Dynamic and static elements of a consumer's digital portrait and methods of their studying

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Abstract. The authors have undertaken a study of a consumer's digital portrait, interconnections between the consumer's digital portrait and the consumer's portrait have been determined. They have defined such concepts as 'digital consumer' and the 'digital portrait of a consumer'. They have also formed a system of characteristics building up the consumer's digital portrait; have determined four groups of characteristics: social-demographic, behavioral, psychographic and geographical characteristics. Each group of characteristics has been divided into static and dynamic elements. The role of dynamic elements of a digital consumer's characteristics and also methods of their research have been defined. The authors have determined the system of methods for exploring a consumer's digital portrait; the concepts of open and hidden methods of studying consumers' characteristics have been specified. The importance of using search tools and social networks for studying a consumer's digital portrait has been notified and high priority of psychographic characteristics has been marked.

1. Introduction
In the modern world marketing plays a great role in promoting goods on the market and in bringing them to the end consumer. In order to achieve success in this process marketing specialists apply methods of segmenting and targeting which are based on studied characteristics of a consumer and his digital portrait. However, as informational technologies are becoming more developed, social networks and search tools become more popular, studying characteristics of a digital portrait becomes a bit different. The aim of this work is forming characteristic features of a digital portrait of a consumer and also exploring possibilities of their studying. It is necessary to form a definition of a consumer's digital portrait and specify the groups of characteristic features which are forming it.

2. Digital consumer and a digital portrait of the consumer
The process of transition of the whole humanity into the World Wide Web is becoming more and more evident nowadays. Everyone comes across everyday cooperation with Internet-services, trade Internet-sites, electronic mail, social networks and messengers. According to the data of the research undertaken by We Are Social and Hootsuite agencies, 67% of the population are active users of
mobile devices, 51% of the population use access into the Internet and 36% of it are active users of social networks [1].

Everyday cooperation with the digital environment leads to the fact that a large number of information about users is accumulated in the cyber medium: log-files, text messages, audio and video content. Upon the information of IDC-company the volume of such information in the world achieved 16 zettabytes in 2016 [2].

The authors in this work have elaborated the content of the ‘Internet consumer’ concept in relation to the digital environment. The authors substantiate that such a consumer should be understood as a physical person or an institute who or that intends to purchase, purchases or has already purchased goods or services (including through the third parties) with the help of informational-telecommunication technologies.

Judging from the specified definition of the concept — ‘Internet consumer’ — the authors distinguish the complex of characteristic features which determine a consumer's behavior in the digital environment as a digital portrait of a consumer.

In this work they have specified the concept of a consumer's digital portrait which is understood as a deep description of a personality based on the analysis of a user's digital shadow (the consumer is a prominent and typical representative of a targeted online-audience segment).

For studying a consumer's digital portrait the authors have carried out an analysis of the classical portrait of a consumer, which is described in the next section of this work.

3. A consumer's portrait

A consumer's portrait is a deep description of the personality of a prominent (typical) representative of a targeted audience segment [3].

The portrait of a consumer is formed by [4]:

1) Social-demographic characteristics

The importance of social-demographic characteristics for online sales is extremely large: when bringing about a direct contact a consultant works with an exact client and that forms an exceptional significance of the person who purchases a product. The social demographic portrait of a consumer is formed of the following features: gender, education, occupation, professional and family status, income level [5].

2) Psychographic characteristics

Dependence of sales on popularity of online-resources of a company inevitably arouses interest for studying their consumers. Nowadays retailers want to study their consumers in detail and learn what motivates them to make purchases, their choice and preferences, asking the question ‘Why do they buy?’ and what forms their psychographic portrait on the Internet.

In order to study and classify consumers, Jeremy Smith, an American specialist in the field of Internet-marketing, has distinguished nine psychographic features in his note, which define motives of behavior of Internet-users in the virtual environment: preoccupations, interests, beliefs, behavior, habits, way of living, attitude, values and cognitive prejudices [6].

3) Behavioral characteristics

Behavioral factors are actions of visitors on websites, among which are: entrance, viewing pages, following links, time of reading the site, return to search results.

Appearance of the method of ranking according to behavioral factors makes optimizers and online-resources owners pay more attention to the content uniqueness, query relevance, convenience of using the site from the point of view of its users.

In the context of analysis of a consumer's behavior and revealing substantial factors of his behavior one may distinguish the following characteristic features:

- bounce rate;
- time on the site;
- depth of following;
- return to search results [7].
The studies, undertaken by the author, highlight the following behavioral characteristics of a user as of utmost interest and importance for marketing structures: loyalty, event, frequency of usage, attitude to the brand, attitude to the product, consumer status and the level of the buyer's readiness [8].

4) Geographical characteristics
The group of geographical characteristics which form geographical presentation of a consumer includes the classic representation of a consumer: geographical location and geographical living conditions.

4. A consumer's digital portrait
In order to provide valid segmentation of consumers in the digital environment it is necessary to place an emphasis on the set of characteristic features inherent to every individual consumer, previously specified in the work and updated according to digital environment realias. A digital portrait of a consumer may act as such a system of indicators.

The structure of characteristic features in a digital portrait of a consumer is analogous to the classic variant and includes four main groups: social-demographic, psychographic, behavioral and geographical.

However, analysis of characteristics of an Internet-consumer in the digital environment can be carried out in the time sample by means of technologies of big data and computer-aided learning. That is why each group of features can be supplemented by dynamic elements of a consumer's digital portrait; their distinctive feature is possibility of forecasting their changing.

Thus, the consumer's digital portrait is formed of four groups of characteristic features, however, each such group in the digital environment is created by means of a combination of static (offline characteristics, studied with classic methods of marketing) and dynamic (characteristics typical of the Internet network, studied with modern methods of information collection and processing) elements.

![Figure 1. The system of characteristic features making the consumer's digital portrait.](image-url)

When forming the system of characteristics making the consumer's digital portrait the author suggested such dynamic elements as: social and economic evolution of a personality, hobbies, interests, emotional description of the consumer, places and routes.

The possibilities of studying characteristics in the time sample allow creating such a dynamic element of a social-demographic group as socio-economic evolution of a consumer formed by means of constant analysis of static elements (social status, income level). Such a dynamic element will not only allow to implement a more exact segmentation of consumers but it will also provide the
possibility of forecasting the moment of socio-economic evolution of other consumers thanks to analysis of collected data.

Dynamic elements of psychographic characteristics include hobbies and interests; the author suggests transferring them from the group of static features to the group of features being constantly studied. This suggestion may be reasoned by the fact that hobbies and interests of a consumer have ‘wave’ development: some hobbies may interest the user repeatedly after a while. Constant analysis of data helps to reveal the period in which the consumer’s interest and hobby make a sharp come-back and also to forecast the moment of such events, determine the factors which precede them.

The research undertaken by the author helped to reveal three most important characteristics which can be explored and analyzed in social networks.

A hobby is a feature which implies activities performed by a consumer in his free time guided by his mental needs. In some psychographic profiles this characteristics may be represented as a ‘hobby’ [9].

In modern scientific literature there are several approaches to classification of hobbies but the most popular of them emphasizes the following groups according to various attributes: active, passive, modern, traditional, extravagant [10].

Each person tends to have interests characterized by the presence of unusual dedication of a person to this or that event or occupation which brings about moral satisfaction. Someone views interests as certain fields of a person’s activity, for others they mean priority tasks in life. The presence of interests leads to commitment which reflects task oriented behavior of a person for achieving new results important for this very person.

There are many definitions of the concept ‘interests’ represented by different authors; we can present one of them: these are spheres of everyday activity of a person which have emotional value for him, in which he implements purposeful search of information. The interests formed in a consumer define his model of behavior in the virtual environment [9].

The most complete classification which is constituted based on the profit important for a person in his preoccupations – direct, indirect, material, personal and social — is provided below [11].

According to the degree of social significance there are: vital, important, inessential interests [12].

It is evident that interests are the principal constituent of our life, largely determining people’s behavior and acts. By this foundation interests present a large volume of information about Internet-consumers which have to be taken into account by market researchers while adapting Internet-shops.

The author also distinguishes such a feature as hidden interests as a dynamic element of psychographic characteristics. Hidden interests of a consumer can be studied only in the digital environment as they are not directly expressed by the consumer but they can be revealed as a result of analysis of dynamic actions of the consumer in the social medium such as a mark ‘I like’ to a records posted in social networks. The dynamic element of psychographic characteristics ‘hidden interests’ can be studied by analyzing target actions in social networks and search tools.

A group of behavioral characteristics of a consumer is supplemented by such a dynamic element as emotional coloring — characteristics formed by means of analyzing records, reviews, notes posted by a consumer on the Internet and in social networks, and which reflects the consumer’s inclination to emotionally express his attitude towards purchased goods. Emotional coloring will help to understand what feedback may be expected by the producer as a result of using his goods.

Within the framework of this group, in the digital space the author distinguishes new characteristic features based on analysis of data collected by means of GPS transducers of mobile devices:

- **places**: geographical objects visited by a consumer (home, work, educational institutions, stores, restaurants, etc.);
- **routes**: traveling paths of a user.

Geographical characteristics help not only to collect information about the places visited by the consumer in his region but also to get data on the ways of moving between them.

Social demographic characteristics are still an important element in the description of consumers, however, business understands that it is more important to understand why people purchase this
product and not who purchases this product. Judging by psychographic characteristics a more qualitative segmentation of targeted audience is possible which allows forming most suitable methods of motivation for making a purchase.

5. Methods of studying dynamic elements of the consumer's digital portrait

Within the framework of this research the authors suggested a system of methods for exploring consumers' characteristics in the digital environment with the object of segmenting the market of new goods.

The system of methods includes two methods of exploring consumers' characteristics on the Internet: open and hidden.

An open method of exploring is represented by a complex of methods applied in offline marketing, promoted by means of opportunities provided by the Internet. In this case the digital environment is just an instrument which simplifies undertaking a study of an Internet-consumer's profile and its static elements.

A hidden method of exploring is viewed by the author as a means of studying an Internet-consumer's profile, based on computer analysis carried out by specialized systems which investigate the consumer's digital shadow. When implementing the given method both active and passive target actions of a consumer may be analyzed which form his digital shadow in the virtual environment. In the author's opinion these methods are aimed at exploring dynamic elements.

The most important element in this method is the medium where the research is carried out. The growing role of social networks and more freedom in performing various targeted actions by a consumer allows collecting and exploring a large volume of data about the consumer's characteristics.

6. Conclusions

All-round digitalization and wide-scale transition into the Internet are reflected in the activity of both companies and consumers. In search of new ways of studying their target audience marketing experts explore new channels, new methods and means of collecting information about consumers. Aggregate information about the consumer is represented by his ‘digital portrait’ formed by combining different groups of characteristics which makes it possible for specialists to better understand the consumer and his interests. Such portrait is being built exclusively by analyzing the information provided by the consumer himself.

One of the most powerful instruments providing information about consumers is represented by social networks which actively collect large data pool forming the ‘consumer's digital portrait’. Users of such services conduct vigorous activities on the web performing a lot of actions using both mobile devices and computers.
In this work the analysis of groups of characteristics of the ‘consumer’s digital portrait’ (social-demographic, psychographic, behavioral, location-based) has been carried out, key characteristics inside the groups have been distinguished, dynamic elements of a digital portrait have been suggested and also methods thanks to which these elements can be studied.

The role of such dynamic elements is extremely high for forming a portrait in the digital environment as they allow to build segmentation and targeting process on the Internet best of all, and also they allow not only to explore formed requests of consumers but also to predict them by forecasting them for the next period determined with the help of analysis of their previously implemented actions.

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