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**THE IMPACT OF BUSINESS INTELLIGENCE
IMPLEMENTATION ON DIGITAL MARKETING ANALYSTS'
EFFECTIVENESS**

Bachelor's thesis

Programme International Business Administration,
Specialisation Accounting and Business Intelligence

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I hereby declare that I have compiled the thesis independently and all works, important standpoints and data by other authors have been properly referenced and the same paper has not been previously presented for grading. The document length is 9896 words from the introduction to the end of conclusion.

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ABSTRACT

At present, we are still on the road to recovery from the disastrous effects of Covid 19: lives taken, plans ruined, and a complete reversal of course in some cases. All these terrible things will stay with us for life and will be a good example for future generations. But looking at covid 19 from the business side, the virus destroyed many structures, but also gave a new breath or boost to many different businesses. Because of the inability, unwillingness, or prohibition of many people to go out, distance businesses such as delivery services, online courses, internet events and others have been rethought and given a new life. One of these things was digital marketing, a field of marketing that before had huge potential and share in the marketing community, was considered one of the classic ways of promotion, got even more development and attraction from customers due to covid 19 and increased internet traffic. All this led to the fact that many companies were not prepared for the increased volume of data and the inability to process it. Digital marketing keeps a huge amount of data behind it that must be processed to get the best results. The author's research focuses on the relationship between digital marketing and aspects of business intelligence (BI), which allows for more efficient processing of data. The author tries to answer the question of whether it is advantageous to switch to new data processing products and how this affects the effectiveness of digital marketers from different sides.

Keywords: Digital Marketing, Business Intelligence, Effectiveness

INTRODUCTION

The Covid 19 pandemic began in 2019 and was not taken seriously by many, people did not anticipate that a virus that originated in Wuhan, China, in December 2019 could change our lives for the next three years. During that time, the World Health Organization declared this outbreak a public health emergency of international concern, and on March 11 - a pandemic (WHO 2020).

Border closures, total lockdowns, travel restrictions, complete overcrowding of hospitals, and monthly unimaginable increases rate of infection spread. Humanity has had to face all this in recent years and adapt to the upcoming problems as they come. All this led to a huge decline in the economy in many countries, more and more businesses could not cope with new world conditions and closed, declared themselves bankrupt or put their business operations on pause for an indefinite period of time.

However, many areas of business have received a new impetus and a new breath during the pandemic. Due to the impossibility or unwillingness of many groups of people to move freely, to which we are all so accustomed throughout our lives, many areas of business and social life have moved to the online space. Universities around the world have switched to distance learning, catering establishments have begun to offer their delivery or takeaway services, businesses around the world have begun to transfer their employees to remote work, and so on. All these measures, which were originally created to increase the safety of the population, reduce costs or adapt to new conditions, set a trend that many companies develop and maintain to this day (Anjar Priyono 2020).

One such area is digital marketing. One of the main modes of advertising received a huge boost due to the increase in Internet traffic during the pandemic, as well as the desire of many businesses to use more relevant promotional tools, which during the pandemic were advertising in the online space (Anja Feldmann 2021). The reason for this was the worldwide restrictions on movement and socialization, which were described earlier. Such changes in the world of digital marketing have brought a huge amount of data that must be processed, analyzed and presented in

an understandable format so that marketers can use it in the most efficient way for digital marketing campaigns set up. That is why BI, as “the process of collection, treatment and diffusion of information”, closely cooperates with digital marketing. Indeed, in the Internet space, where millions of volumes of data move every second, BI is more than ever necessary for filtering and structuring data for ordinary users, digital marketing analysts in the thesis’ case (DOMO 2021) (Li Zeng 2006).

It was from these thoughts and the author’s experience in the field of BI exclusively for digital marketing that the main idea of this thesis was developed. To show how shifting to new ways of analyzing and visualizing information can increase the effectiveness of marketers in areas ranging from time efficiency to target performance efficiency.

The aim of this thesis is: to evaluate how the transition to new BI technologies affects digital marketers' efficiency.

In order to achieve the aims of the thesis, three main research questions have to be answered.

Research questions:

1. What new BI tools do digital marketing analysts use to increase their efficiency?
2. Does the new BI tools increase the time efficiency and visibility efficiency of the digital marketing analysts?
3. Does the new BI tools increase the performance efficiency, resulting in better target results or fewer results’ deviation?

Based on the questions posed, the author formed three hypotheses that will be confirmed or rejected by the end of the study. In his study, the author predicts that all three hypotheses will be confirmed, as he hopes to see a positive impact of the introduction of BI technologies in the digital marketing department.

Hypotheses:

H1: The implementation of new BI tools increases the time efficiency of digital marketing analysts.

H2: The implementation of new BI tools increases the visibility efficiency of digital marketing analysts.

H3: The implementation of new BI tools increases the performance efficiency of digital marketing analysts.

To answer the research questions and support or reject concluded hypotheses put forward the following steps have to be completed:

1. Present and analyze previous research on digital marketing, BI and their relationship.
2. Explore examples of frequently used BI tools and how they affect the efficiency of different business areas.
3. Conduct a questionnaire among digital marketing team members about the benefits they have received by switching to the use of new BI tools in their daily activities.
4. Collect the daily data of ten advertisers to check how the switch to the use of new BI tools changed the digital marketing analysts' performance by key metrics.
5. Analyze the collected daily data and the data from the questionnaire.
6. Formulate what effect the transition to new BI tools has on the different performance aspects of digital marketing analysts.
7. The following bachelor thesis consists of an introduction, a theoretical part, a methodology, a research part and a conclusion.

The theoretical part of the thesis includes articles on digital marketing and business intelligence. All articles were found using the Google Scholar resource. The author of the thesis divided the theoretical part into three subparts. The first subpart contains a description of the history of business intelligence, its development and its use in today's world. The second subpart contains a description of the history of digital marketing, its development and its nuances. The third subpart describes the relationship between the two disciplines. By completing the theoretical part the author will complete the first and second research steps.

The methodology part will describe the research methods and justify their choice, methodology part will be divided into two subparts. The first subpart describes the technical part of the survey, the number of participants, the selection of participants and the method of data collection. The second subpart describes the collection of secondary performance data, the justification behind the selection of date range for the collection of daily performance, the advertisers that were chosen and metrics. By completing the methodology part the author will complete the third and fourth research steps.

The research part consists of the analysis of the collected data, their description and visualization. By completing the research part the author will complete the fifth research step and present the information that will help answer the sixth research question.

The conclusion part consists of a brief description of the main aim of the diploma, all the findings that were obtained during its writing, as well as the final proposals of the author regarding the research topic and its future development.

1. THEORETICAL PART

1.1. Business intelligence

Managerial accounting is one of the most important aspects of the success of today's business because it provides decision makers inside and outside the organization with information related to planning, decision making, and management. It is important to note that today almost all the data that an accountant, manager or analyst needs is stored in a database or data warehouse in digital format. For high-quality, meaningful reports, modern analysts and accountants are inevitably using business intelligence technology. Over the last decade, data warehouses have become necessary to solve data quality issues and achieve a high quality data infrastructure, primarily for decision-making purposes. Since most accountant analysis and reports are directly related to decision making, it is clear that business intelligence is basically extension of managerial accounting, only computerised and digitalized (Drazena 2006).

The definition of the business intelligence concept has evolved several times throughout history. In 1958 an IBM researcher Hans Peter Luhn defined Business Intelligence System as "...a comprehensive system may be assembled to accommodate all information problems of an organization." (Luhn 1958). He used and modified Webster Dictionary's definition of intelligence: "the ability to apprehend the interrelationships of presented facts in such a way as to guide action towards a desired goal" - to adapt it for business purposes and needs of an organisation.

Later, with the development of technology and the emergence of computing machines capable of storing, processing and transmitting huge amounts of information, the term business intelligence system began to embrace the concept of data-driven system in the first place. Thus, in 1989, Howard Dresner promoted and extended the term business intelligence as a “set of concepts and methods to improve business decision making by using fact-based support systems.” (Power 2007). The main foundation of business intelligence started to move from briefing books and text reports to report and query tools and executive information systems.

At the moment, Dresner’s term has become widely spread, although it has minor changes depending on the author and their perspective. But two main things remain the same:

1. Business intelligence is defined firstly as a decision-making process.
2. Business intelligence is supported by the integration and analysis of an organization’s data resources (Carlos Andrés Tavera Romero 2021).

In contrast to the change in the definition of business intelligence, the process of data handling and analysis has undergone much more changes. Starting with a simple data mining process with primitive (according to our time) models and algorithms for statistical analysis, ending with cloud-based online platforms that allow to analyze and process unimaginable data capacities with unlimited resources nowadays. The evolution of business intelligence can be outlined in five major steps.

At the very beginning, historical data mining methods and tools were used for strategic reporting goals. In the early 1980s, statistics contributed methods such as recursive partitioning and non-parametric regression, and tools such as the bootstrap and cross-validation. At approximately the same time, computer science development allowed the emergence of new neural network models and new algorithms for rapid execution of traditional statistical analyses on large data sets, such as clustering and smoothing; simultaneously the phrase ‘data mining’ was adopted and promoted to the mass (Han Jiawei 2001).

The second evolutionary stage is distinguished by online analytical processing (OLAP) technologies and multidimensional analysis of data stored in data warehouses. OLAP applications differ from online transactional processing (OLTP) applications in the way data is organized, the way data is analyzed, and mainly in the way data is presented to the end-user. It is these fundamental differences that allow OLAP applications to answer more complex business

questions, that lead to more advanced business decisions. OLAP applications provide the end-user with information rather than raw data, allowing the end-user to discern patterns and trends in huge amounts of data. That allows not only to analyze data for the past period more efficiently but also to make efficient forecasting (Panian 2012).

In the third evolutionary stage, the Balanced Scorecard (BSC) methodology is used as a means of creating business intelligence. The Balanced Scorecard (BSC) has evolved over time into a complete performance management system applicable to both the private sector and public organizations. And the focus has shifted from simply measuring financial and non-financial performance over time to managing (and implementing) business strategy. In other words, BSC has become a new style of business intelligence used by most companies in the late 1990s and early 2000s. BSC systems can be the heart of an enterprise productivity system since they provide the ability to view three different dimensions of an organization's performance: results, operations, and capacity (Robert, David 1996).

With the advent and growing popularity of e-Business and other Internet applications and services, a new, fourth phase of business intelligence has emerged as web analytics and web mining as a form of business intelligence have begun to attract widespread attention from professionals. It has become increasingly necessary for users to utilize automated tools in finding the desired information resources. Web mining can be broadly defined as the discovery and analysis of useful information from the World Wide Web. This describes the automatic search of information resources available online, web content mining, and the discovery of user access patterns from online servers in a convenient way (Heinrich John H. 2003).

Over time, since the data started to be perceived as a new class of economic assets, on the level with the currency, business intelligence's importance has been especially recognized in the business environment. All this resulted in the rapid development of analytics-based decision-making capabilities reflected in software and computer systems. The fifth development stage started when the usage of Business Dashboard technology became a core component of alerting and alarming systems in business decision-making supported by business intelligence. Finally, nowadays we are witnessing the era of cloud-based Business Intelligence founded on appropriate mobile and location-aware technologies (Laurence 2010).

1.2. Digital marketing

Many people confuse the concept of digital and online marketing by putting them in the same basket. This confusion is justified, albeit partially. Internet marketing, also known as online marketing is a form of marketing and advertising which uses the Internet to promote products and services to audiences and platform users (Cristina Alaimo 2018). Although the term digital marketing overlaps with online marketing, it includes much more than just online advertising. Online marketing is a subset of digital marketing that focuses on content and advertising over the internet, while digital marketing uses a wider range of promotional spaces.

Dave Chaffey in his book “Digital Marketing, Strategy, Implementation and Practice” describes digital marketing simply as “Achieving marketing objectives through applying digital technologies and media“ (Dave Chaffey 2012). However, the author of the thesis believes that the term " digital technologies and media " also needs a clearer description. At present, the main representatives of digital technologies are our phones, computers and tablets, which are the most popular representatives of mass digital technologies in the world (GSMA 2021). But by no means should digital technologies be considered limited to only these 3 products. As the market develops, so does digital marketing.

The beginning of the history of digital marketing can be considered with the first launched Internet letter in 1971, the development of email technology not only allowed people to send and receive messages but also to promote products to big amount of people for marketers. To this day many consider email advertising as one of the cheapest and the most efficient tool of online advertising (GWR 2015).

Nevertheless, the real beginning of digital marketing can be considered the creation of the world's first search engine "Archie", which not only gave rise to many other search engines like Yahoo! Search, Google, Bing etc. but allowed the development of search engine marketing, the practice of paid increase websites' visibility in search engine result page (Jansen 2008). Moreover, it was a starting point of display banner advertising that uses banners on websites to promote a product, started in the early 90s when webpage owners were looking for additional sources of income to support their content. At that time, all relationships between site owners were either personal or through third parties who represented a number of websites owners to communicate with individuals who wanted to acquire display banners services on their websites.

The first significant paid display banner was placed on the site "wired.com" and paid for by AT&T, an ad was a part of AT&T's larger "You Will" campaign and had a huge success in terms of recognition and clickthrough rate (LaFrance 2017).

The next significant step in creating the digital marketing we are used to was the creation of cookies. Designed and implemented by Netscape's engineer Lou Montulli in 1994, web cookies became the essential tool for tracking user data in the digital marketing area (Jones 2020). Cookies are strings of data created by a web server and sent to a browser, then hosted on the user's computer or other device using the user's web browser. When a browser in the future requests an object from the same domain, the browser will send the same string of data back to the origin server. Cookies allow the saving and storage of useful user information like browser history, button clicks, shopping cart items etc., without revealing information, that can harm the privacy of the users (Cisco Secure Web Appliance 2018). Advertisers use cookies to help them deliver the most relevant and targeted content to specific audiences. The creation of web cookies gave digital marketing one of the greatest tools for efficient consumer-orientated grouping and targeting, with the possibility to save and analyze the data for future use.

With the further development of technologies and the emergence of social networks in the 2000s such as Twitter, Facebook and YouTube, the average person has become increasingly more dependent on digital technology in everyday life. This has led to rapidly expanding opportunities for digital marketers to advertise on new platforms. In-app advertising, preview video ads, video banners, social advertising and even more became a part of digital advertising in a short period of time. All these possibilities had to be organized in a way convenient both for advertisers and publishers to get maximum revenue most efficiently (Balmer 2009).

The start of the era of real-time bidding cannot be marked by a single date or event, as in previous cases, the creation of this was a long process and required the development of many independent technologies. Real-time bidding is an auction where ad impressions are bought and sold during transactions that take a very short time during page load by the user. The real-time bidding process consists of three main parties: SSP - supply-side platform, DSP - demand-side platform and Ad Exchange (Thomas 2017).

The supply-side platform (SSP) is a technology platform that helps publishers monetize their advertising inventory/apps. It allows web publishers and digital media owners to manage their ad

inventory, populate it with ads from different advertisers, and generate revenue. It enables publishers to make their advertising inventory available to ad exchanges and control it for future revenue maximization on their impressions across all demand sources.

The demand-side platform (DSP) is a technology platform that acts as a counterpart SSP and represents advertisers in the real-time bidding auction process. It allows advertisers to manage their inventory and set up their campaigns by defining the settings of maximum bids, budget limits, target audience parameters, and campaign goals. Demand-side platforms often have their own unique technologies, supported by artificial intelligence these days, and unique partnerships with ad exchange that allow advertisers to control their choice of inventory and receive the most value for the price they pay.

The ad exchange is the connector between the demand-side platform and the supply-side platform. It is a neutral site that connects two parties between each other and allows the real-time bidding process to exist, via real-time auctions (Shuai Yuan 2013).

Further development of digital technologies, represented mainly by OTT - over-the-top (OTT) media service and CTV - Connected TV, and the creation of new social networks will certainly only accelerate the development of digital marketing in the coming years.

Thus, with the constant development of digital technologies and increasing Internet traffic. Digital marketing has taken its leading position compared to other forms of marketing. 27th edition of The CMO survey shows that “Digital marketing spending has grown to comprise 58% of marketing budgets, reflecting 15.8% growth over the last year, and is projected to grow by 14.7% in the next year.” (American Marketing Association 2021). At the same time, Emarketer portal showed the statistics for 2020, showing that “the vast majority of digital display advertising in the US is bought and sold programmatically—that is, with automation, including programmatic direct setups and more traditional forms of real-time bidding (RTB). This year, these transactions will make up 84.5% of the digital display ad market.” (Perrin 2020)

1.3. Usage of business intelligence in digital marketing

The need to manually process a large amount of information can invariably lead to a partial understanding of the subject matter and can lead to loss-making actions. To avoid this and maintain an organized workflow, these processing frameworks of organized data handling structures, better known as business intelligence, can be used in routine digital marketing efforts as the best practice (Sachin S. Bhosale 2020).

The task of business intelligence is to mechanize the decision-making process and reduce the likelihood of error in judgment. BI tools used by experts can provide exemplary digital marketing solutions. The main tasks of marketing analytics are customer sales research: the effectiveness of a marketing campaign includes complex tasks of forecasting, segmenting and collaborative analysis of accounting data along with data coming from the Internet, mobile and geographic systems (GIS) (Dita 2016).

Business Intelligence does not restrict the digital marketing analyst to only think about the product at hand but helps to ensure that solutions are well integrated with those of the entire company. The data from digital marketers is passed down to different levels of the company, and BI makes it more complete by breaking down the material into the dashboard with useful and clear visualisations like tables, charts and graphs that both technical teams and non-technical management layers in the workforce can understand (Ivana Kursan 2010).

As important as it is for digital marketing analysts to focus on key performance indicators (KPIs) at the stage of campaign management, the digital marketing executive is also responsible for analyzing the return on investment (ROI) from the campaigns he or she has set up, which solely determines continuation, change or deferral of marketing strategy. Business intelligence tools can flexibly study the time that a potential customer spends in a marketing environment, which ads they are inclined to, click-through rate (CTR) and therefore cost per click (CPC) (Sachin S. Bhosale 2020).

Below are the main metrics on the basis of which the digital marketing analyst makes decisions in the process of campaign management and will be used in the research part of the thesis:

- Cost per mille (CPM) – cost per mille, also known as cost per thousand is a term that refers to the cost per thousand impressions of an ad on one web page. The word “mille” is a Latin for “thousands” (Kenton 2022).
- Cost per click (CPC) – cost per click is a paid advertising term in which the advertiser pays the publisher for each click on an ad. Cost Per Click is also may be called Pay Per Click (PPC). CPC is used to determine the cost of displaying ads to users in search engines (Frankenfield, 2022).
- Cost per action (CPA) – cost per action, also sometimes misunderstood in the marketing environment as cost per acquisition, is an online advertising measurement and pricing model that is related to a cost for a specific action, such as a sale, click, or form submission.

Modern days cookies allow us to track and set up specific actions and calculate the cost per action (Marketing Terms 2021).

- Click-through rate (CTR) – click-through rate in online advertising is the percentage of people viewing a web page who view and then click on a specific ad that appears on that page. The click-through rate shows how successfully the ad has attracted the attention of web page users. The higher click-through rate means that the ad has been more successful in generating interest.

These metrics are the most important in terms of analyzing the productivity of not only a separate digital marketing campaign but also the productivity of a digital marketing department as a whole. It is by changing, capping and limiting these metrics that digital marketing analysts can set up digital marketing campaigns and evaluate their daily performance against goals which advertisers set preliminarily.

But these metrics also provide the necessary and important information to the top management, by comparing these metrics with the goals set by customers top management can carry out an analysis of the effectiveness of individual employees, a separate inventory analysis in the form of website domains used and distribution of their usage, as well as an analysis of the effectiveness of personal deals with individual publishers and websites etc.

Last but not least, these metrics and the use of BI reports for their analysis give an additional tool for the accounting department for internal performance analysis and costing purposes. The

analysis of mentioned metrics can make it possible to understand how much money was spent on the same inventory in different periods, what margin the company received due to the applied changes in strategy, and how this affected the profitability of the company in the short and long run.

That is why the author decided to study the question of how the introduction of business intelligence in the digital marketing department will affect the productivity of digital marketing analysts. Check how not only the convenience and time efficiency of the digital marketers changed, but what is more important, the main metrics of digital marketing efficiency, that affect company productivity in the big picture.

In the company studied by the author, the introduction of new BI tools was carried out at different levels, and a variable set of instruments was offered to digital marketers for analysis. These tools range from those already familiar to many but redesigned in a new manner and new tools that have not been presented in the company before.

The main tool that was used in the company before, but thanks to more data and improved opportunities for visualization and adaptation of data, began to show more relevant and easily accessible information, is the balanced scorecard. The tool was and is being used by researched companies' digital marketing analysts as the main strategic tools to communicate and link strategic objectives and measures, plan and set targets, as well as enhance strategic feedback and learning (Chavan 2009). In addition to this, custom reports have been created to link customer data and digital marketing department data, allowing you not only to analyze the inventory used but also to evaluate your own performance in the selected time frame.

Speaking about the main innovations, one cannot fail to note the use of more advanced forecasting tools, which are provided by the new BI tools. Utilization of built-in predictive forecasting models using exponential smoothing to automatically detect seasonality in the data to provide forecast results from a series of data gave digital marketing analysts additional information to adjust digital marketing campaigns in a more efficient way.

2. METHODOLOGY

In order to assess how the use of new BI tools changes the efficiency of digital marketing analysts, the author has used quantitative research by composing an online questionnaire among employees of the digital marketing department in one of the Estonian companies, where the author works. Furthermore, the author has collected and analysed the data provided by his workplace, initially obtaining permission to do so and encoding sensitive information, so it can be publically used in the thesis.

In his research, the author decided to focus on three main aspects of efficiency that are important in digital marketing campaign management: time efficiency, performance efficiency, and visibility efficiency. In the case of digital marketing, the author connects time efficiency to the average time spent on the campaign management set-up or adjustment, moreover, the author wanted to analyze how much the time distribution of digital marketers has changed, and if new BI tools allowed them to eliminate some daily routine tasks and keep more time for important ones. In order to analyze performance efficiency, the author wants to check how new BI tools affect the average values and standard deviation of the main metrics that digital marketers use for the evaluation of campaign performance (CPA, CPC, CPM, CTR). And by analyzing visibility efficiency, the author aims to analyse if new BI tools allow digital marketers to notice campaign management errors faster/easier, so they can make the appropriate adjustments sooner.

2.1. Online questionnaire

The questionnaire for author's study was developed based on the work of Md. Shamsul Arefin, Md Rakibul Hoque and Yukun Bao that analyzes how the implementation of business intelligence impacts organizational performance from a managerial point of view, the work is called "The impact of business intelligence on organization's effectiveness: an empirical study" (Md. Shamsul Arefin 2015). In this paper, the authors associate organizational effectiveness with various parameters, for example, an organizational strategy, an organizational structure, an organizational process, an organizational culture, and others, for the study of which they sent a questionnaire to more than 587 managers in 363 organizations in South Asia.

To analyze these parameters, managers were presented with a questionnaire that asked them to self-evaluate their company's performance in order to evaluate the parameters mentioned, as well as questions on the usage of business intelligence in the company to see if there is a correlation in the usage of business intelligence and organizational effectiveness, so later a model can be created. Questions in the survey were divided into groups to represent the parameter being studied. Several examples of the question used in the study: "Business intelligence systems (BIS) reduced the cost of effective decision-making", "Business intelligence systems (BIS) reduced time-to-market products/services", and "Business intelligence systems (BIS) intelligence improved efficiency of internal processes".

Since it is impossible to extract the exact data on how the time spent, time distribution and ease of visual perception of digital marketers have changed, the author decided to make an online questionnaire among employees of the digital marketing department so that employees could evaluate these parameters themselves from their point of view. That is why parameters such as time efficiency and visibility efficiency will be analysed by using an online questionnaire and considered as latent variables.

Purposive sampling were used in the research. Since the author expects to select a sample that is the most useful and accessible for the purposes of the research, the available group of people working in the digital marketing department was chosen. The author decide to use mentioned method since the aim of the research is to gain detailed knowledge about a specific phenomenon within the specific group of people.

A total of 39 respondents out of 52 total working in the digital marketing department sent their responses to the questionnaire. The questionnaire was sent to each employee personally and duplicated in the collective communication channel in case the respondents miss the questionnaire first time. The questionnaire has a response rate of 75% percent. Out of total 39 respondents, 26 (66.7%) participants were men and 13 (33.3%) participants were women.

The responses included vast categories of positions presented in the digital marketing department, initially, the main task was to separate digital marketing analysts (digital marketers) from other positions. Of the 39 participants, 32 (82.1%) were digital marketing analysts, 6 (15.4%) were technical support and 1 (2.6%) was a data analyst. Only answers from 32 digital marketing analysts will be used for future analysis because the aim of the questionnaire was to

analyse the self-reflection of digital marketing analysts on time and visibility efficiency change after the implementation of new BI tools. A usable sample of 32 respondents was finally obtained.

To assess how the efficiency of employees in these parameters has changed after the implementation of new BI tools, the author used questions aimed at self-evaluation of employees. The questions were grouped to represent each of the parameters (time, visibility and performance efficiency) and used a ten-point Likert scale, in which one represents – strongly disagree, and ten represents – strongly agree.

The questionnaire consists of five sections. The first one aims to define the personal characteristics of employees, such as gender and position. The position is an important criterion in this research. This question gives the author an opportunity to divide the questioners into different groups by their position in the digital marketing department. Since the objective of the thesis is to evaluate the impact of new BI tools on digital marketing analysts, only this group's responses will be evaluated for the research.

Next follow three sections of the questionnaire, each of them aiming to collect information regarding time efficiency, performance efficiency and visibility efficiency. Only the responses from respondents who marked themselves as „digital marketing analysts” will be analysed to form the final conclusion.

The second section consists of questions that aim to evaluate how the implementation of new BI tools affects the time efficiency of digital marketing analysts. The questions are focused not only on time spent on a campaign set-up or adjustment but also on the effective distribution of time. The second section consists of two questions.

The third section consists of questions that aim to evaluate how the implementation of new BI tools affects the visibility efficiency of digital marketing analysts. The questions are focused on how easily and quickly analysts notice errors in digital marketing campaigns, how quickly they notice deviations from their goals in main metrics and the ease/user-friendliness in the usage of the new tools. The third section consists of two questions.

The fourth section consists of questions that aim to evaluate how the implementation of new BI tools affects the performance efficiency of digital marketing analysts. The questions in this section are focused on digital marketing goals achievement and their consistency. The results of this section will be presented in the research, but the author decided not to use them as the main tool in the performance efficiency analysis, since the raw daily data can provide a much better overlook of this part. Therefore, the results of this section will be used as a complement to the main material. The fourth section consists of two questions.

The last fifth section consists of the questions that aim to collect the feedback on author's occupation. Questions in the section touchpoints that intersect with the thesis topic, but not directly. The author will provide the results of these open-ended questions if they provide any supportive or helpful information for the thesis aim. The fifth section consists of four questions.

The questionnaire was composed in the English language. This was done due to the fact that the digital marketing department of the company, which the questionnaire was sent, consists of people of different nationalities. Although most of the people in the sample speak Estonian or Russian languages, English was chosen as the universal instrument for the creation of one questionnaire, as well as to cover more people who can take part in the survey. The questionnaire was available in electronic format on Google Docs during the period from 1st April to 30th April. The link to the questionnaire was distributed to the digital marketing department via slack, messaging app for business connections.

A total of 39 employees of the digital marketing department have taken part in the questionnaire, of these, 32 people were selected who marked themselves as “digital marketing analysts”, which makes the research and data analysis possible. The results were encoded and added into Excel, as the primary tool, after which they were analyzed, and research conclusions were made.

2.2. Primary data

For performance efficiency analysis the author used the data directly from the department of digital marketing, stored in the company's database. To prevent leakage of customer data, the author has encoded all collected data. The data used in the thesis avoids the usage of the names clients' names from whom the data was taken, avoids the usage of the exact time intervals of the

collected data and avoids the usage of exact values from which main metrics (CPA, CPC, CPM, CTR) were calculated in the thesis. Thus, the author confirms the safety of the data of the company and its customers.

For this research, the author collected data from ten different advertisers within two different periods. The first period is defined as the period in which the company did not use new BI tools for digital marketing campaign management purposes and relied on excel and internal limited tools for everyday activities. The second period is defined as the period in which the company has fully started the usage of the new BI tool for everyday digital marketing campaign activities. The tool that was implemented is PowerBI, created by Microsoft. The main purpose of the data collection was to check if the metrics differ between two time periods and if so, then analyse how the data behaves, and check if the changes are positive or negative. The link for the raw data file will be included in the list of references.

For the research, the author used the data for clients that advertise the same type of product – online casinos. The online casino as a product was chosen for two reasons. The first reason is the independence of online casinos from the season. Since people constantly play online casinos and do it from home, user activity is the same in all time periods and there is no correlation between these variables. An example of a product that depends heavily on the season would be sports betting. Since in different seasons sports organizers hold different tournaments, this directly affects the metrics author aims to analyse (CPA, CPC, CPM, CTR). The second reason is that digital marketing is the main field of advertisement for online casinos since most of the time other marketing strategies can be limited due to government regulations.

In addition, to get extra consistency in analysed values author decided to choose data from advertisers, who operate in the same region. After analyzing all the pros and cons, the Scandinavian region was chosen, namely such countries as Estonia, Finland and Norway. This choice was based on several reasons. The first reason is the similarity of the regions in the laws regarding online advertising of online casinos. The second reason was the availability of data for these regions. Since the company where the author works operate in Estonia, there were more opportunities to obtain high-quality data specifically for the Scandinavian region. As a result, data from ten advertisers were analyzed, of which three were from Finland, three from Estonia and three from Norway.

The main tool that the author uses to prove that the implementation of new BI tools leads to a change in the averages of marketing metrics (CPA, CPC, CPM, CTR)is the t-test. The significance level that was chosen for the research is 5% ($\alpha = 0.05$) and the null hypothesis will be rejected if the p-value is lower than the chosen alpha. For the purpose of the research null hypothesis (H0) is stated as “The average value of *chosen metric* is equal in tested periods” and the alternative hypothesis (HA)is stated as “The average value of *chosen metric* differs in tested periods”.

3. EMPIRICAL ANALYSIS

3.1. Online survey results

As this study undertook a survey based on self-report on all of the variables, two concerns have arisen: internal consistency and common method bias. In order to carry out further analysis and describe the results that were obtained from the online questionnaire, it was necessary to conduct the tests that eliminate mentioned concerns and confirm the quality of the collected data.

The concern of internal consistency was raised because in the questionnaire the author uses a set of questions as a group that aims to evaluate one parameter. The author decided to use Cronbach's alpha test, which is considered to be a measure of scale reliability (UCLA 2011). The results for Cronbach's alpha test were 0.71 for the time efficiency group of questions, 0.748874887 for the visibility efficiency group of questions and 0.63 for the performance efficiency group of questions. Pallant states Alpha Cronbach's value above 0.6 is considered high reliability and acceptable index (Pallant 2020). Whereas, a Cronbach Alpha value less than 0.6 is considered low. Cronbach's alpha values in the range of 0.60 - 0.80 are considered moderate but acceptable. On the basis of these findings, we can assume that internal consistency is not a concern in this research.

The concern of common method bias was raised because the respondents of the questionnaire may have certain tendencies that respondents apply and these tendencies can impact their responses systematically across different measures when answering a survey (Morten Jakobsen

2015). Since in the questions answered by the digital marketing analysts they had to directly evaluate their own efficiency, overestimations may occur. To check poll results for a common method bias problem, Harman's single factor test was conducted. The procedure of Harman's test consists of loading all observed variables in the research into an exploratory factor analysis and then examining the unrotated factor solution to ascertain how many factors are necessary to account for the majority of the variance present in the collected data. The logic of the test is that, if a substantial amount of common method variance is present in the sample, either a single factor will emerge from the preceding analysis or one factor will account for a majority of the variance among the variables (Podsakoff P. 2003). Harman's single factor test is conducted by examining the results whether the first extracted factor explains more than 50 percent of the variance. The results for Harman's single factor test were satisfactory, since the first extracted factor explained 48.36% of the variance. On the basis of these findings we can assume that the common method bias is not a concern in this research.

In a questionnaire that was presented to digital marketing staff, two questions were aimed to assess time efficiency. The first question was "Using Power BI reports over Excel/Insights Dashboards helps me spend less time on set up/adjustment of campaigns". The purpose of this question was to explore if the implementation of new BI tools allows digital marketing analysts to spend less time on existing tasks that digital marketing campaign includes. The average score for this question is 7.84 out of 10, which means that most of the respondents strongly agree with the fact that using new BI tools helps them spend less time on the set-up/adjustment of marketing campaigns. None of the survey results was below a score of "5", which means that none of the respondents felt that the use of new BI tools worsened the time they spend on set up/adjustment of marketing campaigns.

The second question that assesses time efficiency was "Using Power BI reports over Excel/Insights Dashboards reports helps me eliminate some daily routine tasks and devote more time on important ones". The purpose of this question was to explore how the effective distribution of time changed among digital marketing analysts, and if they can spend more time on tasks that are more meaningful for marketing campaign management in their opinion. The average score for this question is 7.96 out of 10, which means that most of the respondents strongly agree with the fact that using new BI tools helps them distribute their time more efficiently and devote more of it to important tasks. Only one of the answers to the question was

below a score of “5”, which means that only one interviewee believes that the implementation of new BI tools does not positively affect the distribution of his/her time.

Taking into account both questions, as a single group of questions that study the time efficiency and BI’s effect on it, the average score for both questions is 7.90 out of 10. According to the digital marketing analysts’ self-evaluation of the changes in their time efficiency, the author states that the implementation of new BI tools in the digital marketing department increases the time efficiency of digital marketing analysts. In the author's opinion, this score allows us to confirm the first hypothesis, which was proposed at the beginning of the study “H1: The implementation of new BI tools increases the time efficiency of digital marketing analysts”.

The other two questions, that were analyzed by the author were aimed at assessing visibility efficiency. The first question in the group was “Using Power BI reports over Excel/Insights Dashboards helps me identify campaign management errors faster”. The aim of the question was the explore if new BI tools help spot errors and uncertainties faster, the faster these issues are spotted, the faster appropriate adjustments in the marketing campaign will be done, and this will result in a better overall performance of marketing campaign. The average score for this question is 7.81 out of 10, which means that most of the respondents strongly agree with the fact that using new BI tools helps them spot campaign management errors in a lower amount of time. In the results, all scores given by respondents were not lower than “6” points, which means that none of the respondents felt that the use of new BI tools worsened the visibility of errors and their reaction time on their fix.

The second question that assesses visibility efficiency change for digital marketing analysts was “Using Power BI reports over Excel/Insights Dashboards helps me more quickly see a deviation from the campaign goals. (CPA, CPM, CPC, Spend goals)”. The aim of the question is to see if digital marketing analysts can more clearly see deviations in the main campaign management metrics and adjusts the campaign settings to improve these metrics in the future. The average score for this question is 8 out of 10, which means that most of the respondents strongly agree with the fact that using new BI tools helps them spot campaign management errors in a lower amount of time. Out of all questions, this one received the strongest score, only two respondents gave a score lower than “7” points. Surveyed digital marketing analysts most of all agree with the fact, that the implementation of new BI tools helps them more quickly see deviations in campaign goals.

Taking into account both questions, as a single group of questions that study the visibility efficiency and BI's effect on it, the average score for both questions is 7.90 out of 10. According to the digital marketing analysts' self-evaluation of the changes in their visibility efficiency, the author states that the implementation of new BI tools in the digital marketing department increases the visibility efficiency of digital marketing analysts. In the author's opinion, this score allows us to confirm the second hypothesis, which was proposed at the beginning of the study "H2: The implementation of new BI tools increases the visibility efficiency of digital marketing analysts".

3.2. Primary data results

During the study, the author analyzed the data of ten different advertisers. The main objective of this data analysis was to identify the difference in the average monthly values between the two periods. The author characterized the first month-long period as - "Before the implementation of new BI tools", and the second period after three months was characterized as - "After the implementation of new BI tools". The period of three months is characterized as - the "Interim period" in which new BI tools were gradually introduced and implemented in the digital marketing department.

In the research, the author focused his attention on four main metrics: cost per action (CPA), cost per mile (CPM), cost per click (CPC) and clickthrough rate (CTR). In the course of the study, the author analyzed the data and compared not only the average of the results for two periods but also the standard deviation of the monthly results. Since the average results of main metrics can depend not only on the implementation of BI tools in a company but also on many other values, the author aimed to study the standard deviation of the results in order to determine how much the stability of the results has changed and whether BI implementation helps in this.

For the purpose of our research, we take a decrease in costs (CPM, CPC, CPA) and an increase in clickthrough rate as a positive result (performance efficiency increase), contrariwise an increase in costs (CPM, CPC, CPA) and a decrease in clickthrough rate will be stated as negative results (performance efficiency decrease). Since in our situation the results can go both ways, the

two-tailed t-test was chosen to check the changes in the mean monthly results and compare them. Next, the results of t-tests, changes in the average results, as well as changes in the standard deviation for each of the selected metrics will be presented.

By conducting a T-test to investigate whether the mean value of a CPA parameter has changed over two periods, we have obtained results that do not allow us to reject the null hypothesis, which states “The average value of CPA is equal in tested periods”. Of the ten advertisers, only four had t-test results below the required value of alpha, which does not give us sufficient evidence that implementation of new BI tools has a positive effect on the cost per action value, meaning there is no performance efficiency increase in case of cost per action. Also, out of ten advertisers, only three showed positive changes in standard deviation. These results also allow us to reject the claim that implementation of new BI tools has a positive effect on standard deviation, meaning there is no increase in stability in the results. Taking all the results into consideration, we can reject the claim that the implementation of new BI tools has a positive effect on performance efficiency when it comes to the CPA metric.

Table 1. T-test results and CPA performance change for ten advertisers

	T-Test	Average	St. Dev.
Advertiser 1	0.317507952	-13.46%	17.44%
Advertiser 2	0.843466759	7.73%	-24.97%
Advertiser 3	0.047822129	97.89%	-3.66%
Advertiser 4	0.345257201	6.77%	5.82%
Advertiser 5	0.181166584	-8.27%	42.29%
Advertiser 6	0.507153012	-23.76%	9.99%
Advertiser 7	0.044761551	-33.97%	-37.55%
Advertiser 8	1.73332E-05	365.28%	202.73%
Advertiser 9	0.036915543	175.59%	289.92%
Advertiser 10	0.200894046	27.83%	17.85%

Source: author’s calculations

By conducting a T-test to investigate whether the mean value of a CPM parameter has changed over two periods, the author has obtained results that allow us to reject the null hypothesis, which states “The average value of CPM is equal in tested periods”. Of the ten advertisers, seven had t-test results below the required value of alpha. After we have confirmed the alternative hypothesis that states “The average value of CPM is different in tested periods”, we can analyze the average results to see if the changes are positive or negative. Of the ten advertisers, eight had a positive change in results, meaning that for eight advertisers the average value of cost per mile

has decreased. On average in the second period, the value of cost per mile decreased by 13.4%. Speaking of the standard deviation of CPM value, we can also see positive changes, out of ten advertisers, nine had a decrease in standard deviation. On average in the second period, the standard deviation value of cost per mile decreased by 32.7%. These results allow us to support the claim that implementation of new BI tools has a positive effect on standard deviation, meaning there is an increase in stability of the results. Taking all the results into consideration, the author can confirm the claim that the implementation of new BI tools has a positive effect on performance efficiency when it comes to the CPM metric.

Table 2. T-test results and CPM performance change for ten advertisers

	T-Test	Average	St. Dev.
Advertiser 1	9.39333E-06	-23.83%	-49.79%
Advertiser 2	0.001619727	-15.94%	32.78%
Advertiser 3	8.15877E-05	-47.31%	-85.35%
Advertiser 4	5.18184E-08	37.70%	-15.62%
Advertiser 5	0.300082981	-4.34%	-8.30%
Advertiser 6	0.308187193	21.20%	-5.91%
Advertiser 7	0.551243695	-2.35%	-21.17%
Advertiser 8	2.80825E-07	-72.23%	-94.38%
Advertiser 9	0.027723062	-14.10%	-64.32%
Advertiser 10	0.000193504	-12.76%	-14.98%

Source: author's calculations

By conducting a T-test to investigate whether the mean value of a CPC parameter has changed over two periods, the author has obtained results that allow us to reject the null hypothesis, which states "The average value of CPC is equal in tested periods". Of the ten advertisers, eight had t-test results below the required value of alpha. The confirmation of the alternative hypothesis that states "The average value of CPC is different in tested periods" allows us to analyze the average results to see if the changes in average values are positive or negative in tested periods. Seven advertisers out of ten had a positive change in the average value of cost per click, meaning that for them the value decreased in the second period. On average in the second period, the value of cost per click decreased by 8.8%. Talking about the standard deviation of CPC value, we can also observe positive changes in the results, nine advertisers out of ten had a decrease in standard deviation. On average in the second period, the standard deviation value of cost per click decreased by 37.5%. The results of standard deviation change allow us to support the claim, that the implementation of new BI tools has a positive effect on standard deviation, meaning there is an increase in stability of the results. Summing up the results, the author can

confirm the statement that the implementation of new BI tools has a positive effect on performance efficiency when it comes to the CPC metric.

Table 3. T-test results and CPC performance change for ten advertisers

	T-Test	Average	St. Dev.
Advertiser 1	3.05428E-18	42.54%	-59.02%
Advertiser 2	0.000409098	-7.72%	-31.26%
Advertiser 3	1.51807E-08	-47.88%	-82.67%
Advertiser 4	0.000300971	-25.32%	-73.38%
Advertiser 5	0.097305397	-4.27%	-57.86%
Advertiser 6	0.670193471	6.16%	-29.75%
Advertiser 7	0.047824564	23.96%	127.40%
Advertiser 8	2.90301E-05	-60.50%	-94.07%
Advertiser 9	1.24588E-07	-23.01%	-57.89%
Advertiser 10	0.002165086	7.99%	-16.45%

Source: author's calculations

By conducting a T-test to investigate whether the mean value of a CTR parameter has changed over two periods, the author has obtained results that allow us to reject the null hypothesis, which states "The average value of CTR is equal in tested periods". Of the ten advertisers, eight had t-test results below the required value of alpha. Confirmation of the alternative hypothesis made it possible to analyze the results, which confirm positive changes in the observed metric. Six out of ten advertisers have a positive change in CTR, an average increase of 8.22% was received in the second period. Moreover, the obtained data allow the author to state that we have positive changes not only in the average values of click-through metric but also in its standard deviation. Of the ten advertisers, six have positive changes in standard deviation. On average, the results of the standard deviation of the CTR metric decreased by 12.62%, the decrease in standard deviation means that the stability in the results of CTR has increased in the second period. Considering all obtained results, the author can confirm the statement that the implementation of new BI tools has a positive effect on performance efficiency when it comes to the CTR metric.

Table 4. T-test results and CTR performance change for ten advertisers

	T-Test	Average	St. Dev.
Advertiser 1	2.1127E-15	85.22%	38.53%
Advertiser 2	0.208891932	12.74%	65.70%
Advertiser 3	0.025179998	-23.28%	-76.60%
Advertiser 4	2.40364E-09	-46.10%	-60.84%

Advertiser 5	0.031089158	8.09%	-3.66%
Advertiser 6	0.060730072	-18.62%	3.14%
Advertiser 7	0.26365965	13.38%	-24.90%
Advertiser 8	9.15719E-05	39.59%	-65.51%
Advertiser 9	0.001831775	-12.57%	-26.50%
Advertiser 10	4.69136E-07	23.76%	24.45%

Source: author's calculations

Speaking about all the analyzed metrics, the author can state that there are confirmed positive changes in three of the four analyzed metrics. Mean results and standard deviation of CPM, CPC and CTR have confirmed positive changes in the second period after the implementation of new BI tools in the digital marketing department. Although the data do not provide evidence of an increase in efficiency in the case of CPA, all other data allow us to confirm the third hypothesis, which was proposed at the beginning of the study “H3: The implementation of new BI tools increases the performance efficiency of digital marketing analysts”

4. CONCLUSION

The topic of the implementation of new business intelligence tools has proved to be interesting and necessary over the past years. With the increase in the popularity of digital marketing as the main promotion tool and the increase in stored and processed data amounts due to growing traffic, the need for new business intelligence tools for daily analysis and forecasting has reached significant heights. It is because of this that the topic of the impact of these tools on the performance of employees and the whole company from different aspects is a major and important task. Analysis of all influencing factors and impacted parameters is impossible, but the author believes that all the objectives put forward in the thesis have been completed, its aim was met and the author answered every question introduced in the thesis.

When preparing the theoretical part of the work, three main questions were put forward, which were later investigated during the analysis.

Research questions:

1. What new BI tools do digital marketing analysts use to increase their efficiency?

2. Does the new BI tools increase the time efficiency and visibility efficiency of the digital marketing analysts?
3. Does the new BI tools increase the performance efficiency, resulting in better target results or fewer results' deviation?

In order to answer the research questions, the author made a number of actions, the main of which are: the review of theoretical literature, the compilation and analysis of an online questionnaire, and the analysis of the primary data. The literature review helped the author to answer the first research question, what BI tools are used by digital marketing analysts, how they were developed, and also for what purposes and under what requirements they were developed. The analysis of the data from the online questionnaire and the primary data provided sufficient evidence to confirm how and for how much the effectiveness of digital marketing analysts changes after the implementation of new BI technologies in the company.

The author made a number of conclusions, which he presented throughout the empirical analysis part and at the end of the theoretical part:

1. Digital marketing analysts use a vast set of instruments supported by the new BI tools. These instruments vary from the classical ones that have been enhanced with the power of recent BI tools to the new ones that were previously unavailable due to technical limitations that are eliminated with the usage of recent BI tools.
2. According to the digital marketing analysts' self-reflection questionnaire, the implementation of the new BI tools increases their time efficiency as well as visibility efficiency.
3. According to the results extracted from the analysis of primary data that describes the performance of ten different advertisers over periods before and after the implementation of the new BI tools, the implementation of the new BI tools increases the performance efficiency of digital marketing analysts. Though not all metrics follow this trend.

The aim of this thesis was to evaluate how the transition to new BI technologies affects digital marketers' efficiency. Based on the results obtained during the thesis, the author can support his assumptions about the positive impact of the new BI tools on various areas of company performance. Since all three hypotheses posed at the beginning of the thesis were confirmed, the author declares with confidence that the implementation of new BI tools in the digital marketing department has a positive effect on digital marketing analysts' efficiency.

For the further research on this topic, the author would use more extensive amounts of data that could confirm positive changes in the results of the studied metrics. It would also be preferable to get accurate data that would prove how the time efficiency and visibility efficiency of digital marketing analysts changed after the implementation of new BI tools. Although the questionnaire is a sufficient tool for the research, it does not provide accurate enough results and is more suitable for the intermediate conclusions. It would also be interesting to develop the topic of the influence of BI on different areas of the company and touch upon implicit areas.

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APPENDICES

Appendix 1. Questionnaire

DDM Questionnaire

Question 1. Gender:

- a. Male
- b. Female
- c. Other

Question 2. Position:

- a. Digital Marketing Analyst
- b. Technical Support
- c. Account Manager
- d. Other

Question 3. Using Power BI reports over Excel/Insights Dashboards help me spend less time on set up/adjustment of campaigns. Mark on the scale a number from 1 to 10, provided that 1 – strongly disagree, and 10 – strongly agree.

1 2 3 4 5 6 7 8 9 10

Question 4. Using Power BI reports over Excel/Insights Dashboards reports help me eliminate some daily routine tasks and devote more time on important ones.. Mark on the scale a number from 1 to 10, provided that 1 – strongly disagree, and 10 – strongly agree.

1 2 3 4 5 6 7 8 9 10

Question 5. Using Power BI reports over Excel/Insights Dashboards help me identify campaign management errors faster. Mark on the scale a number from 1 to 10, provided that 1 – strongly disagree, and 10 – strongly agree.

1 2 3 4 5 6 7 8 9 10

Question 6. Using Power BI reports over Excel/Insights Dashboards help me more quickly see a deviation from the campaign goals. (CPA, CPM, CPC, Spend goals). Mark on the scale a number from 1 to 10, provided that 1 – strongly disagree, and 10 – strongly agree.

1 2 3 4 5 6 7 8 9 10

Question 7. Using Power BI reports over Excel/Insights Dashboards help me achieve campaign goals more efficiently (CPA, CPM, CPC, Spend goals). Mark on the scale a number from 1 to 10, provided that 1 – strongly disagree, and 10 – strongly agree.

1 2 3 4 5 6 7 8 9 10

Question 8. Using Power BI reports over Excel/Insights Dashboards help me achieve daily/weekly consistency in campaign goals (CPA, CPM, CPC, Spend goals). Mark on the scale a number from 1 to 10, provided that 1 – strongly disagree, and 10 – strongly agree.

1 2 3 4 5 6 7 8 9 10

Question 9. Power BI reports are more user-friendly and intuitive comparing to Excel/Insights Dashboards. Mark on the scale a number from 1 to 10, provided that 1 – strongly disagree, and 10 – strongly agree.

1 2 3 4 5 6 7 8 9 10

Question 10. What do you use more as source of information for campaign management:

- a. Visuals (Bars, Charts, Graphs)
- b. Raw Numbers (Tables, Cards)

Question 11. Other things Power BI reports increase your efficiency in:

Long answer text

Question 12. What data analytics team should improve in the existing/new reports?:

Long answer text

Question 13. Other comments/feedback:

Long answer text

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