USING WEB ANALYTICS DATA: A PARTICIPATORY DESIGN MODEL FOR INDIVIDUAL WEB TRAFFIC REPORT DEVELOPMENT

Completed Research

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Abstract

Web Analytics (WA) tools offer an increasing amount of analysis options. This amount of possible data overwhelm business users who are not familiar with WA and therefore the potential of WA is not fully exploited. We address this demand of individual information needs with the development of an indicator selection process. By using participatory design methods future users from different business units are involved in order to adopt WA into their workspace through building individual WA reports. The developed iterative model consists of five main steps. After the presentation of the developed model, we demonstrate the applicability in a case study at an industrial company. The case study shows a greater adoption by the different users, as the dashboards are individually tailored to them.

Keywords

Web Analytics Key Performance Indicators, Web Traffic Report Development, Participatory Design, Individual Technology Adoption

Introduction

During the last decade, the research field of Web Analytics (WA) has increased (Akter and Wamba, 2016). WA tools are widely used in practice and offer a growing amount of possibilities for tracking the behavior of website users. These additional tracking options can lead to an overload of information and misconceptions (Singal et al., 2014). In addition, there are currently no clear processes for translating these tracking opportunities into customized indicator reports which enable drawing conclusions and actions for a website optimization or a changed customer approach efficiently (Singal et al., 2014). Just because a company has access to data, this does not mean that the potential of the data is fully exploited. Instead, the goal should be to provide each user with the data which is relevant to him in order to adopt the WA technology into their workspace (Waisberg and Kaushik, 2009). The adoption in our case means the active usage of WA KPIs by various stakeholders to analyze their individual website subsections. The problem of getting unspecific and unmanageable amount of data regarding the information needs of WA users can lead to a low acceptance of using WA tools as it has been monitored in related disciplines (Karmokar et al., 2013). Business units (BUs) in a company have different demands for information in terms of the analysis of the company’s website (Hausmann et al., 2012). These different user groups of WA tools have already been described but it remains unclear how different requirements can be incorporated (Clifton, 2012). To our knowledge no comprehensive process for identifying the most relevant web traffic indicators with involving the future users has been presented yet (Singal et al., 2014). In fact, this necessity of individually adopted traffic reports to the needs of the individual users explicitly differentiates a process for Web Traffic report development.
development from general implementation processes in software development. More than in software development processes, it is important to understand exactly what questions each individual user has in order to consider them individually and not to find the lowest common denominator. Beyond that, we suspect that the acceptance of WA tools is increased. The higher acceptance could result in a more effective use if future users are involved in the development process of individual web traffic reports as it has been reported by several researchers (Robey and Farrow, 1982; Damodaran, 1996). By attaching a high priority to the involvement of users, we exploited general principles and techniques of the socio-technical participatory design as an appropriate design approach. In this article, a participatory design model is developed with which individual web analyses for different user groups can be developed. This is done taking the future users into account and the fact that they may have little expertise in WA. According to Spinuzzi (2005), the article is oriented towards a purpose statement as common in participatory design. The purpose statement of this article is: Development of a WA process model which improves the adoption of the future users and develops individual web traffic reports.

In the next section, we describe the theoretical background of our research. We then present our research design and methodology. Results of our research are discussed in section 4. The developed participatory design model is adopted in a company described in section 5. Impact, recommendations and limitations are discussed after that.

Related Literature

Web Analytics

The Web Analytics Association formulated a definition in 2008: “Web Analytics is the measurement, collection, analysis and reporting of Internet data for the purposes of understanding and optimizing Web usage” (Web Analytics Definitions, 2008). With this article we want to address the last two aspects of this definition “understanding and optimizing”. In order to approach this issue, it is necessary to dedicate oneself to the different goals of a website which have been mapped in the literature into website type categories. This website type categorization is used in WA literature as the requirements of tracking a website vary significantly depending on the purpose. Every website has, correspond to its type, different objectives and tasks that build requirements for defining website success indicators (Hausmann et al., 2012). On this occasion, a general consensus is formed in four categories. “Commerce” websites have the objective of selling products or services to the customers directly on the site (Singal et al., 2014; Booth and Jansen, 2009; Reese, 2008; Peterson, 2006). “Support/Service” websites provide help in form of articles or questions and answers in case of a problem (Singal et al., 2014; Reese, 2008; Peterson, 2006). “Marketing/Lead generation” sites have the objective of informing about products and services as well as supporting business that is characterized by long sales cycles (Singal et al., 2014; Booth and Jansen, 2009; Peterson, 2006) and for product that cannot be sold directly on the website (Reese, 2008). “Content/Media” websites put the attractiveness of content in the center of consideration for increasing the online advertisement and promotion revenue by increasing visitors’ loyalty (Singal et al., 2014; Booth and Jansen, 2009; Reese, 2008; Peterson, 2006). Most of the websites can be assigned to more than one type due to the circumstance that many organizations have a multi business model (Peterson, 2006). Thereby, websites can be separated into different parts that have their own topics, stakeholders and purposes (Booth and Jansen, 2009).

Web Analytics Indicators

A major component of WA are key performance indicators (KPIs) used to analyze web traffic. KPIs are performance and numeric success metrics to measure the achievement of business relevant goals and capturing the most important business data (Zumstein and Gächter, 2016). Kaushik (2007) suggests that an implementation of standard KPIs to measure the website performance is not expediently. He argues that every company tries to reach their goals in a different way which is also reflected in the usage of their website. That is why KPIs should be suited to the demands of the company. For this issue, it is recommended to ask about the key function of the website and how to measure this (Kaushik, 2007). A process for finding the best-suited KPIs is still missing. Singal et al. (2014) listed resulting from a literature review several indicators for WA and clustered them into four website types. They demand an identification of most suitable KPIs in the WA environment (Singal et al., 2014). KPIs are used in several application fields...
Model for Individual Web Traffic Report Development

apart from WA. Most of the as relevant identified KPI literature is located in the management and manufacturing business. Kibira et al. (2017) described a KPI identification and selection process for the sustainable manufacturing environment. After selecting KPIs by experts of the BU, they are encouraged to rank these KPIs in consideration of effectiveness. In selecting KPIs for a manufacturing plant environment, Collins et al. (2016) found out that every participant has his/her own circumstances and setting of priorities in spite of the same business environment, which can be seen in selecting different KPIs. Kaganski et al. (2014) pointed out that KPIs are very valuable if management can draw conclusions for future actions. But due to the fact that many organizations have an innumerable number of KPIs which breaks the spirit of using them in an efficient way, they created an “enterprise analyze model” for the factory floor environment with the issue of selecting a small number of relevant KPIs through conducting qualitative interviews. Overall, it can be summarized that KPIs have already been researched in different contexts, but the focus should be placed even more on the involvement of future users while developing customized WA dashboards and the adoption into practice.

**Web Analytics Implementation Process**

WA research in academic literature mainly focuses on developing and accessing algorithms for evaluating websites (Hausmann et al., 2012). In contrast to that, organizational aspects of implementing and using WA by users in organizations with different needs are less analyzed. Hausmann et al. (2012) identified this aspect as a too little considered field in research. Different researchers focus on the selection process of WA services in the organizational field of research in WA. They set a focal point on methods for selecting the most capable service or product in the business field based on individual requirements (Hausmann et al., 2012). Booth and Jansen (2009) present their “best key practices of Web Analytics” process in their study starting with identifying key stakeholders and define their main objectives. Based on the business goals, key website visitors are determined and KPIs are formulated and inserted into the WA tool. For a trouble-free running, a process of continual improvement is recommended (Booth and Jansen, 2009). A focus was set on WA tool selection. An explanation of how to put the explained implementation process into practice and how to perform these single steps is not in the scope of the study. Nakatani and Chuang (2011) developed a framework with criteria for making a WA tool selection process easier. The “customizability of dashboard reports” is considered as a sub-criterion (Nakatani and Chuang, 2011). But the most fitting tool does not necessarily provide the basis for acceptance within the company. Studer and Leimstoll (2015) developed a practical “multi-channel analytics framework” targeting consultants in WA projects that are implementing analytics processes in organizations for giving them a coarse structure. The framework consists of implementation steps as a guidance but has not been applied in practice. Chaffey and Patron (2012) figured out that the largest barriers in implementing WA tools could be seen in the lack of financial and human resources. This includes how the WA tool is managed, the consideration of company culture as well as conflict of interests between BUs. The technology for the realization of WA is less a problem in optimizing websites (Chaffey and Patron, 2012).

The researchers recommend putting a focus on people and processes instead of technology (Chaffey and Patron, 2012). Karmokar et al. (2013) developed an approach for evaluating websites while focusing on user demands concerning functionality and usability. The researchers conducted interviews with website users and asked them if their needs were integrated into the developed website. They found out that these participants felt more involved and created an emotion of personal bonding. The researchers also noticed that interviewees felt more comfortable, when options for selection were provided by do not having the feeling of getting lost (Karmokar et al., 2013). Every considered research article was specialized in different key aspects of WA. According to our literature review, no concept which includes a combination of the following points: involvement of future users in the development of WA reports and selecting suitable individualized KPIs reports and adoption within a case study, has been sufficiently discussed.

**Research Design**

In the development of the process model, we oriented on the design science research (DSR) guidelines described by Hevner et al. (2004). The construct-scientific paradigm DSR aims at developing useful IT solutions through creating and evaluating several artefacts (Vaishnavi and Kuechler, 2015). DSR uses qualitative research methods in order to develop a generalizable design or artefact that can be transferred (Papas et al., 2012). In order to plan the individual steps of our research, we have continued to follow the DSR methodology by Peffers et al. (2007). Above all, the research design is based on the work by Vaishnavi
and Kuechler (2015). Additionally, we concentrated on socio-technical research for creating a “socio-technical (ST) artefact” (Silver and Markus, 2013) because experiences in a sample company showed that the problem here is multileveled in the sense that there is already a technical solution which has to be adopted into the users’ workspace. The ST artefact is characterized by social and technical design features that are of equal importance (Silver and Markus, 2013).

The first step is to identify the research problem (Vaishnavi and Kuechler, 2015). To understand this problem, we conducted open, semi-structured interviews in a company. We spoke with different employees to understand the problems of practice in the adoption of a WA tool. The interview guide focused in particular on the current role of the website in terms of customer contact. The interviews were transcribed and evaluated. Based on the identified problem, a literature review was conducted to obtain a picture of the current state of research and to detect already discussed solutions (Peffers et al., 2007). We conducted the literature review by following the guidelines by Webster and Watson (2002), and have also included books from practical sources to provide a comprehensive overview of various solution opportunities for WA report development. These initial suggestions are followed by the actual development of the WA report development model which is the socio-technical artefact in our DSR process (Vaishnavi and Kuechler, 2015). We conducted a focus group discussion with ten employees of the sample company to make improvements to the tools used in the development of the individual analyses. Based on the discussion, existing literature, and collected KPIs, the first version of the model was developed. To demonstrate that the model can also be applied in practice, we adopted the model into practice through conducting a case study in a medium-sized company. There, we completely conducted the developed model to create individual WA reports for selected departments. Several interviews were conducted with the later users of the reports. The findings from the case study were then incorporated into the final model.

**Participatory Design Model for Individual Web Traffic Reports Development**

As described in section 2, several WA implementation frameworks for a technical introduction exist. We also examined implementation processes of related topics. But WA report development differs in the fact that at the end individual dashboards are generated based on the specific applications, while in other areas a generally accepted overall solution is aimed at. The underlying concept and the aims are different whereas specific elements in requirement analysis as well as KPI prioritization were considered and involved into our developed model. By attaching a high priority to the involvement of end-users, we exploited general principles and techniques of the socio-technical participatory design as an appropriate design approach for establishing the model. Participatory design involves end-users as full participants in activities instead of involving them when an initial prototype already exists (Carrol, 1997; Muller, 2003). It has the basic assumption that the quality of work will be maximized if developers and users are working collaboratively in a team in several co-design activities during the whole design process (Floyd et al., 1989; Sanders, Brand and Binder, 2010; Muller, 2003; Muller and Kuhn, 1993). An increase of the tool acceptance, a better understanding of the tool through utilizing the tool more effectively as well as quality improvement is aimed through combining professional experiences and knowledge in technical aspects and the work environment in which the product will be used (Floyd et al., 1989; Damodaran, 1996; Muller, 2003). With regard to the challenge of using techniques to involve and activate people having different backgrounds throughout the process, different activities and concepts of participation have been developed that differ in between the temporal position within the design cycle and the involvement grade of users, especially in three general stages “initial exploration”, “discovery process” and “prototyping” (Spinuzzi, 2005; Muller and Kuhn, 1993; Sanders, Brand and Binder, 2010). Therefore, we used these three basic steps of participatory design research identified by Spinuzzi (2005) as a baseline and adapted it for the WA environment. Pictograms in figure 1 present the stakeholders involved at each stage including BU coordinator, WA coordinator, webmaster and report developer. It is possible that several roles are performed by one person. In the following we will describe each process step which is mentioned in figure 1. Within these steps, we considered the recommendation of combining techniques and tools in order to include all three forms of activities “making, telling and enacting” (Sanders, Brandt and Binder, 2010; Muller and Kuhn, 1993).

**Step 1: Identification of company goals and strategy**

Every company stands out through its specific objectives in business and every BU ideally works in order to achieve these business goals (Booth and Jansen, 2009). Each sub-area of a website ideally fulfils a task or
a sub-target that is to be assigned to the overall goals (Bekavac and Praničević, 2015). These objectives depend on the business model of the company (Bekavac and Praničević, 2015). Even if companies pursue the same goals, the strategies how to reach the goals and how to interpret it on the website may be completely different (Kaushik, 2007). Hamel (2009) recommends capturing the overall business strategy and their objectives. It leads to the step of finding out the purpose of the website within the mission and vision of the company. This is done by the WA coordinator through conducting interviews with the webmaster, representing someone who has the position of seeing the big picture between the corporate strategy and the company website. This first and the second step of the model represent the initial exploration of work through having the purpose of familiarize with the problem, environment, procedures and project members (Spinuzzi, 2005).

Figure 1: The developed participatory design model based on Spinuzzi (2005)

**Step 2: Determination of business units**

Core BUs in the company that are interested in monitoring the content, have to be identified by the WA coordinator (Booth and Jansen, 2009). A first indication of interest groups can be given by taking a look on the websites primary navigation which is containing the main menu items. As websites typically consist of subpages in every content section, BUs in an organization also consist of different ranges of tasks. However, this holistic perspective has the disadvantage of getting no deeper insight into the hierarchical structure and the responsibilities in the company. It can therefore be seen as a rough indication of how the relevant BUs that require WA reports can be found.

Based on the requirement engineering approach in software developments, we assume that there is a number of stakeholders that can be seen as “baselines” (Sharp et al., 1999). This basis of stakeholders represented by the webmaster give us a general overview of important BUs and reference persons that need to be considered. Baseline stakeholders in WA are the responsible of the website, and marketing managers who have an overall view. General stakeholders of a website comprise managers, decision-makers, website developers, visitors and further persons that create, use and maintain the website (Booth and Jansen, 2009).

**Step 3: Customized indicator selection**

The customized indicator selection step represents a discovery process constituting the understanding and prioritizing of the actual objectives (Spinuzzi, 2005). An interview procedure has been developed under the consideration of involving people into the process that have little or no knowledge in WA. The method of conducting interviews has been used successfully by several other researchers (Karmokar et al., 2013; Booth and Jansen, 2009). The software development especially uses interviewing as a method in the requirement engineering from which we draw some interview structure elements into the KPI selection process (Paetsch et al., 2003). The preferred interview structure starts with a pre-defined set of questions which leads to new questions through the discussion. At the beginning, the WA BU coordinator has to explain the purpose of
the section on the website for the BU and the general objectives associated with it. This has to be done in order to understand the reason why the website exist and strive even deeper to better comprehend what levers the BU within an organization is trying to pull to succeed with the website (Kaushik, 2007). The understanding of the core purpose is the basis for the subsequent step of selecting the appropriate KPIs. Therefore, 44 WA indicators were identified in a literature search. This list is the foundational instrument of selecting appropriate KPIs based on the individual business demands without the need for great expertise. It is necessary to summarize the indicators in order to get an overview of possible KPIs. In the past, several researchers identified KPIs that are suitable for certain website types (Singal et al., 2014; Booth and Jansen, 2009; Reese, 2008; Peterson, 2006). This categorization will be used in order to simplify and minimize the selection of appropriate KPIs. For this purpose, the area of application in form of four website types described in section 2.1 was determined for each indicator in order to minimize the pool of possible indicators. From the large number of possible KPIs, the best suitable must now be selected. The challenge is that this KPI assortment needs to be easily understandable and visualized. Therefore, we created special indicator cards. These cards are based on card games as a participatory technique for analyzing requirements collaboratively (Tudor et al., 1993). Tudor et al. (1993) used this tool in order to help users to communicate their tasks more focused. These cards can be used for sorting, categorizing and prioritizing within an interview or workshop and for promoting storytelling and enabling a conversation flow (Sanders, Brandt and Binder, 2010). Tudor et al. (1993) stated in their case study that physical details of the inserted cards seem to be crucial. Based on their experience with stiffness and size, we have designed small playing cards that are intuitively understandable and the haptic is supported by the usage of solid paper. Every card contains one indicator on the front side and a description of the indicator on the back. The future users in the interviews use these cards in an informal semi-structured environment (Tudor et al., 1993) in order to select the ten for her/him most relevant KPIs.

Due to the circumstance that the KPIs have a general character, the selected KPIs have to be individualized by the WA BU coordinator based on their objectives. This also implies the requirement of linking the KPIs to a specific action dealing with the website (Waisberg and Kaushik, 2009) which is the foundation for making them essential and worthwhile (Kibira et al., 2017). To ensure that the relevant KPIs have been selected, a prioritization method from agile software development is used (Paetsch et al., 2003). Paetsch et al. (2003) emphasize in particular that this prioritization has to be performed by the users. For this purpose, the participants mark the selected KPI cards with the greatest benefit for the BU with the highest priority in order to check whether the previously selected indicators are really the most relevant indicators for them (Kibira et al., 2017). The interviewer, represented by the WA coordinator should ensure that the participants understand the selected KPIs, that these KPIs measure something that provides added value (Kaushik, 2007). The final KPIs are visualized in form of textual briefing addressing the WA coordinator and future users.

Step 4: Report development

After identifying relevant WA indicators, the customized reports in the tool are developed, representing “prototyping”, the third stage of participatory design (Spinuzzi, 2005). Within this step, the requirements and specifications of future users are transmitted to the report developer that realizes the requests in the WA tool. In the context of this article, the technical development of individual WA reports is not considered. The WA coordinator is the interface between the future users from different BUs with needs and wants and the report developer with expertise in report development. The decisive factor for the KPI implementation is to provide precise information concerning filter settings and subpages captured in step 3 that is making a general indicator to a customized and valuable indicator.

Step 5: Report evaluation, using and data based actions

The first element of step 5 is “using and data based actions”, meaning that it has to be ensured that BUs use the reports actively, because the intended value generated by WA can only be achieved if users from different BUs work with data and draw conclusions for their business environment or their part of the website. The second element of step 5 is the evaluation of the existing report. Based on the aspect that business problems and their environments are evolving constantly, the need of indicator changes due to new challenges and focuses within the business arise. Thus a regular evaluation of usefulness needs to be done. A business process has to be created that constantly scrutinizes the need of WA data in the BUs. One possibility is to offer regular appointments to address the topic scrutinizing actual KPIs as well as confronting the users with new application areas and examples. The iterative process restarts with step 1.
Application in a Case Study

To demonstrate the application of the developed model, a case study was conducted in an internationally operating engineering and manufacturing company headquartered in Germany. The company is active in a business-to-business environment and operates in over 60 countries. Sales is mainly done by addressing the customers via visit, telephone or trade fairs, so the firm’s website mainly has an informational purpose and provides several sections with content that is specialized on their customer groups. The objective in the case study was the adoption of the WA tool “Google Analytics” with the implementation of individual BU WA reports in form of dashboards. To achieve this objective, we carried out the PD model as described in section 4. Initially, the business strategy of the company was recorded in connection with existing website functions by conducting two interviews with the strategic marketing manager as well as the webmaster. Furthermore, the website structure and navigation categories were examined. These two baseline stakeholders identified nine BUs including human resources, public relations, sales, aftersales, product management, focus industries, customer training, document database and the webmaster that could profit from a customized report. These nine BUs were contacted in order to conduct interviews for defining and selecting the KPIs. During these sessions, the participants got an initial impression of the WA tool and the available data. The 14 interviewees summarized their website related objectives and problems. As an example, the two customer training BU managers explained that they give information about special product trainings and the possibility to register for on- and offline trainings. They follow their issue of generating leads and awareness as well as encouraging potential and actual customers to use the company’s products. In the next step the manager decided for the website types that describe their purpose on their website area best. The BU customer training identified “content” as the primary business type. Based on this decision, the KPI cards described in section 4 were pre-selected and 33 KPIs were used by the participants for selecting the ten most important KPIs. The interviewee had the task of explaining how he/she would use each indicator in his/her business environment and a customization of the KPIs was done in this step. Some indicators were replaced by more important indicators and it became viewable if the interviewee understood the purpose of an indicator. A visualization of the indicators took place in form of the KPI cards in front of the future users. The visual presentation allowed users to imagine how the dashboard would look like. Through the KPI cards, which were held in the hands of the BU coordinators, they have dealt with each individual KPI once. The customer training BU for example decided for getting information about the “number of unique visitors”, “average number of pageviews in the training area”, “filter settings of the training search engine on the website”, “depth of visit” and “traffic sources” in order to get specific insights into the customer behavior. The aim is to find out how the visitors get attention to the training, what they are searching for and how valuable the information on the site is for them.

Participants of all nine interviews chose the indicator “page views” which makes it to the most used indicator, regardless of the BU or the website type. Three indicators were requested by the BUs at least 5 times: “traffic source”, “click on contact” and “depth of visit”. Almost all indicators were individualized in order to capture clickstream data in a specific area. After constructing individualized dashboards which resulted from the executed interview round, trainings were conducted on an ongoing basis to guide the users through the reports in order to facilitate the WA adoption into the work environment. An intranet site was created with a central space for updates according to the web traffic report development model. A virtual collaboration room was established to enable an active dialogue between all stakeholder groups as stated in figure 1. The participants also receive instructions on campaign tracking and training materials. Overall, a significantly higher level of acceptance and interest in the WA system was observed among those who were involved in the process at an early stage compared to those from the same BU who only received the final result in the form of dashboards. This is reflected in the high level of interest and participation in the training on the use of the WA reports and the usage of the virtual collaboration room. Especially in comparison with the old WA tool, in which the users were not included in the implementation, this difference was evident.

Discussion, Implications, Limitations and Further Research

The case study has shown that through involving the future report users into the development and giving them a participation opportunity, interest in the use of website visitor behavior has increased, which in turn led to increased adoption of WA tools. The case study demonstrated that participants which were taken into account during the implementation process by using participatory design techniques were much more
interested in using these analyses in their business environment than not involved users. We expect that this will also be the case with other companies and can even be transferred to other data analyses. Through the individual and participative creation of the KPI reports, the WA tool has become part of everyday working life. By selecting KPIs, users have learned the basic functions and developed an understanding of what is possible. The finding of creating a feeling of involvement through including the users into the process was already detected in the context of website evaluation by Karmokar et al. (2013) and is a basic premise in the socio-technical environment of participatory design research (Floyd et al., 1989; Sanders, Brand and Binder, 2010; Muller, 2003; Muller and Kuhn, 1993). Consequently, the early involvement of future users of WA reports for building awareness should be targeted, as the interest of the users is increased noticeably. Only through a high level of interest among the report by consumers it is possible to fully exploit the potential of WA. This fact shows that social and soft factors are as important as technical aspects (Silver and Markus, 2013). We assume that this insight can also be applied to other issues in the context of digitization. The efforts of digitization enable the collection and evaluation of an increased amount of data. However, the exploitation of the potential of this data by the respective user groups is not guaranteed with the provision of technical possibilities. This can result in an additional challenge and shows how important an individual adoption of tools, models or technologies into the work context of each user is.

Compared to simple interviews, the presented special interview procedure has the advantage that later users can much better imagine which possibilities are available with an individual WA adoption. It is also easier for users to describe which data is needed. The preselected indicator cards give the possibility to choose from a range of preselected options instead of defining indicators form the start. The phenomenon that participants are feeling more comfortable, secure and confident if they are having options instead of the feeling of getting lost was detected by Karmokar et al. (2013), Kibira et al. (2017) and Spinuzzi (2005). This observation was confirmed in our case study. It shows the necessity of offering preselected suited indicators to reduce the complexity and which, in conclusion, confirms the need of giving this step a lot of weight within the WA implementation process. By consciously taking the haptic card and placing it among the important KPIs, the participants identify themselves with their specific KPIs through the decision and become aware of the importance of each individual KPI. While four indicators were selected by at least five BUs in the conducted case study, 14 indicators were chosen once. This supports the statement that BUs have different requirements for their reports. This finding justifies the individual interview structure. The three-stage participatory design research process presented by Spinuzzi (2005) helped to have a clear orientation and guideline for the individual stages and to be able to meaningfully distinguish them between each other. While considering individual requirements of BUs in regard to the four developed steps for implementing WA, it turned out that two steps are particularly essential for the individual WA KPI. In participatory design stage 1, “initial exploration of work”, it is decided whether it will be possible to identify the future users and then pick them up so far that they see the added value on the one hand and show the commitment to put their input into it on the other. The designation of BUs that need a customized report is significant because not every potential BU can profit from this data. Our approach is to identify suitable BUs by interviewing experts. These experts should give a detailed overview of what several areas are doing as well as recognizing if BUs are getting active through discovering the importance value of WA. We considered the second participatory design stage “discovery process” in form of indicator selection and definition for developing individual WA reports to be especially complex, since it is difficult to obtain the information needs of the future users that is needed for the following “prototyping” step. We found that participatory design with the focus on involving future users into the process is a suitable approach to meet the challenge of enabling an individual adoption of WA reports. It turned out that a clear structure is indispensable due to a lot of information that has to be accommodated to specific predetermined topics such as filter settings, the application field and the affected subpages that will be tracked.

One limitation of this article is that the case study was only conducted in one company. However, a general applicability of the developed model in other companies is assumed. The use of the website of many B2B companies is probably similar to that of the company analyzed in the case study. The involved BUs are likely to be relevant stakeholders in many companies. Besides the horizontal possible correlation between website types and the selected indicators, it could be useful to conduct research if a correlation exists between specific WA indicators and the management level of the users of the WA report. Here, Peterson (2006) conducted a categorization of 15 WA KPIs into appropriate management levels. This vertical categorization could simplify the standardized WA indicator selection to provide suitable indicators to the future users.
based on their management position, purpose and business tasks. The research implicates the need of a high sample with participants from many companies and all management levels.

**Conclusions**

Previous research has to our knowledge not investigated how a selection and customization of WA reports can be done while involving future users. Our aim was to create a generalizable socio-technical artefact in form of a WA implementation process model that is reusable and transferable aiming the adoption of WA tools into the users workspace. We oriented on DSR (Hevner et al., 2004; Vaishnavi and Kuechler, 2015) and participatory design (Muller and Kuhn, 1993; Spinuzzi, 2005; Sanders, Brandt and Binder, 2010). With our participatory design model we provide a contribution to how the relevant data of a WA tool can be made available to several interest groups. By the participatory design model, an individual WA report is created over several process steps involving the respective employees who have limited knowledge about the opportunities of WA usage. The usage of several participatory design techniques enables this comprehensive involvement of future users within the whole web traffic report development process. In a case study it is shown that the process model is applicable in practice and that the involvement of employees leads to a higher interest in the reports as well as interest in further analyses. We believe that this insight can also be applied to other fields of the digitization, since an increased amount of data is being collected and can be analyzed. Thinking in socio-technical systems can help to exploit the potentials which lie in the analysis of this data. A comprehensive and early involvement of stakeholders by using the participatory design model for individual web traffic report development is therefore an effective way for the adoption of WA tools into the individual work environment of different BUs.

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