users buy, which goals, problems and interests they have. Business with these data can clearly define the effective advertising campaigns and sales channels, and also can get rid of the inefficient ones. The author gives the definition of Big Data, digital marketing, and Big Data Marketing in this article. The new concept of 5E interaction (result marketing) which processes will be based on knowledge acquired as a result of data analysis and not on marketers' subjective assessments is reflected. The trends of digital marketing such as predictive marketing, marketing of visualization, and personalized one are highlighted. Finally, in conclusion, the author considers not only the possibilities of the new marketing era but also problems of Russian business encountered in dealing with digital marketing such as the problem of failure to use of Big Data, data centralization, data depersonalization, and also the problem of understanding of the Big Data possibilities by top-managers.

Keywords — *Big Data, digital marketing, Big Data Marketing, digital economics, marketing trends.*

I. INTRODUCTION

The process of digitalization of all areas of society has given rise to the accumulation of extensive information. The development of information technologies leads to an increasingly people involvement in the worldwide Internet. Terabytes of new information appear every day, including in the economic sphere. The technologies of processing and analysis of data becomes necessary in this context. Big Data is one of the most dynamic spheres of the information technologies. According to statistics, total data are doubled every 1,2 years [1].

An amount of data transmitted through mobile networks has been constantly increasing. It is estimated by Cisco that mobile traffic was 2,5 exabytes a month in 2014, and it is 24,3 exabytes in 2019. Thus, Big Data is an established sphere of the information technologies. The analytics of Big Data which appeared relatively recently has already spread through many spheres of the economy.

The term 'Big Data' means the methods of processing of vast amounts of information which allow to analyze it in dispersed way. Product placement on Internet is currently an integral part of any business. It can be a site, social-networking page, and profile on Yandex.Market or Youtube channel. All these components are the part of digital marketing. New economy challenges encourage companies to review their advertising campaigns and ways of promotion online, taking into account the digital marketing technologies.

It is generally accepted that digital marketing is actions which are provided by users on Internet and social media. Marketing in terms of indicators and metrics is considered in this article.

II. PROFESSIONAL REALITIES OF MARKETERS

Digital marketing currently requires business to develop staff members' new competences, making the implementation process of Internet-things and machine learning technology necessary. According to CCL, only 12% of companies of medium and large businesses started reconsidering their business-processes in Russia in the context of machine learning and digital marketing.

A number of companies FMCG (Fast Moving Consumer Goods) dismantled the post of director in their structure. The paradox event in this context was dismantling the post of Chief Marketing Officer and marketing department by The Coca Cola Company. The paradox is that people at business school are taught with the use of such cases of the above mentioned company, and it is on the Top-100 of expensive brands through the traditional marketers' actions. The procedure of marketing department dismantling was also implemented by The Colgate Company and a number of well-known companies in the FMCG segment [2].

Moreover, it is not right to draw the conclusion that such occupation as a marketer is becoming a thing of the past because it evolves, acquiring another filling, and requires other competences [3]. The Coca Cola Company replaced the post of marketer with the post of global development director. Top-managers confirm that this change of team structure in the long term will become a driver of brand development and require business to focus on Big Data analysis in order to know full and relevant information about a particular customer [4].

III. MARKETING EXAMPLES OF BIG DATA

The trends that have been witnessed in business go hand in hand with changes in society. Now, any Internet user is in a 'transparent house', leaving the 'digital trace'. Gadgets, smartphones, smart devices in house collect data on our life in order to demonstrate the advertising products which we need [5]. YouTube is a shining example and its section "Recommended" based on neural networks. The section analyzes information, video materials which we like and offers new video clips on the basis of Big Data analysis. Moreover, when users of such social media as Vkontakte, Facebook, and Instagram 'like', they also leave the 'digital trace' which will be used in "Recommended" or relevant advertising. Another example on the principle of the 'digital trace' is a voice message of Vkontakte [6]. If a user wants, for example, to order a pizza during the conversation, he/she will certainly see the relevant advertising on social media after a while.

IV. MARKETING DEVELOPMENT STAGES

Everything occurs in real-time in the world today. Technologies provide an opportunity to get inside of an event which is taking place anywhere in the world. Clients' mood, their needs, products and service are constantly changing. There is not such a problem when two months were required between an order and achieving an objective. That is why companies should immediately respond to changing trends and requests [7].

F. Kotler identifies marketing as 4P in his book "Marketing basics":

- Product – good or service, assortment, quality, characteristics, design, ergonomics;
- Price – price in itself, markup, and discount;
- Promotion — advertising, PR, promotion of distribution;
- Place – location of an outlet, channels of distribution, staff [8].

In the middle of 4P model is a product which was produced and should be bought. On the basis of this model which has developed at the beginning of the 2000s, Robert F. Lauterborn offered 4C model in which a client was in at the center. The components of 4C model are:

- Cost – price, expenditure for a consumer;
- Customer needs and wants – consumption value;
- Convenience;
- Communication.

A classic example is Apple Inc. where a customer buying a smartphone, laptop or another gadget becomes an owner of not just a product but the whole ecosystem with its service and update. Services, devices, Mac and iPad have generated revenue of the company amounting to \$27.9 billion in 2019.

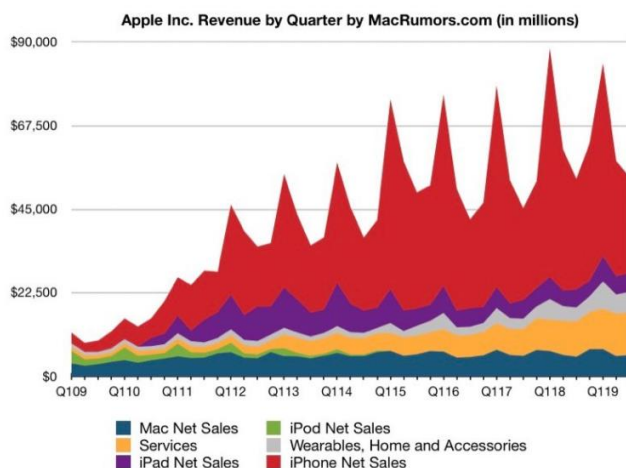


Fig 1. Data on sales of products and services of Apple Inc [9].

Marketing has changed significantly and moved from product marketing to result marketing in 2019. The process of getting a credit in a bank is an example in this area. When a consumer wants to get a credit, his/her aim is not a credit but to buy a car, for example. That is why it is important to consider

5E as the new concept of digital marketing. Its components are:

- Experience;
- Exchange;
- Engagement;
- Everyplace;
- Evangelism.

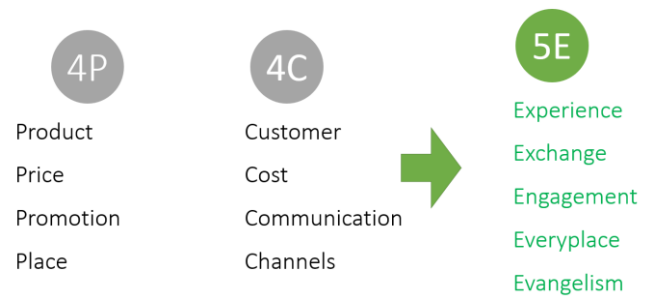


Fig 2. The evolution of the marketing models

Business which can adapt to the current model, i.e. can understand what the result a client wants to achieve, will have the competitive advantage [10].

The use of 5E model also has impact on pricing. Prices are no longer static; they evolved in the dynamic form dependent on client's allegiance to one or other companies. The key feature of the model is that everything becomes entertainment and edutainment as some of the best forms of people involvement through pleasure and mixture of pleasure and education. The best commercials which have a lot of hits are the clips with humor [11]. For example, the American bank posted the 16 second video on the YouTube channel where a popular host represented a credit card with 2% cashback, telling in parallel about a recipe for buttercream with avocado. This video has got 2 million views, while other clips about the bank products in traditional form on that channel have gained 30-50 thousand views.

The tradition form of a marketer included the main competences which were based on creative and originality. Now this occupation is connected with clients' metric and Big Data analysis because of 5E model [12].

That is why the new form of the marketing development appears. Big Data Driven Marketing is such a form of marketing in which all decisions are made on the basis of data analysis and flexible segmentation of clients.

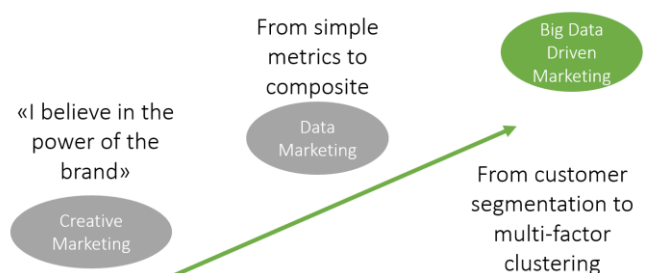


Fig 3. The stages of the marketing development

Flexible segmentation of clients is multi-factor clustering of company clients into groups according to many criteria not only standard ones: gender, age, occupation. On the basis of this information, 4 stages of client's knowledge in marketing may be highlighted [13].

- 1st stage: demography, income, history of email notifications.
- 2nd stage: behavior with call-center, behavior on a site, geodata, social network profiles.
- 3rd stage: user's search data, surveys, interaction with a company through an app, cross-device format.
- 4th stage: history of responses on marketing campaigns, full analysis of hidden links between data of different types.

Thus, the marketing processes will be based on knowledge acquired as a result of data analysis but not on marketers' subjective assessments.

V. TRENDS OF BIG DATA DRIVEN MARKETING

Among the main trends of Big Data Driven Marketing, the following ones may be indicated:

- predictive marketing;
- marketing of visualization;
- personalized marketing.

Predictive marketing is market activities carried out meaningfully in order to better meet the client's needs. The term comes from the terms "math" and "logic" as predicativity or, simply put, meaningfulness and certainty. The aim of predicative marketing is an intensification of efforts for consumer's satisfaction and improvement of the quality of marketing [14].

Predicative marketing differs from the simple analysis of history of demand for goods and implies full-fledged personalization of a consumer from analysis of history of interaction between a consumer and a subject of marketing and a company and personalized needs to consistency of the language of communication with a consumer.

The best example of predictive marketing is "Casa Bella", an Italian company, engaged in undergarment selling where there is the robot-marketer by which the company was able to achieve increase in income of 30% in Social Media Marketing, and sales growth on Facebook, in particular, was 2000%. Thus, it can be concluded that the pool of business projects provided by SMM experts will be automated in future.

The next trend is marketing of visualization. It is enough to turn to indicators to make sure that this is the trend. According to IDC data, TOP-100 of brands download their videos on YouTube every 18,5 minutes. 50% of people use YouTube from a mobile. A session (visit) on YouTube is 40 minutes [15]. The enormous growth of views relates to videos "How to..." or challenge-videos "What happens if you sit in the blue room all day". The audience analysis of video data showed that 84% of all users buy an advertised product in a video for once [16].

Personalized marketing can be characterized by 7 features presented in Fig. 4

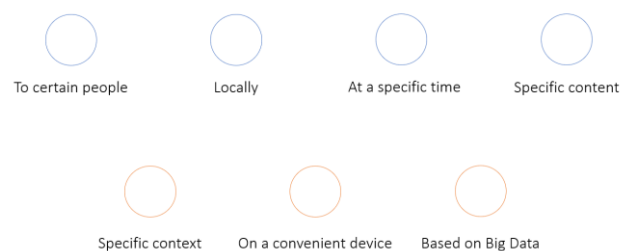


Fig 4. The features of personalized marketing

When text, visualized, infographic messages in a certain context are sent to the target audience of a company at a certain point, including geodata, and at a given time at client's convenience, that is the definition of personalized marketing [17].

VI. CONCLUSION

Despite the enormous opportunities of Big Data marketing, there is the same number of problems of this technology implementation in mass business:

- Problem of data using. According to IDC, only 12% of companies use marketing and business decisions.
- Problem of data centralization. Many companies use different data but do not centralize them because of the problem of data integration from different sources.
- Problem of data depersonalization. Many companies do not process personal data because of their volume in connection with coming into force of Federal Law of 27 July 2006 N 152-FZ "On personal data".
- Problem of understanding of the Big Data possibilities by top-managers.

In conclusion, it should be noted that Big Data is the most up-to-date marketing technology allowed to analyze many factors from client's behavior to weather conditions and demographic transitions of consumers on the developing markets. The technology has created the new digital world which gives enterprises a possibility to monitor digital activity of millions of people with the help of different methods. These methods help companies assess consumers' behavior and shopping habits individually.

Generation and collection of Big Data in real-time will provide insight into what people buy, download and exchange information. Data collected online and offline can be combined to better indicate what consumers like and want to see, what they are tempted to buy. But it is necessary for staff to get the certain competences to use the power of Big Data analysis technology.

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