SOCIAL MEDIA MANAGEMENT METRICS FOR BUSINESS ANALYTICS – INVESTIGATING MANAGERIAL CHALLENGES

Research paper

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Abstract

Organizations are increasingly required to make use of the considerable amount of data that is left behind as persistent digital traces in all social media. Consequently, IS researchers contributed first frameworks to structure the social media analytics domain. However, so far there is a lack of attention to the actual managers' views on the use of social media based metrics and related approaches of business analytics for their decision making requirements. In this article we aim to develop a more realistic picture of this context and its challenges by exploring the experiences and views of managers that intensively work with social media in a very large international organization that is very invested and proficient in its online business. Our research reveals five organizational business analytics challenges that relate to the local contextuality of the analysis, the related difficulties with combining insights from different departments, a poor connectability with existing organizational KPI. Further, from the managers' perspective, the measures itself were found to lack continuity and comprehensiveness. Based on these findings, we develop and offer the 5C framework as a first step towards better integrating the important needs of users and managers into the social media analytics research discourse.

Keywords: Social Media Management, Metrics, Business Analytics, Organization, Challenges.

1 Introduction

Social media is no longer a ground-breaking phenomenon; it has become intertwined with many people's daily lives and is therefore also essential for companies that persistently strive towards gaining a competitive advantage in the business environment. To achieve this, organizations try to make use of the considerable amount of data that is left behind as persistent digital traces in all social media interaction (Aral et al., 2013). This "revolution in the measurement of collective human behaviour" (Kleinberg, 2008, p.66) gives managerial decision makers unprecedented opportunities such as studying underlying network structures (Trier, 2006), the distribution of news (Lerman and Ghosh, 2010), or sentiments (Chen et al., 2012).

Despite the opportunities, organizations struggle to analyse and make sense of the social media ecosystem (Gruber et al., 2015; Panagiotopoulos et al., 2015): "It is clear that significant gaps remain in [our] knowledge of how organizations are using social media" (Macnamara and Zerfass, 2012, p. 289).

While generally an abundance of data is available, organizations may have issues in utilizing this data for sense-making and guiding interventions (Boyd and Crawford, 2012). Information Systems (IS) research began to address this issue by structuring the multifarious opportunities for social media analytics (SMA) into frameworks (Stieglitz et al., 2014), e.g., in the context of business intelligence (Chen et al., 2012).

While the focus of IS research on SMA is primarily on the analytical opportunities (Chen et al., 2012), there is still a lack of attention to the actual managers' views on the role of social media based metrics (e.g., engagement, reach, or sentiment) and related approaches of business analytics (i.e. social media analytics tools) for their local work contexts as well as for their complex collaboration across organizational units (e.g., departments or brands) that all interact with the same customers. Such a complementary need-driven perspective is important, as related fields of business intelligence research already offer critical studies that surface the mismatch of data-driven opportunities and actual judgement and decision-making approaches (Shollo et al., 2015). Against this backdrop, we aim to shed light on the managerial perspective on social media analytics by investigating the research question:

RQ: Which challenges do managers encounter when using social media based metrics in their local work practices and across organizational units?

We answer this question by reporting and discussing data derived from qualitative exploratory interviews with managers from a very large global organisation that offers many product lines and is heavily invested in their social media channels towards customers and the resulting data provided in dashboards and other measurement approaches.

The remaining article will be structured as follows: The next section introduces the main theoretical concepts and links them to form the background of the research. We then introduce the case organization and the methodology applied to address our research objective. After a presentation of the main findings we discuss the role of traditional versus social media metrics.

2   Theoretical Background

In the IS research context, social media is frequently defined as a group of Internet-based applications that base technologically on Web 2.0, and that allow the creation and exchange of user-generated content, which is then displayed to others (Treem and Leonardi, 2012; Kaplan and Haenlein, 2010). The effortless production of content created by users makes them "produsers" (Bruns, 2008) due to their active participation in the production and usage of online content. Content creation is no longer exclusively for developers and anyone can, in some capacity, be a value-adding element through the co-creation of content. This development fundamentally affects the business world, as organizational managers need to understand how to leverage the interdependent user behaviours and their outcomes, based on the extensive digital data traces that is accessible for the company. A major domain and source of such big social data (Boyd and Crawford, 2012) is the organization's customer interface with the related business functions of marketing, branding, sales or customer service (Culnan et al., 2010; Aral et al., 2013). The corresponding organizational social media activities are relevant for increasing brand awareness and sales as well as customer loyalty and satisfaction (Culnan et al., 2010; Montalvo, 2011; Shin et al., 2015; Tsimonis and Dimitriadis, 2014). The diverse types of social media metrics (Mühl-Benninghaus and Friedrichsen, 2013; Trier, 2006) are structured into (1) activities (usage data), (2) content (user-generated data), (3) relations (structural data), and (4) experiences (reported data) (Behrendt et al., 2015; Chen et al., 2012). The related business activity of social media analytics (SMA), defined as the "subset of BI (business intelligence) that is concerned with methodologies, processes, architectures, and technologies that transform raw data from social media into meaningful and useful information for business purposes" (Stieglitz et al., 2014, p.90). This often involves the use of SMA tools. The practical relevance of social media analysis for organizations reflects in a noticeable focus of research on social media measurement (Miller and Tucker, 2013). While the literature is mainly addressing overviews of metrics and technologies (e.g., Trier, 2006; Mühl-Benninghaus and

Friedrichsen, 2013; Behrendt et al., 2015; Chen et al., 2012), studies in the context of business analytics emphasize that managers' require special capabilities to deal with highly unstructured and dynamic data (Karim et al., 2016). The required decision making practices go beyond the mere consideration of provided business data and may involve judgement and consideration of experiences and qualitative information (Shollo et al., 2005). This suggests a need for more research on the challenges of social media managers that aim to leverage online social data for their business.

Further, the actual notion of social media *management* (SMM) in the organization is not yet often addressed in the IS literature (e.g. Gallaugher and Ransbotham, 2010; Miller and Tucker, 2013). Montalvo (2011) offered a widely used definition: "social media management, at a business enterprise level, is the collaborative process of using Web 2.0 platforms and tools to accomplish desired organizational objectives" (p. 91). It is about making sense of the organizational environments and company stakeholders in an attempt to understand the impact of events, contradictions and paradoxes of social media. Useful theoretical conceptualizations of the main organizational SMM roles have been proposed by researchers of public relations management (Breakenridge, 2012), resulting in a framework that proposes the nine strategic SMM roles: "(1) Internal Collaborator, (2) Policy Maker, (3) Policing, (4) Technology Tester, (5) Communications Organizer, (6) Issues Manager, (7) Relationship Analyzer, (8) Master of Metrics, (9) Recruiter" (Neill and Moody, 2015, p. 4). From this list, the 'Master of Metrics' SMM role emerges as an organizational counterpart of the social media analytics frameworks proposed in IS research. The needs of people in these roles determines the approach to SMA measurement and the development of the measurement system that is to support the SMM decision maker.

Motivated by the role perspective and the paucity of research on managerial challenges with social media metrics, we aim to augment the existing technical discussions of SMA frameworks and tools (Chen et al., 2012; Stieglitz et al., 2014) with a complementary and critical focus on the needs of actors in the organization and their mastership of these metrics. By using the relevant example of the currently dominant application domain in marketing and branding, we aim to better understand how managers in their work practices can effectively utilize SMM metrics to assess performance as a means to reduce and navigate the organizational complexity. For example, one managerial challenge is that negative brand experiences on social media potentially lead to damaging stories, which makes it important to monitor conversations and use analytical tools to evaluate the outcome of such confrontations (Gensler et al., 2013; Zailskaite-jakste and Kuvykaite, 2013). In such a context, SMM metrics are considered an important organizational challenge, and due to the speed and diversity of conversations, it becomes necessary to develop appropriate monitoring strategies (Breakenridge, 2012; Kietzmann et al., 2011). However, Macnamara and Zerfass (2012) note that, so far, only 29% of European organizations have the necessary tools and services to monitor social media activities, and only 21% are using data-based evidence to evaluate social media against set Key Performance Indicators (KPIs) (Macnamara and Zerfass, 2012). In this context, a core element of any social media analytics is tracking and analyzing social media metrics (Stieglitz, 2014) as well as linking them well with traditional metrics and measurement approaches of the organization (e.g. in finance and marketing).

2.1 Challenges of SMM Metrics

In the social media analytics context, metrics are often seen as measures of popularity and as "indicative of an organization's ability to engage" (Panagiotopoulos et al., 2015, p. 395). Metrics are considered an important dimension to investigate, as very little is known about how companies view and use social media metrics (Michaelidou et al., 2011; Neill and Moody, 2015; Weinberg and Pehlivan, 2011). However, there is not a single perfect metric that can encompass the complexity of social media. This constitutes the need for managers to follow a systematic approach of creating, identifying and utilizing metrics in their organizational work practices. Therefore, organizations often use a portfolio or "dashboard" of social media metrics (Farris et al., 2006; Peters et al., 2013; Stieglitz et al., 2013).

In this context, social media is more dynamic and interactive in nature than the organization's traditional media (Treem and Leonardi, 2012), and new metrics are needed as traditional metrics focus on linear communication and do not account for this interactivity (Michaelidou et al., 2011; Peters et al., 2013). Social media's multi-way, immediate, and contingent nature creates certain restrictions in terms of transferring or using traditional metrics to reach organizational goals in a fast-paced work context.

Organizations often treat social media as they would use traditional media, and therefore also often view and spend on social media with a traditional mindset (Weinberg and Pehlivan, 2011). However, companies attempting to buy sponsored messages on social media go against the *dialogue-based nature* of the new medium (Peters et al., 2013). For example, marketing managers have difficulties justifying marketing spend and ROI on social media, and it has been suggested that companies look at marketing spend in terms of "social currency" and "social ROI" and invest their time and effort in conversations in order to build and maintain relationships (Michaelidou et al., 2011; Weinberg and Pehlivan, 2011). This, however, still presents a challenge for companies to create and build appropriate metrics. More data might be available thanks to social media, but this does not necessarily make it easier to make sense of analytics and stakeholder data due to the limited understanding of metrics (Panagiotopoulos et al., 2015; Boyd and Crawford, 2012). Grüblbauer and Haric (2013, in Mühl-Benninghaus and Friedrichsen, 2013) emphasize that "one has to know what exactly it is one wants to measure, and how the results of the measurement can be connected to form meaningful statements and suggestions for action" (p. 686). However, the fragmentation of audiences and channels across several platforms has hindered the organization in creating effective dashboards that share a common understanding of organizational drivers and outcomes (Boyd and Crawford, 2012; Peters et al., 2013).

2.2   Qualitative and Quantitative SMM Metrics

New metrics in the form of likes, shares, and followers have surfaced on social media (Stieglitz et al., 2014), and despite being easy to measure these metrics may actually mislead (Boyd and Crawford, 2012), and some practitioners argue that they are unreliable and do not add any value on their own (Dahl, 2015; Lake, 2011; Neill and Moody, 2015; Peters et al., 2013), especially as they are often tool-driven (by platform providers) rather than needs-driven (by managers). Creating appropriate metrics is seen as a rather complex challenge and a vast but incoherent list of proposed social media metrics has emerged in the literature (Chen et al., 2012; Stieglitz et al., 2012; Mühl-Benninghaus and Friedrichsen, 2013; Peters et al., 2013; Tuten and Solomon, 2015). General frameworks include topic trends, sentiment or network data (Stieglitz, 2014). In the marketing domain that will later serve as our case context, Mühl-Benninghaus and Friedrichsen (2013) focus on content- and relevance metrics; content metrics reveal the perceptions of different topics or the organization and are measured through key word searches whereas relevance metrics relate to influence of conversations and engagement (Mühl-Benninghaus and Friedrichsen, 2013). Influence is measured through bounce rate and time-on-site and engagement is measured through ratings, referrals, and comments on social media or e-commerce sites and is understood as the "interest level in a message, resource or product and the willing to pass it along" (Mühl-Benninghaus and Friedrichsen, 2013, p. 40). Despite all these proposals, the current literature does not provide a comprehensive system and overview of what social media metrics are (Stieglitz, 2014). Against this backdrop, we make use of a differentiation into qualitative and quantitative metrics as a starting point for our empirical inquiry. This approach was inspired by Tuten and Solomon's (2015) categorization that roughly distinguishes between quantitative metrics, for instance "the number of posts, comments, tweets, retweets, likes and followers" (p. 283), and qualitative metrics such as "mentions, comments, conversations, and feedback about a brand" (p. 283). It appears as if participation and qualitative metrics such as engagement and conversation are more accentuated in the literature (Mühl-Benninghaus and Friedrichsen, 2013; Peters et al., 2013). However, while an emphasis has been made on qualitative metrics, one cannot disregard the diverse quantitative metrics that many companies apply. Despite the rise of organizational roles such as the Master of Metrics, and

mission control areas in a company, it is still evident that we understand very little when it comes to how companies or managers make use of social media metrics in their business analytics activities (Michaelidou et al., 2011; Neill and Moody, 2015; Weinberg and Pehlivan, 2011).

This unexplored user/manager perspective of the use of social media data motivates an empirical inquiry into the actual use of SMM metrics and related challenges, presented in the next sections.

3   Data and Methods

3.1   Data and Case Context

To reveal managers' views on the use of SMM metrics in organizations, we approached an organization that is marked by one of the most comprehensive and complex social media interfaces to their customers that spans across various channels, departments, brands and regions. The Fast Moving Consumer Goods (FMCG) company Zeta (name anonymized), which is one of the largest global organizations that operates worldwide with a long history. The organization runs a long list of prominent brands in more than 100 countries. Our main focus is on the European region, involving more than 1000 employees. Over the last years, the company faced a comprehensive digital transformation. With regards to current social media usage, Zeta has created a strong presence on social media by implementing both internal- and external social media platforms, centering on a few social media channels, i.e., LinkedIn, YouTube, Twitter, Instagram, and Facebook with many million Facebook fans across the brand pages. Zeta had an intensive learning experience with online media, as the company was sometimes accused of using unsustainable resources in their products. As a result, a special social media team was created that works in close cooperation with external social media consultancies. This effort resulted in an advanced business analytics approach that utilizes software systems to display real-time social media metrics and further recognizes negative issues and trends, enabling the company to react quickly. Our research explores the comprehensive use experiences and perceived challenges of Zeta's managers of the social media channels when it comes to using the provided social media data in a business analytics driven social media management approach in their daily work.

3.2   Methods

In our research, we follow an interpretivist, qualitative approach due to the scarce amount of previous research on social media management and the use of metrics. We base our inquiry on case study research that "explores a research topic or phenomenon within its context, or within a number of real-life contexts" (Saunders et al., 2012, p. 179). Our research is designed as a single embedded case study (Yin, 2009), as the object of investigation is a single company with a focus on selected departments in an attempt to ascertain in-depth knowledge of a complex phenomenon. A further reason for investigating one case in great depth was that the challenges we were interested in, are not easy to articulate for the manager. The process involved extensive familiarizing with the company's SMM practices to understand the tool landscape and the language used, as well as to build the necessary trusted relationships to allow a critical focus on the SMA related work context.

The primary data source of our investigation consists of 14 in-depth interviews with the key employees that worked with SMA in their everyday work context in different regions and brands, business functions and different levels of the organizational hierarchy of Zeta. This diversity of contexts supports our process of theory development and ensures validity of the findings. We sequentially selected the relevant respondents following a theoretical sampling strategy. It is applied to account for new knowledge that comes with each new interview, allowing for constant comparison of data and helping refine the interview questions in order to explore new areas that had not been considered previously (Malhotra et al., 2012).Table 1 shows an overview of the interviewed experts and their position in the

organization. A cross-sectional study design was adopted where the data was collected over a short period of time (Malhotra et al., 2012; Saunders et al., 2012). In addition, we triangulated the findings with other internal data sources such as internal files or observations of the main social media activities of Zeta.

We analysed our collected data with an exploratory approach that follows the methodological steps of coding through multiple interviews in an attempt to generate new findings. The analysis and the coding of our collected data was drawing from the Grounded Theory methodology (Strauss and Corbin, 1998): We used a round of open coding (reorganization of data into categories, exemplified in *italic letters* in the result section) followed by axial coding (recognizing relationships between categories, e.g. benefits and challenges with qualitative versus quantitative metrics) and selective coding (integration of categories to produce theory, in our case the 5C framework of the challenges).

ID	Interviewee Position	Label/Reference Code
1	Consumer Engagement Content Manager	R1
2	Digital Marketing Manager	R2
3	HR Manager, Training	R3
4	HR Specialist, Online Recruitment	R4
5	Sales Development Manager	R5
6	Digital Media Manager, product 1	R6
7	Brand Manager, product 2	R7
8	Marketing Manager (Specialist), product 3	R8
9	Marketing Manager, product 4	R9
10	Brand Manager, product 4	R10
11	Marketing Manager, product 5	R11
12	Consumer Relationship Manager, product 5	R12
13	Brand Manager, product 5	R13
14	Brand Manager, product 5	R14

Table 1.   Overview Expert Interview Respondents.

4   Results

When managers discussed their work with SMM metrics, they emphasized the high *importance* of focusing on measuring and analytics for their work: "The management part is also to measure the performance and make sure that you have targets [and] clear KPIs (…), and that you follow-up on them and also to report that back to the rest of the organization" (Respondent 6, henceforth called R6). While this relevance was stated across the company, we noted however that members of the different organizational functions *varied in their use* of (the same) SMM measures: While Digital Media Managers primarily focused on metrics and the allocation of resources as part of social media management, Marketing Managers emphasized on the need to follow up on campaigns in order to measure performance. The same metrics have to be adapted to different managerial contexts and needs.

The important link to the managers' different everyday tasks was further emphasized when our respondents conceived and understood their social media metrics by contrasting them against their traditional management metrics. On the positive side, some interviewees expressed that social media metrics provide new, deeper insights. On the other hand, not everyone felt comfortable with using existing social media metrics for decision making as a customer relationship manager of Zeta pointed out: "I think that is a challenge [that] it is not traditional enough for the decision makers and the generation

that they normally are in" (R12). She further elaborates that in the organization's marketing domain, the established KPI system is *not sufficiently aligned* with the new data source: When it comes down to classic management objectives such as market shares and sales, managers felt it is still much easier to measure these classic KPIs based on a television commercial than on social media despite the abundant data. The critical link of SMM and internal KPI is also expressed in this statement: "(…) we have clear targets on brand awareness, consideration, and trial (…) for the overall brand performance, but which activities or channels (…) [are] contributing how much to the awareness ?" (R6). The concern about poor alignment with classic KPI gains further relevance, as keeping a close link between the traditional media channels and social media is considered very important. As a Digital Media Manager explains, the questions are "how do we understand that network (…) together with the offline activity, and how do we measure how Facebook, in this case, is contributing to the brand awareness?" (R6).

The problem is exacerbated as social media itself is also *not an integrated channel*. The managers regarded understanding the events in a single channel like Facebook as difficult, but having a multitude of platforms and channels is adding even more complexity: "You can measure them all exactly. You can see reaches, (…) likes (…), shares, and involvement (…), but you don't really understand which of these contribute to the bottom line and how do they relate to one another" (R12). The quote also expresses how the abundance of precise measurement data is not necessarily leading to more information and understanding.

The *difficulty to compare work results across channels* was very detrimental to demonstrating their contribution to the overall return on investment (ROI): "It is a challenge to motivate why we should be doing all these social media aspects for people who are making the big decisions" (R12). Another marketing manager states: "(…) if we could prove the return on investment in a better way (…), then it would be much easier to convince top management (…)" (R11). Others described the organizational struggle to link social media investments to sales (R6, 12), and a Customer Sales Responsible illustrates cogently how he challenges the brand teams by asking: "(…) how many likes do you need to sell a [product]?" (R5).

Interviewees further stated that their understanding of the overall dynamics of their work domain is limited due to their *reliance on third parties* such as special agencies for metrics and measuring on social media. Such corporate partners gained a strong intermediating position. The Digital Media Manager highlights: "(…) I have an understanding, but I cannot tell you completely in detail why x percent of the spend goes to Facebook versus the other ones, then it gets difficult [and] that is where the agency steps in (…)" (R6). While she seems comfortable in relying on agency expertise, another Marketing Manager (R11) expressed concern that for many it is sometimes *unclear what is being measured and why*. Furthermore, the company has to *rely on the standard statistics offered by the social media platform*, which according to some respondents is not optimal since the platform's ways of measuring do not always reflect the diverse priorities of the brand management (R6, R11). In addition, platforms such as Facebook often *change their algorithms*, which complicates matters for Zeta even more. A Digital Media Manager explains that, as "KPIs for social media change every year, it is challenging for us who should be the experts to follow, so how should the brands be able to follow?" (R2). Moreover, the constant change of social media metrics and KPIs makes year-to-year comparisons, and with that strategic learning and actions almost impossible (R6).

With regards to the usefulness of the provided metrics, a Brand Manager highlighted that while likes and click-through rates are very easy quantitative metrics to collect, they might *not be effective* measures for SMM due to the different managerial objectives and priorities. For example, she questions the information derived from quantitative metrics when she stated: "(…) one Facebook site could have lesser 'likes', but consumers that were much more involved with the product, so how do we measure the degree of involvement (…)?" (R14). Some Market Managers agreed to a large extent with this view, questioning if counting likes and shares can actually bring new consumers and signal brand awareness, as expressed in this statement: "You might have reached me on paper. I have scrolled past you on my Facebook feed, but did I connect with that message?" (R12). This *desire to have richer*

qualitative information at hand also transpired when a Brand Manager stated that metrics such as engagement rates can basically be purchased without consumer involvement, making them in a sense more quantifiable. However, it is the involvement that is important according to a Digital Media Manager: "We want consumers to do marketing for us (…), so have people recommend [us] and so forth and we don't have good dashboards for that today. We have in the past looked at things like fans and reach (…), but we need to be better at looking at if consumers recommend us (…) because that creates trust (…)" (R2). Another manager further emphasizes that it is not only about gathering a large number of visitors and getting information out there, but about the need to connect with people more comprehensively and emotionally in order to become a partner for them, someone they want to engage with: "you are dealing with a whole other concept and I think that is very difficult for people to navigate around" (R12) and later she added: "We would have to more subjectively define by what kind of comments we receive." (R12). The interviewers aim at a customer understanding that the analytics dashboards would not yet support well.

The various departments dealing with social media at the customer interface appear to use *very individual systems of different metrics* such as likes, reach, engagement, fan base, and comments, of which some are emphasized more than others. The sophistication of the SMM approaches is also widely differing across locations. In one product brand team, for example, they have gone to great lengths to figure out what specific metrics to apply as the Digital Media Manager mentions: "(…) I built an online responsive dashboard where I track all digital activities and all e-commerce activities. We have tons of KPIs, so we measure it real-time ourselves, but then [again] we are in development phase (…). We haven't really adapted it to the new algorithm for Facebook and some new KPIs, so we are still looking at engagement rates (…)" (R6). Other departments, however, are either in the beginning phases of developing social media metrics or confined to a few simple metrics such as likes on Facebook. The dominantly bottom-up approach of local SMM adoptions hence creates a very *incoherent landscape* that is difficult to reconcile on the organizational level.

Related to this diversity, another key challenge in adopting SMM metrics results from of a current *lack of interdepartmental collaboration*. One Brand Manager (R10) highlights that she is not aware of other departments KPIs and metrics, while another respondent reports: "(…) we are coming back to the fact that (…) every department is one silo. We don't really talk that much together, so I don't know their targets" (R9). Others supported the challenge of aligning metrics internally, and R13 notes the gap: "We need to have a unified way of doing it, a unified way of measuring it, otherwise, it will be completely impossible to know whether we are doing the right things" (R13). According to R6 the core problem is not what you can measure, but what should be measured to meet what organizational objective. R13 points out: "Where it starts to get (…) a bit challenging is that there is too much [to measure], so it is actually in the selection process where we have to find out, which of these metrics are the most important for us (…)" (R13).

In sum, it appears that interviewees express diverse existing challenges for measuring their social media activities in terms of proving ROI and making cross-channel comparisons. Next to a very diverse maturity of the adoption, the company appears dependent on an unstable set of metrics provided by social media agencies and platform companies. It appears that there is a concern that the quantitative metrics are ineffective but necessary due to the design of existing dashboards. Also well-defined qualitative metrics that are technically supported in the analytics tools are not yet in place. Furthermore, interviewees express a need for a unified approach to metrics that spans across departments, but that this might prove difficult given the amount of things to measure. In addition to these caveats, each department utilizes the metrics they find most suitable locally and is not aware of other departments' approaches.

5 Discussion

Our data reveals that managers regard business analytics based on social media metrics as important for their daily work. However, several challenges for a successful company adoption of business ana-

lytics for SMM could be identified and categorized. They can be categorized into (1) challenges with organizational appropriation and utilization of metrics and (2) challenges with the provided metrics. As the final identified challenges all conveniently start with the letter 'C', we coin the resulting conceptual structure the 5 C's Framework of managerial challenges with Social Media Metrics (Table 2).

5.1   Challenges with organizational appropriation and utilization of metrics

A first group of challenges relates to difficulties to utilize the metrics beyond its direct context on an organizational level, e.g. for financial decisions and KPI.

Social media metrics are incommensurable across related channels. While many clear measures exist for a given social media channel, across the different managerial roles interviewees highlight challenges of making cross-channel comparisons between different social media channels that all have a special emphases and provide individual metrics just for their *local context*. This leads to a perceived difficulty to compare metrics and to create effective dashboards with common drivers and aggregated outcomes across media channels.

Different roles and perspectives. Social media at the customer interface is handled by different organizational roles with very different objectives. However, all attempt to monitor their individual goal attainment based on different selections of the same basic SMM measures. Business analytics approaches need to address this high context-dependence of the measures and the potential challenge of *combination* and aggregation.

Lack of integration across departments. While many organizational units have a social media context to (the same) customers, our data suggests a lack of awareness of the approaches in other departments and of the possible interconnections via metrics. Departments hence tend to work in silos with regards to social media metrics. Despite comprehensive digital initiatives, there is not yet evidence of dashboards with a common set of metrics at higher organizational levels, which could indicate difficulties to go beyond local dashboards.

Different levels of maturity and proficiency. The data suggests that the transition towards using social media metrics at the customer interface has been easier for some than others. While some departments use only basic metrics such as likes or reach, others reached a high level of maturity with dashboards of metrics, measuring real-time data as described by Farris et al. (2006) and Peters et al. (2013). These different maturity and proficiency levels point to challenges for an integrated organizational approach to business analytics that covers and combines available data and connects it organizational objectives.

Third parties are intermediaries in the learning process. To some degree the lack of an organizational understanding of social media analytics has been attributed to the dominant role of third parties (agencies) in SMM. The locus of power has shifted to allow for these intermediating specialized third parties, as organizations struggle to make sense of social media metrics, require more comprehensive business information, or are left with inadequate solutions for making cross-channel comparisons and proving ROI. At the same time organizations are not fully owning their decision making process and lose transparency and the connection of metrics to organizational information needs.

Unstable platform-driven metrics. Although social media data appears easily accessible, most measures are coming from the platform provider, and are changed often. This is making it even more complicated to derive business value, as the metrics are vendor-driven rather that use case driven. In that light, interviewees struggle with the abundance of provided data and metrics that lack continuity and constantly evolve. Due to the frequent changes of metrics and KPIs, year-on-year comparisons become almost impossible, which implies a lack of a long-term insight.

5.2   Challenges related to provided metrics

Poor alignment with organizational KPI. Quantitative social media metrics are not sufficiently aligned with decision making and marketing/sales KPIs. It is further also difficult to blend SMM with existing

marketing channels, to get a coherent overview about the customer. In line with Michaelidou et al. (2011) and Weinberg and Pehlivan (2011), some marketing managers thus particularly emphasize the difficulty of justifying ROI on social media because it is not traditional enough. People realized that the existence of abundant measures does not necessarily lead to a better understanding of the situation.

Quantitative metrics are contested. The ability to derive information from the measures provided by third party agencies and platforms is questioned by organizational managers. The interviewees indicate that quantitative metrics such as likes on Facebook are misleading or unreliable with concerns about the ability to relate quantitative metrics to KPIs in order to justify spending.

Better qualitative metrics are required. We noted a need for better qualitative metrics such as feedback and engagement (Mühl-Benninghaus and Friedrichsen, 2013; Tuten and Solomon, 2015). However, as some respondents suggest, what happens when companies can basically buy engagement? Can it then be considered a good qualitative metric? Interviewees express a desire to inspire trust and establish more complex aspects such as an emotional connection with consumers. However, such KPIs and qualitative metrics are assumed to be highly context specific and hence difficult to aggregate on an organizational level. In line with Peters et al. (2013), the data suggests a need for a holistic approach to metrics and the data highlighted the requirement and opportunity to create better dashboards that do not only focus on standard local quantitative metrics, but also on qualitative metrics such as consumer feedback or even company-specific objectives.

"5C" Challenges	Definition	Selections of (open) Codes from Results (Key Terms in *Italics*)
Contextuality	Quantitative objectives can typically only be interpreted on a very local level within individual social media channels and with local managerial objectives in mind, also requiring qualitative information.	• Social media metrics are *incommensurable across channels* • *Different roles* and perspectives
Combination	Effective organizational processes to link local tool-driven SMM measures (at different levels of digital maturity) via comparisons or aggregation are missing so that meaningful dashboards are difficult to attain.	• Lack of *integration* across departments • Different levels of maturity and *proficiency*
Connectability	Attaining a coherent social media management at the organizational level that aligns well with strategic organizational layers is difficult.	• *Poor alignment* with organizational KPI • *not traditional* enough for the decision makers
Continuity	Tool-driven measures lack continuity over longer time spans so that constant adaptation and correction is difficult.	• *Third parties* are intermediaries in the learning process. • *Unstable* platform-driven metrics
Comprehensiveness	Tool-driven measures lack the necessary comprehensiveness to represent the underlying user behaviours and motivations.	• Quantitative metrics are *contested* • Better *qualitative* metrics are required

Table 2.   The 5 C's Framework of managerial challenges with Social Media Metrics (Contextuality, Combination, Connectability, Continuity and Comprehensiveness).

In sum, our findings reveal that beyond IS research on technical opportunities, social media management metrics and related business analytics are actually facing several challenges from a user/manager perspective that invite more research and practical development. Business analytics research and practice needs to evolve from a focus on measures to better address *the challenges of the complex organizational sense-making process*, in which local metric-based insights need to be compared and aggregated across channels, across departments and over time in order to derive meaningful insights for business decision making and interventions. Currently, this process appears to be loaded with challenges. For example, the challenge of *contextuality* addresses that the achievement of quantitative SMM objectives can typically only be interpreted on a very local level with local situations and objectives in mind, also involving qualitative information. This later results in a *combination* challenge, where effective organizational processes to link the SMM measures via comparisons or aggregation are missing or are not providing meaningful results at higher levels of the organizational hierarchy. Another challenge is the poor *connectability* to common organizational KPI, rendering it very difficult to advance towards a coherent social media management that aligns well with strategic organizational layers. The actual social media metrics should be subject to organizational use cases instead of grounding in technological opportunities. This is complicated due to the strong role of platform-driven intermediaries in the social media analytics business ecology. Further fundamental challenges that relate to the SMM measures pertain to the lack of *continuity* over longer time spans and *comprehensiveness* of the represented user behaviour.

6 Limitations

Before drawing the final conclusions, we need to reflect on a few limitations of our research approach and their implications. First, the external validity of our results might be reduced because we adopted a single case design. While this is a limitation that motivates further research to corroborate or extend our findings, we tried to address this concern to some extent by focussing on a very large and mature key player in the fast-moving customer goods industry with comprehensive experience in SMM. This enabled us to actually investigate five very different products, which however provided a coherent picture in terms of their SMM challenges. The organizational setup and scope is further complex enough to help us reveal multiple challenges, and further the organization is very advanced in their SMM, so that we believe the views of the managers express extensive experiences that are also relevant for other organizations. We further conducted a larger number of interviews with respondents from diverse departments to ensure the necessary breadth and to note if the identified challenges are also perceived in different domains of the organizations. Another potential limitation is our focus on the example domain of marketing and branding, while other domains such as research and development are not addressed. We consider, however, the customer interface and the functions that deal with it as one of the most relevant current problem spaces for SMM so that we believe, contributions that shed light on SMA in the customer context are still valuable. We further believe that this field should not be left to investigations from a marketing perspective (of which there are many), but also requires a careful synthesis with the information systems perspective. We aimed to provide a first step to establish such a link and raise the awareness of the needs of the actual users of social media metrics and related business analytics.

7 Conclusion

In this article we augment existing research on social media analytics (Stieglitz et al., 2014; Chen et al., 2012) with the important managerial view on the current business analytics situation in the social media management context. We adopted a qualitative approach using interviews with managers from a large organization that is extensively acting online. While, in line with current findings in the IS field (Stieglitz et al., 2014; Chen et al., 2012), an abundance of metrics exists, we reveal practical organizational challenges in the managers' value extraction process, such as a lack of integration due to miss-

ing interdepartmental collaboration and differing priorities. We extend critical discusions from other fields of business analytics (Shollo et al., 2015), by identifying that the process from metrics to management support is having a series of important frictions, as the metrics are technology-driven and third-party specialists obstruct the learning process. Our findings can be conveniently expressed in a 5 C's framework of social media based business analytics challenges. Future designs and academic discussions of social media analytics systems should consider these challenges in order to improve the effectiveness of social media managers.

Our findings suggest that IS research of business analytics approaches needs more inquiries into actual organizational SMM use cases and their *effective* use of the discussed measurement systems. As quantitative metrics such as likes are evolving into those of a more qualitative nature, acceptance of technology-driven quantitative metrics provided by platforms should be replaced by new approaches to balance quantitative and qualitative metrics so that ROI and sales argumentations are supported. Future IS research should further explore how SMM business analytics approaches can reconcile multiple view points on the same data (that the diverse roles may require) and how it can apply localized norm expectations as one and the same measure can have different qualities in different contexts (a low number of likes may not always be an issue, depending on the local objectives). Finally, future IS research should investigate approaches to better aggregate social media metrics towards better management support on the organizational level that links with organizational objectives of the digitalizing enterprise.

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