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Measurement and Evaluation in the Digital Age: Challenges and Opportunities for Corporate Communication

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Abstract

Digital technologies offer significant advances for the measurement and evaluation (M&E) of corporate communication, as they allow for real time and automated data collection and analysis and bring new predictive capabilities. This, in turn, also brings new challenges and concerns, e.g., with data-based profiling and microtargeting. This chapter examines how digitalisation changes M&E and what remains the same, differentiating between two levels: (1) M&E at the *activities level* (of communication products, campaigns or programs), and (2) M&E at the *administrative level* (of managing the communication function, departments, and professionals). We critically reflect on societal, ethical, legal, organisational, and individual challenges related to the use of digital approaches to the M&E. The implementation of digital technologies for M&E in practice is illustrated by a case study of the UNICEF measurement framework. We conclude with directions for research and implications for the future of M&E practice.

Introduction

It is undisputed that digitalisation and technological changes will have a lasting impact on corporate communication. Despite the evolving debates in research and practice, the question remains as to how the challenges and opportunities associated with the digital transformation

can be successfully implemented in corporate communication. One area where digital technologies, methods, and tools can offer significant advances is measurement and evaluation (M&E). M&E has been a cornerstone of the strategic management of corporate communication for decades (Buhmann, Likely, Geddes 2018; Volk, 2016). The recent rise of digital communication formats - for example, social media, virtual reality, social intranets, chat bots, or digital annual reports - continue to challenge traditional practices in the evaluation of corporate communication (Weiner & Kochhar, 2016). With advances brought by artificial intelligence and machine learning to automate M&E analyses, and a boom in technology providers, many avenues for innovation in M&E of digital corporate communication are opening up. In addition, the increase in digitalised processes in organisations - such as digital workflows, virtual collaboration, or video-conferencing - offers new approaches for the strategic management of communication, but also requires appropriate methods for evaluating efficiency and performance.

In this chapter we examine how digitalisation is changing M&E and what remains the same. Digitalisation is understood as a socio-technical process, in which digital information and communication technologies - such as software, platforms, information systems, or devices - are integrated into processes, structures, capabilities, and products and thus become part of the infrastructure (Brennen & Kreiss, 2016; Tilson et al., 2010). In the organisational context, the increasing use of disruptive digital technologies is seen as an important lever for far-reaching changes that alter, threaten, replace or complement existing rules, values, structures, practices or business models, often discussed under the term digital transformation (Nadkarni & Prügl, 2020). The digital transformation and the increase in digital platforms and social media also have consequences for the communication of organisations, which itself is becoming more digital and digitalised (Vercic et al., 2015). Digital corporate communication in this chapter is defined as the strategic management of digital technologies to improve communication in organisations, in society, and with organisational stakeholders for the maintenance of organisational tangible and intangible assets (Badham & Luoma-aho, 2022 in this edited volume).

In addressing the question of how digitalisation changes M&E of digital corporate communication, we look at two levels: First, at the *activities level* of digital corporate communication products, campaigns or programs. Second, at the *administrative level* of the functions, departments, and individuals who develop, manage, and execute digital corporate communication activities. To systematically address M&E of corporate communication, the conceptual framework by Buhmann and Likely (2018) is adapted below, which a) visualises the key units and stages of M&E, b) connects them to the basic management cycle, and c) distinguishes three foundational forms of evaluation. Next, this chapter introduces opportunities and challenges as well as directions for reconsidering M&E practices in a digitalised world: First, we discuss the *M&E of digital corporate communication* (at the activities level) and posit that M&E practices experience a shift from largely summative, retrospective evaluation to the use of digital technologies for real time and 'intelligent' monitoring, which in turn enables data-based communication planning and strategizing. Second, we reflect on the *M&E of digital corporate communication management* (at the administrative level), which includes,

e.g., the evaluation of digitalisation processes within corporate communication and aligns to an understanding of M&E as a pillar of strategic management.

Finally, we discuss the societal, ethical, legal, organisational, and individual challenges related to a proliferation of digital approaches in the M&E of corporate communication and present a case study on its implementation in practice. We conclude with directions for research and implications for M&E practice.

Definitions of M&E and previous research

Basic concepts and terminology

Debates in the research field of M&E address the question of how the effects and impact of corporate communication can be measured and how the success of communication can be evaluated with regard to defined goals (Buhmann & Volk, 2022, Stacks, 2017; Watson & Noble, 2014). The terms measurement and evaluation are often used alongside and sometimes interchangeably (Macnamara & Likely, 2017). While *evaluation* is understood as the systematic assessment of the value of an object, *measurement* comprises the collection and analysis of data as an important part of such value assessments (Buhmann & Likely, 2018). To this end, quantitative and qualitative social science research methods (such as surveys, content analyses, observations) are used. This is done with research instruments (such as standardised questionnaires, codebooks, or semi-structured interview guides for focus groups) that generate *metrics* or qualitative insights which can be used as performance indicators to compare targets and actual results (target-performance comparison). Metrics that aggregate critical and strategically relevant information in a single result are called *key performance indicators* (KPIs) (van Ruler & Körver, 2019). For the M&E of corporate communication, in addition to social science research methods, business management methods (e.g., process analysis, budget analysis, competency analysis) (Volk & Zerfass, 2020) and computational methods (e.g., web scraping, API-based research, data mining, big data analytics, etc.) are used for data collection and analysis of business processes or large amounts of data.

Within the concept of evaluation, the root term *value* signals the necessity to define and explain what the value of corporate communication is, prior to any measurement and value assessments. Four generic and interrelated value dimensions can be distinguished (Zerfass & Viertmann, 2017) -- corporate communication:

1. enables operations, as it raises publicity, attention, customer preferences, and employee commitment and thus keeps the organisation running and ensures immediate success in terms of primary objectives;
2. builds intangible values, as it fosters reputation, brands, and corporate culture and, thus, creates the immaterial assets that are the basis for sustainable and long-term success;
3. ensures flexibility, as it builds relationships, trust, and legitimacy and, thus, secures the organisation's license to operate and increases its room for maneuver;
4. adjusts strategy, as it monitors the organisation’s environment, thus increasing the reflective capacities of strategic management decisions. This helps secure thought leadership, innovation potential, and crisis resilience.

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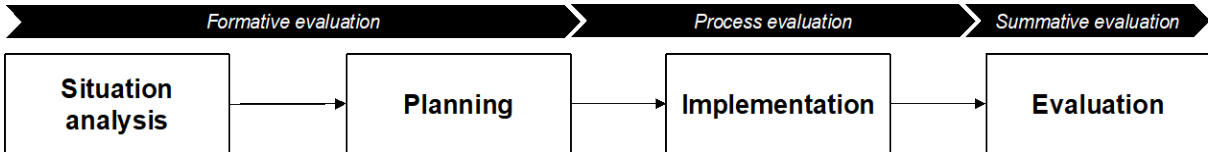
Further, according to the distinction between the level of *activities* on the one hand and *administration* on the other hand (cf. introduction), M&E must assess the value added both with regard to messages, channels, campaigns etc. *as well as* with regard to the structures, practitioners, management systems, processes etc. that the former activities are based on.

A framework for M&E of digital corporate communication

M&E in corporate communication can be conceptualised in relation to a basic cycle that consists of four core elements: situation analysis (formative research, needs assessment); planning (strategising, objective setting, tactical planning); implementation (strategy execution), and *evaluation* to show if objectives were met (accountability) and how they were met (improvement/learning), which may provide feedback for future planning.

Figure 1. The basic management cycle and types of evaluation



Concordantly with this basic management cycle, three types of evaluation can be distinguished:

I. *Formative evaluation* (sometimes: formative research) comprises elements of situation analysis and strategic planning and provides intelligence and insight for strategising. Formative evaluation is a baseline for strategic decision-making and is provided through organisational listening and environmental scanning, e.g., using surveys, focus groups, or media content analysis to identify stakeholder attitudes or channel preferences. In the strategic planning stage, objectives for purposeful communication activities/products, campaigns and programs are set. Later evaluations are conducted against these objectives.

II. *Process evaluation* (sometimes: monitoring) tracks ongoing activities during strategy implementation and gathers (often in real time) insights on immediate message distribution and reach, audience attention and engagement, or shifts in stakeholder attitudes. This type focuses on an evaluation of operations and on determining whether processes are 'on track' in relation to predefined targets.

III. *Summative evaluation* determines results, looking at how communication activities or the attempts of their management have met their objectives and are contributing to realizing broader communication and organisational strategy. This type emphasises feedback for both accountability and learning.

Management processes in practice are, of course, more disordered than this idealised cycle would suggest and usually play out in an iterative fashion. Digital technology especially is rapidly changing a formerly more sequential and stepwise dynamic between different stages of the process and the three M&E types. This is because many digital platforms used for corporate communication (take social networking sites as an example) will allow to measure and

evaluate communication in real time, leading not only to more overlap between the different management phases (analysis, planning, implementation, evaluation) but also between the respective types of evaluation. Furthermore, this process can become even more reflexive and iterative in very dynamic contexts of communication such as corporate crises.

Based on the management cycle and the three types of evaluation, we can develop a framework for M&E by distinguishing different M&E stages within the implementation process. A plethora of frameworks and standards has been developed over the past decades (see, e.g., Buhmann, Macnamara & Zerfass, 2019), partly with very dissimilar approaches and terminologies, but most of them resembling common "logic models" (Frechtling, 2015). One seminal effort at a standard framework in recent years has been the integrated evaluation framework (IEF) developed by the *International Association for the Measurement and Evaluation of Communication* (AMEC, 2016), which today exists in more than 20 languages. Other models include, e.g., the British Government Communication Service's Evaluation Framework 2.0. (GCS, 2021), or the German DPRG/ICV model (DPRG/ICV, 2011). A discussion of the different models is beyond the scope of this chapter, but can be found, e.g., in Macnamara (2018a).

Buhmann and Likely (2018) have recently made an effort to align and integrate different M&E frameworks based on a review of existing approaches. Their model distinguishes between five main stages of M&E: inputs, outputs, outtakes, outcomes, and impacts (cf. also Buhmann & Volk, 2022). In the following, we explain each stage and denote alternative labels:

(1) *Inputs* comprise the resources needed to prepare and produce communication (e.g., strategic objectives, budget, employee assignment; as such, the inputs stage is the bridge between planning and implementation).
(2) *Outputs* comprise the communication that is published and received by the target audiences and can be further distinguished between *primary* outputs (sometimes also referred to as "activities") (e.g., number of press releases, websites, events, etc.) and *secondary* outputs (actual media coverage, event attendance, reach etc.).
(3) *Outtakes* (sometimes also referred to as "short-term or direct outcomes") comprise what the target audience does with the communication (e.g., attention, awareness, engagement etc.).
(4) *Outcomes* comprise the effect of communication on the target audience (e.g., knowledge, attitudes, intentions, behaviour, etc.).
(5) *Impact* (sometimes also referred to as "outgrowth") comprises the long-term value created (often only in part) by communication at the organisational level (e.g., reputation, relationships, customer loyalty) or the societal level (e.g., social equity, public trust, justice).

In digital corporate communication, especially the stages of outputs and outtakes, but to some degree also outcomes, tend to get a special emphasis due to the increased availability of data. In fact, the stage of outtakes was added to many M&E frameworks as a *consequence* of the popularity of digital platforms, such as social media, and the heightened ability to measure

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different forms of stakeholder engagement digitally (e.g., through likes, comments, shares, return visits to websites, etc.).

In line with the prior distinction between the level of communication *activities* on the one hand and the level of *managing and administering* such activities on the other, two basic clusters of evaluation objects can be distinguished:

- At the level of communication activities, units of assessment can be distinguished according to their level of aggregation, ranging from: individual products (evaluated rather in the short term according to, e.g., distribution, reach, tonality, or likes), to campaigns (evaluated in the short- and mid-term with an emphasis on campaign engagement and outcomes such as attitude change), to entire programs, i.e., 'bundles' of campaigns (evaluated across the whole range of implementation, reaching all the way to the long-term impacts on organisational or even societal value creation). As such, these units of assessment are 'nested' (communication products are elements of campaigns, which in turn are part of larger programs). The level of complexity and the time horizon (short-, medium-, and long-term) of M&E thus increases with each unit and therefore requires different levels of aggregation and combination of methods, measures, and KPIs.
- At the level of managing and administering communication activities, units of assessment can be distinguished between the level of individual units (such as communication practitioners, but also processes, systems or tools) and the level of the communication function (comprising the aggregation of all the former individual units charged with managing communication across the organisation, not bunt to an individual department).

The above discussion can be visually summarised in an integrated framework that relates the basic management cycle to a) the three types of evaluation (formative, process, and summative; with a tendency to move form a more sequential to a 'real-time' practice), b) the five stages of M&E during implementation (inputs - outputs - outtakes - outcomes - impact), and c) the five units of assessment at the level of both communication activities and their administration.

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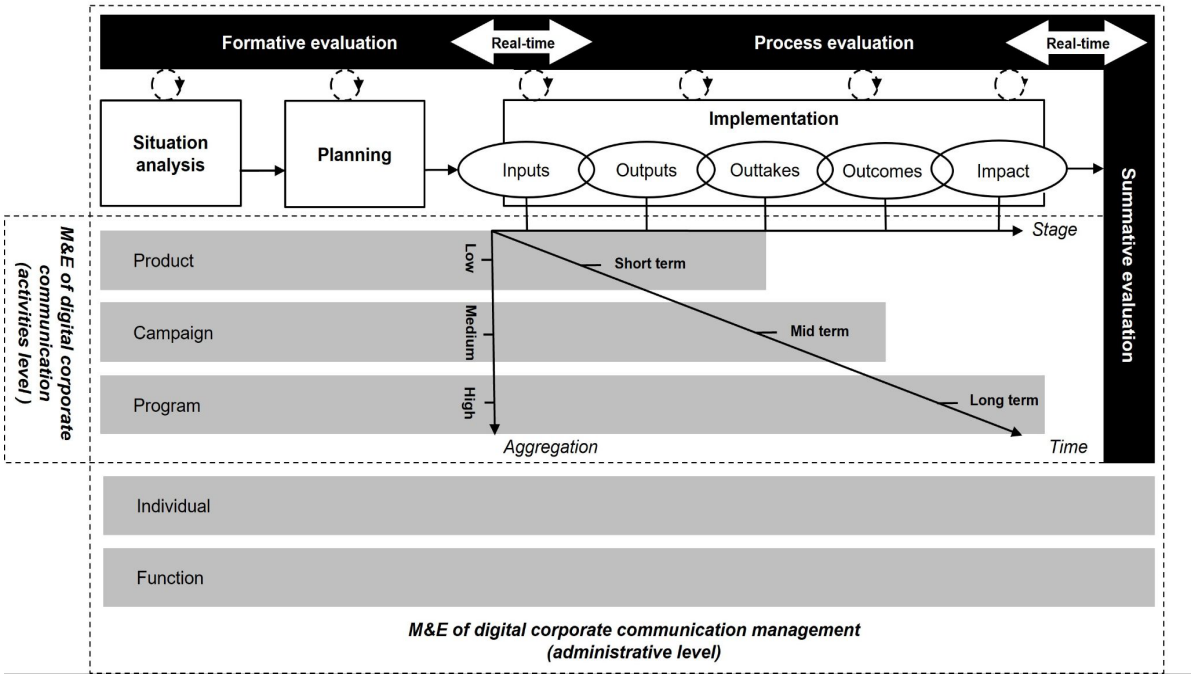
Figure 2. A framework of M&E in digital corporate communication (adapted from Buhmann & Likely 2018)



What is changing?

The changes brought about by the digitalization have important implication for the field of corporate communication: On the one hand, the media usage patterns of stakeholders have changed tremendously in recent years, as mobile and digital consumption have long since overtaken traditional analogue media consumption (Newman et al., 2021), creating many more digital traces that can be analysed and used for targeting audiences. On the other hand, the number of channels, voices, and platforms has increased, and technological and methodological advances in computerised analyses of large amounts of data have occurred. This opens new opportunities for *real-time measurement* (data collection and data analysis) and *real-time use of evaluation insights* for learning and strategic planning. In what follows, we first discuss what is changing for *1) M&E of digital corporate communication* (activities level) and then reflect on the *2) M&E of digital corporate communication management* (administrative level).

1) *M&E of digital corporate communication*

The M&E of digital corporate communication must, of course, first and foremost expand with a view to the increased variety of new communication channels and cross-platform interactions, ranging from social media, influencer communication to chat bots. Beyond this, however, there are more profound changes in the digital age that relate to data collection, data analysis, and the use of data.

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First, at the level of *data collection*, there is a growing availability of free and paid tools and technologies for in-house data collection as well as a growing market of data collection vendors and commercial data brokers. A recent systematisation lists more than 5.000 tools available in MarTech (Brinker, 2020), otherwise known as "marketing technology", of which many are also applicable in corporate communication or "CommTech" (Arthur Page Society, 2021). These tools can be used for the M&E of outputs, outtakes, and outcomes generated on corporate websites or social media channels (Weiner, 2021). What distinguishes M&E of digital communication from more traditional evaluation methods, such as media response analysis, is that data is collected in real-time and that the process is increasingly automated. Moreover, in the digital age, it is much easier to link digital data trails collected at various stakeholder touch points with the organisation (e.g., search histories, web tracing data, app data, location data, likes, shares, etc.) to individual stakeholders, i.e., to capture personalised data (Mai, 2016). Collecting such real-time and networked data allows systematic (social) listening and intelligent monitoring (Zhang & Vos, 2014), which is increasingly important in the age of disinformation, fake news and consumer-generated content, as organisations struggle to retain control over their own communication in algorithmically curated media environments (Macnamara, 2020). Of course, access to data in real-time does not improve M&E per se, but also requires new ways of analysing big data.

Second, at the level of *data analysis*, the most important advances for M&E concern recent technological and methodological developments in data sciences, computer linguistics, and business intelligence. The increasing sophistication of computerized research methods, automation, and artificial intelligence (AI) nowadays enable organisations to analyse large amounts of data in an efficient, fast, reliable, and timely way (Weiner, 2021). AI here refers to a machine's ability to produce results for a task that are indistinguishable from the results achieved by a human agent (Corea, 2019, Buhmann & Gregory 2022 – in the same volume). In corporate communication, it often involves the use of machine learning or deep learning to analyse large text material. Automatised text analyses based on AI can be used, for instance, to examine sentiments of user comments on corporate social media, tonality and share of voice in online media articles, or transcripts of stakeholder interviews or focus groups. Predictive analytics or modelling, already widely used in the retail sector, enables digital corporate communication M&E to find patterns in big data and make predictions on future stakeholder behaviour based on stakeholders' personalised data collected (Gandomi & Haider, 2015). However, predictions based on such data also require new statistical approaches, since basic assumptions in the social sciences, e.g., about normal distributions and generalizability, do not hold, as data on the entire (Internet) population are impossible to collect (Lazer et al. 2021). Visual analytics help to facilitate the representation of data in graphs, maps, charts, etc. so that decision makers can more easily make sense of large amounts of data. Real-time dashboards are often used to make the insights of M&E accessible and visible in a 'dense' form focused on a small number of KPIs (Zerfaß & Volk, 2019). A major challenge remains, however, with the need for scrutiny as well as the validity and reliability of automated text analysis or sentiment detection, as well as of predictions based on data. The core problem is that the data sources that can be used for predictions are usually not created specifically for

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this purpose, and are in their raw or unprocessed form often messy, sometimes inaccurate, or even faked. For example, unlike survey responses, data obtained through tracking or mobile sensing was not designed for research purposes. Therefore, intensive data cleansing and maintenance and "data hygiene" are essential to gaining meaningful insights. Moreover, procedures must be developed to distinguish between human and computer-generated communication, e.g., to identify fake followers or fake bots from real social media users, which is likely to become a more important use case in the age of disinformation.

Table 1 presents an overview of common methods for the collection and analysis of data as well as KPIs used for the M&E of digital corporate communication. Each column lists available methods and KPIs in alphabetical order; i.e. each row stands alone. Meanwhile, as mentioned, there are countless technology providers for implementation (see Brinker, 2020), among the most popular are Google Analytics, Hootsuite, Talkwalker, as well as social media platform's own analytics toolkits such as Facebook or Instagram Insights or LinkedIn analytics.

Table 1. Digital KPIs for M&E in digital corporate communication

Level	**Methods**	**Digital KPIs**
Outputs	- Observation, netnography (e.g., online events) - Online media content analysis - Online touchpoint analysis - Social media tracking - Website tracking	*Primary outputs* - Number of activities (e.g., social media posts, digital campaigns, digital press conferences, etc.) *Secondary outputs* - Online media coverage volume - Online media share of voice - Social media reach - Click-through rate, open rate - Virtual event attendance - Website visits, impressions
Outtakes	- Online surveys - Sentiment analysis - Social media tracking and analysis - Website tracking and metrics	- Attention - Awareness - Downloads - Online tonality, sentiment - Recall (aided/unaided) - Recognition - Mentions (tags, brand, organisation) - Response (e.g., likes, shares, comments)
Outcomes	- Focus groups, interviews - Observation, netnography - Online surveys, opinion polls (e.g., customers) - Social media analysis	- Attitude (e.g., trust, acceptance) - Behaviour / conversion rate (e.g., buying, donating) - Intention (to buy, to recommend) - Knowledge - Learning - Preference (e.g., brands)

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And third and finally, at the level of *data usage*, the major change is that real-time data and insights can also be incorporated into ongoing campaigns and real-time digital content creation. This goes beyond the rationale of traditional summative M&E that uses such insights at the end of campaign implementations. The process of systematically recording, classifying and relating data to individual stakeholders and thereby creating personalised profiles is known as algorithmic *profiling* (Büchi et al., 2020). Although stakeholder mapping has been used for decades, digital data opens up new opportunities for corporate communication to (micro)segment different stakeholder groups in a very fine-grained manner and substantiate the identified segments with granular data collected in other parts of the organisation (e.g., sales or CRM: stakeholders' user profiles, purchase behaviours, psychological traits, age, location, health, private interests, etc.) (Matz & Netzer, 2017). This allows to create content and messages tailored to very specific stakeholder groups (e.g., potential or current customers, journalists, social media followers) in near real-time. To this end, organisations make increasing use of *microtargeting*, which is a major trend in political and commercial marketing (White & Boatwright, 2020). In other words, corporate communication can target different stakeholders with unique content, rather than disseminating one-size-fits-all messages to larger stakeholder groups. This allows a more efficient allocation of budgets for digital communication according to predicted outcomes for specific stakeholders and micro segments and could be a means for more intensive stakeholder engagement and co-creation of content in the long term.

2) *M&E of digital corporate communication management*

In addition to the M&E of communication activities, a second area facing the changes of digitalisation is the M&E of the management or administrative level of communication. While the former concerns primarily the output, outtake, and outcome stages, the latter particularly involves the input and impact stages. For the *M&E of digital corporate communication management*, perhaps the most pressing question is the extent to which processes, structures, and management approaches in communication teams, divisions, or entire departments have been digitalised or digitally transformed (see Zerfass & Brockmann, 2022 in this edited volume). M&E does not have to reinvent the wheel but can adapt new evaluation methods and approaches for assessing digitalisation processes from digital controlling (e.g., Keimer & Egle, 2020), information systems, business analytics, or human resources and marketing research. At the level of concrete digital processes, for example, process analyses can be used to assess whether digitalised workflows in communication units or teams are efficient and effective when creating content or responding to journalists' queries. Approaches and KPIs to evaluating the digital maturity of structures and routines can be adapted to assess and benchmark the digital transformation of entire communication departments. By doing so, new opportunities open up for institutionalizing a broader understanding of M&E not only at the level of communication activities, but as a strategic pillar of corporate management.

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What remains the same?

Against the manifold changes brought by digitalisation, the question inevitably arises as to what remains the same in M&E conceptualisations, methods, and practices. While especially data collection and data analysis operate under fundamentally changed conditions through digitalisation, a more stable sphere in M&E may be that of the underlying/preceding building of evaluation frameworks as well as that of data use, especially at the managerial and administrative level.

Regarding the underlying M&E framework, setting up M&E for digital corporate communication can still rely on the established best practices in terms of the core dimensions to consider, i.e., types, stages, units of analysis. Here the fundamentals of building a consistent M&E framework based on "logic models" and established communication M&E standards still prevail -- see section 'A framework for M&E of digital corporate communication' above. Such standards of remaining relevance include those developed and proposed within the "Barcelona declaration of measurement principles", first launched in 2010 and updated in 2015 and 2020 (cf. Buhmann et al. 2019): 1) setting goals and measurable objectives, 2) identifying outputs, outcomes, and potential impact, 3) identifying outcomes and impact at the level of the organisation *and* its environment, 4) including both qualitative and quantitative analyses, 5) not considering "advertising value equivalence" (AVE) as a measure of the value of communication, 6) including all relevant online and offline channels, and 7) fostering integrity and transparency to drive learning and insights.

With its strong emphasis on the importance of setting goals and objectives derived from core organisational value drivers (see section on "definitions of M&E and previous research" above) M&E (digital or not) needs to centre around what an organisation is trying to achieve. This means operationalizing M&E based on a consistent framework as well as upon objectives that are relevant to organisational strategy *and* can be used to evaluate in a meaningful way, i.e., SMART objectives. SMART means that objectives operationalise an organisation's more abstract strategic goals and visions of success in a *specific* and *measurable* manner, and they are set to be *achievable* and *realistic* (so that they may effectively motivate and engage employees), as well as *time-bound* to state concretely by which date an outcome should be achieved. The emphasis on SMART objective-setting as a necessary prerequisite to M&E is all the more important in a digital age, where indicators (regardless of their organisational goal relevance) are relatively readily available and often less costly to collect -- and this availability depends much less on distinct planning on behalf of the communicator. This goes to show that where M&E practices link up with more general strategic efforts of (communication) management, digital developments are not fundamentally changing best practices -- a best practice that is all about the contribution of M&E efforts to corporate strategy and, ultimately, to organisational value creation (Gilkerson et al., 2019).

In a similar vein and before the backdrop of the permanent burgeoning of new digital measures especially at the output and outtakes stages, digital corporate communication retains a strong need to focus M&E on the outcome and impact levels that are less about communication per se and more about communication's effects on stakeholder's attitudes and behaviour or even business results. There remains a strong need for education when it comes to

developing M&E capabilities in corporate communication at the outcome and impact levels (Zerfass et al., 2017), paralleled by a need to further advance professional standards that can build normative pressure among practitioners to move towards more sophisticated M&E (Buhmann & Brønn, 2018).

Further, it is exactly at this crucial junction of M&E and management that we see the remaining importance of building and securing strong in-house competencies for M&E. This is necessary to build bridges between an ever-increasing availability of data on the one hand, and the constant necessity to align communication activities with the emergent process of organisational value creation (e.g., strategy development and implementation) on the other. Such in-house competencies, if strong, will also build a solid basis on which to critically assess the value of ever new digital ways to collect, analyse, and use data.

Finally, some other aspects of M&E may indeed remain the same where offline communication (i.e., face-to-face stakeholder dialogues, such as 'town halls', or physical press conferences and other PR events) or distinctly 'physical settings' are still key to developing valid insights and driving communication value. Here, more traditional 'pre-digital' M&E approaches will keep their relevance. This goes, for instance, for the role of qualitative insights generated through face-to-face focus groups (i.e., in the situational analysis/planning phases) or interviews with physical event participants (i.e., during and after the implementation phase).

Critical examination

Digitalization brings major changes for advanced data collection, data mining, and predictions based on data and presents not only prospects for the M&E of corporate communication, but also raises several ethical, normative, and legal issues. These are however still little discussed in the corporate communication and public relations literature (Bourne & Edwards, 2021; Duhé, 2015; Valentini, 2015; Yang & Kang, 2015). Empirical research in the practices of M&E in corporate communication has a long tradition (e.g., Zerfass et al., 2017; Macnamara et al., 2017; Wright et al., 2009), but only recently have scholars started to address the question of how digital innovations - such as AI, big data, or automation - reshape practices in corporate communication from the perspective of practitioners (e.g., Buhmann & Gregory 2022 in this volume, Bajalia, 2020; Wiesenberg et al., 2017; Wiencierz & Röttger, 2019; Zerfass et al., 2020). Although most empirical studies do not explicitly relate to M&E practices, but rather general developments in digital communication, they do offer insights into the ethical and practical challenges opening up for digital M&E. We distinguish three levels to critically reflect on M&E in the context of digital corporate communication: the societal level (macro level), the organisational level (meso level), and the individual (M&E practitioner) level (micro level).

At the macro level, corporations' use of personalised stakeholder data for profiling raises legal, societal, and ethical concerns with regard to maintaining individuals' data privacy and is critically discussed under such terms as dataveillance (Van Dijck, 2014) or surveillance capitalism (White & Boatwright, 2020; Zuboff, 2015). Especially the use of microtargeting, e.g., for corporate or political campaigns, and algorithm-based communication is met

with fears of spurring democratic challenges related to political polarisation and digital inequalities and contributing to the fragmentation of the public sphere and the creation of echo chambers (e.g., Barocas, 2012). In addition, the increasing processing of big data and related energy consumption also has ecological implications and challenges pathways to sustainable corporate practices.

At the meso level, corporations must face the question of how to use the new opportunities brought about by digitalisation in a responsible, accountable, and moral way, not least because the unwitting exploitation of stakeholder data could damage the relations with customers, employees, or the public (Valentini, 2015). Corporations as a whole and their communication departments also face challenges of setting up efficient structures and routines for data management and governance. Building inhouse architectures and intelligence could be a remedy to minimise the dependency on platforms such as Meta (Facebook), Alphabet (Google), or Microsoft and data vendors for data collection. For the positioning of corporate communication departments, there is a risk of lagging behind or being booed by developments in automated marketing and MarTech, if opportunities for innovations in M&E of digital communication are overlooked.

At the micro level, the increasing use of digital technologies and tools can pose risks for the well-being of individual M&E practitioners: Collecting, analysing, interpreting, visualizing, and making sense of data requires lots of time, personnel resources, and new competencies. While practitioners do not need to become expert technologists (Galloway & Swiatek, 2018), lacking competencies may be a source of digital stress or information overload, and could be a severe barrier to the implementation of new technologies or tools for M&E.

Against this backdrop, implementing digital technologies driven by AI and machine learning for M&E of digital corporate communication (to support data collection, analysis, or use) necessitates *ethical reflections* on consequences at the micro, meso, and macro level. Recent reviews on 'ethical AI' (cf. Buhmann et al. 2020), show that AI implementation may raise three interrelated types of concerns, which also relate to the field of M&E.

First, the use of AI for M&E may raise *evidence concerns* about how systems convert vast data into 'insights' (which form the basis of a system's decisions). AI-powered tools for M&E may rely on data that is inconclusive (i.e., decisions will be based on patterns that are artefacts of data), or misguided (i.e., decisions will be based on inadequate inputs, such as data that is sensitive, incomplete, or incorrect).

Second, the use of AI in M&E may raise *outcome concerns*, meaning these systems' recommendations and decisions might be wrong and harmful. When the use of digital technologies fails their intended goals, these tools may lead to false assessments and ultimately wrong business decisions. Such harm may be direct, e.g., when tactical decisions are based on false evaluations provided by AI. They may also emerge as indirect and long-term impacts that come with the application of AI more generally, e.g., when AI-powered tools become highly embedded in the strategy building process and their false assessments influence the development of communication departments or organizations in the long-run.

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Third, digital technologies powered by AI may raise *epistemic concerns* through their poor transparency (also referred to as 'AI opacity') (Burrell, 2016). The self-learning capacity and a relative autonomy of AI-powered tools for M&E can make it difficult for corporate communication practitioners to evaluate the workings of these systems themselves, e.g.: How are data inputs processed? How does data processing lead to particular assessments and outputs of the system? The potentially decreased ability to provide straightforward explanations about the data collection, analysis, or use of AI-powered tools, highlights the need for AI literacy of communicators -- especially in a field like M&E, which will likely see a relatively swift uptake of AI and supplanting of activities that have previously been performed by professionals (forthcoming CIPR study).

Case study

Against the backdrop of the changes brought about by digitalisation and their critical examination, we now address the question as to how M&E is used responsibly and purposefully in practice. An illustrative example of the successful use of digital technologies for the timely and partially automated M&E of digital corporate communication comes from UNICEF.

A global welfare organisation under the umbrella of the United Nations, founded in 1946, UNICEF operates in over 190 countries to improve the well-being of children. One of its cornerstones is the use of rigorous research and thoughtful analysis about the situation of children in order to make evidence-based decisions. Driven by the conviction that analysing performance and distilling insights from listening is essential to strengthening UNICEF's communication, the highly decentralised organisation has developed a global M&E approach in 2017, which has been implemented in regional and local offices in more than 60 countries and all seven regional offices. The UNICEF communication measurement framework was developed to evaluate the local implementation of global objectives - in other words, the "glocal impact" - of UNICEF's communication and advocacy efforts and has been featured as a best practice case study on the AMEC website. The UNICEF Division of Communication in New York centrally monitors metrics at the global level and supports country offices to adapt the M&E framework to local demands and media contexts. At the global level, the Division of Communication uses a wide range of digital technologies and tools for M&E such as LexisNexis Newsdesk as a media aggregator, Factiva for archival media searches, TVeyes for broadcast media aggregator, Talkwalker for social media listening, or Trendkite as a user-friendly dashboard. Typical KPIs include media reach, digital reach, (online) share of voice, audience engagement, or brand awareness. Data is collected in real-time and in six languages (English, French, Spanish, Arabic, Chinese and Russian). Automated daily alerts help to identify, coordinate, and respond to potential issues in a timely manner. Automated analysis is combined with human analysis of a random sample of 500 clips/month to validate sentiments and tonality, for example. Insights are presented in the form of in-house snapshot reports, weekly reports, or quarterly reports, which provide senior management with the opportunity to record insights rapidly and use them to identify opportunities for improvement and to develop forward looking strategies.

In retrospect, implementation of the M&E framework has given UNICEF leadership a clearer picture of how digital communication activities resonate with the public and has strengthened its position as the leading advocate for children in terms of reach and engagement. An important prerequisite is an organisational culture that values learning, experimentation, measurement, and innovation. This was part of UNICEF's digital transformation strategy, which began with investments in staff digital skills, digital infrastructure, and technology, and expanded its intelligence gathering and capacity building for systematic listening (UNICEF, n.y.).

Conclusion and future directions

Against the background of the critical examination, it has already become apparent that many unanswered questions remain to be tackled by scholars and practitioners in the field of M&E (cf. Volk & Buhmann, 2019). In the future, research in the field of digital corporate communication should focus primarily on the question of what conditions as well as positive and negative consequences are associated with the digitalization of M&E practices from the perspective of corporate communication departments, M&E practitioners, and society. Both empirical research, conceptual work and critical approaches are needed to better understand these aspects and to shed light on the ethical implications of M&E in the digital age. In addition, interdisciplinary approaches that link literature from fields such as data science, computer linguistics, digital marketing, and digital controlling are desirable to provide insights and cross-fertilisation on the path to digitalisation of M&E of corporate communication. Increased collaboration between science and practice could offer particularly fruitful insights into organisational requirements for the further digitalisation of M&E at the level of structures, process, cultures, competencies, and technologies. As communication professionals face ever new challenges related to the technological innovations of digitalisation, such as data security and data management, continuous learning and improvement becomes key in the future. This also includes ethical training of practitioners (Bourne & Edwards, 2021) and catching up with developments in neighbouring fields such as MarTech and data science.

References

AMEC (2016). *AMEC Integrated Evaluation Framework*. Online: https://amecorg.com/amecframework/de/framework/interactive-framework/

AMEC (2020). *Barcelona Principles 3.0*. Online: https://amecorg.com/barcelona-principles-3-0-translations/

AMEC (n.y.). UNICEF's communication measurement framework – four years of 'global impact' for children. Online: https://amecorg.com/case-study/unicefs-communication-measurement-framework-four-years-of-glocal-impact-for-children/

AMEC International Association for the Measurement and Evaluation of Communication (2010). *Barcelona Declaration of Measurement Principles*. Online: http://amecorg.com/2012/06/barcelona-declaration-of-measurement-principles

Arthur W. Page Society (2021). *ComTech Guide*. Online: https://commtech-guide.page.org/getting-started-incommtech-from-professional-to-pathfinder/a-new-profession-emerges/

Bajalia, A. (2020). Where Are We Now? Public Relations Professionals Discuss Measurement and Evaluation. *Public Relations Journal, 13*(2).

Barocas S. (2012). The price of precision: voter micro-targeting and its potential harms to the democratic process. In: *Proceedings of the first edition workshop on Politics, elections and data, Conference on Information and Knowledge Management* (pp. 31-36). https://doi.org/10.1145/2389661.2389671

Bourne, C., & Edwards, L. (2021). Critical reflections on the field. In C. Valentini (Ed.), Public Relations (pp. 601-614). De Grutyer Mouton. https://doi.org/10.1515/9783110554250-031

Brennen, J.S., & Kreiss, D. (2016). Digitalization. In K.B. Jensen, E.W. Rothenbuhler, J.D. Pooley & R.T. Craig (Eds.), *The International Encyclopedia of Communication Theory and Philosophy* (pp. 556–566). John Wiley & Sons.

Brinker, S. (2020, April 22). Marketing technology landscape supergraphic (2020): Martech 5000 – really 8,000, but who's counting? https://chiefmartec.com/2020/04/marketing-technology-land-scape-2020-martech-5000/

Buhmann, A, & Brønn, P. S. (2018). Applying Ajzen's Theory of planned behavior to predict practitioners' intentions to measure and evaluate communication outcomes. *Corporate Communications – An International Journal, 23*(3), 377–391.

Buhmann, A., & Likely, F. (2018): Evaluation and measurement in strategic communication. In R. L. Heath & W. Johansen (eds): The International Encyclopedia of Strategic Communication (vol. 1, pp. 625-640). Malden, MA: Wiley-Blackwell.

Buhmann, A., Likely, F., & Geddes, D. (2018). Communication evaluation and measurement: connecting research to practice. *Journal of Communication Management*.

Buhmann, A., Macnamara, J., & Zerfass, A. (2019). Reviewing the 'march to standards' in public relations: A comparative analysis of four seminal measurement and evaluation initiatives. *Public Relations Review, 45*(4), 101825.

Büchi, M., Fosch-Villaronga, E., Lutz, C., Tamò-Larrieux, A., & Velidi, S. (2021). Making sense of algorithmic profiling: user perceptions on Facebook, *Information, Communication & Society*. https://doi.org/10.1080/1369118X.2021.1989011

Burrell, J. (2016). How the machine 'thinks': Understanding opacity in machine learning algorithms. *Big Data & Society, 3*(1), 1–12.

CIPR (2022, forthcoming). [Will be available by the time the chapter is published]

Corea, F. (2019). AI knowledge map: How to classify AI technologies. In *An introduction to data* (pp. 25-29). Springer, Cham.

DPRG/ICV (Deutsche Public Relations Gesellschaft/International Controller Association). (2011). *Position paper communication controlling*. DPRG/ICV.

Frechtling, J. A. (2015). Logic Models. *International Encyclopedia of the Social & Behavioral Sciences*, 299–305.

Galloway, C. & Swiatek, L. (2018). Public relations and artificial intelligence: It's not (just) about robots. *Public Relations Review, 44*(5), S. 734–740.

Gandomi, A., & Haider, M. (2015). Beyond the Hype: Big Data Concepts, Methods, and Analytics. *International Journal of Information Management, 35*(2), 137–144. https://doi.org/10.1016/j.ijinfomgt.2014.10.007

Gilkerson, N. D., Swenson, R., & Likely, F. (2019). Maturity as a way forward for improving organisations' communication evaluation and measurement practices: A definition and concept explication. Journal of Communication Management.

Government Communication Service (GCS) (2021). Evaluation Framework 2.0. https://gcs.civilservice.gov.uk/guidance/evaluation/tools-and-resources

Keimer, I., & Egle, U. (2020). Die Digitalisierung der Controlling-Funktion. Anwendungsbeispiele aus Theorie und Praxis. Springer Gabler.

Lazer, D., Hargittai, E., Freelon, D. et al. (2021). Meaningful measures of human society in the twenty-first century. *Nature 595*, 189–196. https://doi.org/10.1038/s41586-021-03660-7

Macnamara, J. (2018a). A Review of New Evaluation Models for Strategic Communication: Progress and Gaps, *International Journal of Strategic Communication, 12*(2), 180-195. https://doi.org/10.1080/1553118X.2018.1428978

Macnamara, J. (2018b). *Evaluating public communication: Exploring new models, standards, and best* practice. Routledge.

Macnamara, J. (2020). *Beyond Post-Communication: Challenging Disinformation, Deception, and Manipulation*. Peter Lang.

Macnamara, J., & Likely, F. (2017). Revisiting the disciplinary home of evaluation: New perspectives to inform PR evaluation standards. *Research Journal of the Institute for Public Relations, 3*(2), 1-21.

Macnamara, J., Lwin, M. O., Adi, A., & Zerfass, A. (2017). *Asia-Pacific Communication Monitor 2017/18. Strategic challenges, social media and professional capabilities - Results of a survey in 22 countries*. APACD.

Mai, J.-E. (2016). Big data privacy: The datafication of personal information. *The Information Society, 32*(3), 192–199.

Matz, S. C., & Netzer, O. (2017). Using big data as a window into consumers' psychology. *Current Opinion in Behavioral Sciences, 18*, 7–12.

Nadkarni, S., & Prügl, R. (2020). Digital transformation: a review, synthesis and opportunities for future research. *Management Review Quarterly.* https://doi.org/10.1007/s11301-020-00185-7

Newman, N., Fletcher, R., Schulz, A., Andi, S., Robertson, C.T., & Nielsen, R.K. (2021). *Reuters Institute Digital News Report 2021*. Reuters Institute for the Study of Journalism.

Stacks, D. (2017). *Primer of public relations research* (3rd ed.). The Guildford Press.

Tilson, D., Lyytinen, K., & Sørensen, C. (2010). Research Commentary: Digital Infrastructures: The Missing IS Research Agenda. *Information Systems Research*, *21*(4), 748–759. http://www.jstor.org/stable/23015642

UNICEF (n.y.). COMMUNICATE TO ADVOCATE FOR EVERY CHILD: UNICEF's Global Communication and Public Advocacy Strategy, 2014–2017. Online: http://amecinternationalsummitstockholm.org/wp-content/uploads/2015/06/UNICEF-Global-Communication-and-Public-Advocacy-Strategy1.pdf

Valentini, C. (2015). Is using social media 'good' for the public relations profession? A critical reflection. *Public Relations Review, 41*(2), 170–177.

Van Dijck, J. (2014). Datafication, dataism and dataveillance: Big Data between scientific paradigm and ideology. *Surveillance & Society, 12*(2), 197–208.

Volk, S. C., & Buhmann, A. (2019). New avenues in communication evaluation and measurement (E&M). Towards a research agenda for the 2020s. *Journal of Communication Management, 23*(3), 162-178.

Volk, S. C., & Zerfass, A. (2018). Alignment: Revisiting a key concept in strategic communication. *International Journal of Strategic Communication*, *12*(4), 433-451.

Volk, S. C., & Zerfass, A. (2020). Management Tools in Corporate Communications: A Survey Among Practitioners and Reflections About The Relevance of Academic Knowledge for Practice. *Journal of Communication Management, 25*(1), 50-67.

Watson, T., & Noble, P. (2014). *Evaluating Public Relations* (3rd ed.). Kogan Page.

Weiner, M. (2021). *PR technology, data and insights: Igniting a positive return on your communications investment*. Kogan Page.

Weiner, M. & Kochhar, S. (2016). *Irreversible: The Public Relations Big Data Revolution.* IPR Measurement Commission.

White, C., & Boatwright, B. (2020). Social media ethics in the data economy: Issues of social responsibility for using Facebook for public relations. *Public Relations Review, 46*(5). https://doi.org/10.1016/j.pubrev.2020.101980.

Wiencierz, C., & Röttger, U. (2017). The Use of Big Data in Corporate Communication. *Corporate Communications: An International Journal, 22*(3), 258-272. https://doi.org/10.1108/CCIJ-02-2016-0015

Wiesenberg, M., Zerfass, A., & Moreno, A. (2017). Big Data and Automation in Strategic Communication. *International Journal of Strategic Communication, 11*(2), 95-114.

Wright, D., Gaunt, R., Leggetter, B., Daniels, M., & Zerfass, A. (2009). *Global survey of communications measurement 2009 - final report.* AMEC.

Yang, K. C. C., & Kang, Y. (2015). Exploring big data and privacy in strategic communication campaigns: A cross-cultural study of mobile social media users' daily experiences. *International Journal of Strategic Communication, 9*(2), 87–101.

Zerfass, A., & Brockhaus, J. (2021). Towards a research agenda for CommTech and digital infrastructure in public relations and strategic communication. In B. Birmingham, B. Yook & Z. F. Chen (Eds.). *Contributing at the top and throughout an organisation: Research and strategies that advance our understanding of public relations. Proceedings of the 24th International Public Relations Research Conference* (pp. 202–216). IPRRC.

Zerfaß, A., & Viertmann, C. (2017). Creating business value through corporate communication: A theory-based framework and its practical application. *Journal of Communication Management, 21*(1), 86-91.

Zerfaß, A., & Volk, S. C. (2019). *Toolbox communication management. Thinking tools and methods for managing corporate communications*. Springer Gabler.

Zerfass, A., Buhmann, A., Tench, R., Verčič, D., & Moreno, A. (2021). *European Communication Monitor 2021. CommTech and digital infrastructure, video-conferencing, and future roles for communication professionals.* Results of a survey in 46 countries. Brussels: EUPRERA/EACD.

Zerfass, A., Hagelstein, J., & Tench, R. (2020). Artificial intelligence in communication management: a cross-national study on adoption and knowledge, impact, challenges and risks. *Journal of Communication Management, 24, 377-389.*

Zerfaß, A., Verčič, D., & Volk, S. C. (2017). Communication evaluation and measurement: Skills, practices and utilisation in European organisations. *Corporate Communications: An International Journal*, *22*(1), 2-18.

Zhang, B., & Vos, M. (2014). Social media monitoring: aims, methods, and challenges for international companies. *Corporate Communications: An International Journal*, 19(4), 371-383. https://doi.org/10.1108/CCIJ-07-2013-0044

Zuboff, S. (2015). Big other: Surveillance capitalism and the prospects of an information civilization. *Journal of Information Technology, 30*, 75–89.