

Extent of data utilization within digital marketing processes¹

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Abstract

Data is currently the most valuable source in decision making process within digital marketing firms. The main aim of the article is to examine extension of data utilization within digital marketing processes. Research of the main aim was supported by two sub-goals, which focused on knowledge level of marketers' data based approaches and on areas, in which are such approaches applicable. Quantitative research in form of questionnaire was utilized as a primary research method. Findings of the paper points to sufficient awareness about big data and artificial intelligence tools and uncover currently untapped potential of its implementation into digital marketing processes.

Key words

artificial intelligence, big data, data, digital marketing

JEL Classification: M15, M31, M37

Received: 17.3.2020 Accepted: 25.3.2020

Introduction

Information age and technologically advanced approaches shaped current digital marketing environment into sophisticated databased industry. Marketing analyses and advanced analytical tools significantly help to extent scope of use of the information in business. Amount of data generated in everyday business activities can positively influence business decision making process and lead to more profits. However, it is necessary to know how data is utilized and how to mine the most of them. Big data, machine learning and artificial intelligence are already well rooted terms and firms direct a significant focus on them.

Data collection and procession

In the age of information it is necessary to collect and process data for effective business decision making process. Generated data are often unstructured and firms or individuals are not able to mine maximum from data. Thus, they deprive themselves of the possibility of future data based development (Balducci & Marinova, 2018). The problem is with data size. Very current is term big data. Hou, Guo and Guo (2015) describe big data as a new oil, which has potential to transform a society. Uncovering the hidden patterns and correlations between massive amount of data represents important source of information. Due to Chena and Lina (2014) big data brings big opportunities and

¹ VEGA 1/0657/19 The role of influencers in the consumer decision-making process

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transformation potential for different market segments. It also represents challenge for mining, procession and utilization in favor of marketers (Guarda et al., 2018). Davenport and Patil (2012) stated, that firms are currently challenged by great inflow of information and it leads to creation of new working positions. The main goal of employees on these positions is to uncover hidden stories within the bundle of data and interpret them into understandable form. The big data is modern term and it covers wide scale of concepts, from technological ability to store, accumulate and manage data to shift in culture, which penetrates into business and supply the society by great amount of information.

Artificial intelligence

Positive impact of data on a business is undeniable. The biggest problem is data collection and procession. Manual approach to the activity is due to amount of data generating from business activities impossible (Kietzmann & Pitt, 2020). Fortunately, there are software available, which can data collect and process instead of humans. An employee or entrepreneur takes a role of a coordinator, who manages software processes (T. Davenport, Guha, Grewal, & Bressgott, 2020). However, amount of data, we are dealing with today, is too big for regular software. There was a need to develop software running on powerful hardware which can learn from previous findings generated from data collection and subsequent procession. Machine learning and closely connected artificial intelligence are terms very relevant to the topic. Due to Curry and Moutin (1991) artificial intelligence application into processes of digital marketing are eligible mainly from strategic point of view. Artificial intelligence is on a basis of extensive data procession able to generate information, which is necessary in decision making process within a marketing strategy. Application of artificial intelligence into digital marketing brings new opportunities and possibilities, which have to be taken into account before implementation. As well as all other marketing and business approaches, artificial intelligence has advantages and disadvantages. Brief table summarizes them (Tab. 1).

Tab. 1 Advantages and disadvantages of artificial intelligence in a business

| Advantages | Disadvantages |
|--|--|
| Breaks abstention | High expenses |
| Hundred percent performance | Abstention of moral and ethical principles |
| Almost instant decision making process | Abstention of creativity |
| Automation of banal activities | Impact on increased unemployment (Reddy, 2017) |
| Error rate reduction | Consumer preferences |
| Digital assistance | Dependence on human interventions |
| Research in areas inaccessible for human | Algorithms error probability (Kniahynckyj, 2017) |

Source: author’s research based on literature stated in the table

Both, advantages and disadvantages are obvious. Mentioned entries serve as general overview. Every company has its specifics and must consider own advantages and disadvantages of the artificial intelligence establishment into processes.

Example of practical utilization of artificial intelligence

Software based on advanced data procession or artificial intelligence were very difficult to develop in the past. The process was very time and finance consuming. It was necessary to involve tens of engineers, technical architects etc. However, technological progress and current digital possibilities developed platforms, via which it is possible to create and implement artificial intelligence and machine learning systems into software with minimal need of technical know-how. For instance, TensorFlow by Google. It is free accessible software with open source code, which can serve for complex mathematical and statistical computing, which are able to be "translated" into visual form as graphs for example. The software was initially developed for engineers, who work on a research of machine learning and deep learning methods. However, subsequently employees found out, that the software is too wide and universal to be usable also in other market segments. TensorFlow is accessible for two years already and is utilized by resonant companies such as Coca-Cola, Ebay, Dropbox, Uber Nvidia, Airbnb and a lot of others. "TensorFlow is accessible, easy to use system in intuitive environment, which supports work with programming languages such as Python or R. It allows marketing specialists and research workers to mine maximum from the program without a need to develop a new financially demanding system" (Wirth, 2018).

1 Methodology

Technological progress is perceptible in most of the current modern companies. And especially companies operating in digital and internet area. The areas are overwhelmed with data, which helps to drive more sales, develop more successful strategic decisions etc.

The main aim of this article is to examine in what extension digital marketers utilize data in their digital marketing strategies. Tow sub-goals were set to fulfill the main goal:

1. examination of knowledge level about data processes within a company of respondent,
2. identification of areas within the company, where data utilization is usable.

The main research method of the paper was quantitative research conducted in Google forms online software. The questionnaire was delivered to preferred target groups via several channels. As far as demanded respondents were marketers with specialization in digital marketing, the following internet platforms were utilized:

1. IAB Slovakia direct mail database – IAB is a self-regulating institution covering digital areas on selected markets. The firm operating on the Slovak market has a database of 163 e-mail addresses of employees or entrepreneurs in the digital marketing areas. The questionnaire was a part of one of the regular weekly newsletters.
2. Marketing Facebook profile post – there was an agreement with a particular Facebook group called Digital Blog. At time of the research it had 1867 fans and they agreed to create a post with a request to fans to fulfill the questionnaire.

3. Facebook post on personal account – local marketer with 1388 friends at time of the research agreed to share the questionnaire on his personal account.
4. Facebook post in a thematic marketing group – Facebook disposes with several groups dedicated to marketing and relevant topics. The biggest group on the market is Marketers, copywriters and SEO optimizations. The group had 13846 followers at time of the research.

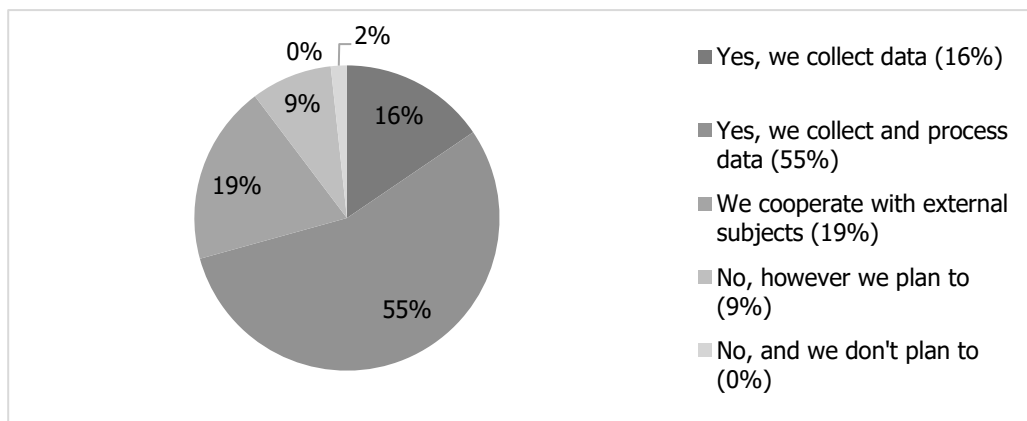
The most questionnaire answers were collected from the fourth utilized channel. The fact is caused by the largest fan base. A total number of answers was 58. The whole questionnaire contained 15 questions. Due to extensive research this article is a part of the series of several articles which process all researched information. This paper processes four researched questions, which can be considered as one thematic bundle with related questions.

2 Results and discussion

Previously conducted researches uncovered that marketing specialists consider marketing more as a science than an art. The statement is caused by increasing amount of data, which enter the marketing process and help with initial set up, continual optimization and final evaluation of marketing and advertisement campaigns. Marketers realize that modern marketing is more technical than ever before. The consciousness about the technical part of the current marketing is however not enough. The question is, whether marketers utilize data within marketing processes and if they have enough space, opportunities and tools to utilize the data.

First processed question within quantitative research examined in what extent marketers works with data, whether they collect and process them and if the data work is covered by internal sources of the firm or is outsourced to the third party subjects (Graph 1).

Graph 1 Extension of data work within the company of respondent

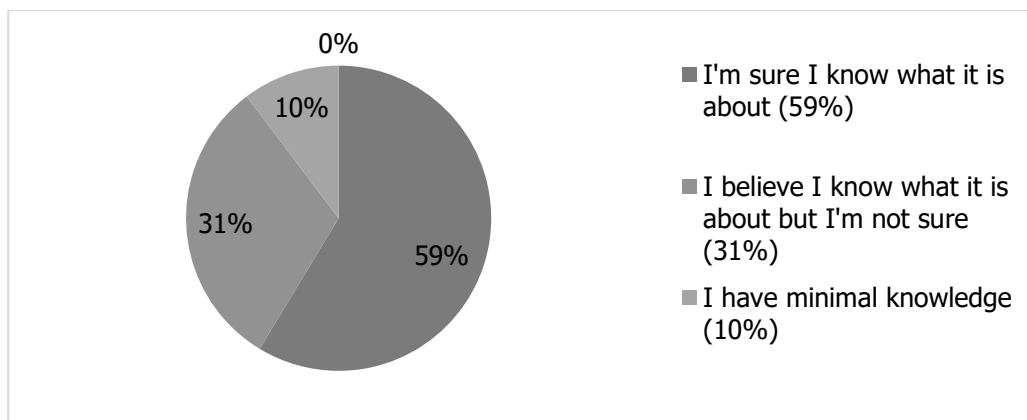


Source: author's research

Marketers current orientation on data is obvious. Most of the respondents (55%) confirmed that the firm they work in collects and processes the data internally. The

result is quite striking because of limited possibilities of the Slovak market, which disposes only with limited population. Collection and procession of limited amount of data is often more time and finance consuming than in case of big amount of data. 19% of respondents stated, that they collect data internally, however procession is outsourced to specialized firm. 16% of respondents collect the data internally, however don't process them at all. 9% of respondents who currently don't collect the data plan to do so in the future. 2% of respondents stated, that they don't have knowledge about the problematics. None of the respondents selected answer "No, and we don't plan to". The important finding from this question is, that 90% of respondents work with data in some way. For the data work it is necessary to utilize analysis and analytical tools, which have potential to simplify and accelerate collection and procession of the data (Agrawal, 2014). Collected answers correspond with the statement, that marketers consider marketing more as science than art.

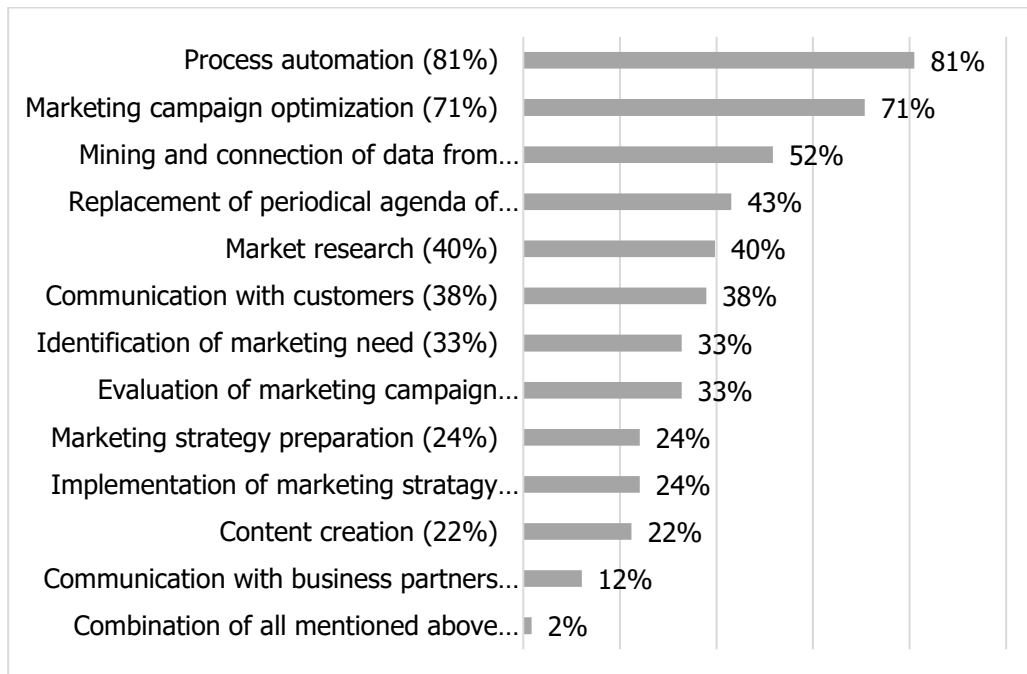
Graph 2 Awareness about a term artificial intelligence



Source: author's research

Due to present findings most of the marketers work with the data. Advanced technological possibilities and connection with marketing analyses and analytical tools caused, that softwares with elements of artificial intelligence are getting more and more attention. Utilization of such tools has a big potential in the digital marketing area. Especially in systematization and automation of processes. On base of previous research question, which confirmed work with the data in case of most of the respondents, there is an assumption, that most of them will be well informed also in an the area of advanced analytical tools and artificial intelligence, which works with big data. The next research question examined how respondents perceive a term artificial intelligence and whether they have knowledge in the area (Graph 2). More than a half on respondents (59%) stated, that in case of artificial intelligence, they know what it is about and that they are sure what the term means. 31% of respondents declared that they know what artificial intelligence is, however they are not sure. Only 10% of respondents declared that they have a minimum know-how in the area. The answer "I don't know what I should imagine" had no answers. Thus, respondents have good or at least elementary knowledge in the area of artificial intelligence. It is possible to suppose, that marketers are oriented in the problematics of advanced analytical tools and in area of big data, which has ability to bring new market information important in a process of strategic planning.

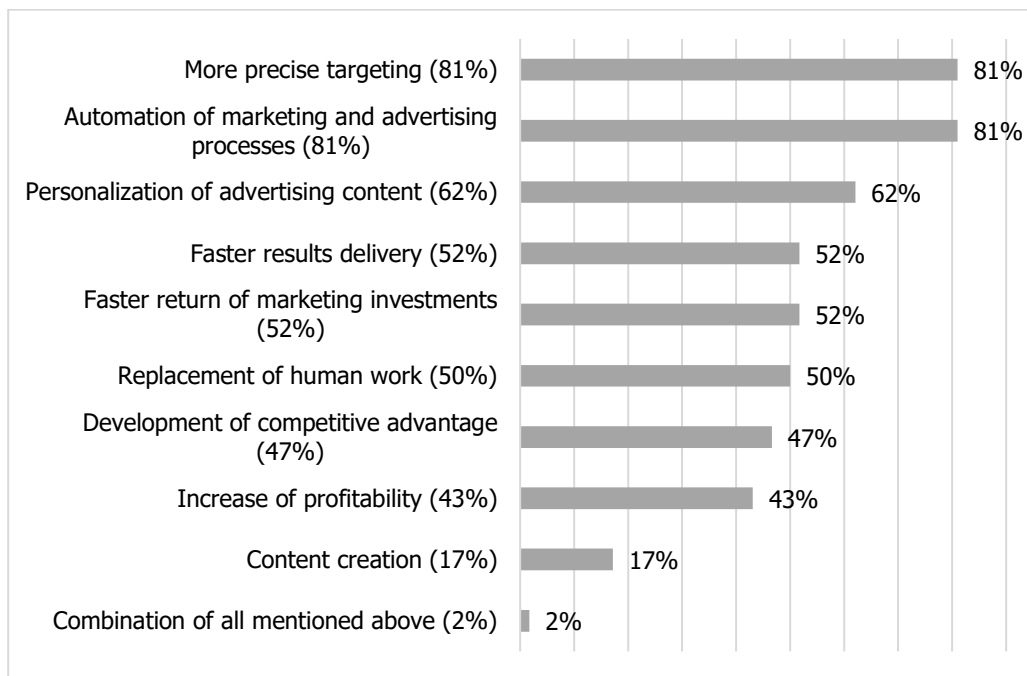
Graph 3 Identification of marketing areas currently suitable for artificial intelligence



Source: author's research

The main aim of the question was to identify areas, where respondents feel a potential for artificial intelligence utilization. Respondent could mark several options at once (Graph 3). From the collected answers it is obvious that the biggest potential for artificial intelligence is, due to respondents, in the area of processes automation (81%), in optimization of marketing campaigns (71%) and in gaining and connection of several analytical tools (52%). First three most successful activities were occupied by periodical activities and their operation demands considerable amount of data. The manual procession of the data would request quite large time and finance investment. Implementation of artificial intelligence into the processes would lower costs on manpower and would systematize regular marketing activities of firms. Interesting finding is, that also activities, which request relatively individual approach and certain amount of creativity gained a large number of votes. For example option "market research" gained 40% and communication with customers 38%. That means, that marketers believe in usefulness of the artificial intelligence also into processes, where is higher pressure for inputs of individuals. One of the respondents stated in option "others", that he believes that it is possible to apply artificial intelligence into all mentioned processes.

Graph 4 Areas of digital marketing currently suitable for artificial intelligence implementation



Source: author’s research

The last question processed in this article researched in what areas is artificial intelligence able to help companies today (Graph 4). The respondents could mark more answers at once. The most of the respondents agreed, that artificial intelligence is able to secure automation of marketing and advertisement activities (81%), more precise targeting (81%) and personalization of content and websites (62%). Approximately 50% of respondents marked also options: faster results delivery, faster return of marketing investments (ROMI), gaining of competition advantage and replacement of manpower. Options “content creation” marked only 17% of respondents. One of the respondents stated in option “others” that artificial intelligence is possible to apply into all areas mentioned in questions. The question and its answers confirm that respondents predict future of artificial intelligence in processes which operate on base of large amount of data. Content creation demands large input of human creativity, that’s why respondents in this area don’t see potential for artificial intelligence.

Conclusion

Marketing analyses, analytical tools and related artificial intelligence implemented into digital marketing processes are due to findings of the paper firmly established on the Slovak market at least in theoretical point of view. Respondents of quantitative research confirmed data utilization in digital marketing processes within companies they work in. 90% of respondents utilize (in some way) data generated from business they focus on and 55% of respondents declared they are able to full-service collect, process,

manage and utilize the data within the firm. Due to current amount of data generated from the business it is impossible to manage data manually. Thus, it is necessary to use support of software. Currently, there is a possibility to utilize artificial intelligence tools, which are dependent on humans only during initial set-up. They are able to manage rest of the data management process automatically and search for hidden patterns in the data on base of previous findings. In other words, they are able to learn from history and use the knowledge in further processes. 90% of respondents had at least minimum knowledge about artificial intelligence and its possibilities. The most significant areas for utilization of artificial intelligence they see process automation, marketing campaign optimization and connection of data from various sources. They expect from utilization of artificial intelligence more precise targeting, automation of marketing and advertising activities and personalization of developed content.

The findings of the research uncovered, that marketers on the Slovak market frequently work with big data, have knowledge about possibilities of artificial intelligence and believe in future of such a digital marketing approach. On base of collected answers there is justifiable assumption that marketers will rely on artificial intelligence tools and big data approaches more in the near future.

Recommendation for the market is to extent knowledge in the area before implementation of such tools, utilize human sources with a sufficient know-how in the area and thoroughly calculate return on investment, since costs on artificially intelligent based tools are currently still very finance demanding.

Further research can focus on specific big data and artificial intelligence tools currently utilized in the digital marketing area and to identify specific needs of the market on such tools.

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