The Stress of Being Social –
Essays on Social Media in the Workplace

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The President:

Prof. Dr. Thomas Bieger

To my parents

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Zürich, Dezember 2013 Eliane Bucher

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List of Abbreviations

ALA	American Library Association
AOM	Academy of Management
APA	American Psychological Association
AVE	Average Variance Extracted
C.R.	Composite Reliability
CEO	Chief Executive Officer
cf.	Confer
CFI	Confirmatory Fit Index
Co.	Company
E.g.	For example
EACD	European Association of Communication Directors
et al.	et alteris
EUPRERA	European Public Relations and Research Association
EURAM	European Academy of Management
GAS	General Adaption Syndrome
HICSS	Hawaii International Conference on System Science
HR	Human Relations
ICA	International Communication Association
ICT	Information and Communication Technology
IDT	Innovation Diffusion Theory
IJSODT	International Journal of Social and Organizational Dynamics in Information Technology
IS	Information Systems
IT	Information Technology
JDI	Job Description Index
KMO	Kaiser-Meyer-Olkin
MM	Motivational Model
MPCU	Model of PC Utilization
MSQ	Minnesota Satisfaction Questionnaire
MUT	Media User Typology
p.	Page
PC	Personal Computer

PR	Public Relations
RMSEA	Root Mean Square Error of Approximation
S.D.	Standard Deviation
SCT	Social Cognitive Theory
SEM	Structural Equatio Model
SRMR	Standardized Root Mean Square Residual
TAM	Technology Acceptance Model
TLI	Tucker-Lewis Index
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
UTAUT	Unified Theory of Acceptance and Use of Technology
WCQ	Ways of Coping Questionnaire
WHO	World Health Organization

Summary

The advent of social media has precipitated far reaching changes in modern knowledge workplaces and particularly in the physical architecture of participation (technology layer), in the way we create, process and share data and content (data layer), in the skills and mental readiness needed to participate in the virtual conversation with peers and to connect in new ways with others (human layer) and lastly in the way we coordinate group and economic activities (institutional layer). This dissertation strives for a deeper understanding of how these changes impact on individuals in modern workplaces with a particular emphasis on (1) professionals' ability to harness social media for work as well as (2) their mental readiness to participate in work environments marked by the social media phenomenon in a sustainable manner. Two theoretical perspectives inform this research goal: the perspective of technology adoption (Paper I and II) as well as the perspective technostress (Paper III and IV).

Paper I looks at social media usage in communication professions and develops a typology of four social media usage types, none of which depend significantly on demographic variables. Paper II scrutinizes factors determining social media adoption in knowledge workplaces and finds that organizational facilitating condition and social influence are strong drivers of adoption behavior. Paper III investigates mental aspects of professional social media literacy, thereby proposing the ability to cope with overload, invasion and uncertainty as an extension to traditional literacy curricula. Paper IV centers on the consequences of social media-related stress in the workplace and particularly on the influence of stress on enjoyment and job satisfaction. The findings suggest that some social media-related stressors in the workplace have the potential to evoke positive instead of negative affective reactions.

Zusammenfassung

Das Aufkommen Sozialer Medien hat weitreichende Konsequenzen für moderne (Wissens-) Arbeitsplätze. Diese durch ein neues Medienumfeld geprägten Veränderungen betreffen die technologische Infrastruktur (Technologie Ebene), die Art und Weise, wie Daten und Inhalte produziert, verarbeitet und geteilt werden (Daten Ebene), die Fähigkeiten und Fertigkeiten, die zur Teilhabe am Arbeitsumfeld und an der Gesellschaft benötigt werden sowie die Art, wie wir Beziehungen knüpfen und leben (Menschliche Ebene) und letztlich auch die Art, wie wir gesellschaftliche und ökonomische Aktivitäten koordinieren (Institutionen Ebene).

Die vorliegende Dissertation strebt ein vertieftes Verständnis davon an, wie sich diese vielschichtigen Veränderungen auf Berufstätige in modernen Arbeitsplätzen auswirken. Im Zentrum steht dabei (1) die individuelle Fähigkeit und Bereitschaft, Soziale Medien am Arbeitsplatz zu nutzen sowie (2) das (mentale) Vermögen mit den Stresspotenzialen, die sich aus der Arbeit mit Sozialen Medien ergeben, nachhaltig umzugehen.

Bei der Umsetzung dieses Forschungsziels greift diese kumulative Dissertation auf die theoretischen Grundlagen der Technology Adoption Forschung (Artikel I und II), sowie der Forschung im Bereich Technostress (Artikel III und IV) zurück. Artikel I befasst sich mit der Nutzung Sozialer Medien in Kommunikationsberufen und ergründet nicht nur die generelle Verbreitung Sozialer Medien in der Branche, sondern präsentiert auch eine Typologie von vier Social Media-Nutzertypen. Die unterschiedliche Social Media Nutzung hängt dabei nicht von demographischen Kriterien, sondern von Nutzungserfahrung und individueller Social Media Kompetenz ab. Artikel II ergründet Faktoren, welche die Akzeptanz Sozialer Medien am Arbeitsplatz fördern oder hindern. Die wichtigsten Stellhebel für die Adoption Sozialer Medien am Arbeitsplatz sind die Unterstützung durch die eigene Organisation, sowie die Einstellungen des engeren beruflichen Umfelds wie z.B. Vorgesetzte oder Kollegen. Artikel III untersucht, welche mentalen Aspekte beim nachhaltigen und professionellen Umgang mit Social Media relevant sind und unterstreicht dabei, dass Berufstätige nicht nur konkrete praktische Fertigkeiten beherrschen müssen, sondern auch mit Überlastung, Unsicherheit und einer Invasion von Arbeitsinhalten ins Privatleben umgehen können müssen. In Artikel IV wird untersucht, inwiefern sich durch Soziale Medien verursachter Stress am Arbeitsplatz auf das individuelle Wohlbefinden und auf die Zufriedenheit am Arbeitsplatz auswirken. Die Resultate dieses letzten Artikels weisen darauf hin, dass sich einige Stressoren nicht negativ, sondern sogar positiv auf das Wohlbefinden von Berufstätigen auswirken können.

The Tempest – or the Genesis of Digital Society

"O wonder!
How many goodly creatures are there here!
How beauteous mankind is! O brave new world,
That has such people in't."

Miranda
in William Shakespeare's Tempest
(V.i. 181-5)

When Miranda stood on the balcony, overlooking the lights of the buzzing city, her thoughts drifted to her small island. She was only a child back then, belonging to the last generation growing up without ubiquitous technology and hyper-networked media. Her days of youth were filled with games of hide and seek and running swarms of children as TV-shows and newspaper headlines provided the common narrative of their days. Looking back on her pre-millennial life, Miranda is often filled with equal parts nostalgia and amazement. No one could have prepared her for the tempest that was about to become her life.

Around the turn of the Millennium, Miranda was freed from her isolated existence. When the Internet reached her house, TV and newspaper were not the only portals into the world anymore. One by one, Miranda and her friends made their first steps into the online realm – it was a time of euphoria, o brave new world! Today, Miranda still lives in her childhood home, yet so much has changed. Miranda does not

run among her friends anymore, but she is still tightly connected to them, frequently sharing pictures and stories that make them think or laugh. And she has made new friends, hundreds of them – some even without ever meeting them in person. Every day, Miranda publishes her ideas and comments on her social network site or her blog. As a PR specialist, she works in the midst of an inconceivably large crowd of stakeholders whose ideas, concerns and opinions are accessible to her instantaneously in an eternal stream of socially produced, mediated and shared information. Her workplace has long become a virtual one: it is on twitter, facebook, youtube, or wherever the conversation with her audiences is taking her. She never leaves her house without at least one mobile device that connects her to the heart of the conversation and she never goes to bed without checking for updates – private as well as work-related – one last time.

Only sometimes, Miranda needs a break – that's when she steps outside onto the small balcony, overlooking the lights of the buzzing city, letting her thoughts wander to the quiet existence of her childhood. She would not go back to her island, even if she could. But she is glad that it is there, ever present in her memory, like an anchor in the tempest of her days.

1. Introduction

Social Media – the term is on everyone's lips as it graces news and academic headlines alike. Rarely have two words evoked this many associations, conjured up so many images and emotions and were at the same time so hard to grasp. Since the advent of social networking sites, blogs and content-sharing platforms, "social" has become a widely accepted and mostly unquestioned prefix in our language and in our lives: social funding, social innovation, social programming, social gaming and social gardening are instantly familiar, as we imagine large crowds of people, invited or coordinated through some type of Internet platform, partaking in activities that were originally reserved for or restricted to the few.

One of the most prominent protagonists in the social media is the social networking platform facebook, which connects and coordinates individuals of common interests, purposes or communities. According to its website, facebook is a "social utility that connects people with friends and others who work, study and live around them" (facebook, 2012, n.pag.). Founded in 2004, facebook today has more than one billion users in 210 countries who maintain more than 140 billion network connections (Fowler, 2012). The resulting average of 140 social connections per user may illustrate how, although our manageable social networks have become bigger, the (digitalized) world around us has become smaller.

However, social media are not only about the number of people whom we can stay in touch with. They are also about how information spreads in new and unexpected ways throughout our digitalized networks. The 2011 Egyptian Revolution began with an outright capitulation of traditional media. On January 21, when Egyptians started gathering on Tahrir Square to protest against their president, the television network Al Jazeera had four reporters on site to document the demonstration. Few hours later, they were simply overwhelmed by 50,000 protesters when they had only expected 500 (Khanfar, 2012). As traditional media could not provide up-to-date news on the movement, public attention quickly shifted to the micro-blogging platform twitter, where protesters themselves posted

hundreds of real-time updates every second. Photo and video footage recorded on mobile devices spread quickly throughout social networks as people reposted important information to share it with friends and acquaintances. Soon, traditional media networks noticed citizen-produced information posted on twitter and broadcasted it on an international scale.

However, not all citizen-produced web content conveys information as significant as the spirit of a national revolution. In fact, 90% of user-generated content in social media is, as Sturgeon's infamous law so eloquently puts it, "crud" (Sturgeon, 1958). Yet, Sturgeon is only partially correct because in the social media, even the most insignificant contribution potentially finds an audience or a market. Online retailers such as Amazon or eBay have long specialized in these new niche markets and offer real or virtual shelf space to anyone who has a product or content to offer. If there was a book on Marxist views on the zombie apocalypse, it would surely find its way to amazon and thus become accessible to a potential audience, however tiny or dispersed. This inconceivably large new market of niche content for niche audiences is often called the long tail (Anderson, 2004, 2006). The phrase refers to the graphic representation of a power-law distribution (an exponentially declining curve) that in many ways is characteristic of the social media. The newly emerging social media paradigm complements the old ways, which emphasized a few key players in media, economy and society, with myriads of tiny players who now are given a voice through the new platforms of the Internet—often to the incumbents' dismay. The world marked by social media is as much about niche content as it is about mass production, as much about democracy as monopoly, as much about bottom-up as top-down and it is much more about participation rather than passive consumption.

In the hyper-individualized online environment where the cost of content production approaches zero, everyone can become a writer, a reporter or a producer. Thus, the social media have leveled the playing field between professional and amateur (Keen, 2007). Set against the steady rise of the amateur, the monopoly and authority of traditional gatekeepers and producers seems to crumble. Amateurs participate to a great degree in Wikipedia, the most extensive and comprehensive encyclopedia in history. Unpaid programmers across the globe collaborate to develop open source code that creates an operating system such as Linux or helps

improve the web browser Firefox, which is used by millions of people every day. The motivations to invest time and effort into creating and sharing content through social media may be buried deep within our human desire for social interaction, approval and belonging. Stated more directly, in the words of Clay Shirky (2007), "the [new] Internet runs on love."

However, this is not the (happy) end of the social media story. Despite many impressive examples of collaboration and co-creation in networked environments (Benkler, 2006), gatekeepers and filter mechanisms might be more necessary than ever (Shirky, 2008). In an environment where everybody has a voice, a (not necessarily synchronous) chorus rises so loud that it becomes difficult to distinguish a particular note. The age of social media is an age of ubiquitous Internet access and a constant conversation that follows us constantly on our mobile devices, possibly from the cradle to and beyond the grave. Although the social media information stream is unlimited, our attention and our resources are not. Thus, overload and stress often appear as we struggle to distinguish the relevant from the irrelevant and to determine the accurate among the inaccurate in the long tail of socially produced content.

In many ways, social media enrich our lives and our culture as they render a wealth of information accessible and offer new ways of collaboration and production. The long tail paradigm inherent in social media creates opportunities for new business models that cater to the needs of niche audiences and producers. Social media platforms such as facebook, twitter and YouTube are at the vanguard of a larger shift in society as they lend the individual a voice and an opportunity to participate, which may even foster democracy and the diffusion of global information. At the same time, the brave new world that the Internet has become entails consequences for our society, our lives, our relationships and our wellbeing that we have only begun to comprehend. This dissertation seeks to contribute to a broader and more in-depth understanding of the social media phenomenon by examining the influence of social media on modern workplaces and the changes and challenges they entail for individuals.

This introductory chapter first strives for a holistic working definition of the social media phenomenon as a basis for subsequent study of social media in work environments. Thereby, the social media phenomenon will be approached on (1) a

technological level, (2) a data level, (3) a human level and (4) an institutional level (Gasser & Palfrey, 2012). Furthermore, this chapter establishes the research objective and the research questions of the dissertation. Finally, the introductory section offers a brief overview of the structure, method and content of this dissertation.

1.1. The Brave New Internet

Social media have caused a fundamental rift in our communication paradigm and in how we build relationships, share information and do business[1]. One explanation for this exceptionally broad impact could be that social media are not a mere technological innovation, but an innovation in other respects, too. This is in accordance with the conclusions of Kranzberg (1986) who posits that "technical developments frequently have environmental, social, and human consequences that go far beyond the immediate purposes of the technical devices and practices themselves" (p. 545). Closer examination reveals that the social media phenomenon does indeed affect not only one layer of our communication environment, but all of them. First, social media introduce new technologies and applications, thereby challenging various existing technologies to redefine their scope and purpose (technology layer). Second, they alter the way we produce and handle data by enabling and promoting socially created and shared data and user generated content (data layer). Third, social media affect our relationships not only by allowing us to maintain more relationships at a time but also by rendering them much more immediate, transcending physical boundaries while at the same time challenging us to revisit existing skill sets and capacities (human layer). Fourth, social media offer new modes of collaboration and group building, thus changing how we do business and coordinate economic activity (institutional layer).

[1] Social Media: Plural or singular? Some formal clarification is required before delving further into the theoretical foundation of this contribution. The term "social media" is considered a plural and is used accordingly throughout this dissertation. This is in line with the strict etymology of the term "media", which denotes the plural form of medium. However, many authors consider social media a standard term referring to the social media phenomenon as a whole and thus refer to it in the singular form (e.g., Kaplan & Haenlein, 2009). Others use the term in singular form when referring to the phenomenon as a whole and in plural when referring to a collection of platforms or applications (e.g., Shirky, 2008).

This dissertation strives for a holistic understanding of the social media phenomenon. The impact and consequences of the social media phenomenon thus will be regarded from perspectives focused on technology, data, culture and society. To this end, the four-layer framework of interoperability suggested by Gasser and Palfrey (2012) will be borrowed. In the following, the framework will be adapted to the context of social media and utilized to deduce a multi-layered understanding of the social media phenomenon.

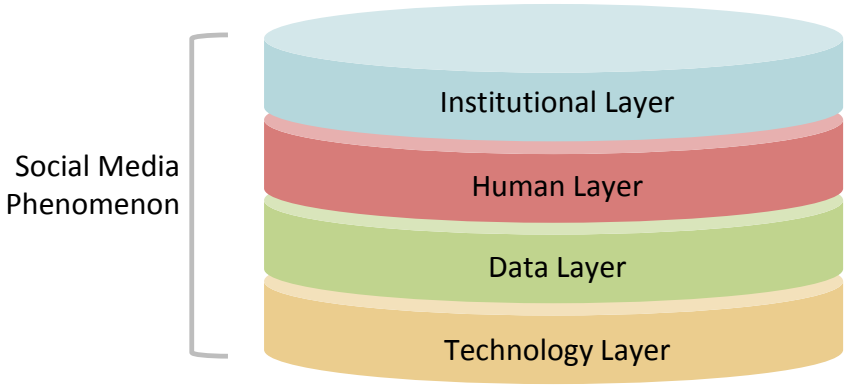

Figure 1: Basic Multi-Layer Conception of Social Media (Own figure based on Gasser & Palfrey, 2012)

The original four-layer model of interoperability suggested by Gasser and Palfrey (2012) is a novel framework that holistically illustrates the various issues of interoperability that may occur on a technological level (e.g., incompatibility between hardware or programs of different manufacturers), a data level (e.g., incompatibility of data formats or measures such as miles vs. kilometers), a human layer (e.g., lacking skill, readiness or knowledge to create compatibility) and on an institutional layer (e.g., lacking sets of common rules, laws or organizational structures). For a system to be truly interoperable, there must be compatibility on all four layers. Although the four-layer framework was not created specifically for contexts other than interoperability, its generalizability and completeness render it ideal as a basic framework for grasping the scope of the social media phenomenon in this dissertation. After all, a definition of a phenomenon as broad as the social media should also be "interoperable" by encompassing the entirety of the term as well as its implications and applicabilities in various contexts.

1.1.1. The Technology Layer: Platforms of Web 2.0

Many definitions of the social media phenomenon assume a technological perspective and thus focus on the phenomenon's most tangible characteristics. Kaplan and Haenlein (2009) define social media as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content" (p. 61). Solis and Breakenridge (2009) agree, stressing that social media are "the product of Web 2.0 technology" (p. 46). The term web 2.0 was coined by O'Reilly (2005) to indicate a shift in the creation of software away from the static desktop (web 1.0) and towards a networked platform where the software could be altered by its users, thus becoming a work in progress or, in other words, a perpetual beta version (2.0). Social media platforms and the content created and shared through them are therefore often a process and not a product (Shirky, 2008). According to O'Reilly and Battelle (2009), the term web 2.0 refers mainly to the idea of building applications that "literally get better the more people use them, harnessing network effects not only to acquire users, but also to learn from them and build on their contributions" (p. 1). Following O'Reilly's (2005) and O'Reilly and Battelle's (2009) line of argumentation, social media are platforms that provide users with the opportunity to create, alter and share content with each other. The most prominent features of social media are blogs, microblogs, wikis, podcasts, RSS feeds, social bookmarking, social networking, virtual worlds, mashups and open source software (e.g., O'Reilly, 2005; Meckel & Stanoevska-Slabeva, 2008; Hargittai, 2009; Chiang, Huang & Huang, 2009). Kaplan and Haenlein (2009) distinguish six different types of social media platforms: collaborative projects (e.g., wikipedia), blogs, content communities (e.g., youtube), social networking sites (e.g., facebook), virtual game worlds (e.g., World of Warcraft), and virtual social worlds (e.g., second life). Although these social media platforms provide what O'Reilly (2005) calls "the architecture of participation", the social media phenomenon cannot be explained solely in terms of its technological foundations and is also incongruent with the aggregation of existing web 2.0 platforms. After all, "social media isn't web 2.0" (Solis & Breakenridge, 2009, p. 46).

1.1.2. The Data Layer: Socially Produced, Aggregated and Contextualized Data

Although the social media phenomenon can be defined, at least partially, in terms of its technological foundations, other salient characteristics set the social media apart from any other media. Until a few years ago, the retrieval, aggregation and contextualization of data into actual content was the sole domain of relatively few professional content providers (Kwak, Lee, Park & Moon, 2010; Keen, 2007). This has drastically changed. Today, through social media, everyone with an Internet connection is enabled not only to produce data but also to process it and make it available to an audience, however large or small. Thus, social media platforms such as twitter or facebook have made an inconceivably large amount of data and user-generated content ubiquitously available to anyone with an Internet connection. From the beginning of civilization until 2003, the estimated amount of data produced by humankind was approximately 5 billion gigabytes (Gasser & Palfrey, 2008; Diamandis & Kotler, 2012). Today, according to Google CEO Eric Schmidt (2010) this amount of data is produced every two days. Pictures, tweets and instant messages published and shared in the social media largely contribute to this massive increase in data growth. Thus, to understand how social media change our communication environment, our relationships and our lives, we need to consider this change in the production mode of data and the aggregation and contextualization of user-generated content as well. Asur and Hubermann (2010) emphasize that social media are a new ”category of online discourse where people create content, share it, bookmark it and network at a prodigious rate” (p. 1). Similarly, Mangold and Faulds (2009) consider user-generated content production from a marketing point of view: Social media “describes a variety of new sources of online information that are created, initiated, circulated and used by consumers intent on educating each other about products, brands, services, personalities, and issues” (p. 358). The global significance of this new mode of data production and content generation became evident to a large audience in traditional media in 2006 when the Time magazine named “You” the person of the year, thus acknowledging and honoring the millions of users who affect our lives by processing data and creating gigabytes of content every day.

1.1.3. The Human Layer: Individual Antecedents of Social Participation

Social media are more than the physical architecture of participation paired with user-created, user-mediated and user-contextualized data. They are, as indicated by the "social" prefix, essentially about people and their relationships with each other. Levine, Locke, Searls, and Weinberger (2009) call the new Internet a "powerful global conversation", thus emphasizing the human aspect of the social media phenomenon as conversations are an inherently human occurrence. Similarly, Solis and Breakenridge (2009) argue that social media are "much more than user-generated content, [they are] driven by people within the communities where they congregate and communicate" (p. 77). However, who are these people who, according to Shirky (2008; 2010) and Anderson (2006), come together in their spare time to create vast amounts of data and content with no apparent (monetary) motivation?

Evidence from recent studies suggest, that despite the new opportunities to participate in conversations through social media, relatively few people are taking advantage of these recent developments (e.g., Hargittai & Walejko, 2008). Mostly, this non-participation is not due to a lacking Internet access as the digital access divide has been largely bridged in industrialized countries (van Dijk & Hacker, 2003). Instead, it is often a matter of skill, knowledge and metal readiness (van Deursen & van Dijk, 2008; van Dijk & Hacker, 2003; Bucher, Fieseler & Suphan, 2012). Additionally, Hargittai and Walejko (2008) found that participation correlates with socioeconomic factors such as gender and education within households. Age seems to be another predictor of participation. Duggan and Brenner (2013) for example researched the use of five social media platforms and found that 83 percent of US Internet users who are between 18 and 25 years old use social media. The social media monitoring service Pingdom (2012) reported that more than half of the overall social media users in the US are between 25 and 45 years old, while the average age across the 24 most frequented social media sites was 36.9 years. Among those who participate in the social media, most contribute little to no content. Instead, they stay in touch with their friends, monitor their favorite celebrities or look up restaurant reviews. The number of participants who do engage in the social media conversation is relatively small. These users write reviews, comment on blog posts and edit entries in Wikipedia. They may even have

a steady stream of short messages that they publish on their microblog. However, the real superstars in the social web are the few who actively create and contribute an exponentially large amount of content, be it writing, video or code, to various platforms. It is participants in this one percentile who have thousands of followers and friends on twitter and facebook and who are powerful influencers (Barabási, 2003) in the tightly networked environment of the social media. The shortest path from a piece of data or content to an audience usually goes via one of these brokers (Barabási, 2003). This power law-distribution of many passive, some rather active and very few incredibly active social media users was dubbed 89:10:1 percent rule (e.g., Arthur, 2006) or 1 percent rule (e.g., Anderson, 2006). It is effectively mirroring the Pareto principle, which proposes that, for many events, roughly 80 percent of the effects come from 20 percent of the causes (Pareto, 1896; Newman, 2005). This very uneven distribution of participation throughout social media may be an indicator for an equally uneven distribution of skill, knowledge and mental readiness to engage in conversations among the participants in the social web.

Following these observations, on the human layer one might argue that there is a new type of participatory divide emerging within society. It separates those who are able to engage in social media conversations sustainably and to make productive use of the opportunities granted within the new communication paradigm from those who still find themselves rooted in the old communication paradigm, hesitating to create and share content in the social media.

Individual readiness to participate in the social media may depend on individual wellbeing. Whereas users may generally enjoy interacting with peers, creating and sharing data and content on facebook, twitter and other social media platforms, they may experience strain on their personal resources at the same time. On the human layer, we must not only consider individuals' theoretical capabilities, given their skills and opportunities in the data and in the technology layers, but also their ability and readiness to participate in the conversation sustainably without experiencing overload and stress (Tarafdar, Tu, Ragu-Nathan, 2010; Meckel, 2007).

1.1.4. The Institutional Layer: Organizing Participation in the Social Media

Social media are changing traditional notions of organization and group coordination. According to Coase (1960), formal organizations are necessary in cases where the cost of coordinating economic activity in a free market would be too high relative to the expected outcome from said activity. Thus, particularly for large economic activities, where information asymmetries and high transaction costs arise, formal organizations outperform the free market. Still, although organizations are an effective means of achieving a purpose in many cases, they are also expensive. Consequently, according to Coase (1960), any purpose or task that is of less value than the cost of the organizational coordination is not worth pursuing at all.

Shirky (2008) inspires a revision of certain long-held beliefs on the necessity of organizations by suggesting that in the social media, the transaction costs associated with coordinating large groups become almost zero: “Most of the barriers to group action have collapsed and without those barriers, we are free to explore new ways of gathering together and getting things done” (Shirky, 2008, p.22). Thus, the advent of social media platforms heralds the beginning of a new production paradigm that Benkler (2006) called “commons-based peer production.” It essentially denotes a social mode of production. Commons-based peer production works even without the managerial oversight of an organizational layer and rests solely on the shoulders of various Internet users, usually without any of them receiving financial compensation for their contribution. The motivations to participate in such a form of production are complex and have not been fully explained yet. Linus Torvalds, initiator of the open source software Linux, assumes that “fun” is the key to understanding voluntary participation (Torvalds & Diamond, 2001). If individuals derive enjoyment from participation in a group or community, they are more likely to dedicate personal resources such as time, effort or attention into solving a problem or contributing their own content without receiving a tangible reward. Howe (2009) explains the willingness of the crowd to participate as a desire to gain credibility or “kudos” among peers. Lerner and Tirole (2002) divide the possible motivations for participation into immediate benefits, such as enjoyment while working and delayed benefits, such as increased attractiveness in the labor market due to experiences and recognition earned through commons-based peer production.

Kaufmann, Schulze and Veit (2011) compare the findings of various authors in the field, summarizing intrinsic motivations, such as fun, alleviation of boredom or ego-gratification through charity on the one hand and extrinsic motivations such as self-marketing or learning new skills on the other hand. Perhaps the most comprehensive contribution to the current motivation discourse was made by Hoffman and Novak (2011), who determine 24 categories of motivation for social media use, including altruism, curiosity, entertainment, peer pressure and self-esteem.

Benkler (2011) expects that the arrival of a new mode of production and group formation as well as the concomitant emphasis on a socially motivated behavioral paradigm will likely revolutionize business, economics, technology, government and human interaction. Shirky (2008) foresees the social media will have a similar scope of impact: “The important questions aren’t about whether [the social media] tools will spread or reshape society, but rather how they do so” (p. 300). Although the changes triggered by the arrival of new technological platforms, new ways to create and manage data and new traits of human behavior are fundamental in many ways, traditional organizational structures are not obsolete within the social media sphere for several reasons. First, audience participation in the social media is at times unpredictable and thus cannot be taken for granted in a business model (Howe, 2009). Second, although loosely connected crowds can accomplish astonishing achievements, they are still less likely to commit to large-scale collective action projects (Shirky, 2008). It is much easier to click a “like” button on a facebook page, share a photo or join an online protest than it is to motivate a crowd to take collective action, which–as postulated by Olson’s (1971) “zero contribution thesis”–typically occurs only in tightly interlinked or small groups (social density) with low rates of fluctuation (continuity). Third, our current legal and business environment favors social density and continuity provided by organizational structures because it is easier for an “incorporated organization” to enter legal contracts or raise money (Shirky, 2008). Fifth, formal organizational structures and administrative layers are still needed for tasks that the social media is not suitable to perform. Collective works in the social media can be achieved if they can be divided into many small tasks (modularity), if these mini-tasks can be fulfilled easily (granularity) and if it is possible to meaningfully reassemble these small contributions to a whole (integration) (Howe, 2009).

However, despite the current prevalence of organizational structures in our business and communication environment, the tables have turned for organizations and individuals alike. Organizations must consider their stakeholders now more than ever, whether the stakeholders are customers, investors or other relevant parties on a personal level and keep current on the movements within relevant audiences and communities[2]. Weber (2010, n.pag.) puts this in a nutshell by stressing that "these days, one witty tweet, one clever blog post, one devastating video—forwarded to hundreds of friends at the click of a mouse—can snowball and kill a product or damage a company's share price". In this sense, the social media phenomenon today may significantly affect an organization's reputation, sales, and even survival (Kietzmann, Hermkens, McCarthy & Silvestre, 2011, p. 241). Still, the dialogue with stakeholder audiences does not have to be pursued only in order to prevent harm from powerful user alliances; it can also be harnessed to gain an in-depth understanding of one's stakeholders. Social media allow firms to engage in timely and direct end-consumer contact at relatively low cost and higher levels of efficiency than can be achieved with more traditional communication tools (Kaplan & Haenlein, 2009, p. 67). Thus it becomes increasingly important for organizations to develop strategies for monitoring, understanding and responding accurately to the social media phenomenon (Kietzmann et al. 2011) and, in doing so, find a way to develop an authentic presence in the social media and within their target commuities. Creating this presence in the online realm and harnessing the social media phenomenon for the good of the organization is a challenge that currently occupies communications departments globally.

[2] A community, as opposed to an audience, is marked by high social density (Shirky, 2008: p. 85). An audience may consist of several communities.

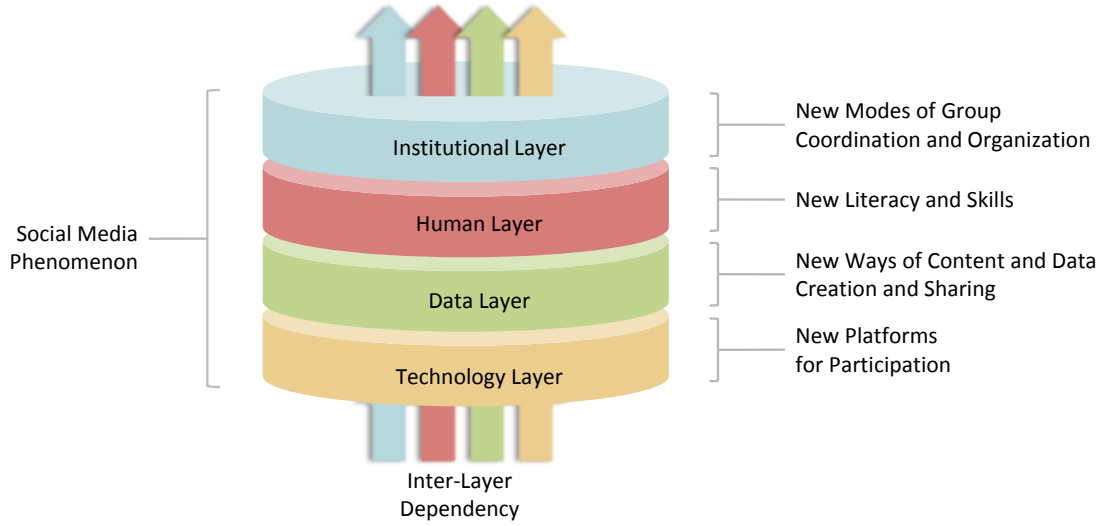

Figure 2: Extended Multi-Layer Conception of Social Media — Novel Aspects of the Social Media Phenomenon (Based on Gasser & Palfrey, 2012)

In the following section, observations made about the multidimensionality of the social media phenomenon will be employed to specify and substantiate this dissertation's research goal.

1.2. Research Objective

In this section, we aim to present an overall research objective that will be operationalized later through several research questions. It is a primary concern of this cumulative dissertation to contribute to a better understanding of the multifaceted impact of the social media phenomenon on our society, relationships and lives (see 1.1). Several restrictions will be introduced below to render this dissertation's research objective more concrete and more applicable to general practice. First, this dissertation will analyze the social media phenomenon primarily from a human layer perspective, focusing on the individual social media users and their respective mental dispositions. Second, the dissertation will focus on professional rather than private usage of social media to keep the context of usage constant and thus achieve high comparability and generalizability within the target sample. Third, to explain how the social media phenomenon affects individuals' professional environments, two theoretical perspectives will be consulted, namely technology adoption and technology-related stress in the workplace.

1.2.1. One Layer to Rule Them All?

Social media have triggered far reaching changes in the physical architecture of participation (technology layer), in the way we create, process and share data and content (data layer), in our personal abilities and mental readiness to participate in the virtual conversation with peers and to connect in new ways with others (human layer) and lastly in the way we coordinate group activities (institutional layer). Although all layers are indispensable in explaining the social media phenomenon, this dissertation emphasizes the human layer. Even if events in the technology and data layers may have initially caused many of the current changes in our communication paradigm, the adoption of social media will finally be decided on the human layer. No technology, however sophisticated, is going to inspire significant changes if individuals are not capable or mentally ready to use it. On the other hand, existing knowledge or skill-sets tend to be somewhat rigid, which is why it is often difficult for new or superior technology to gain a foothold while existing technologies are still in practice. Thus, the human factor can be regarded as key in deciding to what extent a new technology or a new means to create and share data gains broader acceptance and can therefore fully unfold its potential. The institutional layer may accelerate or hinder the adoption of social media on the human layer, for example, through organizational support (e.g., social media education) or changes in the legal framework (e.g., intellectual property rights). Accordingly, this dissertation focuses primarily on the consequences of the social media phenomenon on the human layer, while at the same time recognizing that other layers play a significant role in understanding the social media phenomenon as well.

1.2.2. Social Media from a Corporate Communication Perspective

Although the social media phenomenon causes changes throughout all layers of the communication environment, some of its most tangible effects occur in the corporate world, particularly in knowledge-intensive professions that may span the boundaries of organizations. By connecting organizations with their audiences, organizational communications experience the shift precipitated by social media first hand and on a day-to-day basis. For marketing and communications, social media provide new and exciting means to reach both existing and new publics but

they also entail a thorough reshaping of entrenched routines in everyday work (Kaplan & Haenlein 2009, Jue, Marr & Kassotaks, 2010, Grimes & Warschauer 2008, Schneckenberg 2009). Since their conception, social media have gained considerable ground in professional communications (Zerfass, Verhoeven, Tench, Moreno & Verčič, 2011; Solis & Breakenridge, 2009). As social media platforms such as facebook and twitter abandon their somewhat playful and experimental status within communication departments and instead become more standard instruments (Solis & Breakenridge, 2009; Stelzner, 2009; Wright & Hinson, 2008; Gillin, 2008), they not only support but increasingly replace traditional ways of communicating with audiences (Wright & Hinson, 2009). Because social media are inherently interactive, communicative and social (Avery, Lariscy, Amador, Ickowitz, Primm & Taylor, 2010), they have the potential to support organizational communication or public relations in the most basic sense: in building relations. As Eyrich, Padman & Sweetser (2008) argue, social media not only allow communicators to reach out to and engage their publics in conversation, but they also provide a means to strengthen media relations. In corporate communication, readiness to embrace the social media phenomenon and engage in an eye-level dialogue with customers and other stakeholders is becoming an important success factor (Ayyagari, Grover, & Purvis, 2011; Wu, 2011; Curtis, Edwards, Fraser, Gudelsky, Holmquist, Thornton & Sweetser, 2010; Kaplan, & Haenlein, 2009; Jue et al., 2010; Grimes & Warschauer, 2008, Schneckenberg, 2009).

1.2.3. The Question of Ability and Mental Readiness

One intention of this dissertation is to contribute to a better understanding of how social media affect individuals in modern workplaces. This research goal will be approached from two theoretical perspectives: first, from the perspective of a general ability and willingness to harness the social media phenomenon for work purposes (the technology adoption perspective), and second, from the perspective of mental readiness to enter the ongoing conversation within the social media (the technostress perspective).

Despite the undisputed importance of social media in the field, not all communication workplaces harness the full potential of the new instruments (Alikilic & Atabek, 2012). According to Zerfass, et al. (2011), considering the

importance and potential of social media in the communication field, the present involvement and skill of communicators with social media still lag behind. Following these insights, we posit that the general ability and willingness to adopt social media soon will be a key factor in success in communications. It is expected that early and thorough social media adoption provides organizations with a head start that could be critical for success in the field. Social media adoption is assumed to be prevalent whenever there is a high degree of social media usage within a department or an organization. Because adoption is not expected to be unanimous within work teams and departments, it shall be examined whether there are different types of social media usage within the profession. The factors enhancing or hindering each professional's usage of social media at work are a second aspect that could improve our understanding of social media adoption in the workplace.

However, the ability and willingness to adopt social media in the workplace is just one side of the issue. To use social media sustainably and participate in the ever-flowing conversation with stakeholders and peers, one also has to be mentally ready and literate. As argued previously, social media are not simply new channels for spreading artifacts of traditional communication. Instead, they entail an entirely new communication paradigm that is less a top-down monologue and more a conversation on an interpersonal level, where listening to the audience has become as important as contributing content (Nicholas & Rowlands, 2011; DiStaso, McCorkindale & Wright, 2011; Lariscy, Avery, Sweetser & Howes, 2009; O'Reilly, 2005). Grossman (2006) describes social media as a "tool for bringing together the small contributions of millions of people and making them matter" (n. pag.). He is correct in the sense that it has never been easier to send a message to millions of people. Yet, precisely in Grossman's (2006) definition lies a much discussed issue in the context of social media: Within the constant socially produced and mediated flood of content, it can become challenging to make a message or a person truly matter, to make oneself heard and heard correctly (Andretta, 2005; Lichtenstein, 2000). At the same time, it may be difficult to distinguish relevant from less relevant or irrelevant data (Ragu-Nathan, Tarafdar, Ragu-Nathan, & Tu, 2008). Furthermore, the social media conversation never stops, and potentially important issues may arise at any time, regardless of professionals' schedules or work hours. Thus, it may become difficult to be absent from the conversation without missing relevant information, particularly because the

conversation often follows professionals to their homes via mobile devices, thus intruding into their spare time and family domains. Additionally, it can be challenging to follow the frequent changes in the participation architecture and keep current on new platforms and applications where relevant communities might gather and share content. In this light, employing social media to stay in contact with one's audiences may strain personal resources such as time or attention and thus be a source of stress within the workplace.

In this light, professional social media literacy may have to be defined in broader terms, going beyond the mere ability to retrieve, create or process data and content on various social media platforms. Professional literacy in a modern knowledge workplace may also have to include being able to mentally cope with the increasing abundance of information, to filter and reduce information appropriately and to be able to, at least from time to time, absent oneself from the constant conversation in the social web. This new form of professional social media literacy which emphasizes the mental readiness to participate sustainably in the new work environment shaped by facebook, twitter and other social platforms may soon become a prerequisite for successful and sustainable participation in conversation in work and society. Furthermore, the stress potential that may be inherent in a work environment shaped by the social media phenomenon is expected to affect professionals differently. Therefore, it would be interesting to see if there are professionals who are more prone than others to thrive in this new and challenging work environment. Considering these restrictions upon the general scope of the research project, the research objective of this cumulative dissertation can be summarized as follows:

> *This dissertation strives for a deeper understanding of the impact of social media on individuals in modern workplaces with a particular emphasis on (1) the ability of professionals to harness new communication platforms and (2) their mental readiness to participate in the ongoing conversation with stakeholders in a sustainable manner.*

This research objective will be differentiated and operationalized into four separate research questions below. Each question aims to shed light on another aspect of the research objective and contribute to a more in-depth understanding of the social media phenomenon in modern workplaces.

1.3. Research Questions

Based on the overall research objective, this dissertation focuses on individuals (human layer, see 1.1.3) in modern communication workplaces (professional context, see 1.2.2) and their ability and willingness to adopt social media (technology adoption, see 1.2.3 & chapter 2.) as well as their mental readiness to do so in a sustainable manner (technostress, see 1.2.3 & chapter 3). To operationalize this general research objective, four intermediate research objectives shall be introduced that each form the basis of a separate paper with distinct research questions (see Figure 3).

When exploring communication professionals' readiness to adopt new technologies, we are particularly interested on one hand in how social media are being used (types of social media usage) and, on the other hand, in the factors that enhance or inhibit individuals' social media use (determinants of social media adoption). When scrutinizing the mental readiness of communication professionals to engage sustainably in the social media conversation, we are interested first in what mental capacities individuals might need to possess or acquire to cope with today's communication environment (mental social media literacy), and second, in how far social media-related stress affects personal wellbeing and enjoyment of social media platforms at work (consequences of social media induced stress).

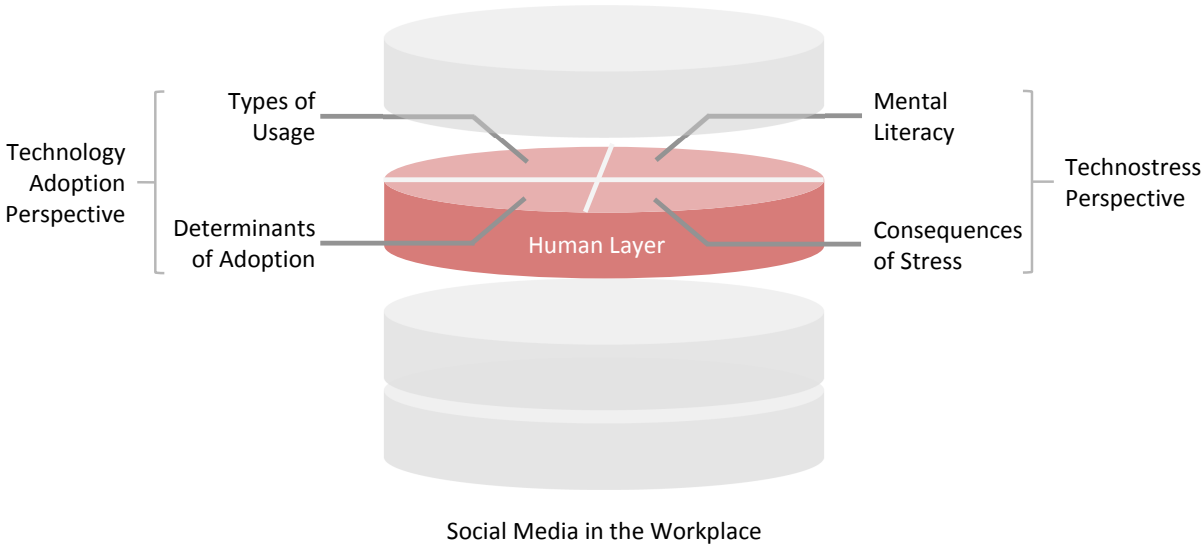

Figure 3: The Human Layer of Social Media – Operationalization of Research Objective (Source: Author)

These four intermediate research objectives will be outlined briefly below and supplemented by corresponding research questions. The goal of this section is to present this dissertation's research questions in a broader context and argue their scope, particularly with respect to the sample population of communication professionals who are at the vanguard of a new means to communicate with and connect to their audiences. An overview of the research questions is provided in Table 1.

1.3.1. Adoption of Social Media in Communication Workplaces

To determine the impact of social media on communication workplaces, appraisal of the current degree and determinants of social media adoption is in order. Two intermediate research objectives will be outlined next to shed further light on the adoption perspective.

1.3.1.1. Paper I: Typologies of Social Media Usage

The first contribution of this cumulative dissertation looks into how social media are being used in the workplace and whether there are different types and peculiarities of social media adoption in communication. During the last decade, the importance of social media within the communication profession has steadily grown (e.g., Zerfass et al., 2011; Pew Research Center, 2012) to the point where facebook, twitter and similar platforms have become standard tools for professionals to interact with their audiences and relevant communities. However, although the communication profession is one of the most advanced fields in terms of social media adoption (Curtis et al., 2010), not all professionals are expected to make equal use of the new platforms and applications. Because social media platforms are diverse, it is highly probable that there are differences not only in terms of which platforms are being used but also in the frequency and virtuosity of usage. Hence the first research question of the first paper is:

RQ1.1: How do communication professionals use social media in the workplace?

Furthermore, this dissertation assumes that insights derived from previous academic work on social media usage patterns (Holmes, 2011; Brandtzæg, 2010; Heim & Brandtzæg, 2007; Ortega-Egea, Menéndez & González, 2007; Horrigan, 2007) can be applied at least partially to the context of professional social media

usage. Consequently, it is held that within the diverse field of communication, there will be considerable differences not only in the degree of social media usage but also in the purpose for which the new communication environment is being used. Thus, the second research question of this first paper is:

RQ1.2: Are there different typologies of social media usage in the communication profession?

The second research question in particular is expected to yield insights on the extent, purpose and virtuosity of professionals' social media usage in the workplace as well as their attitudes towards social media in general. It will also be interesting to determine which, if any, demographic factors explain the differences in social media usage at work.

1.3.1.2. Paper II: Determinants of Social Media Adoption

To identify the levers that might drive or hinder social media adoption in communication professions, the second paper relies on a theoretical foundation presented in the technology adoption research. Specifically, social media adoption is examined from the perspective of the unified theory of acceptance and use of technology (UTAUT) proposed by Venkatesh, Morris, Davis and Davis (2003), which states that the adoption of a new technology depends both on the intention to use said technology and on organizational facilitating conditions. The second paper seeks to synthesize existing scholarship on reasoned action (Ajzen, 2012; Fishbein & Ajzen, 1975), technology adoption (e.g., Venkatesh & Bala, 2008; Venkatesh & Davis, 2000; Moore & Benbasat, 1991) and current research on professional social media usage (e.g., Kaplan & Haenlein, 2009; Zerfass et al., 2011) to inform the following research question:

RQ 2.1: Which factors determine social media adoption in communication?

Technology adoption models have been applied in several contexts of new technologies (Park, Lee & Cheong, 2008; Gefen, Karahanna & Straub, 2003; Moon & Kim, 2001; Heijden, 2003; Curtis et al., 2010; Luo, Remus & Chea, 2006; Lederer, Maupin, Sena & Zhuang, 2000). Because social media are not only a novel technology but a novel phenomenon on other levels of our communication environment as well (see Chapter 1.1), the applicability of technology adoption

research to social media and the differences among adoption determinants of previous technologies compared to the determinants of social media adoption shall be the subjects of the second research question of this chapter:

RQ 2.2: How does social media adoption differ from other types of technology adoption?

These two research questions are expected to conclude the adoption perspective of social media in the workplace. According to technology adoption, the decision to adopt a social media platform or application for work-related purposes may depend on external factors, such as organizational support or the opinions of superiors and colleagues, as well as internal or personal factors, such as skills or enjoyment when using social media.

1.3.2. Social Media Induced Stress in Communication Workplaces

Although the adoption literature acknowledges the existence of internal drivers of (social) media usage (e.g., Bandura, 1986; Fishbein & Cappella, 2006), it does not investigate them much further. Thus, this perspective on social media use within the workplace will aim to gain a greater understanding of how social media affect the wellbeing of an individual and the mental literacy needed to participate sustainably in the social media paradigm. This perspective will mainly be informed by research in the field of stress as well as workplace and technology-related stress.

1.3.2.1. Paper III: Mental Social Media Literacy

With the social media, new opportunities to interact with audiences on an eye-level and the potential to access unprecedented amounts of user data have come to the communication profession. Yet, the new opportunities may come at a cost because they harbor an unprecedented stress potential as well. There has never been a greater flood of potentially relevant data available (e.g., Gasser & Palfrey, 2008; Eppler & Mengis, 2004) and it has never been so difficult for communicators to switch off their communication devices after a long day's work because the conversation within audiences is endless (e.g., Ayyagari et al., 2011; Farnham & Churchill, 2011; Hogan, 2010). Monitoring and contributing to the conversation on various social media platforms may therefore be straining personal resources, such

as time and attention and reducing individuals' periods of recreation (e.g., Tarafdar et al., 2010; Leung, 2009; Ragu-Nathan et al., 2008). These mental challenges inherent in the social media phenomenon will form the center of the third paper:

RQ 3.1: What mental challenges arise for communication professionals who participate in the social media?

Furthermore, this contribution seeks to offer a novel perspective on professional literacy that is not rooted foremost in skill (e.g., Street, 2003, 2009; Papen, 2005; Bawden and Robinson, 2008), but in mental readiness to participate in the social media conversation in a healthy and sustainable manner and the ability to cope with the stress potential inherent in the new communication paradigm:

RQ 3.2: To what extent do social media demand a new type of professional literacy from communicators?

Finding answers to these questions will contribute to the ongoing debate about the rephrasing of information literacy or digital literacy (Farmer & Henri, 2008; Warschauer, 2009; Cochrane, 2006; Bruce, 2003; Martin & Rader, 2003; Bawden, 2001; Shapiro & Huges, 1996) by connecting existing research on technology-related stress (Heilmann, 2007; Lazarus & Folkman, 1984; Matthews & Campbell, 2009) with coping, literacy and social media research.

1.3.2.2. Paper IV: Revisiting the Notion of Stress in Social Media Workplaces

Despite the stress potential inherent in social media workplaces it is by no means a given that individuals do not enjoy commenting and sharing content on twitter, facebook and other social media platforms. Furthermore, no general statement can be made about the wellbeing of individuals in social media workplaces. Although certain literature points to a diminished wellbeing due to social media induced overload, invasion or uncertainty (e.g., Ayyagari et al., 2011; Tarafdar, Tu & Ragu-Nathan, 2011; Ragu-Nathan et al., 2008), other authors emphasize that a rich and dynamic communication environment might be stressful and enjoyable at the same time (e.g., Le Fevre, Matheny & Gregory, 2003; Selye, 1956; McGowan, Gardner and Fletcher, 2006; Bicknell & Liefooghe, 2010). To illuminate this debate, the first research question of this last contribution is:

RQ 4.1: How does social media-induced stress in the workplace affect professionals?

The topic of stress in the face of emerging technologies is often regarded from a nativeness perspective. Popular frameworks such as the digital native/digital immigrant dichotomy (e.g., Gasser & Palfrey, 2008; Tapscott, 1998) suggest that generational affiliation may have an influence on literacy and fluency with new technology, which may entail differences in stress vulnerability among different generations of users. If we transfer this argumentation to the context of professional social media usage, more experienced—and thus more native—users may display different reactions to the social media stress potential than their less experienced—and thus immigrant—colleagues. Therefore, the final research question will examine how nativeness affects professionals' perception of and reaction to the stress potential inherent in social media workplaces:

RQ 4.2: How does nativeness affect communication professionals' reactions to social media-induced stress in the workplace?

Insights from this last paper are expected to lay the foundation for a broader discussion of the changes that social media have introduced to the workplace and the positive and negative consequences associated with the rift in the communication paradigm.

Overall Research Objective	Theoretical Perspective	Intermediate Research Objective	Research Questions	
Understanding the impact of Social Media in the Workplace	Technology Adoption Perspective	Paper 1 Types of Social Media Usage	RQ 1.1	How do communication professionals use social media in the workplace?
			RQ 1.2	Are there different typologies of social media usage in the communication profession?
		Paper 2 Determinants of Social Media Adoption	RQ 2.1	Which factors determine social media adoption in communication?
			RQ 2.2	How does social media adoption differ from other types of technology adoption?
	Technostress Perspective	Paper 3 Mental Social Media Literacy	RQ 3.1	What mental challenges arise for communication professionals who participate in the social media?
			RQ 3.2	To what extent do social media demand a new type of professional literacy from communicators?
		Paper 4 Consequences of Social Media induced Stress	RQ 4.1	How does social media-induced stress in the workplace affect the wellbeing of communication professionals?
			RQ 4.2	How does nativeness affect communication professionals' perceptions of social media-induced stress in the workplace?

Table 1: Overview of Research Objective, Intermediate Research Objectives and Research Questions

Now that this section has presented the research objective and its operationalization into four intermediate objectives and eight research questions, respectively, the following section will explain the structure of this cumulative dissertation.

1.4. Structure of the Dissertation

This dissertation is a cumulative one - unlike a dissertation written as a self-contained book or monograph a cumulative dissertation has to consist of at least three academic articles – all of them having passed some form of academic reviewing process. In combination, all the separate contributions in this dissertation can be attributed to a common overarching research objective (see 1.2)[3].

The cumulative form was chosen for several reasons: First, a cumulative dissertation provides a close link to current international research which is foremost paper-driven; especially so in research areas particularly relevant to this dissertation, such as computer-mediated communication and information systems. Second, the somewhat predefined publication process of a cumulative dissertation entails various opportunities to gather and process high-level academic feedback which improves the overall quality of the research project with respect to rigor and relevance. Accordingly, each of the four publications presented in this dissertation has been subject to feedback during conference presentations, journal submissions or doctoral consortiums. Third, a cumulative approach allows a swift publication process which is especially important in new and competitive research fields such as this. Lastly, writing a cumulative dissertation is an opportunity to become familiar with the publication and reviewing process of national and international journals which is an important foundation for further work in research and academia.

The "roadmap" of this dissertation can be divided into the three sections *research foundations* (chapters 1-4), *results* (chapter 5) as well as the *overall conclusion* (chapter 6). The first introductory chapter maps out the relevance and context of the research project as well as the overall research objective and the separate research questions for each paper. The second chapter opens the theoretical foundations with an overview and discussion of the current research on technology adoption. The third chapter closes the literature section by discussing the current literature on

[3] According to the Implementation Provisions for the Production and Publication of a Thesis at the University of St. Gallen (2007, Art. 3 & 4), "A cumulative thesis shall consist of at least three constituent parts. […] Constituent parts may be: (a) essays intended for publication in reputable national and international journals, and (b) papers intended for publication in anthologies, commentaries and similar academic publications."

stress, technology-related stress and workplace stress. In the fourth chapter, the methodological foundations of this research endeavor are provided, together with an overview of the empirical basis of this dissertation. Based on these theoretical and methodological foundations, the results of this dissertation will be presented in the fifth chapter in the form of four separate, yet thematically interwoven academic papers. By way of finishing up this dissertation, the sixth chapter will not only look back on the present research endeavor, but also look ahead towards future research potentials that may have been opened up by this dissertation.

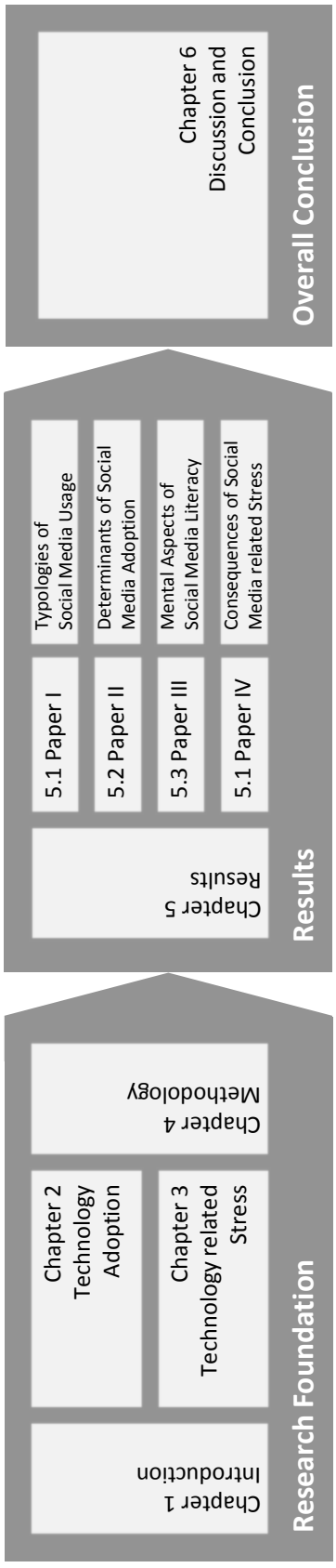

Figure 4: Structure and Roadmap of the Cumulative Dissertation Project

2. On Technology Adoption

In this section, we look at the technology adoption literature and prior research in technology acceptance as a basis for understanding social media adoption and usage in modern communications workplaces. This section will provide a basis for understanding the *general usage of social media in communication workplaces* (Paper I) and will assist in specifically informing the question of *what promotes or hinders individual-level social media adoption in communication workplaces* (Paper II). In accordance with Hall and Khan (2003), technology adoption will be defined as the choice to acquire and use an invention or innovation. In this thesis, social media is not primarily seen as a technology (in the sense of 'machinery') but rather pertains to a paradigm shift in communication and content production (see 1.1 and 1.1.2). However, we deem findings in technology adoption research elucidating for the social media context. A detailed consideration of the term technology and its epistemological origins suggests the notion that social media are, in fact, very close to the original meaning of "technology". According to Naughton (1994), technology must not be equated with "machinery" alone; it also encompasses art, craft and skill. By definition, technology can therefore be understood as an "application of scientific and other knowledge to practical tasks by organizations that involve people and machines" (Naughton, 1994, p. 12). In this sense, new technology is never just about new machinery but it may also encompass new ways of working and new types of organization. Accordingly, extant research in technology adoption is expected to add to our understanding of social media adoption in modern workplaces.

The following chapter will first examine technology acceptance from a historical perspective; this will help frame the major questions that arise for individuals and organizations in the face of new or changing technology environments. In a second step, the main technology adoption theories will be introduced, most of which pertain to either information systems implementation or innovation. A third step discusses existing adoption theories and their applicability to the context of social

media implementation in communications and provides a brief overview of the current research in this field.

2.1. A Historical Perspective on Technology Adoption

Since the division of labor in basic societies, there have been attempts to make work less arduous, more efficient and more effective. To maximize the return on any resources invested in a production process, increasingly sophisticated tools and techniques have been developed. By the time industrialization had taken root in modern societies, economic prosperity depended heavily on access to and adoption of technologies (Greenwood, 1999). For instance, the better the technologies, the more land could be cultivated, the more crops could be harvested and the more final merchandise, be it food or fabric, could be produced. However, the adoption of new technologies has often been, as Greenwood (1999, p. 8) put it, "notoriously slow". When the diesel-engine powered locomotive was invented around 1925, it took approximately 25 years until half of all locomotives were diesel powered; the other half continued to run on steam engines (Greenwood, 1999). At first glance, the more expensive and less effective steam engine persisted surprisingly long on the market because of the costs that are often associated with the implementation of new technologies in a production process. The decision to acquire and use a technology follows a careful consideration of the possible benefits of a new technology and the potential costs of adopting it. In the following, we will scrutinize these costs and benefits from a historical point of view. The term "new technology" refers to newly invented technologies as well as to improved existing technologies.

2.1.1. The Benefits of Adoption

Economic progress is made possible by the invention of new technologies or the improvement of existing ones. However, this is only one side of the coin; economic progress depends just as much on an individual's (investor or worker) readiness to acquire and use the technology. Thus, technology adoption is at the heart of economic progress and competitive performance. Greenwood, Hercowitz and Krusell (2000) conclude that 60% of post-war growth in the US economy was due

to the introduction of new and more efficient equipment. For economies, organizations and individuals, the ability to adopt new technologies, new ways of doing things and new paths of thinking is the key to thriving in a competitive environment. The immediate benefits associated with new technologies may include productivity enhancement, quality improvement, cost reduction, gains in market share, new market development and, on an individual level, improved job performance as well as other intrinsic and extrinsic rewards (e.g., Au & Enderwick, 2000; Calantone, Lee & Gross, 1988; Lefebvre, Lefebvre & Roy, 1995; Rogers, 1995; Davis, Bagozzi & Warshaw, 1989).

2.1.2. The Cost of Adoption

There are four major obstacles that might hinder or delay the adoption of a new technology. *First*, the emergence of new technologies frequently threatens to make existing technologies redundant or obsolete, which often means that expensive equipment must be abandoned when new investments are needed, and existing factory operations may have to be re-organized (Hall & Kahn, 2002) (Capital Risk). *Second*, new technologies call for new knowledge and skill-sets, rendering existing knowledge obsolete (Comin & Hobijn, 2004, 2010) (Knowledge Risk). This may spark resistance, especially among long-serving workers who fear their raison d'être is threatened. Much like new ideas, new technologies must overcome existing paradigms before new routines and new ways of thinking can take root (Kuhn, 1962). *Third*, investments in new technologies are always tied to a degree of uncertainty because their success in the industry is very difficult to predict, and investors may hesitate to invest for fear of "betting on the wrong horse" and losing valuable resources in the process (Industry Risk). This is an especially sensitive point because in order to fully harness a new technology, it must be widely accepted in the industry (Hall & Khan, 2003) and must be compatible not only with the equipment of industry peers but also with the technological premises and skill of other stages of the production process. *Fourth*, uncertainty pertains not only to whether or not a technology will take root in the industry but also to when it might be a good time to invest in it. Because the first implementation of a technology is the costliest (with all following implementations being able to learn from it), one might decide to wait until someone else takes the leap and adopts the new

technology (Timing Risk). In contrast, early investment in a technology may open up considerable first-mover advantages. This "innovator-imitator" dilemma (Barro & Sala-i-Martin, 1997; Eeckhout & Jovanovic, 2002) may be an additional explanation for time lags in technology adoption.

Considering the risks involved in adopting new technologies, it is not surprising that workers and investors, by default, tend to favor the dominant technologies of their time or, at the very least, regard new technologies with a certain observant skepticism. Gasser and Palfrey (2012) explain this resistance toward new technologies by the occurrence of so-called lock-in effects and explain that "lock-in to a given system tends to occur when the practices involved are deeply embedded in the human and institutional layers" (p. 44) (see Chapter 1.1).

2.1.3. Skill Development as a Key to Adoption

One of the great technology innovations of the nineteenth century exemplifies the importance of skill and learning in technology adoption processes. For centuries, the wooden shipbuilding industry was a backbone of the North American economy (Holland, 1971). However, with technological progress, iron shipbuilding became increasingly popular in the international nautical industries. Although steel was "unquestionably the preferred medium" (Madsen, 2012), the adoption of metal in North America was a very slow process, with old and new techniques existing side by side for decades (Harley, 1973). According to Harley (1973), despite decreasing demand, wooden ships continued to be built in North America, mainly because the very specific skills involved in wooden shipbuilding were available while the specific skills needed to build iron ships were lacking; the knowledge of the older generation that was supposed to teach the apprentices was largely outdated (Comin & Hobijn, 2004).

This dissertation primarily examines the individual and workplace levels of technology adoption (see 1.2.1), so it attributes special importance to the role of individual skill and learning. The above example from the shipbuilding industry stresses the importance of skill acquisition and learning as a prerequisite and a facilitator of technology adoption. Skill helps to maximize the productivity of a new technology (Bahk & Gort, 1993). Only if workers are able to learn to use a technology efficiently and effectively, finding their own routines and ways to work

with it, its potential can be fully tapped. However, skill is also a prerequisite for adoption. Iron shipbuilding was lagging in North America because there was insufficient skill to take the leap and work with new technologies. Greenwood (1999) illustrates this point by drawing on data from agriculture: more educated farmers tend to adopt agricultural innovations earlier than their less educated peers. The ability to gain new skills quickly and embrace and experiment with new ways of doing things and the general ability to learn is a key success factor in technological environments. Professional literacy, especially in workplaces affected by technological developments, may encompass the ability to acquire skill and learning.

2.1.4. The Dynamics of Adoption

As illustrated by various studies (e.g., Hall & Khan, 2003; Comin & Hobjin 2003; Rogers, 1995), the adoptions of different technologies in history follow similar patterns. At first, adoption proceeds rather slowly, accelerating as it spreads throughout an industry and then slowing again as the relevant industry becomes saturated (Hall & Khan, 2003). Examples of this type of diffusion process are iron ships (Harley, 1973), diesel engines (Greenwood, 1999), automobiles, the radio and the television as well as mobile phones and personal computers (Comin & Hobjin, 2003). As the evidence suggests, a typical adoption model over time would thus resemble an S-curve (Rogers, 1995).

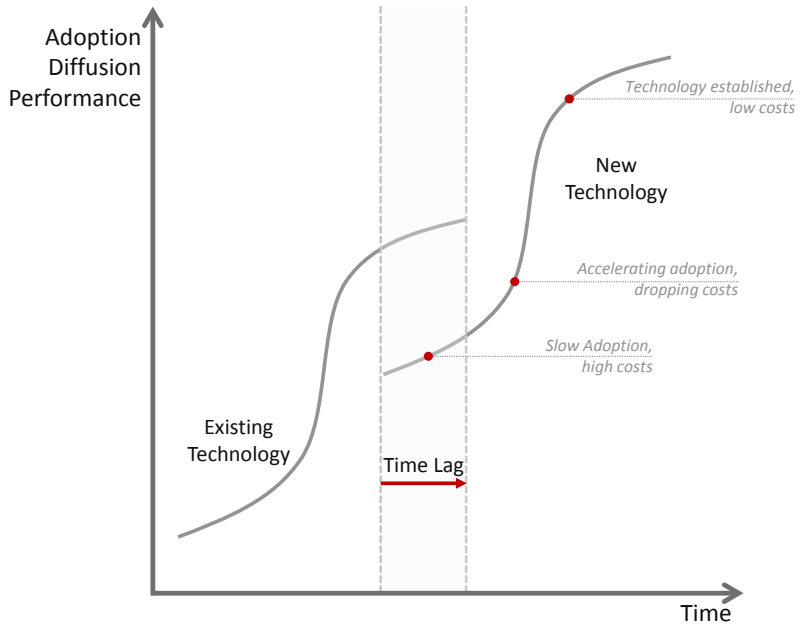

Figure 5: Modeling Technology Adoption (Own figure based on Rogers, 1995; Greenwood, 1999; Hall & Khan, 2003)

This dynamic can be explained from a conceptual point of view by drawing on the cost argument: adoption is initially slow because capital and knowledge costs must be considered. Over time, these costs decrease as technology becomes more affordable (due to imitations entering the market or production scale effects) and learning effects occur. This leads to an increased adoption rate that decreases again when the industry is saturated (see Figure 6).

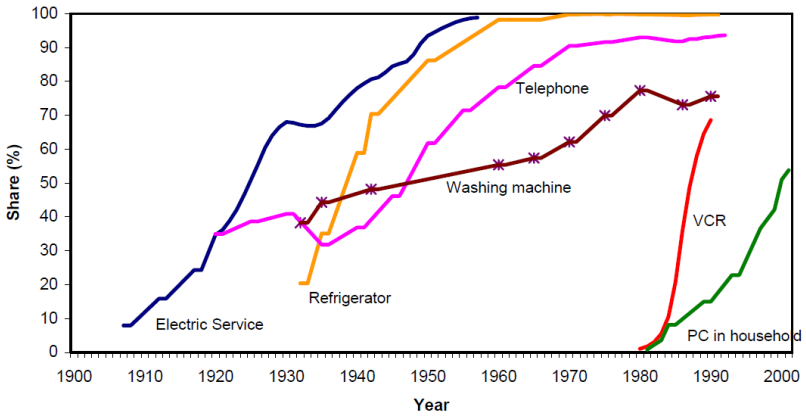

Figure 6: Diffusion Rates of Selected Customer Goods (Hall & Khan, 2003)

The arguments presented in the historical perspective on technology adoption present the basic principles for technology adoption: the consideration of the

individual and organizational costs and benefits of adoption, the importance of skill and learning and the prototypical path of diffusion. These basic notions hold true for technology adoption in information systems as well, as will be outlined in the next section.

2.2. Technology Adoption in Information Systems

Like the innovations discussed in the previous section, the emergence of computer-mediated means of communication have sparked tremendous societal and economical change. Nevertheless, there is something entirely new about the adoption process of information technologies; the speed of adoption is unprecedented and continuously increasing (Comin & Hobijn, 2004, 2010). Emerging technologies in IS [information systems] and IT [information technologies] have spread much faster than previous communications technologies, such as the telephone, the television, the personal computer or even the mobile phone (e.g. Comin & Hobijn, 2004; Lin, 1998), leaving organizations and individuals with much less time to adapt and adjust their routines and skills accordingly. Within a mere two decades, the personal computer and the Internet have revolutionized the way business is done across all major industries. Today, information and communications technologies are increasingly becoming central to organizations of all industries, and they impact operations and managerial decision making on all organizational levels (Venkatesh & Bala, 2008).

With the emergence of new communications technologies, a variety of new approaches have been proposed to model and predict the adoption of information technology. In the literature, there are numerous examples of IT implementation failures in organizations leading to financial losses (Venkatesh & Bala, 2008). In this context, Brynjolfsson and Yang (1996) coined the term “productivity paradox”, a situation in which despite high investment in new technology, performance cannot be increased (Karr-Wisniewski, & Lu, 2010). To resolve this paradox and to determine what promotes or hinders the individual adoption of new technologies, two sets of theories have been presented in the literature: theories modeling human behavior in general (e.g., Fishbein & Ajzen, 1975; Davis, Bagozzi & Warshaw, 1992) (see 2.2.1) and theories pertaining to technology adoption in particular (e.g., Davis, 1989; Venkatesh et al.; 2003) (see 2.2.2) One thing that all of these models

(with the exception of the innovation diffusion theory) have in common is that their dependent variable is either usage intention or usage behavior on an individual level. In the following, each of these theories will be explained briefly. In a second step, they will be discussed with respect to their performance and popularity in the field.

2.2.1. Predicting Human Behavior

Although various models have been proposed to predict human behavior (each of which emphasizes a slightly different angle, variable or behavioral situation), most of them can be traced to the theory of reasoned action (Fishbein & Ajzen, 1975). In the following, several models that help model general human behavior will be introduced.

2.2.1.1. Theory of Reasoned Action

Introduced by Fishbein and Ajzen in 1975, the theory of reasoned action (TRA) is one of the most widely cited models for predicting human behavior (Venkatesh et al., 2003) and is at the core of today's most popular theories that model technology adoption. In Fishbein and Ajzen's 1980 work on "understanding attitudes and predicting social behavior", they go as far as to say that the TRA is able to explain "virtually any human behavior, whether we want to understand why a person bought a new car, voted against a school bond issue, was absent from work, or engaged in premarital sexual intercourse". Indeed, various authors have confirmed the model's applicability to a large number of settings, from smoking marijuana (Ajzen, Timko & White, 1982) to donating blood (Warshaw, Calantone & Joyce, 1986) or purchasing a certain brand of detergent (Warshaw, 1980). The TRA, originally rooted in social psychology, is widely accepted in consumer behavior research (Sheppard, Hartwick & Warshaw, 1988). The reason for this wide generalizability of the model may be its relative simplicity: individuals are likely to adopt a certain behavior if they have the intention of doing so. Additionally, intention is influenced by one's feelings toward the behavior (attitude toward behavior) and by what individuals believe that people who are important to them, such as friends or coworkers, would think about the behavior (subjective norm) (Fishbein & Ajzen, 1975; Ajzen, 1991, Ajzen, 2012). The TRA was originally inspired by Dulany's (1968) theory of propositional control.

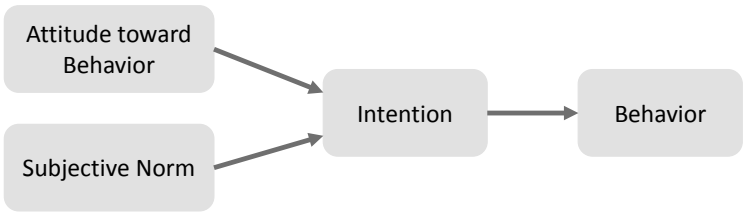

Figure 7: Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975)

Critics of the TRA have postulated that intention, as used in the TRA, is usually presented as though its meaning were self-evident (Sheppard et al., 1988). This is not the case because intention in the TRA involves both aspects of actual *behavioral intention* and aspects of *behavioral expectation.* Thus, according to Davis and Warshaw (1984), a need to "disentangle" intention arises. Whereas behavioral intention involves an individual's conscious plan to perform or not perform some specified future behavior, behavioral expectation is the individual's self-prediction of his or her future behavior and is thus a stronger predictor of behavior (Davis & Warshaw, 1984). Thus, intention in the TRA should be reconsidered to account for this difference between behavioral intention and behavioral expectation, both of which are inherent in Fishbein and Ajzen's (1975) original conception of behavioral intention (Davis & Warshaw, 1984).

According to Sheeran (2002), who performed a meta-analysis of meta-analyses on TRA, intention within TRA explains, on average, 28% of the variance in future behavior. TRA performs best for behaviors that are relatively straightforward and thus are under an individual's volitional control (Armitage & Conner, 2001). When there are external factors to consider, the theory of planned behavior (TPB), which will be outlined next, yields better results.

2.2.1.2. Theory of Planned Behavior

As a response to critical claims that the TRA did not take into account "behaviors over which people have incomplete volitional control" (Ajzen, 1991), Ajzen (1985, 1987) introduced the theory of planned behavior (TPB) as a further development of the TRA. The main alteration from the TRA is the addition of a third determinant of intention, perceived behavioral control, which encompasses the "the perceived ease or difficulty of performing the behavior". With this inclusion of a non-motivational factor, the model is more stable for situations in which intention to use alone is not a sufficiently strong predictor of behavior, such as availability of time, money or the

cooperation of others (Ajzen, 1985). Although TPB and TRA were not specifically developed to explain technology adoption, they perform well in technology and information systems contexts and were thus incorporated by Davis (1989) as a basis for the technology acceptance model (TAM), which will be examined after an overview of additional theories that informed the formulation of the technology acceptance model.

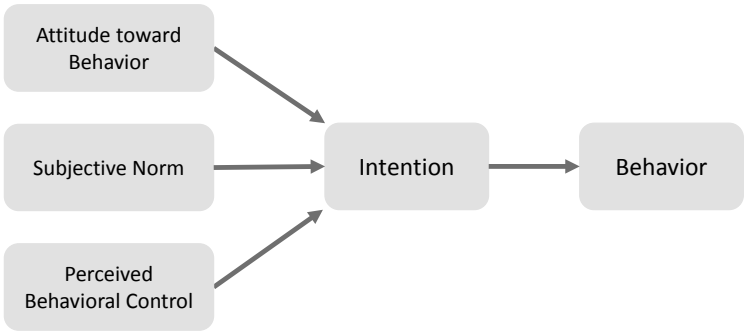

Figure 8: Theory of Planned Behavior (Ajzen, 1985, 1987)

2.2.1.3. Social Cognitive Theory

Much like the theory of planned behavior, social cognitive theory (SCT) (Bandura, 1977, 1986) stresses that the adoption of a behavior does not depend solely on our intention to adopt it but rather on a series of internal and external factors. In a "model of reciprocal determinism" (Wood & Bandura, 1989), social cognitive theory argues that behavior (adoption), personal factors (e.g., personal belief or self-efficacy) and environmental factors (e.g., managerial intervention) are reciprocally linked. Bandura (1986), originally arguing from a social learning theory background (Miller & Dollard, 1941), enriches the adoption debate mainly by introducing self-efficacy as an additional explanatory variable. Self-efficacy refers to "people's beliefs in their capabilities to mobilize the motivation, cognitive resources, and courses of action needed to exercise control over events in their lives" (Wood & Bandura, 1989). In their proposition of an integrated model of SCT and TPB, Fishbein and Cappella (2006) argue that self-efficacy can be equated with the perceived behavioral control of the TPB model, thus establishing the basis for an integrative model of TPB and SCT. As posited by the integrative model, "any given behavior is most likely to occur if one has a strong intention to perform the behavior, has the necessary skills and abilities [SCT: personal factors] required to perform the behavior, and there are no environmental or other constraints [SCT:

environmental factors] preventing behavioral performance" (Fishbein & Cappella, 2006). Therefore, according to Fishbein and Cappella (2006) and in line with Ajzen (1991), intention is determined by attitudes, norms and perceived behavioral control [SCT: Self-Efficacy].

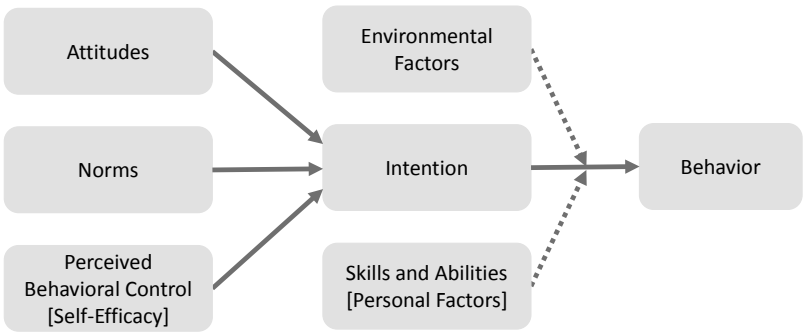

Figure 9: Integrative Model of TPB and SCT (Based on: Fishbein & Cappella, 2006)

2.2.1.4. Motivational Model

The motivational model proposed by Davis et al. (1992) assumes that performing a certain behavior depends on motivational factors that are of either extrinsic or intrinsic quality. Extrinsic factors refer to behaviors that are perceived to be "instrumental in achieving valued outcomes" (Davis et al., 1992: p. 1112), such as a job promotion or better performance, and intrinsic factors pertain to behaviors that are autotelic, meaning that the behavior is an end in itself, such as enjoyment or fun. The distinction between internal and external motives is not entirely novel among motivation theorists (e.g., Deci, 1972; Scott, Farh & Podsakoff, 1988), but Davis et al.'s (1992) purposeful application of the dichotomy to a specific adoption context introduces a new priority to the debate on behavioral intention by advocating not only extrinsic but also intrinsic determinants of intention. Davis et al. (1992) were the first to show how intrinsic and extrinsic motivations impact intention in situations of behavioral adoption: "Usefulness [extrinsic motivation for behavior] was roughly four to five times more influential than enjoyment [intrinsic motivation for behavior]" (p. 1124). According to Davis et al. (1992), intrinsic motivators were most influential in situations where extrinsic motivators were present. Thus, out of several useful behaviors, the most enjoyable behavior is far more likely to be adopted than a less enjoyable behavior. Similar relationships between intrinsic and extrinsic motivations have been found by Shang, Chen and Shen (2005), Luque-

Martinez, Castaneda-Garcia, Frias-Jamilena, Munoz-Leiva and Rodriguez-Molina (2007) and Teo, Lim and Lai (1999).

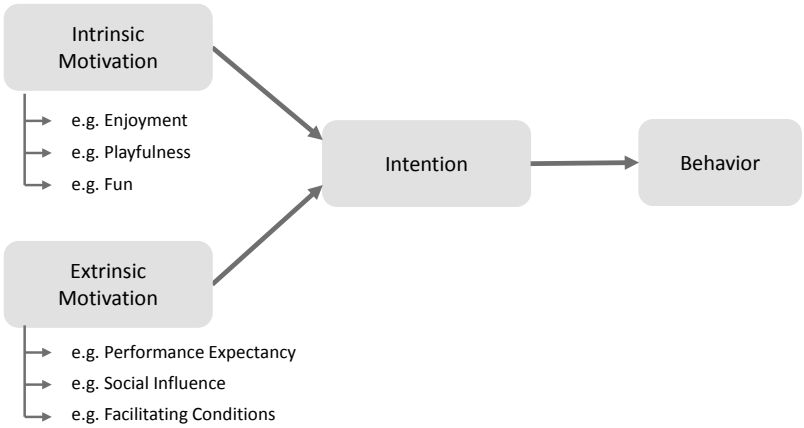

Figure 10: Motivational Model (Based on: Davis et al., 1992; Yoo et al., 2012)

In their discussion, Shang et al. (2005) propose that in their research context (online shopping), "intrinsic motivations may be more important than extrinsic ones" (p. 409). Even more emphasis is placed on intrinsic determinants of adoption intention by Yoo, Han and Huang (2012), who show in their survey that extrinsic motivators are not as effective as intrinsic motivators in promoting e-learning in the workplace. Ryan and Deci (2000) explain the ascent of intrinsic factors such as enjoyment, playfulness and fun in current motivation and adoption research by stressing the inherent human desire and propensity to learn and to assimilate: "From birth onward, humans, in their healthiest states, are active, inquisitive, curious, and playful creatures, displaying a ubiquitous readiness to learn and explore, and they do not require extraneous incentives to do so" (Ryan & Deci, 2000: p. 56).

2.2.2. Predicting Technology Adoption Behavior

Having mapped out various models that generally predict human behavior in the previous section, we can now draw several conclusions. First, intention seems to be a core determinant of adoption behavior (TRA, TPB, SCT and MM). Second, the degree of volitional control within the behavioral context must be considered an important condition when examining adoption (TPB, SCT, MM). Third, determinants of intention can be divided into external and internal (SCT, TPB) or into intrinsic or extrinsic factors (MM). These observations will establish the basis for the following section, where the most common and widely cited models of

technology adoption will be outlined. These are the technology acceptance model (TAM) and its extensions, TAM 2 and TAM 3 (Davis, 1989; Venkatesh & Bala, 2008), innovation diffusion theory (Rogers, 1995) and the unified theory of use and acceptance of technology (UTAUT) (Venkatesh et al., 2003). Each model will be briefly introduced with a summary of its strengths and weaknesses.

2.2.2.1. Technology Acceptance Model

One of the most established and widely employed models to predict the adoption and use of new information systems and technologies is the technology acceptance model (TAM), originally proposed by Davis in 1989. Although tailored specifically to technology adoption, the TAM is rooted in previous behavioral models, such as the theory of reasoned action (Fishbein & Ajzen, 1975) and the theory of planned behavior (Ajzen, 1991), with intention as the core driver of technology adoption behavior. Underlying the TAM is the notion that in order to predict individual intention to adopt and use new ITs, two constructs are important: first, the perceived usefulness (e.g., *"does the IT enhance my job performance?"*); second, the perceived ease of use (e.g., *"will the use of IT be free of effort?"*). Furthermore, the TAM assumes that the effect of external variables on the intention to use a new technology or information system will be mediated by perceived usefulness and perceived ease of use (Venkatesh & Bala, 2008) (see Figure 11). As numerous empirical tests show, the TAM explains approximately 40% of the variance in individuals' intention to use and actual usage of an information technology (Venkatesh & Bala, 2008; Wang, Wang, Lin & Tang, 2003). The TAM has drawn the attention of many researchers in the field. Over the years, the model has been validated (e.g., Adams, Nelson & Todd, 1992; Davis & Venkatesh, 1996), extended (e.g., Straub, 1994; Gefen et al., 2003) and elaborated (e.g., Venkatesh & Davis, 2000; Venkatesh et al., 2003).

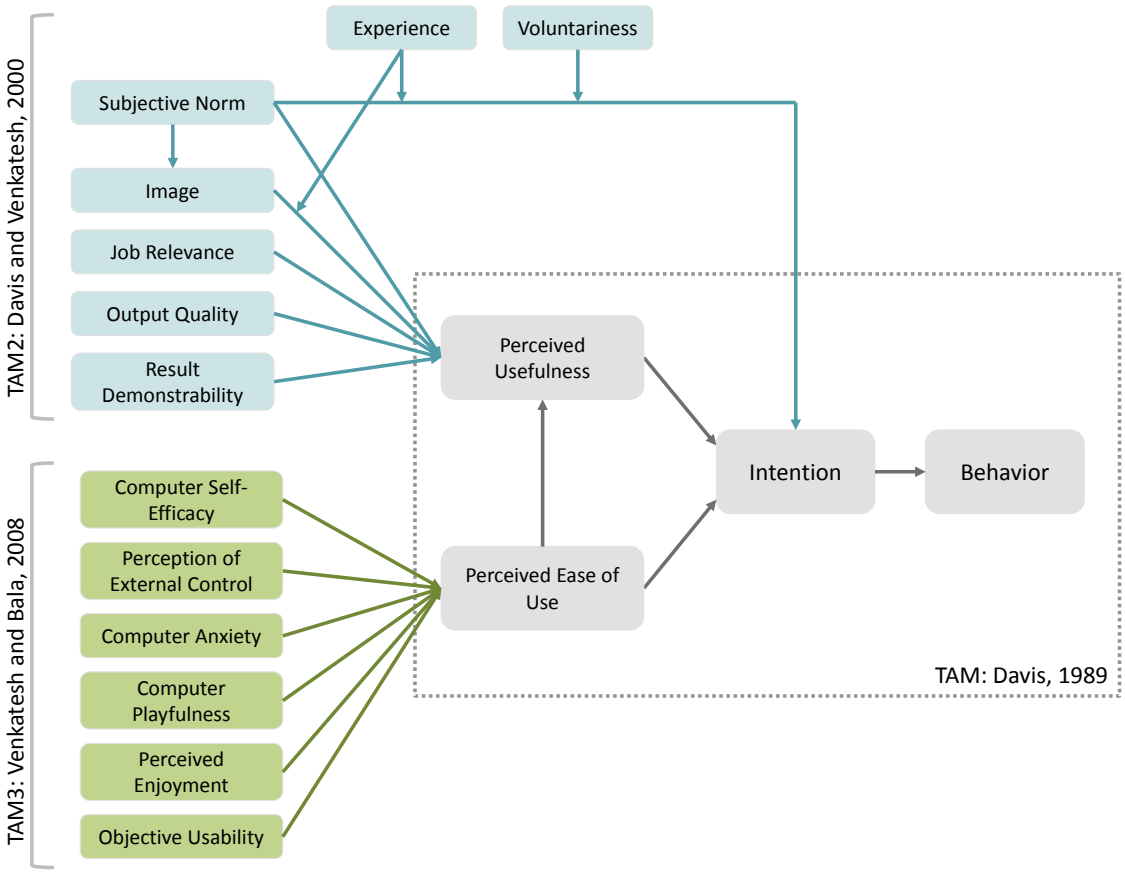

Figure 11: Technology Acceptance Model (TAM) with the Extensions TAM2 and TAM3 (Davis, 1989; Venkatesh & Davis, 2000; Venkatesh & Bala, 2008)

To gain a greater understanding of how perceived usefulness mediates external variables, Venkatesh and Davis (2000) present an extended version of the original TAM model, where they predict the impact of external variables on perceived usefulness and intention (these are subjective norms, image, job relevance, output quality and result demonstrability). Additionally, two moderator variables (experience and voluntariness) are proposed. The resulting refined version of the TAM is called the TAM2 (see Figure 11). Through the TAM2, Venkatesh and Davis (2000) manage to explain in more detail why users find a given technology or system useful (Venkatesh & Bala, 2008; Chuttur, 2009).

Venkatesh and Bala (2008) offer the most recent conceptual contribution to the technology acceptance model by examining the individual determinants of perceived ease of use. According to Venkatesh and Bala (2008), the determinants that shape a person's perception of the ease of use of a certain technology or system are computer self-efficacy, computer anxiety, computer playfulness, perceptions of external control, perceived enjoyment and objective usability. Venkatesh and Bala

(2008) call this extension of the model the TAM3. While introducing TAM3, Venkatesh and Bala (2008) also propose possible pre-implementation and post-implementation interventions for management and technology designers (e.g., training, peer support, incentive alignment), thereby shifting the focus of the technology acceptance debate toward practical applicability.

2.2.2.2. Innovation Diffusion Theory

Following innovation diffusion theory (IDT), the adoption of technological innovations is a function of one's innovativeness, or willingness to try new products (Atkin, Jeffres & Neuendorf, 1998). Furthermore, according to IDT, "potential users [of a technology] make decisions to adopt or reject an innovation based on beliefs that they form about the innovation". In this sense, IDT is applicable not only to situations of organizational innovation adoption but also to individual-level adoption settings. Accordingly, Rogers (1995), who coined the innovation diffusion debate, defined "innovativeness" as "the degree to which an individual or other unit of adoption is relatively earlier in adopting an innovation than other members of a social system" (p. 22). Innovation diffusion theory (IDT) marks a somewhat distinct way to model adoption. First, instead of usage behavior, it employs the *rate of adoption* or the *innovativeness* as the dependent variable. Second, IDT emphasizes the *process* nature of innovation adoption. Here, the rate of adoption is the "relative speed with which an innovation is adopted by members of a social system" (Rogers, 1995, p. 250). On a construct level, Rogers (1995) identified five attributes of an innovation that may help to determine the rate of its adoption: (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability and (5) observability (Lin, 1998). With respect to these constructs, some authors argue that IDT is, to a certain extent, applicable to the theory context of TAM because relative advantage strongly resembles perceived usefulness, and complexity can be compared to an inverse understanding of ease of use (e.g., Lee, Hsie & Hsu, 2011; Wu & Wang, 2005; Chang & Tung, 2008). On a process level (see 2.1.4), Rogers (1995) categorized adopters into (1) innovators, (2) early adopters, (3) early majority, (4) late majority and (5) laggards on the basis of their adopter innovativeness and adoption rate (Rogers, 1995). Innovators are the earliest adopters, who react most favorably to change in a social system (Eder & Igbaria, 2001), whereas laggards are

those with a tendency to resist innovation and are the last to adopt. The other three types of adopters fall in between these two extremes (Rogers, 1995).

Venkatesh et al. (2003), Karahanna, Straub and Chervany (1999) and Moore and Benbasat (1991) employ IDT to predict technology adoption. In these studies, percentages of variances explained for intention and usage behavior are provided with respect to IDT (see Table 2). In arguing that initial adoption is a key to innovation diffusion, these studies abandon the process nature of IDT and render it applicable to traditional adoption intention and usage contexts (Karahanna et al., 1999). One aspect of IDT that is neglected by other adoption theories is the notion of overadoption, which denotes situations in which adoption is either not beneficial or is detrimental to individuals' productivity or wellbeing: "Certain individuals have such a penchant for anything new that they […] adopt when they shouldn't" (Rogers, 1995, p. 215). The risk of overadoption is inherent when one attribute of an innovation or technology, such as its status-conferring aspects, seems so attractive to an individual that it overrules all other considerations (Rogers, 1995). Dearing (2009) emphasizes the robustness of the diffusion of innovation theory by pointing to the many disciplines and research fields in which diffusion has been studied as well as the vast diversity among the objects of diffusion research. Thong (1999) suggests that the technological innovation literature has identified many variables that are possible determinants of the organizational adoption of an innovation. The occurrence of a large number of explanatory variables in the innovation diffusion literature may point toward a need for further research to identify the critical variables (Thong, 1999).

2.2.2.3. A Unified Theory of Use and Acceptance of Technology (UTAUT)

Similar to six of the seven previously outlined behavioral adoption models, UTAUT employs adoption behavior as well as the intention to adopt a behavior as its dependent variables. Here, behavior is determined by the intention to use a technology, on the one hand, and by the facilitating conditions in the immediate environment (e.g., assistance or training) of the subject, on the other hand. Intention is influenced by performance expectancy, effort expectancy and social influence. Thus, within UTAUT, intention serves as a mediator of the relationship between these three external variables and adoption behavior. UTAUT also considers the four moderators of age, gender, experience and voluntariness. The models

previously employed to map out technology and information systems adoption explained, on average, 36% of the variance in behavior and 39% of the variance in adoption intention, but the unified theory of use and acceptance of technology (UTAUT) manages to explain between 56% and 77% of the variance in intention (Venkatesh & Bala, 2008; Wang et al., 2003) and 40% to 52% of the variance in behavior (Venkatesh et al. 2003, Curtis et al., 2010) (see Table 2).

	Predictive Model or Theory of Technology Adoption	Predicting Intention (% of Variance explained, R^2)	Predicting Behavior (% of Variance explained, R^2)	Source/Study
Behavioral Theories	Theory of Reasoned Action (TRA)	36%	28%	Venkatesh et al., 2003 Sheeran, 2002 Fishbein & Ajzen, 1975
	Theory of Planned Behavior (TPB)	36-47%*	31%	Venkatesh et al., 2003 Eccles et al., 2007 Ajzen 1991
	Social Cognitive Theory (SCT)	36%	29%	Venkatesh et al., 2003 Eccles et al., 2007
	Motivational Model (MM)	38%	40%	Davis et al., 1992 Venkatesh et al., 2003
Technology Adoption Theories	Technology Acceptance Model (TAM)	52%	35%	Venkatesh et al., 2003 Davis et al., 1989
	TAM2	37-53%**	44-57%**	Venkatesh et al., 2003 Venkatesh & Bala, 2008
	TAM3	40-53%	31-36%**	Venkatesh & Bala, 2008
	Innovation Diffusion Theory (IDT)	40%	49-87%**	Venkatesh et al., 2003 Moore & Benbasat, 1991 Karahanna et al., 1999 Rogers, 1995
	Unified Theory of User Acceptance of Information Technology (UTAUT)	56-77%	40-52%	Venkatesh et al., 2003 Venkatesh et al., 2012

* varying results depending on different moderators considered (e.g., age, voluntariness, gender or experience)

**varying results across several studies

Table 2: Comparison of Predictive (Technology) Adoption Models and Technologies

UTAUT subsumes many of the observations and ideas derived in previous research. Its roots can be traced to eight previous adoption theories: the theory of

reasoned action (TRA) (see 2.2.1.1), the theory of planned behavior (TPB) (see 2.2.1.2), social cognitive theory (SCT) (see 2.2.1.3), the motivational model (MM) (see 2.2.1.4), the technology acceptance model (TAM) (see 2.2.2.1), innovation diffusion theory (IDT) (see 2.2.2.2), a combined model of TPB and TAM (Taylor & Todd, 1995) and, finally, the model of PC utilization (MPCU) (Thompson, Higgins & Howell, 1991). In the course of approximately 20 years of adoption research in information systems and on the basis of these models, Venkatesh et al. (2003) proposed a fine-grained and precise model of exceptionally high explanatory value. The UTAUT model performs best in organizational contexts; when applied to the consumer context, the variance explained is slightly lower, at 56% for behavioral intention and 40% for usage behavior (Venkatesh, Thong & Xu, 2012).

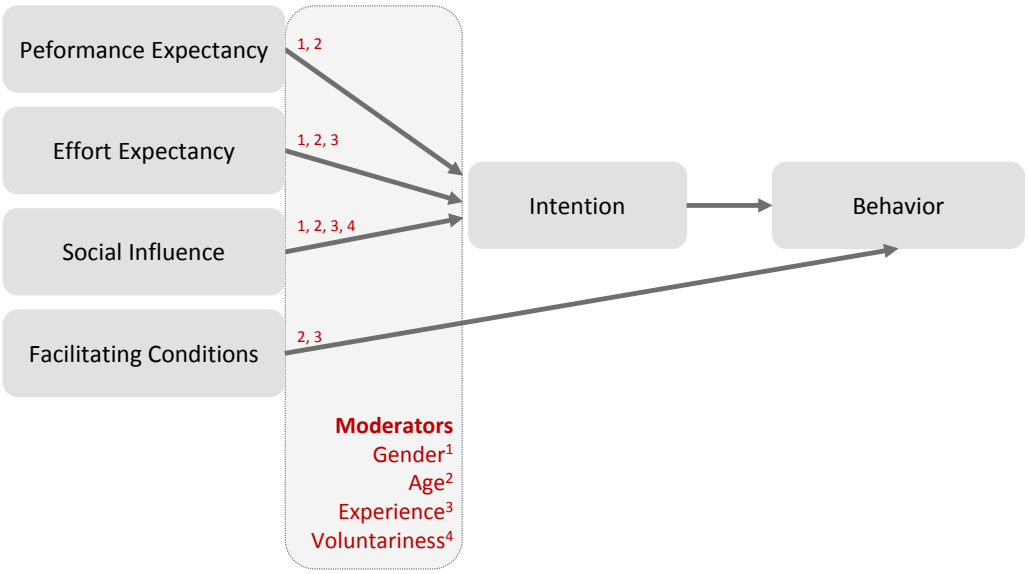

Figure 12: Unified Theory of Acceptance and Use of Technology (Based on: Venkatesh et al., 2003)

There are several things that the UTAUT does better than previous models. First, the UTAUT is not a general behavioral model. Instead, it pertains distinctly to IS and technology contexts. This makes it less generalizable but much more accurate in a specific area (namely, professional technology adoption in information systems), which is reflected in the high percentage of variance explained. Second, the UTAUT consistently incorporates promising findings from previous work (e.g., combining strong scales) while at the same time omitting weaknesses inherent in previous models (e.g., inability to account for moderators). Thus, by encompassing the combined explanatory power of the individual models and key moderating

influences, “UTAUT advances cumulative theory while retaining a parsimonious structure” (Venkatesh et al., 2003, p. 467). Third, as indicated by early work on TAM, various moderators are considered in the UTAUT that have not fully been integrated in previous models. These moderators are age, gender, voluntariness and experience. Recently, a newer version of the UTAUT was proposed by Venkatesh et al. (2012). The new model (UTAUT2) introduces the additional variables of hedonic motivation, price value and habit as predictors of behavioral intention as well as habit as a predictor of (usage) behavior. Furthermore, in the UTAUT2, Venkatesh et al. (2012) drop voluntariness as a moderator to make the model more applicable to consumer contexts, which are largely voluntary settings. Because the UTAUT2 is not designed specifically for organizational and professional contexts but for a broader consumer context, it will not be considered for further analyses within this dissertation.

2.3. Grail or Dead End? – The Prospect of Technology Adoption Research

To date, the most influential specific models of technology and information system adoption are the TAM (see 2.2.2.1) and its extensions and the UTAUT (see 2.2.2.3) (Benbasat & Barki, 2007; Bagozzi, 2007). Although both models originate from the same authors (Visvanath Venkatesh and Fred Davis are listed as authors in the core conceptual contributions of both models), the academic community is by no means in agreement as to whether these models are (equally) well suited for future research on technology adoption. In the following, critical thoughts on the current technology adoption debate are considered. Then, an explanation is provided for why this dissertation considers the UTAUT, with particular considerations, a good match to model the adoption of not only new technologies but also phenomena that extend beyond technology and are marked by strong human and institutional aspects, such as social media.

2.3.1. Problematic Issues in Current Technology Adoption Research

Research on individual-level technology adoption is one of the most mature streams of information systems research (Venkatesh, Davis & Morris, 2007,

p. 267), which explains the richness and variety of adoption models. Despite the breadth of research contexts and topics covered in previous research, innovativeness in technology adoption research seems to be at a low point because numerous contributions to technology adoption merely consist of "replications with minor tweaking", as Venkatesh et al. (2007, p. 268) noted. Bagozzi (2007) says that adoption research is currently at "the threshold of crisis, if not chaos" before calling for a paradigm shift and suggesting that new models should better incorporate, for example, group, social and cultural aspects of decision making and should abandon "over-simplified notions of affect or emotions" (p. 248). Another critique is presented by Benbasat and Barki (2007), who postulate that by summarizing various models into the UTAUT, research has come full circle to the origins of the TAM by introducing a model that is not significantly different from the original TPB. It is precisely in this reversion to the TPB where Benbasat and Barki (2007) see the potential for future research. This suggestion is contradicted by Bagozzi (2007), who warns that the TRA and TPB do not constitute panaceas for the field; instead, an entirely new line of thought may be needed.

Another frequent point of discussion centers on the applicability of the model. For example, the UTAUT is one of the most widely cited models to predict technology adoption (Bagozzi, 2007), but this does not necessarily mean that it is the most widely used model. In their meta-survey, Dwivedi, Rada, Chen and Wiliams (2011) show that although a large number of studies have cited Venkatesh et al.'s 2003 article proposing the UTAUT, few studies (43 out of 450) have actually utilized the theory or its constructs in their empirical research to examine information systems and IT-related issues. Instead, many studies have made partial use of the theory, utilizing only a small number of constructs (Dwivedi, 2011). Among those who use the UTAUT in a holistic fashion with all of its factors and items are Curtis et al. (2010), Chiu, Huang and Yen (2010) and Laumer, Eckhardt and Trunk (2010). Others have used the UTAUT merely as a baseline model that is then modified and complemented by new factors in the course of a study (e.g., Aggelidis & Chatzoglou, 2009; Akesson & Eriksson, 2007).

Similarly, the TAM has been criticized for a number of reasons. According to Benbasat and Barki (2007), the TAM could be a useful bridge to antecedents and consequences of adoption, but the "bridge seems to have become an end in itself"

(p. 216). This is in line with Venkatesh et al. (2007), who recommend examining technology adoption from an antecedent and intervention point of view. Venkatesh and Bala's (2008) contribution to the TAM3 is only partially able to shift attention toward interventions because they are not incorporated in the model but remain a point of discussion in the second part of the paper. Additionally, considering the TAM as well as the UTAUT, our current conceptualizations and operationalizations of system use in terms of the frequency, duration and variety of system functions are too narrow (Benbasat & Barki, 2007; DeLone & McLean, 2003; Doll & Torkzadeh, 1998). This is especially true if one considers the current technological and social work environment, which often does not consist of a single technological object but is rather an interwoven web of new technology aspects and their changed social consequences.

2.3.2. Making Way for Social Media Adoption

This dissertation notes the valid points of critique raised in the previous section and strives for a theoretical approach on technology adoption that (1) accounts for a majority of the concerns presented in the literature and is at the same time (2) applicable to the context and peculiarities of the social media phenomenon. Keeping in mind the initial goal of a holistic and representative notion of technology adoption, the UTAUT advances as the most likely candidate for a basic framework. However, as suggested in the previous section, an uncritical and rash adoption of the UTAUT as a basic framework for this dissertation may lead to a dead end, offering neither accurate nor practically transferable insight into what really drives the adoption of new technologies at work. Yet, if one bears in mind some of the caveats with respect to future adoption scenarios of this otherwise robust and parsimonious model, the UTAUT might provide an adequate understanding of adoption and a promising avenue to link extant technology adoption research with current and future research on social media. Thus, following the critique outlined above, there are five major caveats to traditional models and understandings of technology adoption that must be considered and circumvented in this dissertation to render the UTAUT a suitable model for the social media context (see Table 3). *First*, the adoption model employed in this dissertation should be seen as a means to understanding social media adoption, not as an end in itself (Bagozzi, 2007).

Second, practical applicability and management relevance should be a major concern of this dissertation; the mere confirmation or rejection of a research model should not be the final goal. As postulated by Fishbein and Cappella (2006), the usefulness of the model employed in this dissertation will be judged by its ability to identify determinants as a first step to developing interventions to change or influence behavior. *Third*, the adoption model and notion employed in this dissertation must consider a broad understanding of technology that encompasses not only hardware and single-unit software but also socially mediated and created networks as well as the consequences arising from them for individuals (e.g., Benbasat & Barki, 2007; DeLone & McLean 2003). *Fourth*, the adoption model must not over-simplify affect or emotions (Bagozzi, 2007). Thus, this dissertation will strive to make room for emotions and affective aspects as explanatory determinants in technology adoption contexts. As is evident in the social media conception presented in chapter 1.1., the social media phenomenon emphasizes the human level and individual capacity and readiness to partake in the new communication environment. As such, even in non-voluntary settings, emotions and mental aspects are expected to play an important role (see chapter 3). *Fifth*, this dissertation strives for an understanding of adoption that allows for group, social and cultural aspects of decision making (Bagozzi, 2007).

If these caveats are considered, the UTAUT may have the potential to be most insightful in the context of social media adoption. It will be particularly interesting to see how the UTAUT's determinants of facilitating conditions (within the organization) and social influence differ in a social media adoption context and a traditional technology adoption context. A comparison of current research work on social media adoption employing the UTAUT (Hanson, West, Neiger, Thackerai & Barnes, 2012; Gruzd, Staves & Wilk, 2012; Alikilic & Atabek, 2012; Mandal & McQueen, 2012; Curtis et al., 2010) reveals a tendency to omit some of the caveats discussed in this section. In particular, there remains a need for a closer examination of the role and complexity of emotion in the adoption process and decision (see Table 3).

		Required Elements for Overcoming Common Caveats in Technology Adoption Research				
Publications[4]	Dependent Variable	Adoption as a Means to an End?	Practical Application/ Intervention Levels?	Broad Technology Notion?	Complex Emotions and Affect?	Social and Group Aspects?
Grudz et al., 2012	Social media adoption among faculty members			✓		✓
Mandal & McQueen, 2012	Social media adoption by microbusinesses	✓	✓			✓
Hanson et al., 2011	Social media adoption among health educators	✓				
Alikilic & Atabek, 2012	Social media adoption in PR		✓			
Curtis et al. 2010	Social media adoption in non-profit PR		✓	✓		

Table 3: Caveats Considered in the Current Application of the UTAUT to the Social Media Context

[4] Peer-reviewed articles retrieved through EBSCO discovery service, February 2, 2013, keywords: [UTAUT; "Social Media"], in order of appearance on EBSCO discovery service.

3. On Stress and Technology

The advent of facebook, twitter and similar phenomena has rendered questions of technology adoption and adoption readiness among the workforce more pertinent than ever (see chapter 2). Social media do not simply offer new tools to perform extant tasks; instead, they change the tasks and workflows themselves (e.g. Boyd & Crawford, 2011). Thus, the "adoption" of social media at work also means "adoption" of and familiarization with the changed and perpetually changing nature of work. In this environment marked by a shift in paradigms (see 1.1), it is the individual professional's ability and readiness to take the leap and interact with audiences in an authentic manner that makes or breaks workplaces and organizations. However, the change to work profiles produced by social media is often so fundamental that the ability and readiness to participate cannot be considered a given. Instead, many employees struggle in the face of the new communication paradigm (Zerfass et al., 2011; Bucher, Fieseler, Meckel & Suphan, 2011). They may find it difficult to enter a conversation on twitter or facebook, and they are not entirely comfortable switching off their smartphones after work for fear of missing important information. This gap in the growing demand to employ social media and the current ability to do so in a confident and sustainable manner may be the reason why many organizations (curiously, even communication organizations) continue to lag behind when it comes to social media adoption at work (Zerfass et al., 2011; Eyrich et al., 2008).

To close this gap and lay the groundwork for proposing interventions, two issues are relevant: first, one might seek to gain *a better understanding of the (mental) challenges arising for individuals in a work environment marked by the advent of social media* (Paper III); second, one might examine *how professionals and different groups of professionals are affected by these challenges* (Paper IV). To inform these issues and develop a theoretical basis for the second part of this dissertation, the present chapter will examine research on workplace stress as well as technostress. First, a definition of workplace stress will be deduced from the relevant literature. Second, workplace stress is scrutinized in the face of a changed technological work environment. The term "technostress" and its components

(overload, invasion, uncertainty, insecurity and complexity) will be scrutinized. Third, possible consequences of technology- and social media-related stress in the workplace will be mapped out, with a special emphasis on the duality of stress and strain perceptions. Here, a novel perspective on stress in the workplace will be encouraged, one that takes into account the possibility of stress as well as stimulation.

3.1. Stress in the Workplace

In the course of 40 years of research on stress in the workplace (Griffin & Clarke, 2010), various approaches to this phenomenon have been developed from the perspective of several theoretical fields, such as social and organizational psychology, economics, public health and medicine. A natural result of research on the subject in different fields is an inconsistency in which related concepts of stress are addressed (Ayyagari, 2007). For instance, in the literature, there are quite different and sometimes overlapping meanings attached to the concepts of *strain*, *stress* and *stressors*. In the following, some of these inconsistencies will be disentangled by grouping the most common definitions of stress and workplace stress into the three stress categories proposed by Butler (1993): stimulus-based definitions, response-based definitions and (most importantly in the context of this dissertation) definitions that consider stress a dynamic process.

3.1.1. Stimulus-based Definitions of Workplace Stress

The stimulus-based definition of stress focuses on various stressors as external sources of stress (Butler, 1993). Derived from Antai-Otong (2001), one can define (workplace) stress as an individual's reaction to a stressor present in the surrounding (work) environment. A stressor, according to Griffin and Clarke (2010), is "the perceived demand from the environment and therefore comprises both external stimuli and the perceptual processes of the individual" (p. 3). A stressor can arise from a multitude of mental or emotional states as well as physical activities (Alqahtani, 2012). In their frequently quoted survey, which significantly contributed to the foundations of technology-induced stress research, Tu, Wang and Shu (2005) proposed five work-related stressors: overload, invasion, uncertainty, insecurity and

complexity (see 3.2). When examining stressors, it is important to regard them independently of strains. A stressor refers to a driver of stress (e.g., work overload), whereas strain includes the outcomes of stress (e.g., depression) (Griffin & Clarke, 2010; Caplan, Cobb, French, Harrison & Pinneau, 1980; McGrath, 1976). Accordingly, workplace stress can be defined from a stimulus perspective as the sum of all stressors arising from an individual's immediate work environment (see Figure 13). Here, stress is seen as an independent variable that prompts a response from an individual (Ayyagari, 2007).

3.1.2. Response-based Definitions of Workplace Stress

The response-based definition of workplace stress represents the other side of the "stress coin". Whereas stimulus-based definitions of stress primarily consider the pressure that causes an individual to be strained, response-based definitions focus on the physical, psychological or behavioral responses of the individual to these stimuli. The most prominent researcher in this field is one of the oldest voices in the stress discourse: As an endocrinologist, Selye (1956) argued that stress was a (biological) response to the sum of all changes in a biological system. After four decades of research, Selye (1988) was convinced that his observations regarding a cell's bio-chemical reactions to environmental change were surprisingly similar to the reaction of a "whole person" to changing surroundings: "No matter the organism, there are always two possible reactions to change: fight (active) or flight (passive)"[5] (Selye, 1988, p. 45). Selye was among the first to introduce the notion of stress-related illness, which he called "general adaption syndrome" (GAS) (Selye, 1956, 1988; Butler, 1993; Ayyagari, 2007). According to GAS, if an environmental pressure on a person or an organism persists, there will be three subsequent responses: an alarm reaction (fight or flight response), resistance (slow adaption response) and, finally, (if there are not enough resources for adaptation) exhaustion (Ayyagari, 2007; Griffin & Clarke, 2010; Butler, 1993; Selye, 1956, 1988). According to the response-based definition of stress, workplace stress can be conceived as an individual's physiological and mental response to the sum of all

[5] Quote translated from the German edition: Selye, H. (1988). *Stress*. München: R. Piper & Co.

changes in the immediate work environment. In this definition, stress is considered the dependent variable (Ayyagari, 2007).

3.1.3. Workplace Stress as a Dynamic Process

Both response-based and stimulus-based definitions have been criticized for their uni-dimensionality and one-sidedness. Ultimately, neither conception of workplace stress is able to offer a differentiated and holistic framework for the stress phenomenon. Whereas stimulus-based definitions neglect the fact that individuals might display different responses to the same stimuli, response-based definitions fail to account for environmental variables or the possibility that a response may not have been triggered by a certain stimulus but by another independent variable; thus, stress might be misconceived from an isolated stimulus or response view (Ayyagari, 2007; Cooper, Dewe & O'Driscoll, 2011). According to the solely stimulus-based or response-based definitions, it is only possible to say that "an event has *the potential* to be stressful or that a response *may be* a stress response" (Ayyagari, 2007, p. 13). However, the statement remains vague.

In this sense, for a more precise definition of stress (and, by extension, workplace stress), a combination of environmental (stimulus-based) and individual (response-based) factors may be needed. As a solution, Lazarus and Folkman (1984) propose a process-based definition that sees stress as "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (p. 19). According to this definition, which is also the essence of Lazarus' (1991) transactional theory, stress is not "located" in the person or the environment but in the relationship between the environment, individuals' appraisals of the environment and ongoing attempts to cope with issues that arise (Griffin & Clarke, 2010; Cooper et al., 2001). McGrath (1976) presents a very similar and equally process-driven definition of the phenomenon: "Stress is an environmental situation that is perceived as presenting a demand which threatens to exceed the person's capabilities and resources for meeting it, under conditions where he or she expects a substantial differential in the rewards and costs from meeting the demand versus not meeting it" (McGrath, 1976, S. 1351). Building on Lazarus and Folkman's (1984) definition, George and Le Fevre (2010) provide a reductionist but nonetheless appropriate definition of the

phenomenon: stress is the result "when there is a mismatch between the person and their environment" (p.99). Furthermore, Griffin and Clarke (2010) note that stress generally is not a single event or a specific psychological state and thus should be understood as a process in which individuals respond to and manage demands to meet multiple goals over time (Griffin & Clarke, 2010). Four elements are present in almost all process-driven stress definitions. Stress occurs when there is (1) an environmental demand (stimulus) that prompts (2) a person's reaction (response); due to a (3) mismatch between environmental demand and personal resources, (4) harmful mental or physiological consequences arise for the individual. Applying these elements in the professional realm, we can define workplace stress as *stress that arises when the demands (stressors) of the work environment (antecedent) exceed a professional's resources and when this mismatch entails harmful mental and/or physiological consequences (strain) for the individual professional*. In the following, we will apply this definition of workplace stress to professional environments that are marked by technological change and innovation.

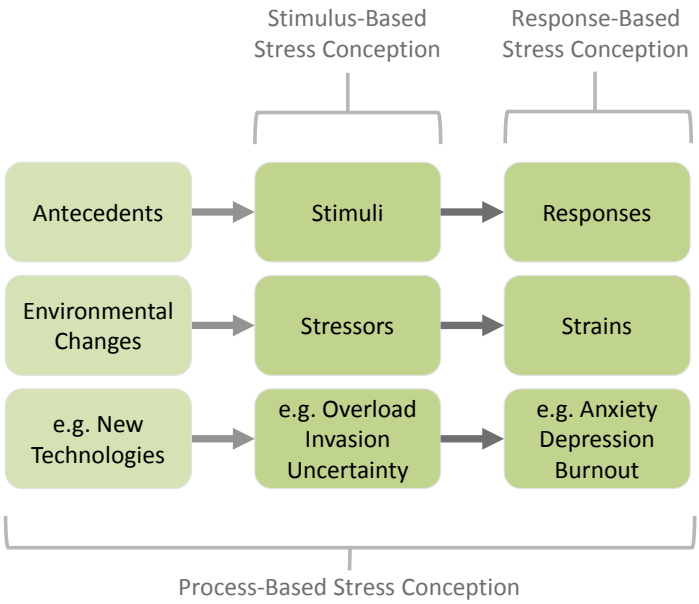

Figure 13: Differences among Stress Conceptions (Based on: Selye, 1956, 1988; Butler, 1993; Lazarus & Folkman, 1984; Griffin & Clarke, 2010; Tu et al., 2005; Ayyagari, 2007)

3.2. Technology-induced Stress

New technologies and applications in the workplace are generally implemented to increase efficiency and reduce the perceived stress levels of employees. However, the opposite effect may occur (Brynjolfsson & Yang, 1996; Karr-Wisniewski & Lu, 2010). Investments in technology projects may not only fail to increase efficiency but may even foster inefficiency and stress among the workforce. This is because the adoption of new information and communications technologies and applications often leads to a redefinition of organizational structures and business processes (Ragu-Nathan et al., 2008). In such a changing work environment, general task complexity increases (Bawden & Robinson, 2008; Fernandez, 2001) because employees must constantly adapt to new applications, functionalities and workflows (Ragu-Nathan et al., 2008). Along with often lacking (or lagging) training, increased workload, the quickening pace of change and the perceived high reliability on and importance of the new technologies, this can trigger feelings of stress (e.g., Ennis, 2005; Choudhury, 2013; Ayyagari, 2011). In the following, *technostress* is examined as an umbrella term for technology-induced stress with respect to its evolution over the past three decades. Then, its conceptualization in a post-millennial phase of stress research is considered. Subsequently, the five stressors (overload, invasion, uncertainty, insecurity and complexity) (Tu et al., 2005; Tarafdar, Tu, Ragu-Nathan & Ragu-Nathan, 2007; Ragu-Nathan et al., 2008) will each be examined from a workplace perspective.

3.2.1. Evolution of the Technostress Concept

The adverse mental and physiological effects of technology on individuals' health and wellbeing are discussed in the literature under the term *technostress*, defined by Brod (1984) as a "modern disease of adaptation caused by an inability to cope with new computer technologies in a healthy manner" (p.16). Weil and Rosen (1997) refrain from calling technostress a disease and instead define it as the sum of negative effects on human attitudes, thoughts, behavior and psychology that directly or indirectly results from technology. In the literature, technostress is also referred to as technophobia, computerphobia, computer anxiety, computer stress and negative computer attitude (Wang, Shu & Tu, 2008). There are various strains associated with technostress in the literature, but there are also some positive

consequences. The consequences of technostress on individual wellbeing and productivity will be scrutinized in chapter 3.3.

Brod's (1984) initial portrayal of the phenomenon was followed by almost two decades of relatively little work on technostress. The term only made its comeback on the academic agenda shortly after the turn of the millennium. From 2001 onward, technostress remained a constant topic in research areas such as organizational psychology, job stress, technology and information systems. Interestingly, this sudden spike in interest in technostress coincided with the emergence of web 2.0 technologies and the social media phenomenon.[6] Furthermore, the birth of twitter and youtube as well as the launch of facebook to the general public coincided with yet another spike in academic interest in technostress around 2005 and 2006 (see Figure 14). In the pre-millennial phase, there were approximately eight articles, books, dissertations and conference proceedings published per year on technostress. From that time until the present, there have been approximately 18 academic contributions published per year in peer-reviewed academic outlets.

[6] In 2005, Tim O'Reilly published his working paper "What is Web 2.0", which can be regarded as the moment when the technological foundations of the social media phenomenon and web 2.0 were presented to a larger audience beyond Silicon Valley. In his paper, O'Reilly dates the birth of web 2.0 and, by extension, the social media phenomenon to the year 2001, which coincides with a spike in the technostress literature.

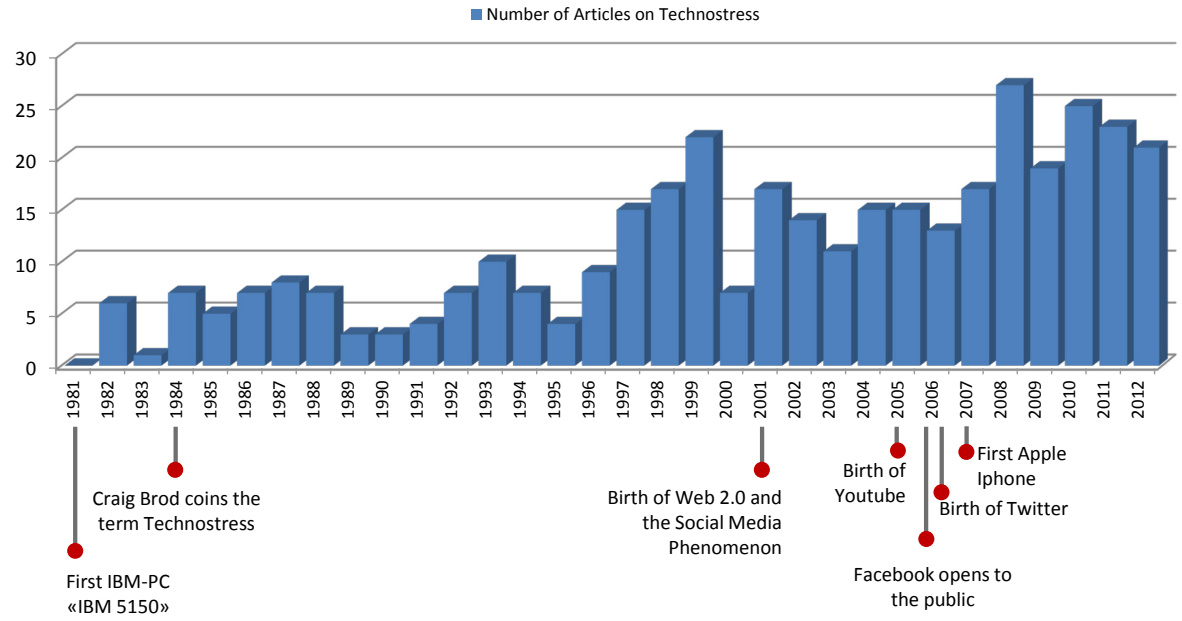

Figure 14: Distribution of Academic Contributions on Technostress within 30 years of Research and Selected Milestones of Information Technology[7]

The post-millennial notion of technostress was largely coined by Tu et al. (2005), Tarafdar, et al. (2007) and Tarafdar et al. (2010), who were among the few to propose scales and an empirical conceptualization of the phenomenon. In their survey on computer-related stress in China, Tu et al. (2005) confirmed five relevant dimensions or levels of technostress, which were subsequently employed as stressors by Tarafdar et al. (2007) and by Ragu-Nathan et al. (2008): (1) techno-invasion, (2) techno-overload, (3) techno-uncertainty, (4) techno-insecurity and (5) techno-complexity. Accordingly, Tarafdar et al. (2007) defined technostress as "the stress that users experience as a result of application multitasking, constant connectivity, information overload, frequent system upgrades and consequent uncertainty, continual relearning and consequent job-related insecurities, and technical problems associated with the organizational use of ICT" (p. 304-305).

3.2.2. Five Dimensions of Technostress

As technostress research matures and its scope widens, it not only pertains to problems directly related to a particular technology but also shifts its focus toward the human level of changing technologies. Thus, technology becomes an antecedent

[7] Academic articles retrieved from ProQuest database; keyword [technostress]. Sources Milestones: Facebook (2006), Youtube (2013), Twitter (2013), O'Reilly (2005), IBM (2013).

of technostress and is not necessarily the main stressor. As an example, imagine the introduction of a new platform for internal communication. Although the platform itself might be considered a new technology in the workplace, the stress associated with it stems not necessarily from its technical properties but from social or content-specific stressors, such as information overload, perceived interruptions of the workflow or feelings of inadequacy when colleagues gain more visibility and prestige via the new platform. Thus, when examining the stressors that lead to technostress, it seems appropriate to abandon the prefix "techno-" in favor of a wider application of the concept. Accordingly, in this dissertation, *technostress will be considered a phenomenon that occurs when new or changing technology in the workplace creates instances of overload, invasion, uncertainty, complexity and insecurity for individual professionals*. In the following, each of these five stressors inherent in workplaces shaped by new or changing technology will be considered in more detail.

3.2.2.1. Overload

Overload is a feature that is consistently present in modern knowledge workplaces and generally relates to a mismatch between a demand or input and a capacity. In the case of knowledge workers, overload occurs when they are presented with more cognitive stimulation than they can meaningfully process. With a processing capacity of approximately 126 bits per second (Gasser & Palfrey, 2008), a human brain is bound to experience overload in one form or another when engaged in modern work environments. The most prominent manifestation of overload is information overload. Other forms of overload may include communication overload, technology overload or system feature overload (Karr-Wiskniewski & Lu, 2010, Plass, Moreno & Brünken, 2010). One may argue that even these two latter manifestations are essentially related to information overload because too much technology or too many system features usually mean that an individual is required to understand and process too much information to make productive use of the technology or system. The cognitive load theory scrutinizes the difference between what individuals are able to process and what they are expected to process in a given setting (Sweller, 2010, 1988; Van Gog, Paas & Sweller, 2010). Information overload arises when one has too much information available relative to the attentional resources that can be devoted to it (Himma,

2007; Koroleva, Krasnova & Günther, 2010, Sweller, 2006). In other words, information overload is the phenomenon of being unable to distinguish relevant information from irrelevant information (Koroleva et al., 2010). Bawden and Robinson (2008, p. 5) add that "the feeling of overload is usually associated with a loss of control over the situation and sometimes with feelings of being overwhelmed". Similarly, Tarafdar et al. (2010) posit that information overload refers to overwhelming volumes of information from different communication channels to which users of information and communication technologies are subjected. Koroleva et al. (2010) and Borgs, Chayes, Karrer, Meeder, Ravi, Reagans and Sayedi (2010) illustrate the overload phenomenon by drawing from research on social networking sites. As networks grow, it becomes increasingly difficult for users to distinguish truly interesting information and contacts from the myriad of statements and activities reflected in the newsfeed. Overload can be considered a stressor in the workplace because it generally forces employees to work faster or longer hours while rendering work more complex and more demanding (Tu et al., 2005; Ragu-Nathan et al., 2008). Furthermore, because the constant flood of incoming information can no longer be processed in real time, employees find themselves in mental states in which they are continually distracted and frustrated by incoming information (Hemp, 2009; Tarafdar et al., 2010). Although overload is a strong contributor to technostress (Ayyagari, 2012), it is not a given that the overload condition is always harmful or stressful. Ten years into the social media phenomenon, we may begin to get used to “living with, in and around information” (Boyd, 2010, p. 26). Instead of being overwhelmed by information overload, in the future, we may be “peripherally aware of information as it flows by, grabbing it at the right moment when it is most relevant and valuable, entertaining or insightful” (Boyd, 2010, p. 28).

3.2.2.2. Invasion

Over the last decade, the Internet and the advent of mobile technologies and smartphones have created situations in which users can potentially be reached any time, and employees feel the need to be constantly connected to their work community (Tarafdar et al., 2010; Ragu-Nathan et al., 2008). Invasion leaves workers with the feeling that “they are never *free* of technology, that they are always under supervision or *on call* and that their space has been invaded”

(Tarafdar et al., 2010, p. 311). For communication practitioners, being on call often entails a constant connection to their audiences and stakeholders (Bucher et al., 2011). Situations may occur in which individuals are physically located in the home domain but are mentally engaged in the professional domain (Soucek & Moser, 2010). This entails a blurring of boundaries between work-related and personal contexts (Ayyagari et al., 2011; Tarafdar et al., 2007; Lanigan, Bold & Chenoweth, 2009). Although this continuous engagement in work matters may seem initially desirable from an employer's point of view, it comes at a risk for individuals as personal spaces dedicated to refuge or family time become increasingly scarce (Garcia-Montes, Caballero-Munoz & Perez-Alvarez, 2006, Meckel, 2007) and replenishing drained resources becomes more difficult. Invasion can lead to increased distress, a less satisfying family life, poor decision making (particularly in the course of performing complex tasks) and burnout (García-Montes et al., 2006; Speier, Valicich & Vessey, 1999; Weil & Rosen, 1997). However, invasion is not a one-way street. Although new technologies certainly permit work interference with the private domain, they also permit the interference of one's private life and community with work (Greenhaus & Powell, 2006). This second form of invasion is a particularly delicate issue for communication specialists, who are required to communicate in an informal and casual way with their audiences. Here, difficulties may arise in separating private and professional roles and identities. Finally, some literature suggests that the blurring of work-family boundaries may not have an entirely negative influence on individual wellbeing and health. Individuals who must be connected to their audiences or work community even in their spare time may feel more dynamic and lively (Arnold, 2003), may experience increased self-esteem (Arnold, 2003; Frissen, 2000; Gillard, Wale & Bow, 1997) and may be regarded as more popular by their peers (Tong, Van Der Heide, Langwell & Walther, 2008).

3.2.2.3. Uncertainty

In the course of relatively few years, novel technical means and applications to connect and interact with external audiences, co-workers and peers have revolutionized knowledge professions in general and the communication profession in particular (Zerfass et al., 2011; Curtis et al., 2010; Eyrich et al., 2008). These rapid technological changes create an exceptionally dynamic work environment that

presents opportunities to learn and to play (Jenkins, Clinton, Purushotma, Robinson & Weigel, 2006). Yet, to remain on top of these developments, employees must regularly learn how to work with new applications, and some of their existing and perhaps only recently acquired knowledge and skills may become obsolete (Tarafdar et al., 2010; Ayyagari et al., 2011; Weil & Rosen, 1997; Schabracq & Cooper, 2000; Venkatesh & Bala, 2008). This situation is expected to foster uncertainty among members of the workforce who do not yet feel comfortable within a new technological paradigm and who need more time to adjust. Here, a new type of literacy may be needed that includes the ability to adapt to new technological antecedents in the workplaces in a rapid and playful manner (Bucher et al., 2012).

3.2.2.4. Complexity

The complexity stressor slightly overlaps with uncertainty, but instead of focusing on the pace of change, complexity involves the skills individuals must possess to do their work and cope with their work environment. Thus, software upgrades, changes in the system architecture or the introduction of new technologies not only foster uncertainty but also increase the general complexity of the work environment (Tarafdar et al., 2010; Ragu-Nathan et al., 2008, Tu et al., 2005). In current workplaces, complexity encompasses not only technological aspects but also other context aspects, such as knowledge of how to assess socially produced content in social media or the legal parameters to consider in a semi-public twitter or facebook conversation (e.g. Hodge, 2006; Small, Kasianovitz, Blanford & Celaya, 2012). Because the basic level of knowledge and skill required to participate in a work environment marked by new technological antecedents is increasingly complex, professionals may feel a sense of inadequacy or even incompetence. According to Ragu-Nathan (2008), the uncertainty stressor can be traced to the construct of task difficulty proposed by McGrath (1976).

3.2.2.5. Insecurity

In technologically uncertain and complex work environments, professionals face situations in which they must adapt their skills and learn to use new applications and technologies or – and this is the core of the insecurity stressor – see themselves in danger of losing responsibilities within their jobs or even being replaced by more

technology-literate peers (Tu et al., 2005; Tarafdar et al., 2010). Accordingly, almost 60% of European communications professionals are convinced that they need to constantly update their technology and social media skills to remain competitive in their field (Bucher et al., 2011). The constant concern about, especially, younger recruits who seem to be more at ease with new technological environments may be a major stressor in the workplace (Tu et al., 2005). Thus, professionals who hesitate to take the leap and learn to employ new applications or systems often feel insecure or cynical about new technologies (Tarafdar et al., 2011). Although it is generally assumed that younger and (often) male professionals perform better and are less stressed in the face of new systems or applications, this is not necessarily true. In their survey, Tarafdar et al. (2011) found that older people generally handled stress better than their younger colleagues and that although women found new technologies less easy to use, they also experienced less technostress in general and less insecurity in particular than their male peers.

3.3. The Consequences of Technology-related Stress in the Workplace

Stress has become the bane of modern workplaces; more than 40% of American employees report chronic workplace stress (American Psychology Association [APA], 2012), absenteeism, and productivity loss, and employee turn-over entail costs in the United States as high as 300 billion dollars annually (Brun, 2007). Yet, the way that employees perceive their stressful work environments and the extent to which they perceive this stress to be detrimental to their health and wellbeing is subject to heated debate. Whereas the Wall Street Journal proclaims that "a moderate amount of anxiety keeps people on their toes, enables them to juggle multiple tasks and puts them on high alert for potential problems" (Beck, 2012), Forbes Magazine warns that "even a small amount of stress is noisy in the brain" (Martin, 2012) and may be harmful to individual wellbeing and productivity. To consider this debate from an academic perspective, the present chapter will first discuss the individuality of stress and strain perceptions. In a second step, it will examine the consequences of technology-related stress in the workplace. Third, mechanisms will be discussed regarding how the social media phenomenon may

alter the perception of stress and strain at work. Finally, a revised framework is proposed for stress as well as stimulation in the workplace.

3.3.1. The highly individualized Perception of Stress and Strain

New technologies, especially the new and interactive communication paradigms of social media, affect the majority of knowledge and communication workplaces and, as such, have an impact on virtually every professional in the field (Zerfass et al., 2011; Bucher et al., 2011). However, not all workers react in the same way to changes in their work environment. Despite the undisputed presence of various stressors, such as overload, invasion and uncertainty, not all employees experience the same strain – or any strain at all, for that matter. In their study of a Chinese population, Tu et al. (2005) observed that the technostress dimension of overload did not have an adverse effect; rather, it had a positive impact on employees' productivity, and the overall level of technostress had no impact on productivity at all. Using the same scales on an American sample, Tarafdar et al. (2011) observed a clear negative effect of technostress on productivity, innovation and job satisfaction. These divergent results may not be surprising because stress is "created and experienced by the self uniquely and contextually" (Bicknell & Liefooghe, 2006, p. 391), and whether a work situation or setting is considered stressful is specific to individuals (Mark & Smith, 2008; Park & Folkman, 1997; Alqahtani, 2012). This is in line with Sisley, Henning, Hawken and Moir's (2000) definition of workplace stress as a "dynamic process between physiological, psychological, and behavioural entities that are cognitively interpreted by the individual" (p. 4). In this sense, the same work environment can be "debilitating and negative for one individual while at the same time it is exciting and challenging for another" (Griffin & Clarke, 2010, p. 3). Individuals' propensity to react to a stressful situation in a certain way depends on various factors, such as culture, environment, age, gender, technology literacy and emotion (Alqahtani, 2012, Tu et al., 2005, Ragu-Nathan et al., 2008).

Considering the strong impact of individual characteristics on stress vulnerability and strain perception, the process-based stress conception introduced in chapter 3.1.3 appears in a slightly different light. If we follow the process-based definition of stress, then, in the absence of a strain, there is no stress. Thus, even in the presence of all five stressors, a situation does not necessarily have to be stressful

from the perspective of an individual. Nevertheless, if we look at technology-related stress from an organizational perspective, the presence of the stressors overload, invasion, uncertainty, complexity and insecurity is assumed to be characteristic of a stressful workplace.

3.3.2. The Good, the Bad and the Ugly Faces of Stress

Stressful environments are generally associated with negative effects on the workforce, such as decreased wellbeing and enjoyment at work (e.g., Brod, 1984; Weil & Rosen, 1997; Ayyagari, 2012), reduced job satisfaction (e.g., Hu & Cheng, 2010; Ragu-Nathan et al., 2008; Hendrix, Summers, Leap & Steel, 1995) and lower levels of productivity (e.g., Tarafdar et al., 2011; Ayyagari, 2012) and organizational commitment (e.g., Tarafdar et al., 2010; Ragu-Nathan et al., 2008). In addition to these organizational and directly job- or performance-related strains, Gasser and Palfrey (2008) link further negative psychological effects, such as anxiety, depression, low motivation and sometimes even panic, to the stress induced by new technological environments. Among the physical strains associated with stress are increased heart rate, migraines, reduced attention span, restlessness and exhaustion (e.g., Tennant, 2001; Weil & Rosen, 1997, Brod, 1984). In extreme cases, chronic stress in the workplace can lead to burnout (García-Montes et al., 2006; Speier et al., 1999). Consistent with these negative effects, Brod (1984) proposes understanding technology-related stress as a modern disease.

Despite these well-documented organizational, psychological and physical strains inherent in stressful environments, there is a lively discussion on the extent to which both negative and positive consequences of stress in the workplace are conceivable and admissible. Choudhury (2013) notes that workplace stress at very low levels can stimulate performance, as illustrated by the common saying, “I work better under pressure” (p. 4). Similarly, the World Health Organization [WHO] (2013) states that acceptable levels of pressure at work are not only natural, but may even keep workers alert, motivated and able to work and learn. In her work on the subject, Folkman (2008) even makes “the case for positive emotions in the stress process” (p. 3) and revisits evidence on the co-occurrence of both negative and positive emotions in relation to stress. While negative emotions in the stress process may have adaptational significance because they prompt fight or flight responses

(see chapter 3.1.2), positive emotions are important in the adaptation process because they help to replenish coping resources and establish the basis to move on (Folkman, 2008). Among the first to account for the possibility of good stress, or *eustress,* was Selye (1956, 1988). As an endocrinologist, Selye argued that similar to the understanding of stress in medicine and biology, stress in social psychology should be equated with pressure or stimulation, which may entail negative as well as positive reactions. Thus, if negotiated appropriately, stress can be positive and stimulating (Nelson & Simmons, 2003; Benson & Allen, 1980; Certo, 2003; Lussier, 2002, Quick, Nelson, Quick & Orman, 1990). The notion of good stress is somewhat neglected in current empirical research and has been rejected by several authors (e.g., Sulsky & Smith, 2005, Le Fevre et al., 2003). Among the few empirical advances on the subject are McGowan et al. (2006), who successfully show a positive relationship between task-oriented coping and eustress. Taking into account the divergent views of the consequences of stress, this dissertation follows Folkman's (2008) call to include positive as well as negative emotions in studies of stress (see chapter 5.4).

3.3.3. Social Media and the Duality of Stress and Stimulation in the Workplace

Research on the social media phenomenon and its impact on the perception of stressors and strains at work remains very limited. Nevertheless, some tentative and mainly conceptual propositions for research in the field can be deduced from the current research. The advent of the social media phenomenon contributes to stressors that are already present in modern work environments, which demand high levels of engagement and interaction from their participants (Ayyagari, 2011) and render communication faster, more social and more transparent (O'Reilly, 2005; Shirky, 2008; Kaplan & Haenlein, 2009; Benkler, 2006; Chiang et al.; 2009, Bawden, 2008; Grimes & Warschauer, 2008). Yet, when asked about their work in an environment increasingly marked by social media, approximately three-quarters (73%) of European communications practitioners think that using social media to communicate with various audiences is a good idea, and a clear majority report that engaging in social media makes work more interesting (62%) and that they enjoy working with facebook and twitter (61%) (Bucher et al., 2011). Furthermore, practitioners report that they are neither anxious nor nervous about their use of

social media (Bucher et al., 2011). This discrepancy between stressors and strains may be at least partially explained by moderating variables, such as gender, age, technology literacy and experience working with social media (Tu et al, 2005; Ragu-Nathan et al., 2008; Tarafdar et al. 2011). For example, technologically savvy and social media literate individuals, such as many of the communication practitioners who participated in the EACD survey, might be less prone to experience strains in the stressful environment of a social media-related job. Thus, even though they report being overwhelmed by the flood of information they must address on a daily basis, they do not feel anxious or depressed about it, which may be attributed to their social media experience and literacy. Alternatively, and in accordance with Folkman (2008), Nelson and Simmons (2004) and Selye (1988), the current view of workplace stress may not be sufficiently broad to account for both positive and negative reactions to stressful or stimulating situations. Thus, this dissertation proposes an approach to stress that recalls Selye's (1956, 1988) original understanding of stress as pressure or stimulation (see Figure 15).

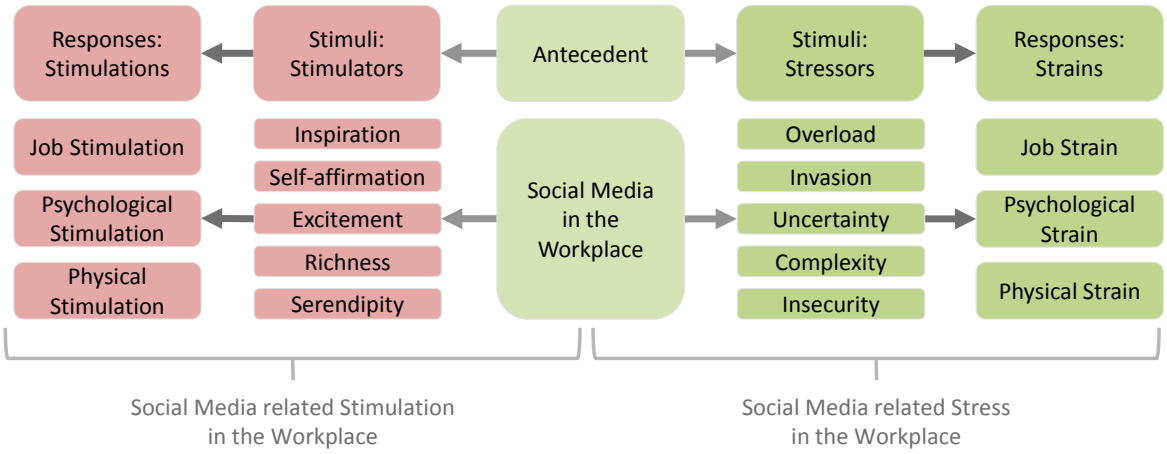

Figure 15: The Duality of Stress and Stimulation (Based on: Selye, 1988; Lazarus & Folkman, 1984; Folkman, 2008; Nelson & Simmons, 2004)

Stress in the workplace may be only one side of a stress/stimulation duality. Recalling Butler's (1993) and Lazarus and Folkman's (1984) process-based view of stress, which relies on a stimulus and a response, we can strive for a more balanced conception of stress that takes into account that changing environments may entail positive as well as negative stimuli and responses. In this sense, a stimulus may either be a stressor (negative connotation) or a stimulator (positive connotation). In

the same way, a response may manifest in either a strain (negative connotation) or a stimulation (positively connoted).

Accordingly, an explosion of content and the never-ending flow of socially produced content in social media may, for example, prompt overload (stressor), but, at the same time, it may foster inspiration (stimulator). Similarly, the blurring of boundaries between what is considered work and what is considered the private domain and the aspect of "being on call" for work even at home may foster invasion (stressor), or it may be a form of self-affirmation (stimulation) because being on call means being involved and indispensable, to a certain extent. Furthermore, the frequent changes in relevant applications or platforms prompts uncertainty (stressor) for some individuals, but it may create excitement (stimulator) for others. Additionally, although the variety of technological and social aspects involved in the social media phenomenon is generally associated with complexity (stressor), it may also be linked to rich media experiences (stimulator). Finally, one may lament the insecurity (stressor) inherent in workplaces where extant fields of expertise are abandoned in favor of entirely new skill sets, knowledge areas and ways of working, or one may embrace the serendipity (stimulator) that comes with the new media enviornment and encounter new and unexpected terrain every day. Similarly, the psychological, physical and job-related responses associated with the positive stimuli of inspiration (e.g., Thrash & Elliot, 2003), self-affirmation (e.g., Steele, 1988; Mehdizadeh, 2010; Armitage, 2012), excitement (e.g., Simms, Erbin-Roesemann & Coeling, 1990), richness (e.g., Kallinen, 2004) and serendipity (e.g., McCay-Peet & Toms, 2011) may be beneficial because they may entail increased productivity, enjoyment, organizational commitment and job satisfaction. In line with Nelson and Simmons (2004), psychological outcomes of stimulation or eustress may include hope, meaningfulness and manageability. Of course, the stimulators and responses considered here are only an initial conceptual proposal and are of primarily illustrative purposes. However, in the current contribution, the duality model of stress/stimulation may serve as a frame of reference for further reflections on the stress phenomenon, especially in the context of social media. Thus, when we speak of stress in the context of social media, we should also consider the possibility of stimulation.

4. Research Methodology

In the following, the research methodology underlying this dissertation project will be outlined. For this purpose, this chapter first renders transparent some of the ontological and epistemological foundations of this empirical research endeavor, before delving further into the research methods applied and the sources considered as a basis for data collection. The greek term "methodos" means either the "path towards knowledge" or "reflections on the quest for knowledge-gathering" (Grix, 2004, p. 31). While the first definition might refer to what this dissertation calls *methods* (see section 4.3), the latter is generally termed *methodology* (see chapter 4). Accordingly, methods, as the techniques applied to gather and analyze data (Clough & Nutbrown, 2007) and methodology, as the "science and study of methods and the assumptions about the ways in which knowledge is produced" (Grix, 2004, p. 32) are treated as two distinct terms in this chapter.

Ontological and Epistemological Foundations

This research endeavor looks at the changes brought on by social media to modern workplaces from the perspective of individual communications professionals who work in and live with the emerging social communication paradigm. Since this cumulative dissertation is mainly an empirical work, there are several assumptions that should be revealed and discussed beforehand. In line with the empirical research paradigm, all statements made by this dissertation are grounded in one way or another in observation or experience (e.g. Wienold, 2000). While reality according to our ontological understanding does exist independently from the researcher, this dissertation follows the belief that it is virtually impossible to directly observe the objective reality and that we therefore have to rely on the perceptions of individuals to corroborate or reject our implicit or explicit theoretical assumptions about reality (Krauss, 2005; Lincoln & Guba 2000). Accordingly, the only thing we "know" about reality, and in the case of this dissertation, about the impact of social media on individual professionals will be deduced from empirical data gathered from the individuals themselves (Kromrey, 2002). According to Guba and Lincoln's (1994, p. 108) categorization of various research paradigms, the

ontological, epistemological and methodological foundations of this dissertation can be summarized as follows (Table 4):

	Core Questions of Research Paradigm	***Present Research Paradigm***
Ontology	What is the form and nature of reality and, therefore, what is there that can be known about it?	*There is an objective reality which is separate from the person who observes it.*
Epistemology	What is the nature of the relationship between the knower or would-be knower and what can be known?	*We can make theoretical assumptions about reality and causalities between dependent and independent variables and corroborate or reject them through empirical research.*
Methodology	How can the inquirer go about finding out whatever he or she believes can be known?	*We can collect empirical data through quantitative or qualitative research methods.*

Table 4: Categorization of Research Design (Based on: Guba & Lincoln, 1994)

Empirical Foundations

Consistent with the ontological and epistemological research perspective taken on by this dissertation, the empirical approach of this dissertation is a quantitative one. More to the point, in order to find out how social media change modern workplaces and in particular how individuals working in the new communication paradigm are affected by these changes, this dissertation relies on empirical data collected through an online survey among European communication practitioners. The survey data was processed and analyzed with the help of various multi-variate methods. In the following, the empirical foundations of this dissertation will be mapped out in greater detail. To this end, first, the case is made for an online survey among European communication practitioners. Second, the survey instrument is presented, with a particular emphasis on the scale development process. Third, the overall sample is described and possible bias in the response patterns discussed. Finally, an overview of the applied methods for data analysis and their respective quality criteria are given.

Survey Research as a Means to describe, explain and explore

Survey research as a particular type of empirical social research seeks to discover either the distribution of certain traits among a particular sample (description), compare several variables in order to confirm explanatory assumptions (explanation) and/or to explore a phenomenon or a causal relationship (exploration) (Babbie, 1990). Similarly, Fink (2003) defines survey research as a "system for

collecting information from or about people to describe, compare, or explain their knowledge, attitudes, and behavior" (p. 1). Surveys are usually conducted with the aim of drawing inferences from the causal structures unveiled in the sample population to the overall population.

The online survey has advanced to become one of the most prominent forms of survey research and has gained tremendous attention especially in communication research (Wright, 2005; Evans & Mathur, 2005). Online surveys have the advantage that they are able to grant access to populations that would be too difficult, expensive or time-consuming to reach with traditional and offline survey means (Wright, 2005). In the present case, the online design of the survey made it possible to contact over 17.000 communications professionals in 30 different European countries – a sample size and diversity that would not have been possible without electronic means of questionnaire distribution, collection and analysis. Furthermore, additional data such as the time participants spent on each section of the questionnaire or the order in which questions have been answered could be collected through the online research tool (Evans & Mathur, 2005). Also, online surveys – as opposed to personal interviews, have the advantage of a high intersubjectivity as anyone testing the same assumption with the same instrument and parameters would gain the same results (Reinboth, 2007; Babbie, 1990). Lastly, the data gathered in a survey can be applied to a variety of different explanatory models, and even if theoretical assumptions change over time, it is still possible to re-test the new assumption with the same data set (Babbie, 1990). This makes it possible not just to gain instant descriptive and explanatory insight into the sample population, but also to explore new structures and assumptions within the data set. In the case of this dissertation, three out of four research papers relied on assumptions made before the design of the survey (see 5.1, 5.2 and 5.3), while one paper is the result of an exploratory assumption made at a later stage on the basis of the survey data (see 5.4).

Yet, despite the advantages that are linked to online survey research, there are also a series of caveats that have to be kept in mind. For example, Internet surveys make it easy for participants to manufacture fictional social realities without anyone knowing the difference (Markham, 1998). One might argue that this may be a risk inherent even in personal interviews, yet the anonymity of the Internet might indeed

present a temptation for some subjects to make inaccurate statements. Here, the great number of responses required in order for an online survey to be representative may account for this bias. Also, and this is a problem particularly linked to online surveys, not all participants are expected to be equally computer-literate or Internet-savvy and thus, there might be a non-response bias to consider. In the case of communication professionals, this response bias cannot be precluded, yet, the assumed exceptionally high adoption of the Internet in communication workplaces across Europe (Zerfass et al., 2011), may render the bias less pronounced. Lastly, online surveys often suffer from a low response rate (Evans & Mathur, 2005). In the present case, the survey yielded an overall response rate of 15 percent which is considered well above average for a sample of this size (Nulty, 2008; Babbie, 1990).

4.1. Designing the Survey Instrument

In order to provide an empirical basis to answer the research questions presented in chapter 1.3, an online survey among European communication practitioners was conducted (for sample characteristics and distribution see Table 9). In the following, an overview of design, structure and scales used in the final data analysis is provided. Here, item batteries and singular items which had to be rejected in the pre-test phase, as well as items that were in the survey but were not used in any contribution of this dissertation, are left out. The questionnaire consists of nominal (e.g. male or female), ordinal (e.g. rating statements on a five-point Likert Scale) as well as numerical (e.g. age in number of years) questions. All in all, the survey collects data on 33 constructs which are roughly divided into the four thematic areas *demography*, *usage*, *adoption* as well as *technostress* with *social media skills*, *social media enjoyment*, *job satisfaction* and *relevance perceptions* being additional independent constructs.

4.1.1. Demography Scales

In order to gain an accurate understanding of which professionals use social media in which ways, demographic variables are an important descriptive starting point. A large part of extant research in computer mediated communications and

technology adoption relies on demographic assumptions to explain differences in attitudes, perceptions or behavior. For example, Venkatesh et al. (2003) propose gender, age and work experience as moderators for various relationships in their UTAUT model (see 2.2.2.3). Similarly, Tarafdar et al. (2011) as well as Ragu-Nathan et al. (2008) consider the demographic variables gender, age, experience as well as education as predictors of individual stress perceptions. Curtis et al. (2010) have conducted an analysis based on UTAUT, with a special focus on non-profit organizations and yielded results slightly differing from the original UTAUT model. Thus, the type of the employer-organization might be another relevant factor when looking at new technologies in work environments. Furthermore, Brown, Chervany and Reinicke (2007) found that management support and adoption can be a stimulator of overall technology adoption, which raises the general question, how important organizational position might be when it comes to dealing with changes and particularly technology-related changes in the workplace. Based on these considerations, the variables age, gender, education, position, type of employer organization and work experience were chosen for the demographic section of the survey.

4.1.2. Usage Scales

Usage was one of the key themes of this survey as all of the four papers of this cumulative dissertation rely directly (Paper I, II and III) or indirectly (Paper IV) on the assumption that the various applications of social media are actually being employed in different ways by the practitioners of the sample population. But despite its unquestionable significance in computer-mediated communication research, the usage construct as part of a larger model is often somewhat neglected in scale development as many studies rely on usage intention as a proxy for final usage behavior (Venkatesh et al., 2003). Venkatesh and Bala (2008) for example, base their estimation of actual usage on the single question: “On average, how much time do you spend on the system each day?” (p. 314). A more detailed account of usage is provided by authors specifically targeting usage of one or more social media applications, such as for example microblogs (twitter) (Hargittai & Litt, 2011; Sweetser & Kelleher, 2011; Naaman, Boase & Lai, 2010) or social networking sites (facebook) (Mandal & McQueen, 2012; Brandtzaeg & Heim,

2011; Ellison, Steinfield & Lambe, 2007). Here, not only are the use or non-use considered as usage variables, but also the frequency of use, intensity of use, the purpose of use, the access mode (mobile or non-mobile) and the general usage experience and history.

In the literature, there is no consensus yet on the question of which applications should be taken into account when mapping out someone's social media usage – and which should be left out. Curtis et al. (2010) for example consider e-mail, instant messaging or text messaging to be social media applications which is contradictory to the social media definition taken on in this dissertation. The social media applications that were taken into account in the present survey are social networking sites (e.g., facebook), microblogs (e.g., twitter), blogs, content networks (e.g., youtube), RSS, podcasting, location-based services (e.g., foursquare), review sites (e.g., yelp, tripadvisor) and social bookmarking (e.g., digg) (e.g., Zerfass et al., 2011; Kaplan & Haenlein, 2009, Hargittai, 2009).

In order to gain an in depth understanding of the social media usage in European communication workplaces and in line with the above observations in the literature, the questionnaire section on usage accounts for the number of applications used, the kind of applications used, the intensity of usage, the usage experience, the purpose of usage in terms of organizational functions and specific tasks as well as the access mode of usage (mobile or non-mobile).

4.1.3. Adoption Scales

Extant research on technology adoption provides several strong and extensively tested models, each with their own set of constructs (see 2.2). The two most cited models are TAM (Davis, 1989) with its extensions TAM2 (Venkatesh & Davis, 2000) and TAM3 (Venkatesh & Bala, 2008) as well as UTAUT (Venkatesh et al., 2003). For the present survey, constructs and items of both models were combined. The resulting set of constructs included performance expectancy, effort expectancy, social influence, facilitating conditions, self-efficacy, attitudes and intention. In order for the adoption items to better fit the context of social media, they were slightly adapted. Mostly, the term "the system" was replaced by "social media". Furthermore, the construct performance expectancy which originates in UTAUT (Venkatesh et al., 2003) was merged with the constructs job relevance, output

quality and perceived usefulness from TAM3 (Venkatesh & Bala, 2008). After the pretest, the wording of two performance expectancy items had to be adapted so that they would reflect the practitioners' notion of productivity more adequately (see Table 5). In the pretest, some practitioners stated that through social media they might indeed be able to do a better job, even if they did not necessarily "produce" more output.

Original Construct	Original Item	Modified Item
Perceived Usefulness (PU2) Venkatesh and Bala, 2008	Using the system in my job increases my productivity.	*I know better what is being said about my organization when I am up to date on social media.*
Perceived Usefulness (PU3) Venkatesh and Bala, 2008	Using the system enhances my effectiveness in my job.	*Social media help me to connect better to my audiences.*

Table 5: Item Modification for Performance Expectancy

4.1.4. Technostress Scales

The scales for measuring individuals' perception of technology-related workplace stressors are based on Tu et al. (2005) as well as Tarafdar et al. (2007), who proposed a scale for measuring technostress. For the purpose of the present survey, the constructs techno-overload, techno-invasion, techno-uncertainty, techno-insecurity and techno-complexity were slightly adapted to fit the context of social media in communication profession. First, the prefix techno- was abandoned on a construct level. Second, the item wording "new technologies" was replaced by "social media". Third, five items from the original scale had to be dropped because either their factor loadings or extraction values were below the defined threshold or because there were cross-loadings with other factors. The scale remained robust, not least as each construct still rested on at least three items.

4.1.5. Other Explanatory Constructs

This dissertation seeks to go beyond description and confirmation towards explaining and exploring the impact of social media on individual professionals. Hence a series of independent constructs that act as a source-pool for multi-variate analysis were introduced. These are the constructs social media skill, job satisfaction, enjoyment, relevance perception and estimation of future relevance.

The basic social media skills were based on Leung's (2009) scale of information literacy. Here, skills associated with "publishing-literacy" and "tool-literacy" were combined and the respective items were adapted to fit the context of social media (see Table 6).

Original Construct	Original Item	Modified Item
Publishing Literacy Leung, 2009	Create contents in blogs, for YouTube, and personal webpages for different audiences.	*I am able to publish content in Social Media.*
Tool Literacy Leung, 2009	Edit and format a document according to a set of editorial specifications	*I am able to create multimedia content (e.g. video, audio, textual or a combination).*
Social-Structural Literacy Leung, 2009	Understand the socio-political issues surrounding how information is socially produced.	*I find it easy to engage in conversations with Social Media audiences*

Table 6: Item Modification for Social Media Skill

Enjoyment of working with social media was measured on a three item scale based on positive attitude (Venkatesh & Bala, 2008) while general job satisfaction was captured through a scale based on Spector (1985) as well as Agho, Price and Mueller (1992). The relevance perception of social media was derived from the TAM3 construct job relevance (Venkatesh & Bala, 2008) while estimation of future relevance of social media was a combination of intention (Venkatesh et al., 2003; Davis, 1989) as well as an inversion of the insecurity items proposed by Tarafdar et al. (2007) (see Table 7).

Original Construct	Original Item	Modified Item
Insecurity Tarafdar et al., 2007	I have to constantly update my skills to avoid being replaced.	*It is important to update my Social Media skills to stay competitive.*
Insecurity Tarafdar et al., 2007	I am threatened by coworkers with newer technology skills	*I will become more attractive in the job market if I am engaging actively in Social Media.*

Table 7: Item Modification for Estimation of Future Relevance of Social Media

4.1.6. Relevant Constructs per Paper

The four constituent papers of this cumulative dissertation each serve to shed light on a separate aspect of the changes brought by social media to knowledge

professionals. The survey instrument was designed with the intention to collect relevant empirical data which could be used to answer the respective research questions. The following table (1) provides an overview of the survey instrument and (2) renders transparent, which constructs have been used in which paper (see Table 8).

		Paper I See 5.1	Paper II See 5.2	Paper III See 5.3	Paper IV See 5.4
Demography	Age				
	Gender				
	Education				
	Position				
	Employer				
	Work Experience				
Usage	Extent of Usage				
	Number of Instruments used				
	Usage Experience				
	Purpose of Usage (Tasks)				
	Purpose of Usage (Functions)				
	Access				
Adoption	Performance Expectancy				
	Effort Expectancy				
	Social Influence				
	Facilitating Conditions				
	Attitudes				
	Anxiety				
	Self-Efficacy				
	Intention				
Technostress	Overload				
	Invasion				
	Uncertainty				
	Insecurity				
	Complexity				
Social Media Skill	Skills				
Job Satisfaction	Job Satisfaction				
Enjoyment	Enjoyment				
Relevance Perception	Relevance Perception				
	Estimation of Future Relevance				

Table 8: Overview of Survey Instrument

4.2. Sample Overview and Response Patterns

The survey instrument presented in the previous section was operationalized with the help of the online survey tool "Unipark". The link to the survey was sent out on October 13, 2010 via email through the European Association of Communication Directors (EACD) who generously agreed to support this research endeavor by granting access to their extensive and international email database. All in all, 17.000 practitioners were contacted in 30 European countries. On October 25, 2010 a reminder email was sent. The EACD database is considered an optimal sample frame (cf. Wright, 2005) for this dissertation as it is highly representative of the target population (see 1.2.2). The survey yielded an overall response rate of 15.17 percent which is considered high for an online survey with a sample size of these proportions (Nulty, 2008; Witmer, Colman & Katzman, 1999). Among the participants who opened the link, 79.87 percent took part in the survey and 42.96 percent completed the questionnaire. Thus, with 1108 participants almost half of the overall sample answered all questions. The average time practitioners spent answering the survey was 14 minutes and 31 seconds and they mainly accessed the survey between 9.00 and 10.00 o'clock in the morning and then again between 12.00 and 1.00 o'clock in the afternoon. The highest dropout-rate (532 participants) was recorded right in the introductory section of the survey where goal and purpose of the study were explained. After that, drop-out rates decreased significantly: The further along participants were in the questionnaire, the less likely was it that they decided to quit. Yet, a slight spike in drop-out rates was recorded on screen 8 in the adoption section of the questionnaire. On this screen, more items (13) were displayed than on the previous screens and it is likely that this slight "question-overload" was responsible for putting several practitioners off. Generally, the number of missing values per question increases with each section of the questionnaire. An exception is the demography section which yielded very low rates of missing values despite being located at the very end of the survey. This can be explained by the low cognitive effort required in this section.

Taking a closer look at the individuals who partook in the survey (see Table 9) reveals a slight gender bias as there were more women participating in the survey than men. This is in line with the overall assumed gender distribution in the communication profession (Zerfass et al., 2011). Furthermore, the communication

profession seems to be rather young as most participants are younger than 40 years old with only six percent being older than 55 years of age. Curtis et al. (2010) reported a similar age pattern for the communication profession with an average age of 39.75 years. Roughly 80 percent of participants hold either a Master's degree or a Bachelor's degree while only very few participants reported to have either completed a phd or to hold no academic degree at all. Most participants hold higher ranking management positions with chief communication officers or senior team members being the most popular positions.

All in all, the sample can be considered representative for several reasons. First, the demographic sample description is very much in line with other research done on comparable populations (e.g. Zerfass et al., 2011; Curtis et al., 2010). Second, the characteristics of a randomly extracted sub-sample of 500 participants (see 5.3.3.1) were very similar to the original sample, which accounts at least partially for a bias in the overall sample. Third, according to a subjective assessment of the non-respondents (Armstrong & Overton, 1977), there are assumed to be no systematic differences between respondents and non-respondents with respect to any characteristics that are deemed relevant for the purpose of the present survey. For example, communicators are assumed to have a relatively high interest in communication and new media subjects which to a certain extent precludes an interest-bias. Also, practitioners working in communication generally bring relatively high technology skills (Eyrich et al., 2008), which renders it unlikely that some respondents did not reply due to an insecurity or inability to access to the survey.

Variable	Values	N	Percent	Missing
Gender	Female	733	55.9	113
	Male	603	44.1	
Age	under 30	165	12.4	120
	30–35	291	21.9	
	36–40	274	20.6	
	41–45	233	17.5	
	46–50	177	13.3	
	51–55	103	7.8	
	56–60	59	4.4	
	over 60	27	2.0	
Highest Academic Degree	Doctorate	83	5.7	108
	Master's	756	52.1	
	Bachelor's	405	28.0	
	No post-secondary academic degree	97	6.7	
	Other	108	7.4	
Position	Chief Communication Officer	483	36.7	82
	Head of Subunit	364	27.7	
	Senior Team Member	376	28.6	
	Junior Team Member	61	4.6	
	Other	31	2.4	
Type of Organization	Publicly traded company	288	26.0	78
	Privately held company	362	32.7	
	Government or Political Organization	213	19.2	
	Nonprofit Organization	245	22.1	
	Independent Communication Agency	462	41.7	

Table 9: Overview of Demographic Sample Characteristics

4.3. Paper Methods and Submission History

The change brought to communication professionals with the advent of the social media phenomenon is captured in this dissertation through four separate research contributions, each with their own research design and questions. In the following, the methodological approach of each paper is briefly summarized. Furthermore, a brief submission history is given for each contribution (see Table 10).

The first paper (see 5.1) seeks to provide an in-depth understanding of the current social media usage in the communication profession. This introductory contribution not only looks at which platforms are used in which ways, but also, whether there are systematic differences of social media usage among practitioners within the sample population. The differences among various groups of practitioners are explored with the help of a *hierarchical cluster analysis* which reveals a typology of professional social media usage. The cluster analysis is performed on the basis of 1.579 participants who completely filled out the usage section of the questionnaire. Different versions of this paper were presented and discussed at the conference of the European Public Relations and Research Association (EUPRERA) in September 2012, where it was honored with a best paper award, as well as at the Hawaii International Conference of System Sciences (HICSS) in January 2013. The current version was submitted to the International Journal of Social and Organizational Dynamics in Information Technology (IJSODT) in October 2012, where it is currently under review in the second round.

The second paper (see 5.2) looks at factors determining the adoption of social media in communication workplaces. This second contribution relies on hypothesis testing as a means to confirm or dismiss casual relationships among constructs derived and adapted from technology adoption research. The relationships are proposed and tested through structural equation modeling. More to the point, a combination of exploratory factor analysis, principal component analysis, Varimax rotation as well as model testing with Mplus is performed on a sample of 1.162 participants who completed the adoption section of the survey. Over the course of two years, this paper has been substantially revised and shortened. The original contribution employed structural equation modeling only as a first step and latent class analysis as a second step to distinguish between factors that were more or less influenced by technostress. However, feedback obtained during the Academy of

Management Conference (AOM) in August 2011 as well as advice received during a doctoral consortium at Temple University in Philadelphia in February 2012 lead to the realization that the original design was too broad and "overloaded" which lead to confusion among the audience and rendered a focused discussion extremely difficult. As a result, the methodological approach was straightened out and the primary research focus set solely on adoption and its determinants (Paper II, see 5.2.). The aspect of technostress was approached separately in the subsequent contributions of this dissertation (see e.g. 5.4). The second paper is in review at New Technology, Work and Employment since November 2012.

The third paper (see 5.3) proposes a scale for measuring stressors that have to be taken into account when striving for a comprehensive literacy notion in the social media age. Thus, it offers a new perspective on literacy, one that includes coping with several technology-related stressors in a sustainable manner as a crucial ability in social media workplaces. The scale development was conducted on the basis of a random subset of 500 participants. All in all, 234 of the selected questionnaires were complete with respect to the relevant items of this contribution. This sample split for scale development purposes is customary (Worthington & Whittaker, 2006) especially so if the overall sample is being used in subsequent research. This contribution was presented in its earliest and still conceptual form at the conference of the International Communication Association (ICA) in May 2010. Feedback from the conference was then incorporated into an empirical validation of the conceptual paper which was presented at the European Academy of Management (EURAM) in June 2012. The final version of this third contribution was published August 2012 in Information, Communication & Society (Bucher et al., 2012).

The last paper (see 5.4) of this dissertation scrutinizes the consequences of technology-related stressors in the workplace by looking at the relationship between stressors on the one hand and enjoyment and job satisfaction on the other hand. This is achieved with a two-step methodology. First, a structural equation model is proposed and tested. Second, on the basis of a cluster analysis, a multiple group analysis is performed, comparing the model characteristics for stressed and less stressed participants. This last contribution relies on data form 1.015 questionnaires which were complete with regard to all relevant constructs in the model. The overall setup of this paper profited tremendously from feedback obtained on the second

paper of this dissertation (see 5.2). Instead of working with an "overloaded" research model, we reduced the model to four key relationships and particularly focused on the consequence of social media related stressors on enjoyment. This way, the basic statement of the article is rendered more salient and the discussion more focused and concise – and maybe also more compatible with extant research on the subject. In January 2013, an abbreviated version of this last contribution was submitted to the AOM conference and a full version was handed in to Computers in Human Behavior as well.

Paper	Method	N	Submission History	Submission Title	Status
Paper I (see 5.1.)	Hierarchical Cluster Analysis	N=1579	EUPRERA Conference Sept. 20-22, 2012	#all_are_not_equal - Differences in Social Media Usage among PR Professionals in Europe	Presented
			HICSS Conference Jan 7-10,2013	Beyond Demographics – Diversity in Organizational Social Media Usage	Presented
			IJSODT	Looking past Nativeness – Explaining Diversity in Professional Social Media Usage	In review, 2nd round Oct 16, 2012
Paper II (see 5.2.)	Structural Equation Modeling Latent Class Analysis	N=1162	AOM Conference Aug 12-16, 2011	Social Media Acceptance in the Workplace – A Conceptual Model	Presented
			Doctoral Consortium Temple University Philadelphia Feb 3rd 2012	Social Media Adoption in the Workplace	Presented
	Structural Equation Modeling and Multiple Group Analysis		AOM Doctoral Consortium Aug 3-4, 2012	To engage or not to engage – A mental Perspective on Social Media Acceptance	Presented
	Structural Equation Modeling		New Technology Work and Employment	With a little Help from my Peers – How Organizational Support fuels Social Media Adoption at work	In review Nov 8, 2012
Paper III (see 5.3.)	Conceptual Paper	N=234	ICA 26-30 May, 2011	Literacy in an Age of Social Media - why more is not always better	Presented
	Scale Development through Factor Analysis		EURAM June 6-8, 2012	Coping with the Social Media Deluge	Presented
			Information, Communication & Society	The Stress Potential of Social Media in the Workplace	Published Aug 1st, 2012

Paper	Method	N	Submission History	Submission Title	Status
Paper IV (see 5.4.)	Structural Equation Modeling and Multiple Group Analysis	N=1015	AOM 2013	Reassessing the Notion of Technostress for Social Media	In review
			Computers in Human Behavior	The Stress of Being Social - Reassessing the Notion of Technostress for Social Media	In review Jan 15, 2013

Table 10: Overview of Methods and Submission History

While the primary methods applied in this dissertation are all empirical in nature, a substantial part of each contribution is grounded in extensive literature work as well. The literature review was conducted along the guidelines and steps provided by Randolph (2009) and is generally structured into (1) problem formulation, (2) data collection, (3) data evaluation, (4) analysis and interpretation as well as (5) public presentation. Accordingly, the literature review was not treated as a "necessary chore" (Boote & Beile, 2005, p. 5) but as an integral and mandatory part of each contribution and a basis not only for understanding the structure of the subject (Hart, 1998), but also for connecting the present contribution to the ongoing dialogue in the literature (Creswell, 1994) and finally as a basis for further developing ideas and research questions (Cronin, Ryan & Coughlan, 2008). The methodological issues discussed in this chapter provide a meta-perspective on the overall methodological approach of this dissertation. At the same time, they serve as a basis for each of the four research contributions presented as the results of this dissertation in the subsequent chapter 5.

5. Results

In this chapter, the results of this cumulative dissertation will be presented in the form of four distinct papers. Thereby, each contribution will focus on one intermediate research objective with the goal of informing the overall research objective introduced in section 1.3. The first paper examines how European communication practitioners use social media in their workplaces. Here, a typology of professional social media usage tailored to the reality of the communication profession is proposed (see 5.1). The second contribution sheds light on factors that enhance or inhibit social media adoption in the workplace by suggesting a model of social media adoption (see 5.2). The third paper researches the mental capacities professionals need in order to cope with today's communication environment in a sustainable manner and makes the case for mental social media literacy (see 5.3). Finally, the fourth paper focuses on the consequences of social media-related stress for personal wellbeing and enjoyment with a particular emphasis on nativeness as a moderator between stressors and strain (see 5.4).

5.1. Beyond Demographics – Explaining Diversity in Professional Social Media Usage

By Eliane Bucher

Abstract: Social media are on their way of becoming standard tools in professional PR and communication. But even though communication is one of the pioneering fields in terms of social media acceptance, not all professionals make equal use of facebook, twitter and co., nor do they feel equally at home in the new social communication paradigm. In order to explain this diversity, we propose four clusters of social media users in professional communication. Thereby, we rely on an online survey among 1579 PR practitioners from 30 European countries. The results of our quantitative analysis show, that there are considerable differences among PR professionals in terms of the extent, purpose and virtuosity of their social media usage as well as their attitude towards social media in general. We also show that the diversity in social media usage cannot be explained by age anymore – in the professional field, there are no significant differences in social media usage between those who grew up within the new communication paradigm and those who had a career even before facebook, twitter and co. started reshaping their workplaces. Furthermore, the same holds true for other traditional demographic differentiators such as gen-der, position or salary.

Keywords: *Corporate Communication, Social Media, Media Usage Typology, Cluster Analysis, Nativeness*

5.1.1. Introduction: From Communications to Conversations

As social media are on their way of becoming standard tools in corporate communication (Eyrich et al., 2008; Zerfass et al., 2011; Curtis, et al., 2010; Solis & Breakenridge, 2009; Stelzner, 2009; Wright & Hinson, 2008; Gillin, 2008), they challenge the profession to revisit some of their most basic foundations. Ever since the advent of twitter, facebook, youtube and co., there has come an increased pace and scope to professional communication as firms are suddenly able to engage in

timely and direct end-consumer contact at a relatively lower cost and higher levels of efficiency than more traditional communication tools (Kaplan & Haenlein, 2009). This communication in the social media is not unlike entering an intimate conversation (Kaplan & Haenlein, 2009; Ayyagari, Grover & Purvis, 2011); it is a steady interplay between making one's own contribution and listening and reacting to the other's statements and musings. As social media demand a great deal of engagement and interactivity from their participants, they gradually inspire a paradigm shift in the profession from (top down) communications towards (face-to-face) conversations.

Since the impact of social media on the professional communication is relatively recent, our understanding of how practitioners use the new applications at work and how they perceive any shifts in their working practice is still fairly limited. Therefore, in this paper, we seek to investigate and develop a typology of social media usage in corporate communications. We assume that not all communication professionals are equally able or ready to engage in the new media environment. Therefore, this article is a situational assessment of the individual-level incorporation of social media into tasks and workflows in communication workplaces across Europe. It offers a detailed overview of the extent and purposes (e.g., tasks, functions) to which communicators use social media and the skill levels and general attitudes that communication professionals display toward social media (e.g., relevance assessment and significance attributed to social media in the future).

This contribution enriches the existing literature first by shedding light on new interrelations between social media usage in communications and other variables, such as the extent and purpose of usage, the individuals' usage skills and professionals' general attitudes toward social media. Second, it proposes a social media usage typology tailored to the reality of corporate communication professionals that might be more adequate to predict and understand social media use in communication professions than general social media usage typologies.

5.1.2. Theoretical Grounding: Typologies of Social Media Usage

There have been various approaches to classifying and grouping individuals according to their levels of involvement and engagement in a technological or social

communication environment, both by practitioners and in the academic literature (Holmes, 2011; Brandtzæg, 2010; Heim & Brandtzæg, 2007; Ortega-Egea et al., 2007; Horrigan, 2007). However, none of these have specifically considered the communication profession. Among the most cited practical approaches to the issue is Bernoff and Li's (2008) ladder of social media usage, which comprises six types of social media users: inactives, spectators, joiners, collectors, critics and creators. Douma (2010) proposes three types of social media users by referencing the example of facebook fans: enthusiasts, advocates and influencers. Another division of users into typologies has been proposed by Alfano and Lenzitti (2009), who develop a web search methodology for different user typologies divided into three user groups: basic searcher, deep searcher and wide searcher. Chan (2008) groups users into ten different types of social media personae: status seeker, critic, socialite, em-cee (short for "microphone controller" or "master of ceremony"), lurker, buddy, creator, pundit, rebel, officiator and harmonizer. Contrary to these rather practical approaches, the academic literature also proposes various typologies of Internet users in general (Ortega-Egea et al. 2007) and of users of mobile phones (Horrigan, 2007), social networking sites (Brandtzæg & Heim, 2011), Internet and communications technologies (Heim & Brandtzæg, 2007), social computing (Li, Bernoff, Fiorentino & Glass, 2007), online shopping applications (Barnes, Bauer, Neumann & Huber, 2007), new media (Heim, Brandtzæg, Endestad, Kaare & Torgersen, 2007) and online communities (Jepsen, 2006). Taking the previous typologies into account, Brandtzæg (2010) proposes a unified media-user typology (MUT) comprising the six recurring clusters of nonusers, sporadics, lurkers, entertainment users/socializers, debaters/instrumental users and advanced users. Although there is no social media typology with a special focus on the communication profession to date, there have been various initiatives toward a better understanding of public relations (PR) practitioners and their respective roles (Fieseler, Beurer-Züllig & Meckel, 2009; Dozier, 1984; Moss, Warnaby & Newman, 2000; Dozier & Broom, 1995). In recent years, there has been a growing interest in the European PR field and its adoption of social media (Zerfass et al., 2011). This paper builds closely upon these works on (social) media typologies, on the one hand, and on research initiatives scrutinizing (European) PR practitioners and their use of social media, on the other. While the communication profession can be viewed as a pioneering field in its adoption of social media (Kaplan & Haenlein,

2009, Jue et al., 2010; Grimes & Warschauer, 2007; Schneckenberg, 2009), other knowledge-intensive professions and organizational functions are expected to follow. In this way, the social media usage of communication professionals - as depicted in this contribution - could be consulted as an indicator to predict and understand future social media dissemination and adoption patterns in workplaces.

5.1.3. Methodology: Deriving Usage Typologies

5.1.3.1. Research Setting and Data Collection

Our data were derived from an online survey among the members of the European Association of Communication Directors (EACD). A total of 17.000 PR professionals throughout Europe were invited via email to take part in the survey throughout October and November of 2009. Of the invited communicators, 22 percent worked for specialized PR agencies and 78 percent held communication-specific jobs in various companies. All in all, 1.579 questionnaires were completed and deemed suitable for further analysis. To derive items for cluster building and further analysis, we modified existing scales from the academic literature and from industry-specific publications to suit the study context. To verify the accuracy of the scales, the item pool was subjected to an expert rating by five academic and six managerial communication experts. Interviews with these 11 experts resulted in slight changes in wording; however, none of the items had to be rejected entirely. Before distributing the actual survey, we conducted a pilot test of 32 participants.

5.1.3.2. Measures

The term social media, as operationalized in the survey, spans a group of Internet-based applications that allow the creation and exchange of user-generated content (Kaplan & Haenlein, 2009). To capture the extent of social media usage among professional communicators, the participants were asked to describe their usage of various social media applications on a five-point Likert scale ranging from 1 ("not at all") to 5 (extensively"). Based on (Zerfass et al., 2011; Kaplan & Haenlein, 2009, Hargittai, 2009), the following nine social media applications were taken into account: social networking sites (e.g., facebook), microblogs (e.g., twitter), blogs, content networks (e.g., youtube), RSS, podcasting, location-based services (e.g., foursquare), review sites (e.g., yelp, tripadvisor) and social

bookmarking (e.g., digg). The examples used here are merely of illustrative value, meant to evoque similar associations with respect to a category in the participant pool. Facebook for instance is seen as a typical social networking site, even if it could definitely also fit into the content network category (Jansen, Sobel & Cook, 2011).

The purpose of the usage (its task and function) and mobile access were measured on a nominal scale, according to the options 0 ("not quoted") and 1 ("quoted"). The items discussing communication-specific tasks that were routinely carried out with the help of social media are loosely based on Bernoff and Li's (2011) ladder of participation in social media, while the list of organizational communication functions was derived from van Riel and Fombrun (2007). The measures for social media skill were inspired by Leung (2009) and Shapiro and Hughes (1996), and the relevance perception was derived from Venkatesh and Bala (2007). All items were measured on a scale from 1 ("strongly disagree") to 5 ("strongly agree"). Participants were specifically asked to answer with respect to their individual and professional social media usage.

5.1.3.3. Typology Conceptualization and Data Analysis

Most (media) user typologies are derived from factor analysis (Heim & Brandtzæg, 2007; Johnson & Kulpa, 2007; DeYoung & Sence, 2004), cluster analysis (Ortega-Egea et al., 2007; Horrigan, 2007; Li et al., 2007; Barnes et al., 2007) or a combination of the two (Kau, Tang & Ghose, 2003; Brandtzæg & Heim, 2011). This paper adopts the second approach, applying cluster analysis in a first step to determine what groups can be distinguished and discriminant analysis in a second step to consider the main differences between these groups. Cluster analysis was chosen mainly because it helps identify the key variables that explain the principal dimensionality in the data, rather than abstract factors (Brandtzæg, 2010). While the frequency and variety of use appear to be the most common criteria underlying media typologies (Brandtzæg, 2010), we base the conceptualization of our typology on the variety and extent of use (rated on a five-point Likert scale from "not at all" to "extensively") of nine social media applications. We deem "extent" more suitable to capture individual perceptions of the respective application's significance in the workplace than frequency alone. Underlying this notion is the argument that extent implies an actual cognitive engagement with the application,

while frequency refers only to the number of times an activity is performed, regardless of the degree of engagement required. Therefore, an application may be used often but not necessarily extensively. Figure 16 presents our theoretical conceptualization of a social media user typology based on the extent and number of applications used. Any cluster center is expected to be reflected in a distinct spot in this portfolio.

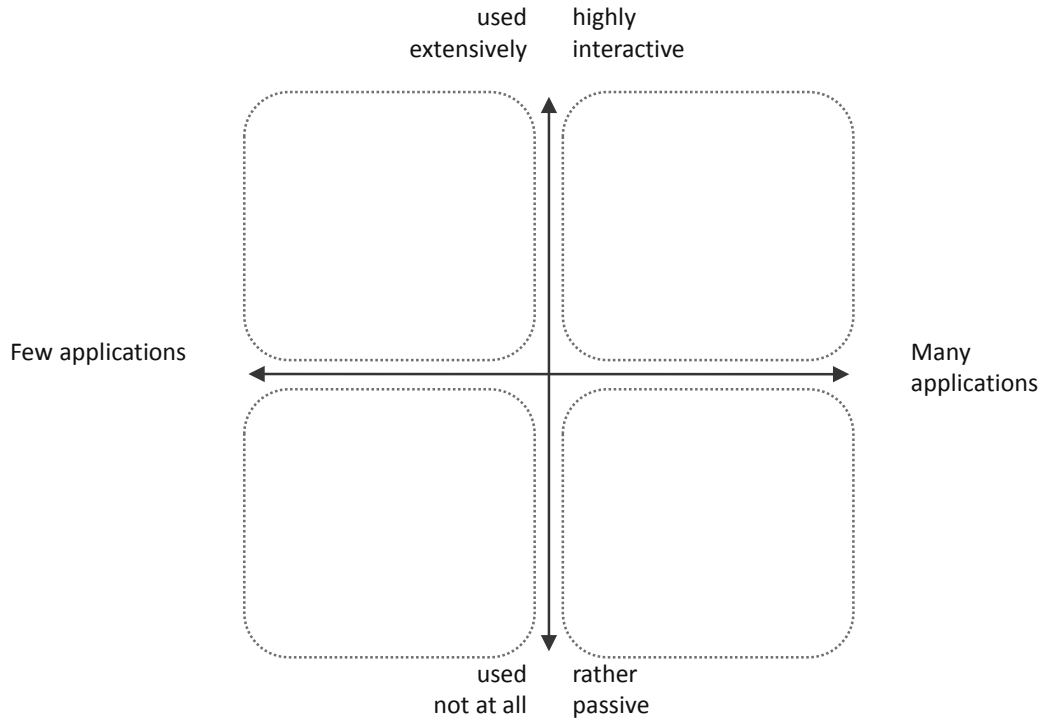

Figure 16: Conceptualization of Social Media User Typology

A hierarchical cluster analysis was employed to identify homogenous clusters. Following Chatfield (2004), Jain and Dubes (1988) and Ward (1963), the clustering technique applied was Ward's method, and the distance measure used was the squared Euclidean distance. Ward's method defines similarity not as a single measure but as the within-group sum of squares across all variables (Balijepally, Mangalaraj & Iyengar, 2011; Chatfield, 2004; Ward, 1963) and is deemed especially fitting when the groups' proportions are relatively similar (Hand & Everitt, 1987). The number of clusters was determined based on the "elbow criterion", relying on the percentage of variance explained as a function of the number of clusters (Thorndike, 1953). While cluster analysis is one of the most common and powerful techniques for pattern recognition in large data sets, it has

been criticized by Balijepally et al. (2011) for "producing clusters even in the absence of any natural structure in the data." We take note of this caveat and follow the author's call for due "care and diligence". Therefore, to confirm our solution, we performed a discriminant analysis on the clusters; the three discriminant functions had sufficient eigenvalues and - as demonstrated by the analysis of residual Wilks' Lambda - all variables remain significant for the separation of the groups. Therefore, the four-cluster solution can be deemed applicable (see Table 11, Table 12 and Table 13).

Classification Results[a]

Ward Method			Predicted Group Membership				
			1	2	3	4	Total
Original	Count	1	392	29	1	0	422
		2	59	383	20	15	477
		3	32	29	208	37	306
		4	1	42	25	306	374
	%	1	92.9	6.9	.2	.0	100.0
		2	12.4	80.3	4.2	3.1	100.0
		3	10.5	9.5	68.0	12.1	100.0
		4	.3	11.2	6.7	81.8	100.0

a. 81.6% of original grouped cases correctly classified.

Table 11: Predicted Group Membership

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	2.406	69.9	69.9	.840
2	.578	16.8	86.7	.605
3	.458	13.3	100.0	.655

Table 12: Discriminant Analysis

Test of Function(s)	Wilks' Lambda	Chi-square	Df	Sig.
1 through 3	.128	3234.807	27	.000
2 through 3	.435	1308.917	16	.000
3	.686	592.123	7	.000

Table 13: Analysis of Wilks' Lamda

As the weighted sums of the discrimination coefficients indicate, social bookmarking, pod-casting and social networking sites achieve the largest discriminant meanings (weighted sums of discrimination coefficients = 1.63, 1.51 and 1.09), while blogs (0.15), RSS feeds (0.28) and location-based services (0.61) are less meaningful for the separation of the clusters. An overview of cluster characteristics is offered in Table 14. In the following sections, the four clusters will be described in detail.

5.1.4. Results: Typologies of Social Media Usage

5.1.4.1. Overall Sample Description

Among the participants who completed the questionnaire, at 53.36 percent, women are slightly overrepresented, which is to be expected because women are slightly overrepresented in communications (Zerfass et al., 2011). The average participant is 39.86 years old (sd=9.07), holds either a Master's degree (55.32%) or a Bachelor's degree (31.22%) and has worked in communications for 11.98 years. The participants work in 30 different countries, with a majority of responses coming from central and western Europe. Most participants hold high-ranking positions equivalent to either a chief communication officer (e.g., head of communications) (32.25%) or the head of a subunit (e.g., head of investor relations) (21.87%). The majority (36.78%) of communicators in this study has up to two years of experience with social media; 22.42 percent have up to four years of experience.

	Cluster 1 Skeptical Traditionalist	Cluster 2 Power Networker	Cluster 3 Community Expert	Cluster 4 Social Media Enthusiast	Overall Sample
	26.73%	30.21%	19.38%	23.69%	100%
	N=422	N=477	N=306	N=374	N=1579
Extent of Usage of Social Media Platforms (average value on a 5-point Likert scale)					
Blog	1.59	2.36	2.43	3.30	2.39
Social Network Sites	1.95	3.73	3.56	4.21	3.33
Microblogging Services	1.28	3.06	2.42	3.84	2.65
Content Networks	1.57	3.12	3.00	3.81	2.85
RSS	1.82	2.36	2.48	3.68	2.55
Social Bookmarking	1.05	1.22	1.67	3.01	1.68
Podcasting	1.27	1.35	1.71	2.93	1.77
Location-Based Services	1.11	1.13	2.47	1.95	1.58
Review Sites	1.09	1.17	2.64	2.08	1.65

	Cluster 1 Skeptical Traditionalist	Cluster 2 Power Networker	Cluster 3 Community Expert	Cluster 4 Social Media Enthusiast	Overall Sample
Demography and Work Experience					
Age (years)	41.46	38.17	40.68	39.71	40.01
Work Experience (years)	12.40	10.25	12.90	12.38	11.98
Gender					
Male	43.75%	48.55%	48.71%	45.39%	46.60%
Female	56.25%	51.45%	51.29%	54.61%	53.40%
Experience with Social Media at Work (when did you begin using Social Media at work?)					
Less than half a year ago	11.26%	6.81%	4.04%	5.15%	6.81%
Up to 1 year ago	24.87%	20.00%	16.50%	18.16%	19.88%
Up to 2 years ago	35.34%	41.28%	36.36%	34.15%	36.78%
Up to 4 years ago	18.59%	18.72%	29.63%	22.76%	22.43%
Purpose of Social Media Usage (Tasks) (in %)					
Listening to and monitoring what is happening in the Social Media sphere.	63.37%	84.08%	82.39%	88.62%	79.61%
Gathering information on clients and competitors.	41.09%	53.93%	64.45%	58.54%	54.50%
Actively maintaining a presence on one or more Social Media platforms.	31.44%	78.34%	63.12%	80.76%	63.42%
Commenting on content in the Social Media sphere.	14.36%	39.07%	39.20%	56.10%	37.18%
Setting new issues on the Social Media agenda.	7.92%	27.18%	25.25%	34.15%	23.62%
Purpose of Social Media Usage (Organizational Functions) (in %)					
Press and Media Relations	47.30%	74.94%	76.06%	86.52%	71.20%
Advertising and Marketing Communications	37.57%	67.18%	71.48%	71.07%	61.82%
Internal Communications	25.68%	33.70%	39.44%	48.03%	36.71%
Communication of Corporate Social Responsibility	14.59%	35.92%	36.27%	49.72%	34.13%
Political Communications	7.30%	15.74%	17.96%	23.88%	16.22%
Investor Relations	4.32%	8.20%	8.45%	16.01%	9.25%
Social Media Usage Skill (average value on a 5-point Likert scale)					
I am able to publish content in Social Media.	3.34	4.32	4.19	4.54	4.10
I am able to create multimedia content (video or podcast).	2.45	3.23	3.21	3.73	3.16
I find it easy to engage in conversations with Social Media audiences.	2.82	3.52	3.62	3.92	3.47
Relevance Perception of Social Media in Communications (average value on a 5-point Likert scale)					
In my job, the use of Social Media applications is relevant.	2.93	3.86	3.73	4.14	3.68
Social Media are important to my various job-related tasks.	2.57	3.56	3.50	3.88	3.40
The benefit of Social Media is apparent to me.	3.18	3.95	3.86	4.12	3.79

Future of Social Media within the Profession (average value on a 5-point Likert scale)

It is important to update my Social Media skills to stay competitive.	3.23	3.82	3.73	3.90	3.69
I will become more attractive in the job market if I am engaging actively in Social Media.	3.17	3.74	3.63	3.84	3.61
My organization is planning on becoming (more) actively involved in Social Media.	3.17	4.02	3.88	4.20	3.83

Mobile Social Media Access (%)

Mobile Access (e.g., iPhone, Blackberry, iPad)	43.00%	50.43%	65.87%	65.93%	55.20%

Table 14: Overview Cluster Descriptions

None of the communicators report having no experience at all with social media. This may either be due to a non-response bias, namely because only social media savvy participants filled out the survey, or – and in the professional communications context and population more likely – a certain level of social media expertise can be considered a given (Zerfass et al., 2011; Eyrich et al., 2008; Curtis et al., 2010). Among the most extensively used applications were social networking sites such as facebook, XING or linkedin (M=3.33, sd=1.35), content networks such as the video-sharing platform youtube (M=2.85, sd=1.31) and microblogging services such as twitter (M=2.65, sd=1.53). The potential of location-based services (M=1.58, sd=1.01), review sites (M=1.65, sd=1.04) and social bookmarking (M= 1.68, sd=1.01) had yet to be explored, as these applications were used the least extensively.

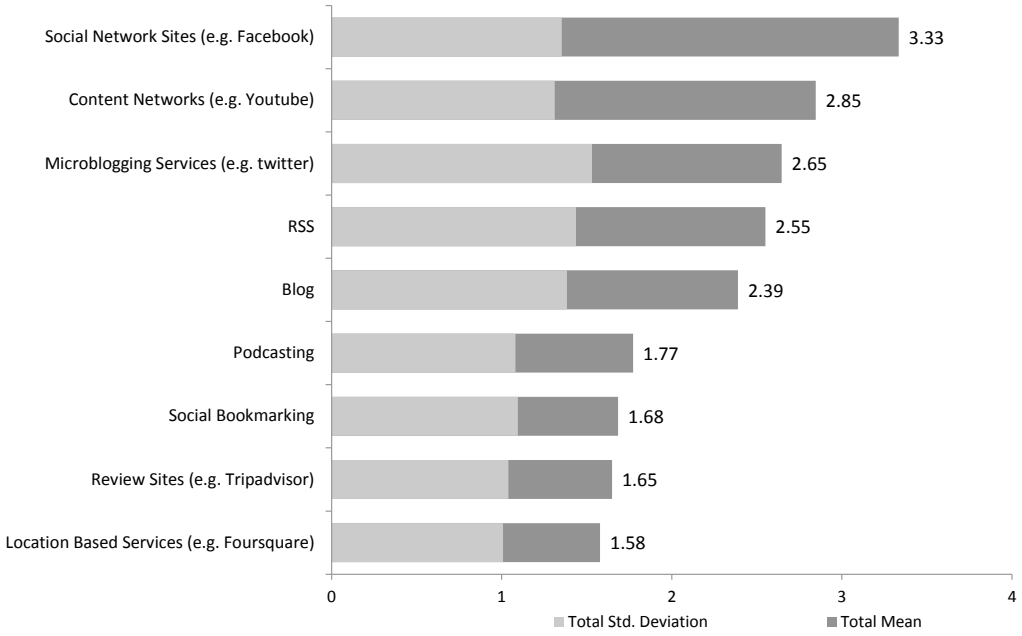

Figure 17: Most frequently used Social Media Applications in overall Sample

5.1.4.2. Cluster Description

Ward's clustering method reveals four social media usage clusters of similar sizes displaying distinct characteristics. Figure 18 provides an overview of all the clusters and their features with respect to the extent of usage and number of applications used. In the following passages, the term "extensive usage" was applied for average means higher than 3.00, as all values above this threshold indicate a regular or high usage. "Moderate use" in turn, refers to average means between 2.00 and 3.00, which points at least towards occasional usage. Mean values lower than 1.5 were considered as virtual non-use.

According to these intervals, Cluster 1 (N=422) uses virtually no application extensively. Cluster 2 (N=477, avg.=2.17, sd=0.90) makes extensive use of three applications and moderate use of two applications. The members of cluster 3 (N=306, avg.=2.49, sd=1.17) use a fairly broad range of social media with 7 applications, although only one application is used extensively. Cluster 4 (N=374, avg.=3.20, sd=1.20) is the most exposed to social media at work: six applications are used extensively, and two applications are used in a moderate frequency.

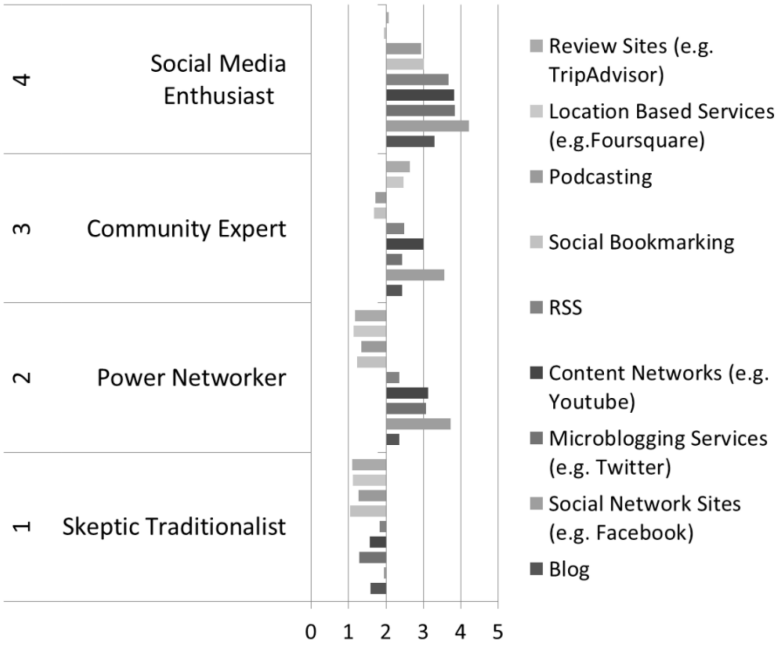

Figure 18: Four-Cluster Solution Overview

In addition, we found significant differences between clusters in terms of the purpose of usage (tasks and functions), usage skill level and the PR professionals' general attitudes toward social media (e.g., the perceived relevance of social media to the profession today and in the future). In the following sections, these variables will be used to describe and compare the four usage clusters. The Kruskal-Wallis test revealed no significant differences between clusters with respect to some demographic variables, such as age, gender, nationality, academic degree, position and salary ($p>0.05$). Thus, nativeness in the form of a generationally explained closeness to social media technologies is not being used as a differentiator between clusters.

5.1.4.3. Skeptical Traditionalists

Cluster 1 (26.73%) has been dubbed the "Skeptical Traditionalists" because it consists of the most passive and skeptical participants in social media. In this cluster, none of the nine social media applications yielded an average mean above 2, indicating a very limited extent of usage (avg.=1.41, sd=0.67). Review sites, location-based services, podcasting, social bookmarking and microblogging exhibit mean values under 1.5, which means that they are virtually unused. Skeptical Traditionalists do not perceive social media as important to their job-related tasks (M=2.57), nor do they attribute particular relevance to these media in their jobs

(M=2.93). If they use social media at all, it is likely to be in press and media relations (see Figure 19) to allow them to listen to their audiences without actively participating in the conversation themselves (see Figure 20).

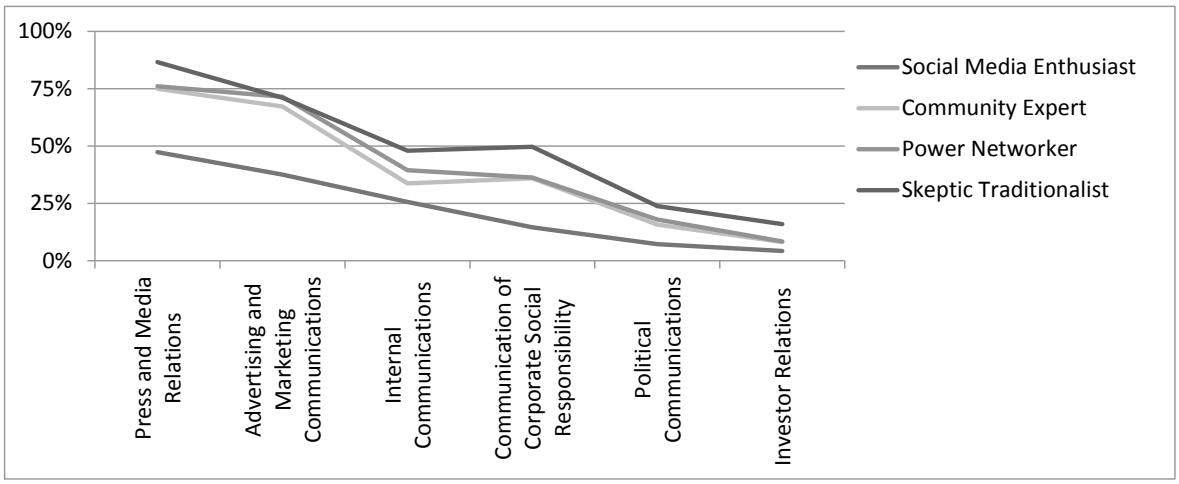

Figure 19: Cluster Performance with respect to Organizational Functions

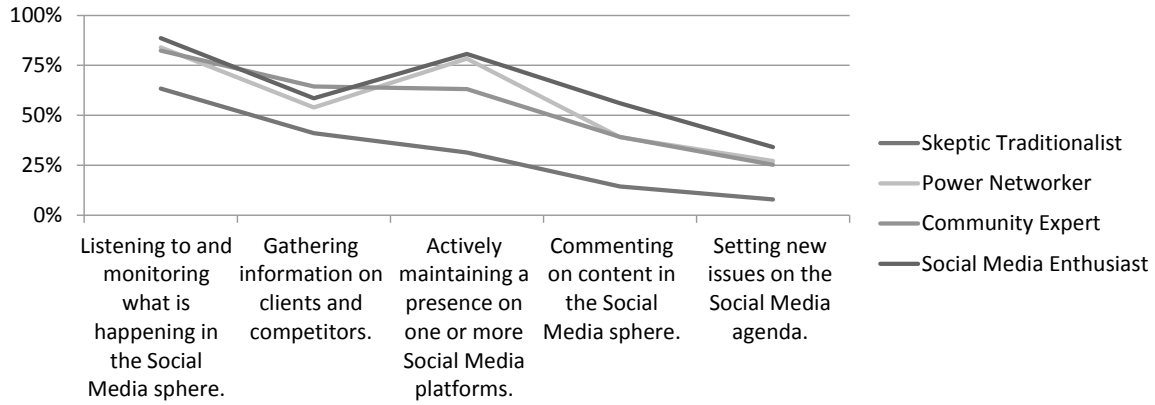

Figure 20: Cluster Performance with respect to Interactivity and Engagement

This cluster is significantly less likely than the others to access social media via mobile devices (43.00%). The cluster's self-reported skill level is considerably lower than those of their peers. While they are quite confident of their ability to publish content in a social media outlet (M=3.34), they are not convinced that they can create multimedia content (M=2.45), and they generally do not find it easy to engage in conversations with social media audiences (M=2.82). Surprisingly, the Skeptical Traditionalists lose their skepticism towards social media when considering the future: they agree that it is important to update one's social media

skills to stay competitive (M=3.23), and they report that their organization is planning to become (more) actively involved in social media (M=3.17).

5.1.4.4. Power Networkers

The participants in the second cluster (30.21%) are referred to as Power Networkers for their propensity to favor services that allow them to expand and manage their network of personal contacts and build active relationships with stakeholders. Compared to their use of other applications, Power Networkers' use of social networking sites is extremely high, with a mean of 3.73. Among the few other applications they use are content networks (M=3.12) and microblogging services (M=3.06). Power Networkers display below-average interest in multimedia or community for-mats; they are not at all interested in review sites (M=1.65), location-based services (M=1.13), podcasting (M=1.35) or social bookmarking (M=1.22). One of the most salient characteristics of this cluster is its members' level of engagement in the conversation on social media. Although they choose only a few instruments, they make virtuosic use of them by actively participating and engaging with audiences. Because they are seemingly not content with merely listening to communities, 78 percent of Power Networkers report that they maintain an active presence in social media. Power Networkers are both very confident in their ability to publish content on social media (M=4.32) and find it easy to engage in conversations with social media audiences (M=3.52). They assign social media a high relevance in their jobs (M=3.86), and they state that their organizations will be even more involved in social media in the future (M=4.02).

5.1.4.5. Community Experts

The third group of participants (26.73%) is a veritable "all-around cluster", as it uses many different applications to moderate degrees. There is however a tendency towards community involvement, which lead to this cluster being dubbed Community Experts. Participants of this cluster are the only ones to actually take advantage of review sites (M=2.64) and location-based services (M=2.47); as such, they are familiar with tracking and understanding community opinions and locales. As Community Experts have an above-average tendency to use social media for advertising and marketing purposes, it can be assume that by using a wide array of applications, they strive towards an understanding of what drives, connects and

defines communities as target groups and stakeholders. This concurs with the observation that compared to the other clusters Community Experts are more likely to use social media to gather relevant information on com-munities and their behavior. With respect to maintaining an active presence or placing topics on the social media agenda themselves, Community Experts are rather hesitant. Participants in this cluster have a high likelihood of working in small and very small firms. Accordingly, 42.9 percent have jobs in firms of fewer than 100 people, and 23.2 percent work for firms with fewer than 20 employees. With 12.90 years, community experts have the most work experience. They also have the most experience working with social media: 36.36 percent began employing social media up to two years ago, and 29.63 percent began up to four years ago. In line with their focus on communities and location-based services, Community Experts have a high tendency (65.87%) to access social media via mobile devices.

5.1.4.6. Social Media Enthusiasts

The final cluster (26.73%) practically mirrors the Skeptical Traditionalists. Therefore, it is termed the Social Media Enthusiasts. Where the Skeptical Traditionalists are hesitant, this cluster is resolute; where the skeptics are somewhat insecure, passive or traditional, Social Media Enthusiasts are confident, active and ready to look out for new ways to carry out or complement traditional organizational functions. Social Media Enthusiasts are engaged in the conversation going on in social media, and they make extensive use of social networking sites, microblogging services, content networks, RSS, blogs and social bookmarking; they also use podcasting and review sites. They are exceptionally confident in their ability to publish content on social media (M=4.54), and they are convinced that it is important to constantly update their social media skills to stay competitive (M=3.90). Social Media Enthusiasts assign social media a very high professional relevance (M=4.14), as they incorporate social media in virtually every organizational function. While 86.52 percent use social media applications and platforms for press and media relations, 71.07 percent use them for advertising and marketing, 48.03% for internal communications and 49.72 percent for corporate social responsibility. Within this very active cluster, social media also find their way into political communications (23.88%) and even into investor relations (16.01%). Overall, Social Media Enthusiasts are the most interactive cluster and are

ready to monitor the social media sphere (88.62%), actively participate in conversations with their audiences (56.10%) and even set new issues on the social media agenda (34.15%).

5.1.5. Discussion and Conclusion

Even though social media usage differs widely among professional communicators, a clear pattern of four usage clusters can be identified. Depending on their cluster affiliation, professionals tend to use not only different social media applications and platforms, but they also use them in different ways and for different purposes. As conceptualized in Figure 16, the typology proposed in this paper can be depicted on a two-dimensional graph with the axes of the extent of usage and the number of social media applications used.

5.1.5.1. Academic Implications

The cluster solution depicts that interactivity might be used as an additional conceptual dimension along with the extent of usage, as the two correlate strongly. Users who make the most extensive use of social media also tend to be the most interactive, contributing own comments and content to conversations taking place in social media, while users who make a more hesitant use of social media are also more reluctant to take an active part in the conversation (Figure 20).

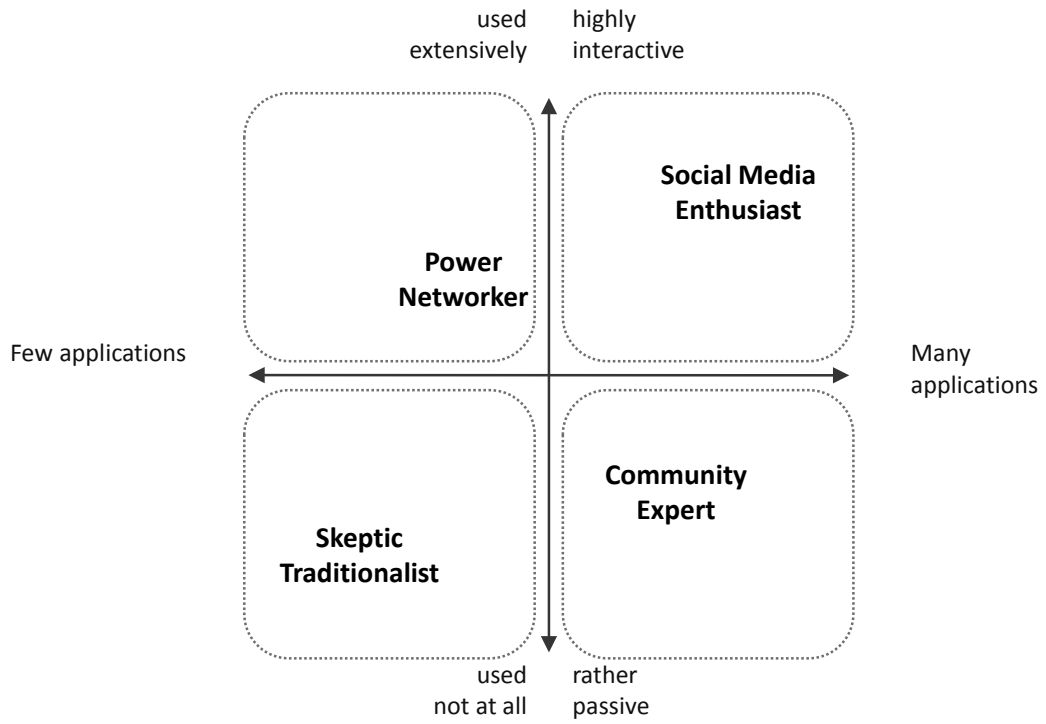

Figure 21: Social Media User Typology among Communications Professionals

Surprisingly, there are no significant differences between the clusters in terms of demographic criteria, such as age, gender or salary. The intuitive notion that younger participants are more at home in social media (e.g. Gasser & Palfrey 2008, 2012; Kaplan & Haenlein, 2009; Chou, Hunt, Beckjord, Moser & Hesse, 2009) and thus use more applications more extensively appears to be outdated in the context of professional communication. This may be due to the dominant role that social media have adopted in communications: it can be assumed that working in communication today inherently includes an awareness of audiences on facebook, twitter and similar platforms, regardless of position, salary, age or gender. In this light, and in the professional context, it may make sense to revisit explanatory frameworks which rely heavily on demography, such as the digital native/digital settler/digital immigrant concept (Gasser & Palfrey, 2008) and at the least reopen a discussion on the generational argumentation on social media usage.

While there is a growing body of research on social media usage from a consumer or customer perspective (Alarcon-Del-Amo, Lorenzo-Romero & Gomez-Borja, 2011; Thelwall, 2009; Brandtzæg & Heim, 2011; Li et al., 2007; Barnes et al., 2007; Heim et al., 2007), the professional side still needs to be explored academically. Is the communication profession capable of catering to the needs and

styles of the different user groups among their stakeholders? According to Brandtzæg's (2010) unified media-user typology (MUT), there are eight types of media users. Our findings are at least partially reflected in this typology, as there are ascending stages of social media use reaching from virtual non-use to extensive usage (Brandtzæg, 2010). More to the point: the MUT cluster "sporadics" finds its counterpart among communicators in the Skeptic Traditionalists; the "socializers" or "debaters" relate best to the Power Networkers and the "instrumental users" to the Community Experts. As for the "advanced users", they would be reflected in the group of Social Media Enthusiasts. There are however also differences in professional and general usage of social media. In the professional clusters the purposeorientation is much more salient than in the MUT (Brandtzæg, 2010) user groups. Therefore, "entertainment users", "lurkers" and "non-users" do not find direct counterparts in the professional realm. Thus we do recommend that future academic endeavors should keep in mind the particular properties of pro-fessional social media usage and account for it in their data collection.

5.1.5.2. Managerial Implications

Our findings might be particularly relevant for HR professionals and senior managers when it comes to project staffing. As each social media usage type comes with specific inclinations and potentials, communication teams could be staffed very close to the actual project needs (Malinowski, Weitzel & Keim, 2008). Hereby, Skeptic Traditionalists might for example offer insight into how to reconcile old and new communications environments as they have a great under-standing for traditional communications on the one hand and the future potential of social media on the other hand. Power Networkers might help with the design of a consistent twitter or facebook presence, while Community Networkers would be especially fitting in a project with a broad set of applications involved. Finally, Social Media Enthusiasts should be staffed on projects that focus on maintaining an active voice and presence in the social media.

With the exception of the social media enthusiasts, communicators across Europe use social media mainly in addition to and not instead of existing tools. In investor relations, political communication and the communications of corporate social responsibility, social media still play a rather marginal role. Only the fourth cluster, the Social Media Enthusiasts, goes beyond listening and monitoring, maintaining an

active presence in the social media. Extrapolating from this fourth cluster and assuming an augmenting significance of social media in the profession (Eyrich et al., 2008; Zerfass et al., 2011; Curtis et al., 2010), communication in the future may, be driven less by special-purpose initiatives such as image campaigns and crisis communication but rather by a permanent presence in and interaction with audiences in the social media.

5.1.5.3. Limitations

There are several limitations that apply to this study. First, modeling reality is always about finding a balance between reducing complexity and sacrificing the explanatory power of the model. The same holds true for typologies: including only a few categories may make a typology easy to understand, but it may also results in a too-superficial picture of existing usage patterns (Nicholas & Rowlands, 2011). Therefore, there may be a need to provide further empirical validation to identify whether the present four cluster typology of social media usage in communications accurately models reality (Verma & Young, 2000). Second, so far, the four clusters have only been validated in the context of social media usage in European communications workplaces. Thus, the results cannot be generalized to non-European countries. It would be interesting to test the four-cluster solution with data from other cultural and economic environments, too. Third, the findings apply solely to the communication profession; other knowledge intensive professions should also be considered, in order to test for a further generalizability of the typology. In this sense, it may be particularly interesting to see the influence of nativeness and other demographic variables on social media usage in fields where social media does not yet play such a dominant role. Fourth, communication with audiences on facebook, twitter and the like is of a much more personal, intimate and immediate nature than the communication via traditional means. This may take an emotional toll on individuals, causing feelings of stress or overload. These emotional consequences of social media use at work might be a worthwhile avenue of further research.

5.1.5.4. Conclusion

The research objective of this study was to gain a greater understanding of the present social media usage in communications professions. For this purpose, we

developed a typology of social media usage based on the variety of applications used on the one hand and the extent of usage on the other hand. The results show that there are four types of social media usage in communication workplaces. Also, they reveal an independence of social media usage from demographic variables, such as age, gender or salary. In summary, our findings could encourage organizations to reassess and reallocate their personal resources to where they are most needed and effective – which is especially important in situations of team and project staffing. Not least, our results contribute to PR research and education by enabling a better understanding of how transformations initiated by social media change the communication profession and the requirements of success for professionals in the field.

5.2. With a little Help from my Peers – How Organizational Support fuels Social Media Adoption at work

By Eliane Bucher, Christian Fieseler & Anne Suphan

Abstract: While social media are reshaping society, culture and the economy alike, the readiness to engage in new media and technologies has become an important success factor for organizations. This article offers insight into the factors that may drive social media adoption in work settings. Based on a survey among 1.162 marketing and communication managers, we develop and test an integrated model of the determinants of individual level social media adoption and use. Our results put a strong emphasis on the role of organizational conditions facilitating social media usage, while at the same time stressing the importance of social influence on social media usage in the workplace.

Keywords: *Social Media, Technology Adoption, UTAUT, Survey Research, Quantitative Methods*

5.2.1. Introduction: How Social Media Change the Workplace

In a matter of few years, social media have gained considerable ground in organizations, especially when it comes to professional marketing and communications (Zerfass et al., 2011; Solis & Breakenridge, 2009). As interactive applications such as facebook, twitter and co. abandon their somewhat playful and experimental status within organizations and become more standard instruments instead (Solis & Breakenridge, 2009; Stelzner, 2009; Wright & Hinson, 2008; Gillin, 2008), they not only support, but may even replace traditional ways of doing business (Wright & Hinson, 2008). Social media are more than new channels to spread traditional communication artifacts (Eyrich et al., 2008). Instead, they entail an entirely new communication paradigm: social media span a number of Internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of user-generated content (Kaplan & Haenlein, 2009). Thus, for organizations, facebook, youtube, twitter and the like are not so much about a top down monologue but rather a conversation on eye-to-eye level, where listening to the audience has become equally important as

contributing own content (Nicholas & Rowlands, 2011; Distaso et al., 2011; Lariscy et al., 2009; O'Reilly, 2005). In interaction with auciences of both public and private enterprises, the readiness to embrace this new paradigm and to engage in a dialogue with customers and other stakeholders is becoming a major success factor (Ayyagari, Grover & Purvis, 2011; Wu, 2011; Curtis et al., 2010; Kaplan & Haenlein, 2009; Jue et al., 2010; Grimes & Warschauer, 2007; Schneckenberg, 2009).

Despite the undisputed potential and growing importance of social media in the field, not all organizations harness the full potential of the new instruments (Alikilic & Atabek, 2012). When it comes to marketing and communication, for instance, where the weight of this new cooperation paradigm is arguably the most understood inside organizations, according to Zerfass et al. (2011), the present involvement and skill of communicators regarding the new applications are still lagging behind. Following these insights, we posit that in the near future, the ability and willingness to adopt social media will be a key success factor for organizations. One may expect that an early and thorough social media adoption gives organizations a head start that could be critical for success in the future. Therefore, in this paper we look at which determinants drive social media adoption in workplaces in general, and in marketing and communication workplaces, which often have a pioneering role in employing social media inside organisations, in particular.

The present paper is structured as follows. First, a brief literature review will be provided, shedding light on the most relevant constructs and generations of technology adoption research. Second, drawing from communication research, as well as technology adoption theory, we propose and empirically test a model of social media adoption. The third and last part summarizes and discusses the findings of the literature review and offers a synthesis to the empirical survey. Additionally, an outlook on potential avenues of future research is provided.

5.2.2. Conceptual Model and Hypothesis

5.2.2.1. Theoretical Background: Modeling Technology Adoption

New technologies and applications are becoming increasingly complex and central to organizational operations and managerial decision making (Wu, 2011;

Venkatesh & Bala, 2008). However, high investments into new technology often lead to lower, rather than higher, performance (Karr-Wisniewski & Lu, 2010). There are numerous examples of technology implementation failures in organizations that – counterintuitively at first glance – led to financial losses (Venkatesh & Bala, 2008). In this context, Brynjolfsson and Yang (1996) coined the term 'productivity paradox'. To resolve this 'paradox' and adequately predict the adoption of new technologies, several theories and theoretical models have been consulted. Among the main theories used to understand and predict technology adoption were the Theory of Reasoned Action (TRA) (Fishbein & Ajzen 1975), the Theory of Planned Behavior (TPB) (Ajzen, 1991; Taylor & Todd, 1995), the Technology Acceptance Model (TAM) (Davis, 1989), the Motivational Model (MM) (Davis et al., 1992), the Model of PC Utilization (Thompson et al., 1991), the Innovation Diffusion Theory (IDT) (Moore & Benbasat, 1991) and the Social Cognitive Theory (SCT) (Compeau & Higgins, 1995).

In an effort to disentangle the adoption debate, Venkatesh et al. (2003) proposed their Unified Theory of Acceptance and Use of Technology (UTAUT), drawing from the previously mentioned eight models. UTAUT attributes the intention to use a new technology a great significance in predicting actual usage. According to Venkatesh et al. (2003), intention along with facilitating conditions are direct determinants of usage, while there are three direct determinants of intention (performance expectancy, effort expectancy and social influence).

Whereas previous models such as the TAM managed to explain up to 53 percent of the variance in behavior (Venkatesh & Bala, 2008; Wang et al., 2003), UTAUT reached explanatory values up to 70 percent (Venkatesh et al., 2003; Curtis et al., 2010). But despite its high explanatory power and even though it is one of the most widely cited approaches in information systems research, UTAUT is not necessarily the most widely used model to predict adoption behavior. As Dwivedi et al. (2011) posit, although a large number of studies have cited Venkatesh et al.'s 2003 article proposing the UTAUT, only few (43 out of 450) actually utilized the theory or its constructs in their empirical research for examining information systems and IT-related issues. Instead, many studies made partial use of it, utilizing only a small number of constructs (Dwivedi et al., 2011).

The same holds true for the Technology Acceptance Model (TAM) and its various extensions, which makes TAM another attractive baseline model for understanding adoption in various contexts. Originally proposed by Davis in 1989, TAM draws upon the realization that low adoption and use of technology by employees are the major barriers to successful technology implementations in organizations (Venkatesh & Bala, 2008). Davis (1989) argued that in order to predict individual adoption and use of new ITs, two constructs are of importance, the perceived usefulness (does the IT enhance my job performance?) and the perceived ease of use (will the use of IT be free of effort?). Davis (1989) further posited that the effect of external variables on the behavioral intention to use a new technology is mediated by perceived usefulness and perceived ease of use (Venkatesh & Bala, 2008).

Over the years, TAM was validated (e.g., Adams et al., 1992; Davis & Venkatesh, 1996), extended (e.g., Straub, 1994; Gefen et al., 2003) and elaborated (e.g., Venkatesh & Davis, 2000; Venkatesh et al., 2003). The model has, according to Lee, Kozar and Larson (2003), evolved ceaselessly. In 2000, Venkatesh and Davis presented a refined version of the model, termed TAM2, in which they introduced general determinants for perceived usefulness (subjective norm, image, job relevance, output quality, result demonstrability). Additionally, two moderator variables (experience and voluntariness) were proposed. The most recent conceptual contribution to technology acceptance research was the introduction of a set of determinants for perceived ease of use (computer self-efficacy, computer anxiety, computer playfulness, perceptions of external control, perceived enjoyment, and objective usability). Venkatesh and Bala (2008) termed this second refinement of the model TAM3.

Although the TAM and its extensions are the most widely accepted model in technology adoption research, there are several shortcomings to address. Lee et al. (2003) discussed a lack in actionable guidance for practitioners. Wang et al. (2003) as well as Venkatesh and Davis (2000) suggested that the TAM might not yet be complete and other constructs should be tested for their compatibility with the model. Still, the TAM's fundamental constructs do not fully reflect the specific influences of technological and usage-context factors that may alter the users' acceptance (Wang et al., 2003). Thus far, TAM has been applied to a wide range of

IT, but most of the prior studies have aimed at relatively simple IT, such as personal computers, e-mail, word processing and spreadsheet software and the world-wide web (WWW) (Wang et al., 2003). Relatively little to no research exists to date on the new (social) media (Curtis et al., 2010). In addition, as Beaudry and Pinsonneault (2010) note, prior research on TAM has been primarily based on cognitive models, and little attention has been given to mental factors such as emotions. Beaudry and Pinsonneault (2010) argued that cognitive based models do not capture the full range of users' emotional reactions and account for their relationships to IT use.

TAM as well as UTAUT have been used in a holistic fashion with all factors and items (e.g. Curtis et al., 2010; Chiu et al., 2010; Laumer et al., 2010) or used only partially, serving as base-line models that are modified and complemented by new factors in the course of a study (e.g. Aggelidis & Chatzoglou, 2009; Akesson & Eriksson, 2007).

5.2.2.2. Social Media Adoption in Workplaces

Technology adoption is an issue of growing importance in the organizational field, especially so as new social formats of communication emerge. Since social media are inherently interactive, communicative and social (Avery et al., 2010), they have the potential so support public relations and communications in their most basic sense – in building relations. Of course that is only the case, if the new applications are actually being used by practitioners (Mathieson, 1991), therefore more and more academic studies scrutinize social media adoption in communications and its antecedents.

Public relation and communication have traditionally been regarded as somewhat lagging behind when it came to technology adoption (Eyrich et al., 2008), but as recent research indicates, they have now caught up quickly, integrating new applications of social networking, video sharing and community interaction in their daily workflows. Zerfass et al. (2011) showed in their practitioner survey that social media have become an integral part of European organizations' media mix. There are various single studies that have looked at social media adoption in various geographical settings (e.g. Turkey: Alikilic & Atabek, 2012). Eyrich et al. (2008) explored the adoption of 18 social media tools in US public relations and found that

six tools (e.g. blogs, social networking sites, podcasting) were adopted in professional communications workplaces. Curtis et al. (2010) employed the UTAUT model in combination with Johnson and Kaye's (2004) credibility scale to explore social media adoption in public relations of non-profit organizations and discovered that practitioners are more likely to use social media applications if they find them credible. Finally, Kitchen and Panopoulos (2010) look at the adoption of the Internet for PR purposes (E-PR) in Greece. Relying on Rogers' (1995) diffusion of innovation theory (IDT) the authors reveal connections between age, trialability, working experience and adoption.

5.2.3. Towards a Measurement Tool of Social Media Adoption

5.2.3.1. Conceptualization of Social Media Adoption in Communication

In order to understand social media adoption in professional communication workplaces, we propose a conceptual framework routed in information technology adoption research. In line with Venkatesh et al. (2003) but also with Davis (1989) and Venkatesh and Bala (2008), our basic assumption is that practitioners are likely to adopt a new application once they have the intention to do so which is in turn influenced by their individual disposition or reaction towards said application and by the experiences they have made with it (Figure 22).

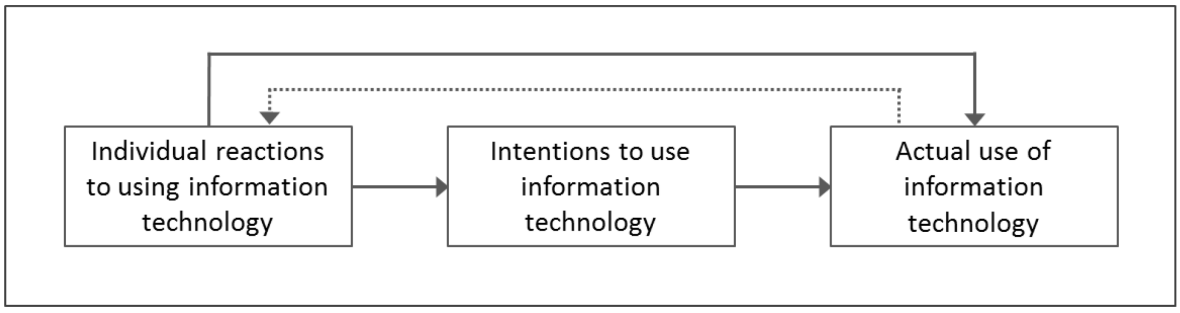

Figure 22: Information Technology Adoption (Based on: Venkatesh et al., 2003)

Based on this basic concept, we propose that social media adoption in workplaces will be determined by the intention to use social media and by the effects that individual reactions and dispositions towards social media have on intention to use social media as well as on actual usage.

In accordance with Kaplan and Haenlein (2009) and Hargittai (2009), actual social media usage comprises the use of social networking sites, blogs, microblogs, content networks such as youtube, RSS feeds, social bookmarking, podcasting, location based services and review sites. Social media usage at the workplace is expected to depend on the individual's intention to use social media on the one hand and on the degree to which an organization is supportive of said use and thus provides facilitating conditions (Venkatesh et al., 2003) on the other hand. In the present model, intention follows the definition of Davis and Warshaw (1984) who described the construct as "the degree to which a person has formulated conscious plans to perform or not perform some specified future behavior." Still today, intention is seen as the "key index of a person's mental readiness for action" (Sheeran, 2002). In accordance with the adoption literature, and particularly with Venkatesh et al.'s (2003) UTAUT approach and Davis (1989) as well as Venkatesh and Bala's (2008) refinement of TAM, we take into consideration a number of constructs that could potentially predict the intention to use social media in the workplace. These are performance expectancy (Venkatesh et al., 2003; Davis, 1989; Moore & Benbasat, 1991; Curtis et al., 2010), effort expectancy (Venkatesh & Davis, 2000; Venkates et al., 2003), social influence (Compeau & Higgins, 1995), facilitating conditions (Venkatesh et al., 2003, Venkatesh & Davis, 2000), self-efficacy (Bandura, 1986; Fishbein & Cappella, 2006; Venkatesh & Bala, 2008), anxiety (Compeau & Higgins, 1995; Venkatesh & Bala, 2008) and attitudes (Venkatesh & Bala, 2008; Davis et al., 1992; Payne, 2008). In the following, we will depict the main hypotheses underlying the hereby conceptualized research model.

5.2.3.2. Deriving Hypotheses

In the above conceptualized model of social media adoption in workplaces, there are numerous relationships that call for closer examination. The following hypotheses on the determinants of social media usage at work on the one hand and on intention to use social media at work on the other hand. All are set in the context of the communication profession (see Figure 23), to account for our sample.

Determinants of social media usage in the workplace:

As posited by Venkatesh et al. (2003) when they first introduced their unified theory of acceptance and use of technology (UTAUT), we assume that usage intention as well as organizational facilitating conditions are the main predictors of actual usage behavior. Accordingly we postulate that an individual communicator's intention to use social media is a key driver of social media adoption in communications. As traditional communication patterns dissolve and channel configurations become less rigid, it is left to communicators to find their own ways to interact with their audiences in an ever changing communications landscape. In this rather voluntary setting, it can be hypothesized, that the individual's intention to use an application or a tool becomes a very powerful predictor of actual usage behavior.

H1: There is a strong positive relationship between intention to use social media at work and actual social media usage at the workplace.

Furthermore, we assume that – even in voluntary settings – actual usage can be enhanced or hindered by organizational support structures. Thus organizational conditions facilitating the use of social media are seen as the second direct predictor of social media usage.

H2: There is a positive relationship between conditions facilitating social media use and social media usage at the workplace.

Determinants of Intention to Use Social Media at Work:

Intention to use social media at work is hypothesized to depend on a number of constructs. Considering the broad range of communication tools that communicators work with and choose from on a daily basis (Curtis et al., 2010; Zerfass et al., 2011), it is only logical to assume that practitioners intend to use the instruments they perceives to be most beneficial to their job in terms of efficiency or effectiveness, rendering it easier to stay in contact and interact with audiences. If there is no apparent gain in an application, then adoption intention and consequently also adoption behavior should be precluded. Therefore, we postulate the following hypothesis:

H3: There is a positive relationship between performance expectancy and the intention to use social media at the workplace.

Not only the benefits associated with the use of social media are expected to influence usage intention, but also the costs that may come with the use of a new application or tool should be reckoned with. Thus we assume that there is a negative correlation between the effort for example in the form of time and attentional resources one believes must be invested to master an application and the intention to actually use it. The more difficult and complicated the use of an application appears, the less likely is it that a usage intention is formed.

H4: There is a negative relationship between effort expectancy and the intention to use social media at the workplace.

Furthermore, practitioners' intentions to use social media are influenced by what they believe that people who are important to them, such as friends or co-workers or, in the case of communication practitioners, audiences would think of them using social media (Fishbein & Ajzen, 1975; Ajzen, 1991; Ajzen, 2012)

H5: There is a positive relationship between social influence and the intention to use social media at the workplace.

Aside from these anticipated opinions and attitudes of third parties, the attitudes of the individual should be considered as well when looking at usage intention (Davis et al., 1992; Fishbein & Ajzen, 1975). Following the argumentation and empirically supported claim of Venkatesh et al. (2003) though, the construct attitude only has an effect on intention if performance expectancy and effort expectancy are omitted from the model. We see this as a strong indicator for the claim that individual attitudes towards social media operate through expectancy, rendering the attitude construct itself redundant. Consequently, we posit that one's personal attitude towards social media is already in inherent in the effort or performance attributed to the use of facebook, twitter and the like and therefore will not alter the usage intention:

H6: Attitude toward using social media will not have a significant influence on the intention to use social media at the workplace

In a similar fashion, we argue that the effect of perceived anxiety as well as self-efficacy on usage intention may be fully moderated by variables which are already built into the model. It is intuitive at first glance that if communicators find themselves insecure or even anxious in the face of the new communication paradigm pertaining to the social media, they may not intend to use them at all (Tarafdar et al., 2011; Ayyagari et al., 2011; Bawden, 2008), while if they feel competent and secure, they may indeed intend to use them (Wang, Lin & Luarn, 2006). Yet, as posited by Venkatesh and Davis (2000) as well as Venkatesh et al. (2003), anxiety along with self-efficacy may be fully mediated by other constructs, such as effort expectancy or perceived ease of use which are at least partly contained in the model already. We therefore expect the effect of anxiety as well as self-efficacy on intention to be non-significant.

H7: Anxiety toward using social media will not have a significant influence on the intention to use social media at the workplace

H8: Self-efficacy will not have a significant influence on the intention to use social media at the workplace

Finally, intention may depend on the organizational conditions facilitating social media usage at work (Venkatesh et al., 2003). If a communication practitioner feels that she is well equipped, not only on a personal skills-level, but also resource-wise, to engage in the social media, she is more likely to form an intention to use social media at the workplace. Thus the final hypothesis will be:

H9: There is a positive relationship between facilitating conditions and the intention to use social media at the workplace.

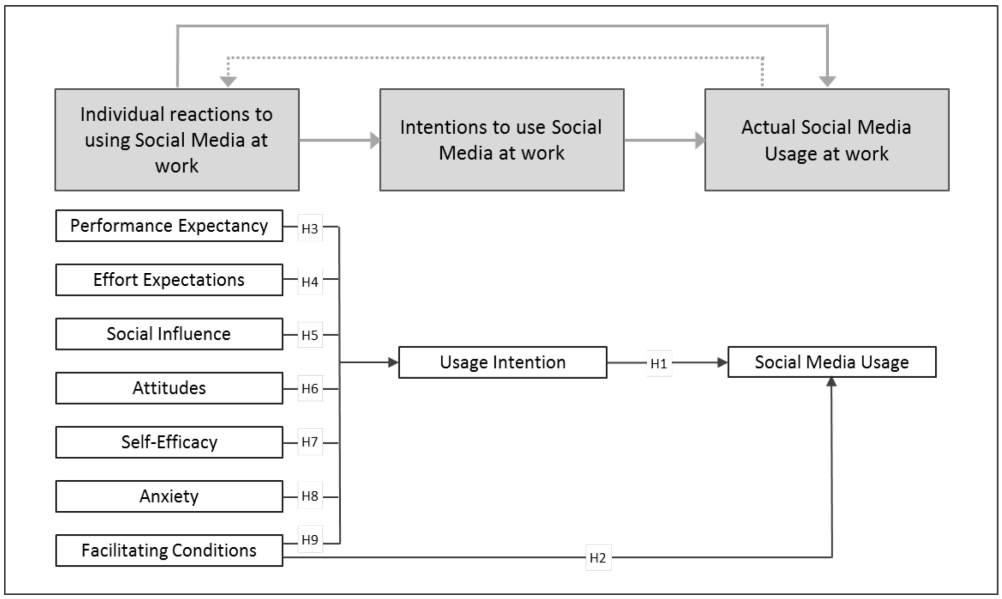

Figure 23: Model of Social Media Adoption and Overview of Hypotheses

5.2.4. Research Methodology and Measures

In this section, we present the findings of a quantitative investigation of the role and drivers of social media usage at workplaces, exemplified by marketing and communications.

5.2.4.1. Sample

Our sample represents the database of the European Association of Communication Directors (EACD); 17.000 members were invited to participate in an Internet-based survey during October 2010. Overall, 2.579 professionals from 30 different European countries took part in the online survey. All in all, 1.162 online questionnaires were complete and thus deemed suitable for further analysis. Within the sample, women are slightly over-represented, composing 53 percent of all participants. Most participants are between 30 and 40 years of age and hold a Masters degree. They mainly work in higher ranking positions and for privately held companies. The profiles and demographics of the respondents are summarized in Table 15.

Variables	Distribution	Percent
Gender	Female	53.4
	Male	46.6
Age	Below 30 years	13.2
	30-35 years	22.0
	36-40 years	21.1
	41-45 years	17.5
	46-50 years	13.2
	Above 50 years	12.9
Academic Degree	Doctorate	5.6
	Master	55.3
	Bachelor	32.0
	No academic degree	7.1
Position	Chief Communication Officer	37.5
	Head of Sub-Unit	26.5
	Senior Team Member	29.9
	Junior Team Member	4.9
	Other	1.2
Classification of Organization	Publicly traded company	26.4
	Privately held company	32.5
	Government-owned/ Political Organization	19.1
	Non Profit Organization /Association	22.0

Table 15: Profile of Respondents

5.2.4.2. Measures

With regard to the research question, the questionnaire was based on measures found in the adoption literature. The scales for the constructs in the conceptualized model were derived and adapted from Venkatesh et al. (2003) as well as Venkatesh and Bala (2008), who established items to measure the various latent variables in technology adoption. However, because these scales were originally intended to map out the adoption and use of technological systems such as new software-products, we modified them slightly to fit the context of social media. The term social media, as introduced in the survey, subsumed social networking sites (e.g. facebook), microblogs (e.g. twitter), blogs, content networks (e.g. youtube), wikis and social bookmarking (Kaplan & Haenlein, 2009; Hargittai, 2009; Zerfass et al., 2011). The initial pre-test was conducted by five academic and six managerial experts in the field of marketing and communications. They were requested to assess the relevance and validity of the items in terms of each construct. The resulting item-portfolio was then tested by 32 respondents within the final pilot test.

The testers were once again asked to comment on the selected items regarding their wording and comprehensibility. All items used in the final online survey are shown in Appendix A. The participants were asked to rate their disagreement or agreement on a five-point Likert scale (from "1=strongly disagree" to "5=strongly agree").

5.2.4.3. Data Analysis

To test the hypothesized model and answer the research question of which determinants drive social media usage in communication workplaces, we took a four-step approach. First, we conducted explorative factor analysis to evaluate convergent and discriminant validity. Second, we used principle component analysis and thirdly applied varimax rotation, (followed by subsequent structural equation modeling, laid out in section four). Within the first three steps it turned out, that three items of Performance Expectancy (PE2, PE3, PE4) as well as five items of Usage Behavior (USE1, USE 5, USE7, USE8, USE9) showed cross-loadings and had thus to be deleted. Also, the item-set underlying the factor Attitudes displayed cross-loadings, which is why this factor was eliminated from any further analyses.

The final item-set (Appendix B) displays acceptable factor loadings without cross-loadings. Overall, 67.8 percent of the item variances can be explained by the seven factors. As suggested by Anderson and Gerbing (1988a, 1988b), we evaluated the measurement model before testing the structural model. Therefore, a confirmatory factor analysis was conducted to test for uni-dimensionality and scale reliability on the indicator and construct level. On the construct level, we used Cronbach's alpha (α), composite reliability (C.R.) and average variance extracted (AVE) to assess the internal consistency of the scale. Table 16 lists the results. Cronbach's alpha, C.R. and AVE were above the usual criterion values. Therefore, (scale) reliability can be assumed (Netemeyer, Bearden & Sharma, 2003; Garson, 2010). Due to the applied pretest and scale development process, content and convergent validity can be assumed. Discriminant validity can be assumed if squared multiple correlations with any other construct is below the constructs' AVE (Fornell-Larcker Criteria; Fornell & Larcker, 1981). Hence, the measurement model has discriminant validity. These results are reported in Table 16.

	A	mean	S.D.	C.R.	PE	EE	SI	FC	USE	ANX	SE
PE	0.89	3.52	1.32	0.95	**0.57**	0.28	0.28	0.34	0.53	0.06	0.04
EE	0.68	3.24	1.12	0.69		**0.44**	0.06	0.32	0.19	0.27	0.04
SI	0.73	2.65	1.53	0.75			**0.51**	0.18	0.28	0.01	0.03
FC	0.77	2.98	1.54	0.77				**0.63**	0.41	0.17	0.08
USE	0.76	2.71	1.73	0.76					**0.44**	0.07	0.00
ANX	0.84	1.96	1.10	0.84						**0.64**	0.07
SE	0.74	2.83	1.55	0.74							**0.59**

Table 16: Descriptive statistics, AVE (bold Values) and Squared Multiple Correlations

5.2.5. Results

Based on the postulated hypotheses, Figure 24 presents our fourth step, the structural equation model tested with Mplus (Muthén & Muthén, 2006). The results include the standardized coefficients based on Maximum-Likelihood-estimation and the total variance explained of behavior for all participants (N=1.162).

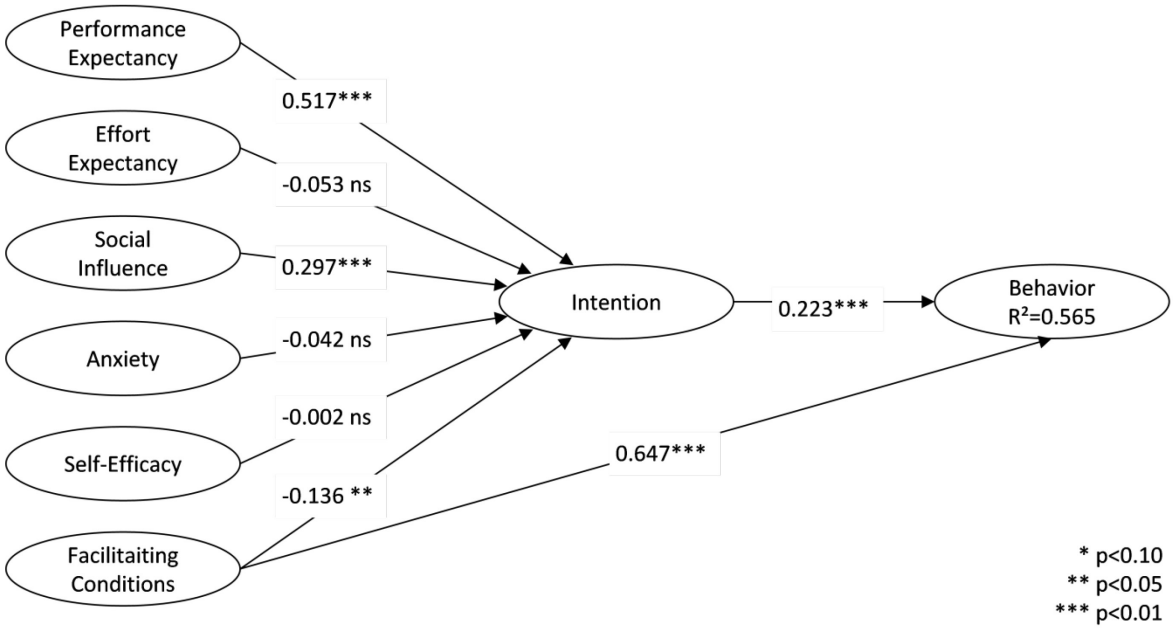

Figure 24: Structural Equation Model with Standardized Loadings and Latent Variance Explained

Out of the nine hypothesized paths, only four relationships were highly significant ($p < 0.01$) and one was significant at a 5%-level. Performance

expectancy (β=0.517, p<0.01) is a strong predictor for an individual's intention of using social media in the professional context. Furthermore, intention is significantly determined by social influences (β=0.297, p<0.01). Surprisingly, the third significant predictor, facilitating conditions, is negatively related to the usage intention (β=-0.136, p<0.05). A participant's usage behavior in the professional context is directly influenced by facilitating conditions (β=0.647, p<0.01) as well as by intention (β=0.223, p<0.01). Overall, the model explains approximately 57 percent of the observed variance in the usage behavior of social media. As shown in Table 17, the model provided good fitness measures. Only the chi-squared value/d.f. is very slightly above the threshold of 3.0 (Bollen, 1989).

Index	Measurement model	Criterion
Chi-squared (p)	852.532 (0.000)	-
Degree of freedom	251	-
Chi-squared/d.f.	3.39	≤ 3
CFI	0.951	≥ 0.90
TLI	0.942	≥ 0.90
SRMR	0.048	<0.05
RMSEA	0.045	≤0.05

Table 17: Fit Indices

5.2.6. Discussion and Conclusion

5.2.6.1. Modeling Social Media Adoption in Communication

In the course of this paper, we used and tested an integrative framework routed in the technology adoption literature to assess the determinants of the social media adoption in communication workplaces (Figure 22). The model fit of the resulting social media adoption model (Figure 24) was very good, and eight out of nine hypotheses could be supported with four of the relationships in the model being highly significant.

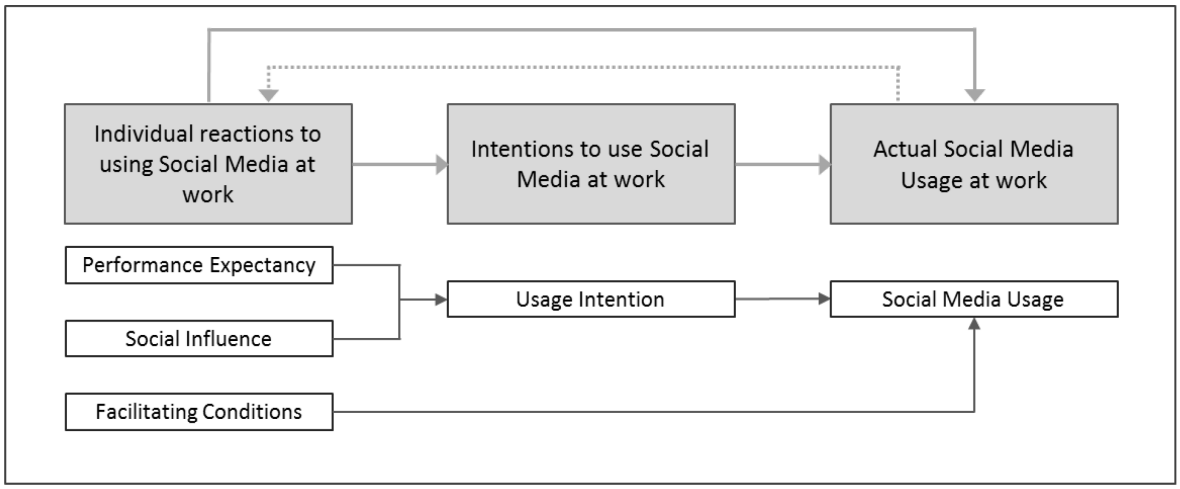

Figure 25: Model of Social Media Adoption in Communication Workplaces

The model explained 57 percent of the variance of social media adoption in marketing and communication workplaces. The results corroborate some of the findings of previous work in this field (e.g., Zerfass et al., 2011; Park et al., 2008; Gefen et al., 2003; Moon & Kim, 2001; Heijden, 2003; Curtis et al., 2010; Luo et al., 2006; Lederer et al., 2000). The findings of the present study enrich the existing literature first by confirming some of the basic assumptions in technology adoption research to be valid for the context of social media in workplaces as well. Second, it stresses the importance of facilitating conditions and intention as direct determinants and performance expectancy as well as social influence as indirect determinants of social media usage in workplaces.

Direct Determinants of Social Media Adoption

The strongest direct predictor of social media usage are the facilitating conditions provided by the employer organization. Professionals are likely to use social media at work if they believe that there is an "organizational and technical infrastructure" (Venkatesh et al., 2003), supporting their social media use. If employees should be harnessing the potential offered by social media, it is important, that they feel empowered to do so. An organization can ensure this for example by granting open access to social media platforms and leaving room for experimentation and play (Jenkins et al., 2006; Buckingham, 2008). Directing the resources necessary towards social media and working out impact measures rendering the benefits more transparent can set an important signal within the organization that new ways of interacting with stakeholders through social media are taken seriously (Bernoff &

Li, 2009; Delahaye Paine, 2011; DiStaso et al., 2011). The second direct predictor of social media use is the usage intention which is in line with many behavioral adoption studies in general (e.g. Ajzen, 2012; Sheeran, 2002; Orbell & Sheeran, 2000; Sheeran & Orbell, 2000; Fishbein & Ajzen, 1975) and technology adoption studies in particular (e.g. Venkatesh & Bala, 2008; Gefen et al., 2003).

Indirect Determinants of Social Media Adoption in Communication

Social influence is a highly significant determinant of usage intention and thus indirectly influences social media usage at workplaces. The importance of social influence for usage intentions might be self-evident in an environment marked by social media as it makes sense, that professionals tend to favor such applications that are being favored by their peers (such as colleagues or supervisors) and core audiences, too. According to Venkatesh et al. (2003), social influence is defined as the degree to which an individual perceives that important others believe he or she should use a new technology. As there are seldom organizational guidelines in place telling professionals which platforms to use in what way (Zerfass et al. 2011), they are often attributed a great deal of freedom when it comes to choosing and configuring their social media channels. In this liberal setting, professionals look to their peers and audiences when deciding to use a platform or an application. Thus it is highly intuitive that social influence plays a significant role in building intentions to use social media. Venkatesh et al. (2003) as well as Venkatesh and Davis (2000) make the assumption that not all individuals are equally prone to react to social influence. As indicated by Venkatesh et al.'s (2003) contribution, the social influence has a stronger effect on intention for women as well as for older workers, less experienced workers and workers in mandatory settings. This would have to be tested for the social media context as well.

The second determinant of intention is performance expectancy, consisting of the usefulness and increase in productivity attributed to the use of social media. Performance expectancy or, according to Compeau and Higgins (1995), performance-related outcome expectations are historically seen as the strongest predictor of usage intention (Davis et al., 1992; Venkatesh & Davis, 2000). Our findings are consistent with this notion and performance expectancy remains the strongest predictor of usage intention in social media contexts as well. The final significant determinant of intention is the factor facilitating conditions within the

organization. Out of the seven hypotheses concerning the relationships between various determinants and behavioral intention, only the hypothesis involving facilitating conditions and intention proved to be false and had to be rejected. Facilitating conditions have in fact a slight negative rather than the hypothesised positive effect on usage intentions. This finding is at first sight counterintuitive and may be interpreted in two ways. First, the effect is not particularly strong and only significant on a five percent level, while all other relationships are significant on a one percent level. Therefore it could be assumed that, rather than negative, the effect of facilitating conditions on intention is actually negligible, which would be in line with existing UTAUT literature (Venkatesh et al. 2003; Curtis et al., 2010). Second, we could speculate that organizational facilitating conditions have such a strong direct effect on social media usage at work that individuals' intention to use social media becomes negligible. If individuals use social media already, their intention to do so (in the future) will seize to be of importance and can thus be neglected.

5.2.6.2. Limitations to the Social Media Acceptance Model and Future Research

Several limitations of this study should be noted. First, the social media adoption model at this point relies solely on data gathered among communication professionals and thus is assumed to be most valid when applied to this context. Other professions have not yet been scrutinized, but they should be taken into account to test for further generalizability of the model. Second, most participants were managers holding higher ranking positions. Testing the model also for rank and file positions might make it even more robust. Third, intention to use social media should be measured in more detail. In the present context, intention was measured solely with respect to the expected future actions of the organization. Thus, as suspected by Davis and Warshaw (1984), the item might also capture aspects of behavioral expectation thus diluting the measurement of behavioral intention. Davis and Warshaw (1984) argue, that often respondents' evaluation of intention reflects not their actual intention, but their expectation of what will happen instead. Future studies might work on a more unbiased measurement of intention.

5.2.7. Appendix

Used Item-set

Performance Expectancy (PE)	Please rate the following statements on Social Media in your work environment. 1 = strongly disagree; 5 = strongly agree	
	1	I find Social Media applications useful in my job.
	2	Using Social Media enables me to accomplish tasks quickly.
	3	Using Social Media increases my productivity.
	4	Using Social Media increases my chance of promotion.
	5	I know better what is being said about my organisation when I am up to date on Social Media.
	6	Social Media helps me to connect better to my audiences.
	7	In my job, the usage of Social Media applications is relevant.
	8	Social Media are important to my various job-related tasks.
	9	Social Media improve the quality of my work.
	10	Social Media can produce amazing results.

Effort Expectancy (EE)	Please rate the following statements on Social Media in your work environment. 1 = strongly disagree; 5 = strongly agree	
	1	I have an intuitive grasp of Social Media applications.
	2	Social Media requires little mental effort.
	3	I find Social Media easy to use.

Social Influence	Please rate the following statements on Social Media in your work environment. 1 = strongly disagree; 5 = strongly agree	
	1	My superiors think that I should use Social Media.
	2	My colleagues and friends think that I should use Social Media.
	3	My supervisor has helped me use Social Media.

Facilitating Conditions (FC)	Please rate the following statements on Social Media in your work environment. 1 = strongly disagree; 5 = strongly agree	
	1	I feel in control of our Social Media communication.
	2	I have the resources necessary to use Social Media.

Attitudes (ATT)	Please rate the following statements on Social Media in your work environment. 1 = strongly disagree; 5 = strongly agree	
	1	Using Social Media is a good idea.
	2	Using Social Media makes work more interesting.
	3	Working with Social Media is fun.

Anxiety (ANX)	Please rate the following statements on Social Media in your work environment. 1 = strongly disagree; 5 = strongly agree	
	1	Working with Social Media makes me nervous.
	2	In using Social Media, I fear making mistakes I cannot correct.
	3	Social Media is somewhat intimidating to me.

Self-Efficacy (SE)	Please rate the following statements on Social Media in your work environment. 1 = strongly disagree; 5 = strongly agree	
	1	I would like the help of a Social Media expert within my organisation.
	2	I would like the help of an external Social Media consultant.

Intention (I)	Please rate the following statements on Social Media in your work environment. 1 = strongly disagree; 5 = strongly agree	
	1	My organisation is planning on becoming (more) actively involved in Social Media.

Usage (USE)	Which Social Media applications do you use? (Professional Usage) 1 = not at all; 5 = extensively	
	1	Blogs
	2	Social Network Sites (e.g. facebook, Xing, LinkedIn)
	3	Microblogging Services (e.g. twitter)
	4	Content Networks (e.g. youtube)
	5	RSS
	6	Social Bookmarking
	7	Podcasting
	8	Location Based Services (e.g. City Guides, Gowalla)
	9	Review Sites (e.g. TripAdvisor, Yelp)

Factor Analysis with Varimax Rotation for Multi-item Principal Constructs

	1	2	3	4	5	6	7
PE1	.694						
PE5	.724						
PE6	.798						
PE7	.723						
PE8	.783						
PE9	.690						
PE10	.670						
ANX1		.843					
ANX2		.861					
ANX3		.843					
USE2			.601				
USE3			.659				
USE4			.744				
USE6			.719				
SI1				.815			
SI2				.796			
SI3				.659			
EE1					.599		
EE2					.861		
EE3					.662		
SE1						.838	
SE2						.862	
FC1							.683
FC2							.807

Only values above 0.40 are shown. Variance explained 67.8 %.

5.3. The Stress Potential of Social Media at Work[8]

By Eliane Bucher, Christian Fieseler & Anne Suphan

Abstract: Social media have enriched the communication profession with new and immediate ways of stakeholder interaction. Along with new possibilities also come challenges - as professionals are engaging in real-time conversations with their audiences on facebook, twitter, blogs and the like, they have to learn to mentally cope with an oversupply of possibly relevant information, with an invasion of work matters into the private domain and with changing work contents and structures. This paper proposes a measurement routed in the technostress and overload research to assess these challenges brought to communication workforces by social media. The data was collected in a quantitative survey among 2.579 marketing and communication professionals. Based on an exploratory factor analysis, we demonstrate that being literate in an age of social media encompasses not only knowing how to retrieve and process information appropriately in various social settings, but also - and maybe more importantly - to mentally cope with overload, invasion and uncertainty.

Keywords: Literacy, Social Media, Information Overload, Stress, Coping, Scale Development

5.3.1. Introduction: How Social Media redefine Professional Literacy

Social media are reshaping the nature of the workplace and of work itself: They offer new and exciting ways of interacting with stakeholders at eye-level and gaining intimate and real-time knowledge of how customers and other target groups think, act and talk to each other. But at the same time, there also come challenges with the new communication paradigm. *First*, through social media outlets,

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professionals are increasingly confronted with much more information than they may meaningfully process; this may generate not only information overload (Ayyagari et al., 2011; Karr-Wisniewski & Lu, 2010; Ragu-Nathan et al., 2008; Edmunds & Morris, 2000) but also work overload as "workplace norms for task completion increasingly value speed and the ability to accomplish multiple tasks at once" (Stephens, Cho & Ballard, 2012). Second, the advent of social media entails a blurring of boundaries between the private and the work domain, as the conversation on social media never rests and workers can be connected to it 24 hours a day on their (mobile) communication devices; this can lead to an invasion of work into the private domain and recreation time (Ayyagari et al., 2011; Farnham & Churchill, 2011; Hogan, 2010; DiMicco, Millen, Geyer, Dugan, Brownholtz & Muller, 2008; Greenhaus & Powell, 2006; Ammons & Markham, 2004). Third, the conversation on social media outlets takes place on many and often changing platforms at once, such that it becomes difficult to keep track of relevant sources and community movements. This has the potential to create a high level of uncertainty (Ayyagari et al., 2011).

We posit, that in order to cope with these challenges in a sustainable manner, communicators need to acquire and develop new skills and capacities at work – an extended kind of professional literacy. In this paper, we primarily address the mental (e.g. cognitive and affective) aspects of this literacy shift. Previous literacy research has first and foremost dealt with how to enable individuals to locate, access, process and use information in various environments and social settings. According to this line of thought, the literacy of a person correlates directly with his or her performance at these tasks: The more and the faster adequate information is retrieved, the more literate an individual is considered. Underlying this approach is the assumption that, as long as it is useful, more (and faster) information is preferable to less. This paper somewhat challenges that assumption. In our view, although effective retrieval and application of useful information should still be major concerns in literacy research, the ability to cope with stress due to having an abundance of potentially useful information, an invasion of work into the private domain and uncertain work environments is becoming equally important. In this light, we are proposing an expanded scale for measuring the mental properties of professional literacy in social media environments.

The paper is structured as follows: The second section of this paper describes the current information environment, which has been influenced by and can even be characterized in terms of the advent of social media. Conceptualizations of literacy and their evolution over time are examined in a brief literature review, with the goal of explaining how the arrival of social media challenges the latest findings in literacy research. In this chapter we aim at drawing attention to a growing need to consider mental aspects when seeking to empower individuals in today's professional communication environment. Findings and concepts from technostress and information overload research are included in this review. In Section 3, we introduce the mental dimensions of literacy in the context of the questionnaire development for our survey on mental social media literacy. Using factor analysis to evaluate the results, we then propose a scale for assessing social media induced overload, invasion and uncertainty in knowledge workplaces as the main stress inducing challenges brought to the profession by social media. The final section summarizes and discusses the scale-development process, examines how our findings can be applied to the context of modern communication-oriented workplaces. Here, possible linkages between mental social media literacy and existing research and theory will be examined and potential avenues for future research are mapped out.

5.3.2. The Past, Present and Future of Literacy Research

Literacy as a scientific concept has undergone continuous changes during the past 25 years. As it is tightly linked to the information environment, it is being reassessed with every upcoming generation of media. Print, digital and now social media are transforming the ways we save, retrieve, process and share information. Today's fast evolving information environment calls for ever new skills and capacities, and with every change in technologies or communication modes, there arise new research areas and questions. In the following, a brief review of said areas and core questions of literacy research is presented.

5.3.2.1. The Past: Functional and socio-cultural Views of Literacy

The classic conceptualization of literacy, as pertaining to the basic ability to read and write, is not sufficiently broad in a world characterized by the presence of digital media. Over the past 25 years, many authors have discussed possible

expansions of the concept. Gilster (1997), McGarry (1991) and Clifford (1984) stressed that literacy is a continuum, rather than an ability, one either possesses or does not possess. Street (2003) agreed with this description, mentioning that the act of becoming literate is a continuous process: "Taking on reading, new readings, and new literacy practices [...] are continuing processes, not a one-off shift from illiteracy to literacy, from dark to light, as the early approaches to literacy work would have it" (p. 85). The concept of literacy is understood and discussed at varying levels of abstraction; some authors go so far as to define literacy as the fundamental act of cognition and the ability to read with meaning (e.g. McGarry, 1991). Two schools of thought can be distinguished among the many conceptualizations of literacy: literacy is either viewed as a conglomeration of essentially independent and concrete skills or portrayed as an adaptive concept that depends on social, cultural and technological variables.

Street (1984, 1988, 2003) refers to the first set of approaches as autonomous models of literacy. Bélisle (2006) and Papen (2005) use the term functional models to describe such views of literacy, i.e., the mastery of cognitive and practical skills, which can range from the mechanical skills of reading and writing to the skills required to function effectively within a community. Papen (2005) describes functional literacy as a set of measurable skills required to perform efficiently in the workplace. McGarry (1991), Gilster (1997) and Clifford (1984) use similar conceptualizations of literacy. The underlying assumption of the autonomous conceptualization of literacy is that a higher level of literacy is equivalent to the mastery of more skills. Street (1984, 1988, 2003) calls the second set of approaches ideological models or social literacy models; Bélisle (2006) calls them socio-cultural-practice models. Both authors assert that the concept of literacy can only be meaningful in terms of its social context and that it therefore should be understood as a social practice. Being literate means having access to the cultural, economic and political structures of society; in this sense, literacy is ideological (Street, 1984). In addition to Street (1984), Heath (1983) as well as Scribner and Cole (1981) refer to similar conceptualizations of literacy in their work.

5.3.2.2. The Present: Accumulating digital Skills

The most common current conceptualizations of Internet-related literacy are those involving *digital literacy* (Lankshear & Knobel, 2008; Bundy, 2004a, 2004b;

Eshet-Alkalai, 2004; Bawden, 2001; Bawden & Robinson, 2008; Gilster, 1997) and *information literacy* (Leung, 2009; Farmer & Henri, 2008; Cochrane, 2006; Bruce, 2003; Martin & Rader, 2003; Bawden, 2001; Shapiro and Huges, 1996, Doyle, 1992); these definitions are presented in detail in Table 18. The terms *technology* or *computer literacy* (Leung, 2009; Tapscott, 1998), *media literacy* (Leung, 2009; Buckingham, Banaji, Burn, Carr, Cranner & Willet, 2004; Buckingham, 2008; Bundy, 2004b; Bawden, 2001; Americal Library Association [ALA], 2000), *E-literacy*, *informacy*, *information fluency*, and *smart working* (Bawden 2001) have been used to describe particular forms of literacy.

Concept	Author	Key Argument
Information Literacy	Zurkowski, 1974	People trained in the application of information resources to their work can be called *information literates*. They have learned techniques and skills for utilizing a wide range of information-gathering tools as well as primary sources in molding solutions to their problems.
	Shapiro & Hughes, 1996	*Information literacy* should be conceived broadly as a new liberal art that extends from knowing how to use computers and access information to critical reflection on the nature of information itself, its technical infrastructure, and its social, cultural and even philosophical context and impact.
	Bawden, 2001	*Information literacy* is a broader concept than the skills-based literacies described in previous literature; it subsumes them or operates alongside them.
	Martin & Rader, 2003	*Information literacy* is the ability to continue learning throughout one's life in an information-based society. Information literate citizens are prepared to acquire and use information appropriately in any situation, within or beyond the library, locally and globally.
	Bundy, 2004a, 2004b	*Information literacy* is an intellectual framework for recognizing the need for, understanding, finding, evaluating and using information
	Cochrane, 2006	Information workers should be *information literate*, i.e., able to identify informational needs, locate and retrieve information, evaluate it and present it to others.
	Farmer & Henri, 2008	*Information literacy* is a set of abilities that includes recognizing when information is needed as well as locating, evaluating, managing, and effectively using that information.
	Leung, 2009	To be *information literate*, one must not only be competent with regard to technology or with regard to locating and using information, but also possess the skills and knowledge needed to interpret and evaluate it.
Digital Literacy	Gilster, 1997	*Digital literacy* is simply literacy in the digital age, i.e., the ability to understand and use information from a variety of digital sources. Digital literacy is about mastering ideas, not keystrokes.
	Eshet-Alkalai, 2004	*Digital literacy* encompasses a growing variety of technical, cognitive, and social skills individuals need to perform tasks and solve problems in digital environments.
	Bawden & Robinson, 2008	*Digital literacy* is a framework for integrating various other literacies and skill sets, though it does not necessarily encompass them all. *Digital literacy* also includes knowing when to use a nondigital source.

Concept	Author	Key Argument
	Lankshear & Knobel, 2008	In the context of social networks, *digital literacy* involves the use of digital technologies to encode and access texts by which individuals generate, communicate and negotiate meanings in socially recognizable ways.

Table 18: Commonly Used Internet-related Literacy Definitions

With each new generation of media comes ample opportunity to consider the implications of those media for current perceptions of literacy. Rarely has a new domain of media received as much attention as has the domain of social media. The advent of social media has changed the information environment and the architecture of the Internet significantly over the past 10 years (Grimes & Warschauer, 2007; O'Reilly, 2005). The new Internet is characterized by the interactive publishing, participation and networking of its users through - among others - social networking sites (e.g. facebook), microblogs (e.g. twitter), blogs, content networks (e.g. youtube), wikis and social bookmarking (e.g. digg.com) (O'Reilly, 2005; Benkler, 2006; Chiang et al., 2008; Bawden & Robinson, 2008; Grimes & Warschauer, 2007). The conversation occurring via these social media channels never rests and potentially includes every individual with an Internet connection. Many such individuals seize the opportunity to actively participate in conversation with each other and with organizations, rating, commenting and generally contributing content to a dialogue that has become a buzzing "polylogue" since the rise of social media (Keen, 2007; Anderson, 2004, 2006). This new Internet has the potential to fundamentally change organizations and the means through which individuals cooperate and communicate. The rise of peer production, crowdsourcing and cocreation are requiring a shift in organizational thinking (Benkler, 2006; Howe, 2009; Shirky, 2008; Prahalad & Ramaswamy, 2004). It is a shift from the linking of information to the linking of people (Wesch, 2007).

5.3.2.3. The Future: Coping with mental Challenges

These social and technological developments push the current boundaries of literacy research, challenging it to revisit its foundational principles and concepts to deal with new contexts and new data (Baynham & Prinsloo, 2009). Most existing definitions of literacy focus on the object of literacy and generally ignore the actual—and often limited—resources of the subject. We believe that literacy in the future will not only be about the ability to complete a series of tasks or about

mastering a technology in a particular setting; it is also (and, in the long run, potentially more importantly) about the ability to remain sane, healthy and motivated while functioning in a workplace or other setting characterized by increasing pace, content volume, immediacy and complexity.

5.3.3. Questionnaire Development: Introducing a Mental Dimension of Professional Literacy

In this section, we explore the mental dimensions of coping with an information environment shaped by the advent of a variety of new media, especially of social media. To this end, we propose a scale for measuring mental social media literacy that extends the current understanding of literacy by considering theories such as technostress (Ragu-Nathan et al., 2008, Tarafdar et al., 2007; Brod, 1984) and information overload (Koroleva et al., 2010; Bawden & Robinson, 2008; Hemp, 2009; Himma, 2007; Chen, Shang & Kao, 2009). We look at the literacy challenges that social media present for individuals in organizations, and specifically for individuals in communications, an organizational function that has been particularly affected by the new communication environment. Our analysis used exploratory factor analysis to group the questionnaire items into distinct social media literacy categories.

5.3.3.1. Sample

The survey sample was recruited from the database of the European Association of Communication Directors. A total of 17 000 communicators and communication directors were invited to participate in an Internet-based survey during October 2010. A random subset of 500 participants was chosen from an overall sample of 2.579 respondents. Of those 500 questionnaires, 234 were complete and were therefore deemed suitable for further analysis. The performed sample split is customary for scale development purposes (Worthington and Whittaker, 2006, p. 816), the remaining 2.079 responses will be used for separate analyses. As further posited by Worthington and Whittaker (2006, p. 817) and by Cromrey (1988), for the purpose of exploratory factor analysis, sample sizes of 150 to 200 are likely to be adequate with data sets containing communalities higher than 0.5 or with 10:1 items per factor with factor loadings at approximately |.4|. As shown in Table 23, in the present contribution all communalities were above 0.5, thus the sample size is

deemed adequate. As shown in Table 19, the sample split did not result in any sample bias, both samples still display similar characteristics. Women are slightly overrepresented in both the initial and final sample, comprising roughly 55% of all participants. Most participants were between 30 and 40 years old and held a master's degree. They were mainly working in higher-ranking positions, usually for privately held companies. The sample composition is summarized in Table 19.

Variable	**Values**	**Percent**	
		500	Rest
Gender	female	55.9	52.4
	male	44.1	47.6
Age	under 30	14.5	12.4
	30–35	22.7	22.8
	36–40	19.8	21.5
	41–45	17.8	16.2
	46–50	14.9	13.5
	over 50	10.3	13.5
Highest Academic Degree	Doctorate	6.1	6.4
	Master's	56.3	54.7
	Bachelor's	32.4	31.2
	No post-secondary academic degree	5.3	7.7
Position	Chief Communication Officer	34.7	37.5
	Head of Subunit	34.7	26.5
	Senior Team Member	21.9	29.9
	Junior Team Member	6.2	4.9
	Other	2.5	1.2
Type of Organization	Publicly traded company	26.7	26.9
	Privately held company	40.0	29.8
	Government-owned or Political Organization	16.7	20.1
	Nonprofit Organization or Association	16.7	23.1

Table 19: Sample Description

5.3.3.2. Item Development

The changing information environment has a considerable impact on the individual's everyday work experience. New technologies are often implemented with the goal of increasing efficiency and reducing the stress levels of employees, but often, quite the opposite occurs (Brynjolfsson, 1993). The adoption of new information and communication technologies often leads to a redefinition of organizational structures, business processes and daily routines (Kaplan &

Haenlein, 2009; Jue et al., 2010; Grimes & Warschauer, 2008; Schneckenberg, 2009). In this changing environment, general task complexity increases (Fernandez, 2001) because employees must constantly adapt to new software applications, functionalities and workflows (Ragu-Nathan et al., 2008). This can be stressful for the individual employee, and his or her mental reactions to such a challenging situation can involve anxiety and tension, a perception of increased work pressure, job dissatisfaction and ambiguity about job demands (Ragu-Nathan et al., 2008).

This stress individuals experience related to their use of information and communication technologies has been referred to by Brod (1984) as *technostress*, a "modern disease of adaptation caused by an inability to cope with new computer technologies in a healthy manner." Himma (2007) states that technostress is generally associated with "having more content than we can attend to without anxiety and other undesirable psychological effects." Technostress has also been termed *technophobia*, *computerphobia*, *computer anxiety*, *computer stress* and *negative computer attitude* (Wang et al., 2008). Symptoms of technostress are a perception of work overload, demoralization, frustration, information fatigue, loss of motivation and dissatisfaction at work (Ragu-Nathan et al., 2008; Tarafdar et al., 2007).

The scale developed in this study is based on the technostress questionnaires proposed by Ragu-Nathan, Ragu-Nathan and Tu (2002), Ragu-Nathan et al. (2008), Tu et al. (2005) and Tarafdar et al. (2007). These scales measure five factors. The first construct is called techno-overload; it is divided into aspects related to task complexity, information quantity and pace of work. The second factor is techno-invasion, dealing with the intrusion of work-related technology into private life and spare time. Techno-complexity is a third factor; it considers employees' feelings of inadequacy and incompetence with respect to information and communication technologies. Fourth, techno-insecurity refers to decreasing sense of job security due to new technologies. The fifth construct is called techno-uncertainty, concerning unpredictability of technology change as a stress inducing factor.

We adapted these items to the specific context of social media and tailored them to the situations faced by communication professionals. The resulting set of items was then pretested by five academic and six managerial experts in the fields of marketing and communications. They were asked to assess the relevance and

validity of the items in each construct. The resulting portfolio of items was then tested by 32 respondents in a final pilot test. The testers were once again asked to comment on the wording and comprehensibility of the items. The prefix *techno-* was eliminated from the construct headings because it was considered outdated in a communication environment defined mainly by the specific modes of communication involved rather than by the general level of technology. In the final quantitative survey, the participants were asked to rate their disagreement or agreement with each survey item on a five-point Likert scale (from 1="strongly disagree" to 5="strongly agree").

5.3.3.3. Data Analysis

Analysis of the data from the survey sample was conducted using PASW Statistics 18. Principal component analyses were performed to explore the formation of initial constructs into factors. The appropriateness of this method for the dataset was confirmed using the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test (see Table 20) as well as a correlation matrix. The eigenvalue criterion (i.e., having an eigenvalue of not less than 1) was used to select the number of factors (Tabachnick, 2007). After the number of factors was determined, Varimax rotation was applied to the matrix. The preliminary principal component analysis included 22 variables that loaded on five factors (see Table 21). In the course of the analysis, only values above 0.4 were reported. Five items had to be rejected because either their factor loadings or extraction values were below the threshold of 0.6 or because there were corss-loadings with other factors greater than 0.4 present.

KMO Measure of Sampling Adequacy		0.813
Bartlett's Test of Sphericity	Approx. Chi-Square	1792.587
	df	231
	Sig.	.000

Table 20: KMO and Bartlett's Tests

Rotated Component Matrix					
	Component				
	Construct 1	Construct 2	Construct 3	Construct 4	Construct 5
The adoption of Social Media forces me to work faster	.733				
Social Media present much more information than I can handle (rejected)	*.484*			*-.445*	
The immediacy of Social Media results in very tight time schedules	.752				
I am forced to change my work habits to adapt to Social Media	.744				
I have a larger workload because of the increased complexity and variety of Social Media	.748				
I spend less quality time with my family because of Social Media		.796			
I have to be in touch with my work, even during my vacation, to stay connected to the ongoing conversation		.716			
I have to sacrifice my vacation and weekend time to remain current on new Social Media developments		.790			
My personal life is increasingly invaded by Social Media		.734			
If I understood Social Media better, I could work more effectively			.558		
I will be more attractive in the job market if I am engaging actively in Social Media (rejected)	*.411*		*.540*		
I am intimidated by coworkers with better Social Media skills			.723		
I quickly understand new Social Media applications				.832	
I have sufficient time to improve my technology and Social Media skills				.669	
New recruits to my organization know more about Social Media technology than I do (rejected)			*.414*	*-.402*	
Social Media are easy to understand and use				.732	
As we always use new Social Media applications, I have difficulty judging their relevance					.568
Social Media drive constant changes in our communication strategy					.688
The Social Media applications we use are constantly changing					.835
There are frequent upgrades in the Social Media portfolio of our organization					.800
I am afraid I will miss information if I am not participating in Social Media (rejected)					
It is important to update my Social Media skills to stay competitive (rejected)	*.467*		*.468*		

Table 21: Preliminary Principal Component Analysis (Rotated, only Values above 0.4 were reported)

The five factors can be summarized as follows. The first factor combined several items that described an overload situation caused by an influx of information and consequently tighter work schedules. The second factor described the invasion of modern technology and the blurring between work and leisure time. The third factor included items related to insecurity about whether one's skill set is adequate to compete in a changing professional environment. Factor 4 described coping with complexity in technology; this is related to the understanding of communication habits as a form of literacy. Finally, the last factor described uncertainty about whether one is using and investing time in learning the right applications and communities. To confirm the reliability of the measurement instrument, we calculated Cronbach's alpha coefficient for each factor; the results are shown in Table 22. Cronbach's alpha was below the threshold for the insecurity factor; we therefore eliminated that factor from the analysis.

Factor	Item Number	Item Text	Loading	α
Overload				.820
	I1	The adoption of Social Media forces me to work faster	.733	
	I2	The immediacy of Social Media results in very tight time schedules	.752	
	I3	I am forced to change my work habits to adapt to Social Media	.744	
	I4	I have a larger workload because of the increased complexity and variety of Social Media	.748	
Invasion				.765
	I5	I spend less quality time with my family because of Social Media	.796	
	I6	I have to be in touch with my work, even during my vacation, to stay connected to the ongoing conversation	.716	
	I7	I have to sacrifice my vacation and weekend time to remain current on new Social Media developments	.790	
	I8	My personal life is increasingly invaded by Social Media	.734	
Insecurity				*.355*
	I12	If I understood Social Media better, I could work more effectively	.558	
	I14	I am intimidated by coworkers with better Social Media skills	.723	
Complexity				.750
	I9	I quickly understand new Social Media applications	.832	
	I10	I have sufficient time to improve my technology and Social Media skills	.669	
	I11	Social Media are easy to understand and use	.732	

Uncertainty			.770
	I15	As we always use new Social Media applications, I have difficulty judging their relevance	.568
	I16	Social Media drive constant changes in our communication strategy	.688
	I17	The Social Media applications we use are continuously changing	.835
	I18	There are frequent upgrades in the Social Media portfolio of our organization	.800

Table 22: Preliminary Factor Solution and Loadings

Finally, when we examined the items against the total statistics, we found that the items that comprised the complexity factor ("I quickly understand new Social Media applications," "I have sufficient time to improve my technology and Social Media skills" and "Social Media are easy to understand and use") did not pass the threshold. They were removed to increase the reliability and appropriateness of the scale. In total, 13 of the 22 original items analyzed were rejected during the data analysis because either their factor loadings or their extraction values were below the threshold (0.6).

Factor	Item	Loading	Communalities	
Overload	The immediacy of Social Media results in very tight time schedules.	.805	.680	**Eigenvalue: 2.181**
	I am forced to change my work habits to adapt to Social Media.	.850	.766	**Variance explained: 72.70%**
	I have a larger workload because of the increased complexity and variety of Social Media.	.802	.724	
Invasion	I spend less quality time with my family because of Social Media.	.786	.651	**Eigenvalue: 2.119**
	I have to be in touch with my work, even during my vacation, to stay connected to the o-going conversation	.799	.762	**Variance explained: 70.63%**
	I have to sacrifice my vacation and weekend time to remain current on new Social Media developments.	.843	.774	
Uncertainty	Social Media drive constant changes in our communication strategy.	.728	.615	**Eigenvalue: 2.207**
	The Social Media applications we use are continuously changing.	.862	.770	**Variance explained: 73.57%**
	There are frequent upgrades in the Social Media portfolio of our organization.	.867	.766	

Table 23: Final Factor Solution

The remaining items comprised three factors: overload, invasion and uncertainty; their final rotated factor loadings and extraction values are summarized in Table 23.

These three factors explain 72.30 percent of the total variance.To ensure validity of the resulting items we conducted a confirmatory factor analysis (CFA) based on the remaining sample (N = 1027). The associated model fits are shown in Table 24.

Value (Chi-squared)	70.740
Degrees of Freedom (df)	24
P-Value	0.0000
Chi-squared/ df	2.95
RMSEA	0.044
CFI	0.987
TLI	0.981
SRMR	0.027

Table 24: Model Fit

Convergent validity was tested by standardized loading which should be significant, the average variance extracted (AVE) which should be greater than 0.5, the factor composite reliability (CR), which should be greater than 0.7 and Cronbach's α, which should be also greater than 0.7 (Fornell & Larcker, 1981; Garson, 2010). As shown in Table 25 and Table 26 these criteria were all fulfilled.

Factor	Item	Stand. Estimates	Two-Tailed p-Value
Overload	The immediacy of Social Media results in very tight time schedules.	0.731	0.000
	I am forced to change my work habits to adapt to Social Media.	0.816	0.000
	I have a larger workload because of the increased complexity and variety of Social Media.	0.827	0.000
Invasion	I spend less quality time with my family because of Social Media.	0.631	0.000
	I have to be in touch with my work, even during my vacation, to stay connected to the o-going conversation	0.819	0.000
	I have to sacrifice my vacation and weekend time to remain current on new Social Media developments.	0.848	0.000
Uncertainty	Social Media drive constant changes in our communication strategy.	0.723	0.000
	The Social Media applications we use are continuously changing.	0.821	0.000
	There are frequent upgrades in the Social Media portfolio of our organization.	0.722	0.000

Table 25: Standardized Factor Loadings and Significances

	Cronbach's Alpha	Mean	S.D.	C.R.	Overload	Invasion	Uncertainty
Overload	0.835	3.099	1.289	0.835	0.628	0.267	0.127
Invasion	0.804	2.052	1.280	0.813		0.596	0.104
Uncertainty	0.798	2.647	1.242	0.800			0.573

Table 26: Descriptive Statistics, AVE (bold Values) and Squared Multiple Correlations

Furthermore Table 26 reports the multiple squared correlations between the constructs. Following the Fornell and Larcker criteria, discriminant validity can be ensured if the AVE is larger than the squared multiple correlations (Brown, 2006; Fornell & Larcker, 1981). Overall, convergent and discriminant validity can be supported for the developed item set.

5.3.4. Results: Towards a Measure of Mental Social Media Literacy

We conducted our analysis to determine what mental states are relevant to social media literacy. Out of the five factors that were analyzed with respect to their applicability to the context of social media literacy, the factors *overload*, *invasion* and *uncertainty* proved to be the most valid measures. We posit that being literate in social media – and therefore able to participate sustainably and successfully in society, work and conversation – means being able to cope with overload, invasion and uncertainty. In this section, we examine each of these factors in further detail.

5.3.4.1. Overload

Since the advent of social media, the conversation on blogs and on twitter and other social-networking sites has presented professionals with more content than has ever been available before. As the volume of relevant or potentially useful information increases, the limits of professionals' filtering and processing capacities become evident (Shirky, 2008, 2010; Koroleva et al., 2010, Bawden & Robinson, 2008; Himma, 2007). On the individual level, these challenging information and work environments often lead to overload situations. We propose that the term *overload* in the context of social media is associated with three main types of situations. First, it can describe an actual or perceived increase in workload. Overloaded individuals feel that they not only have to work more but also have to work faster to cope with the amount of information available in the social web

(Wang et al., 2008, p. 3003). Second, overload can occur when schedules are very tight, decreasing an individual's capacity to make good decisions (Himma, 2007; Buchanan & Kock, 2000). Third, overload can arise from constant changes in work habits. Overloaded individuals perceive the changes that social media cause in their daily routines and habits as a burden, and they have difficulties in adapting appropriately.

Overload has particular impacts on an individual's mental wellbeing, triggering stress, frustration and dissatisfaction; overload often also results in a feeling of loss of control over a situation and sometimes in feelings of being overwhelmed (Ragu-Nathan et al., 2008; Brod, 1984). In extreme cases, it can be damaging to an individual's health (Wang et al., 2008; Koo & Wati, 2011). Being literate in an age of social media means having no fear of diving into the information fog (Badke, 2010) and coping with the new environment in a healthy and sustainable manner.

5.3.4.2. Invasion

Social media enable individuals to interact and connect whenever they want and, via mobile devices such as smartphones or tablet PCs, wherever they are. However, social media and mobile applications also create situations in which individuals can be addressed and reached anytime and anywhere. In professional life, this can lead to an apparent need to be "connected" and hooked into the conversation at all times. In many cases, this entails a blurring of the boundaries between work-related and personal contexts (Lanigan et al., 2009: p. 591). This deterioration of boundaries has been associated with a reduction in family time as work issues spill over into the family sphere (Garcia-Montes et al., 2006). An individual can be physically located in their home or family domain but psychologically invested in and technologically connected with work (Soucek & Moser, 2010).

We posit that in work and communication environments increasingly shaped by social media, the invasion of work into individuals' private lives is one of the three major mental challenges they must overcome. Invasion can occur when the boundaries between work and non-work are blurred in any of several ways. First, invasion can occur when individuals spend less quality time with their families because of social media. Second, the term can describe situations in which professionals feel compelled to stay in touch with their work and with the ongoing

conversation in the social media even during their vacation time. Third, individuals can encounter invasion when they have to sacrifice their leisure time to remain current on the latest developments in their communities or networks.

Invasion can lead to increased distress, a less satisfying family life, poor decision-making, particularly in the course of performing complex tasks and, burnout syndrome (García-Montes et al., 2006; Speier et al., 1999; Weil & Rosen, 1997). When work is never more than a status update, tweet or blog post away, it can become increasingly difficult to draw clear boundaries. To avoid boundary issues, Ammons and Markham (2004) recommend keeping "sources of interruptions out of the work area during work time" (p. 200). However, sometimes the sources of interruptions are themselves work and cannot be easily be ignored. The possibility for continuous availability provided by today's media and communication technologies has fundamentally changed the interface between work and home (García-Montes et al., 2006).

5.3.4.3. Uncertainty

Similar to any conversation, the conversation in the social media is a continuous flow that only makes sense if its participants actively engage in and devote part of their time and attention to it. However, unlike a real-life dialogue, the social media dialogue happens on many platforms simultaneously and includes myriads participants; every day, new outlets and tools join the array of communication channels. In the work context in particular, this constantly changing communication situation, with its proliferation of channels, causes a great deal of uncertainty.

The introduction of new technologies into the workplace has long been known to create uncertainty because existing skills may become redundant and new ones may need to be learned; this can contribute to individuals' stress levels (Schabracq & Cooper, 2000; Matthews & Campbell, 2009). The introduction of social media and their continuously changing nature create uncertainty with respect to which specific technologies, platforms and skills are most important now and will be most important in the future. To cope with uncertainty caused by the ever-changing social media environment, individuals must be constantly educating themselves about new trends and platforms (Tarafdar et al., 2010).

We believe that uncertainty in a social media-infused work environment has three aspects. First, uncertainty can occur when an organization's communication strategy appears to be constantly changing. Second, the continuously changing nature of social media applications and platforms can trigger uncertainty. Third, uncertainty can occur when there are frequent upgrades to an organization's social media portfolio.

5.3.5. Discussion and Conclusions: Coping Strategies for Overload, Invasion and Uncertainty in Social Media Environments

The conditions leading to overload, invasion and uncertainty cannot always be eliminated, or even controlled, as social media are expected to continue being significant facilitators of and platforms for various types of professional interaction in communications. For professionals who work with social media daily, it is therefore critical to be literate in that domain, and thus able to cope with the consequent overload, invasion and uncertainty while remaining sane and healthy. Currently, no other profession is as involved in social media as deeply as the communication profession (Netprospex, 2011), and therefore looking at public relations and marketing professionals' social media literacy is likely to provide the most useful insights. These findings can then be applied to other professions that have not reached the same level of social media use yet. Our findings can also be used by educators seeking to prepare future professionals to successfully and sustainably engage with the social media.

After having assessed the stress potential emanating from the change in the communication paradigm that comes with social media, a series of inferences can be made considering the literacy needed to mentally cope with overload situations, invasion and uncertainty. Here, we propose several new aspects of literacy. Table 27 gives an overview of possible links to existing streams of theory that may inform mental literacy pertaining to the overcoming of overload, invasion and uncertainty in communication workplaces.

Stressor	Literacy Aspect	Source	Theory or Substream
Overload	Comprehensive Goalsetting and Filtering	e.g. Latham, 2004; Shirky, 2008; Locke & Latham, 2006	Theory of Cognitive Self-Regulation; Goal-Setting Theory
	Sensory Overstrain Avoidance	e.g. Stephens & Rains, 2010 Borst, van Rijn & Taatgen, 2010	Cognition Theory
	Sequential and simultaneous Multitasking	e.g. Stephens, Cho & Ballard, 2012; Stephens & Rains, 2010	ICT Succession Theory
Invasion	Drawing Boundaries	e.g. Ammons & Markham, 2004; Ashforth, Kreiner & Fugate, 2000; Park, Fritz & Jex, 2011	Boundary Theory, Role Theory,
	Occasional Self-Exclusion	e.g. Chelsey, 2005; Hemp, 2009; Boswell & Olson-Buchanan, 2007; Yip et al., 2008	Boundary Theory
	Multitasking	e.g. Stephens, Cho & Ballard, 2012; Stephens & Rains, 2010; Borst, Taatgen & van Rijn, 2010	Threaded Cognition Theory
Uncertainty	Informal work-based Learning	e.g. Heilmann, 2007; Bandura, 1977	Social Learning Theory
	Experimentation and Play	e.g. Jenkins et al., 2006; Buckingham, 2004; Kanter, 1989; Hutchins 1995	Theory of distributed Cognition
	Coping with Change	e.g. Yip, Rowlingson & Siu, 2008; Wanberg & Banas, 2000; Bandura, 1977	Cognitive Adaption Theory, Social Cognitive Theory

Table 27: Theories informing Mental Social Media Literacy

In the following discussion, we present various strategies for coping with mental challenges of the social media environment. Coping can be defined as "the cognitive and behavioral efforts used to manage specific external or internal demands appraised as taxing or exceeding the resources of the individual" (Lazarus & Folkman, 1984). As Yip, Rowlinson and Siu (2008) observed, coping moderates the relationship between a stressor (such as overload, invasion or uncertainty) and the negative reactions it may cause (such as anxiety, emotional exhaustion or burnout). Various authors have proposed scales to measure the use of coping strategies in different settings and job environments (Compas, Connor-Smith, Saltzman, Harding, Thomsen & Wadsworth, 2001; Mathews & Campbell, 1998; Chan, 1994). We based the following analysis on the ways of coping questionnaire (WCQ) proposed by Chan (1994). The WCQ is one of the most widely cited coping measurement instruments in the literature. It measures four basic coping strategies:

rational problem-solving, resigned distancing, seeking support or venting and passive wishful thinking. Of these four strategies, Yip et al. (2008) found that 'rational problem-solving' demonstrates the most significant moderating effect on burnout" (p. 878). Therefore, in the following discussion, elements of the rational problem-solving strategy will be applied to the social media context to suggest ways of coping with overload, invasion and uncertainty.

5.3.5.1. Strategies for Coping with Invasion

The literature scrutinizing boundary issues between work and the private domain assumes a continuum that reaches from a complete segmentation of home and work to their complete integration (Ammons & Markham, 2004; Ashforth, Kreiner & Fugate, 2000). In today's communication environment, the problem of invasion cannot be annihilated, but invasion can be limited if it is specifically targeted by coping strategies (Gambles, Lewis & Rapoport, 2006, Park, Fritz & Jex, 2011). One strategy to prevent invasion by explicitly defining home as a place away from work, even if one's job is still an occasional intruder (Ammons & Markham, 2004). If possible, work habits should be adapted to those boundaries; coworkers should be clearly notified of working and non-working hours and the decision to put in excess working hours should be carefully weighed (Yip et al., 2008; Park et al., 2011; Kreiner et al, 2009; Boswell & Olson-Buchanan, 2007). If the feeling of invasion becomes overwhelming, hitting a virtual or even an actual off button and taking a break from work – and from social media altogether – can prevent severe negative consequences for one's health and mental wellbeing (Yip et al., 2008; Hemp, 2009, Chelsey, 2005).

5.3.5.2. Strategies for Coping with Overload

Overload occurs when there appear to be too many tasks for an individual to perform either simultaneously or in short sequence (Stephens & Rains, 2010) and too much potentially relevant information available for her limited attentional resources to handle. In order to solve the overload problem, Shirky (2008) stresses the importance of adequate filters while Soucek and Moser (2010) propose two strategies: either reduce the amount of incoming information or enhance individuals' information processing capabilities. While these strategies may prove to be suitable for less information rich environments and intra-organizational

communication, in an environment characterized by communication in the social media, their practical applicability might be limited. This holds especially true for settings of professional communication where individuals' abilities to process information cannot be augmented anymore, while at the same time, the amount of information they have to face cannot be meaningfully reduced. In this situation, it can be helpful to consider mental strategies of coping with overload instead of trying to eliminate the overload condition per se. This may be possible, for example, by solely focusing on the immediate next step or the next information unit (sequential multitasking) or by learning ways to tackle different topics at once (simultaneous multitasking) (Yip et al., 2008; Stephens et al., 2012; Borst, Taatgen & van Rijn, 2010). Although social media offer a myriad of playful ways to interact, they also present countless opportunities for distraction and interruption. Being social media literate with respect to overload settings can mean being able to consciously focus one's attention on the task ahead, structuring work by defining clear goals both with respect to one's output (e.g., in terms of quality or level of detail) and with respect to the maximum input (e.g., time, resources) one will invest in completing a task (Yip et al., 2008; Latham, 2004; Locke & Latham 2006). According to Stephens and Rains (2010), individuals who deal with information from different communication channels experience less sensory overload, than individuals who consume information solely from one channel. Thus, it may make sense to promote the use of multiple media formats – be it audio, video or text-based – in the workplace.

5.3.5.3. Strategies for Coping with Uncertainty

The social media individuals engage with at work are constantly evolving; at any time, the conversation may shift to a new platform, or an existing platform may offer new functionalities or applications. Staying on top of these developments and community movements and being able to target the right audience through an appropriate outlet at the right time demands a high degree of literacy from professional communicators. They may use several strategies for coping with these uncertain work environments. An effective means of making predictions about the future and reducing one's uncertainty can be drawing on past experiences with new media platforms (Yip et al., 2008). No new platform is genuinely novel or completely different from its predecessors. Intuition and the readiness to experiment

and play with new functionalities can be valuable qualities for coping with changes in the immediate technological and media environment (Jenkins et al., 2006; Buckingham et al., 2004; Kanter, 1989). Another useful coping strategy in uncertain and changing (media) environments is consciously planning to regularly spend time analyzing and understanding new platforms (Yip et al., 2008). Even though formal training may be required when it comes to enabling workers to use social media adequately, it is the informal work-based learning in team situations (Heilmann, 2007) or within their wider community (Parker, Arthur & Inkson, 2004) that might prove to be most effective in rendering the uncertain media environment and the quick pace of change in communications manageable from an individual point of view.

This paper has described influential ideas that can inform literacy research in the social media age. Our contribution stresses the importance of mental strategies when seeking to enable professional communicators to successfully and sustainably participate in today's information and work environments. The concept of mental social media literacy can account for factors that have thus far been largely neglected in literacy research. The paper first gave an overview of literacy theory, describing different conceptualizations of literacy. Ideas about information literacy and digital literacy were examined with particular attention. The limitations of these current conceptualizations of literacy with respect to the new media were then discussed. Based on technostress theory, particularly on the work of Ragu-Nathanet al. (2002) and Tu et al. (2005) as well as Ragu-Nathan et al. (2008), a scale for measuring mental social media literacy was introduced. In particular, we defined mental social media literacy as the ability to cope with invasion, overload and invasion in a social media environment. Finally, we pointed towards various adjoining theories as a starting point to research a new form of literacy that might help professionals to better cope with the stress potential inherent in particularly media-rich environments, such as communication workplaces.

The field of research on the mental aspects of social media literacy is just emerging, and several avenues for further research can be identified. For example, a plausible first step could be to put into practice our adaptation of previous findings to the context of the new media. As part of this implementation, the effects of new social media on mental wellbeing, task complexity and the level of skill required to

successfully complete day-to-day tasks in work and society should each be measured. Survey measures could be designed using scales adapted from Leung (2009), Ragu-Nathan et al. (2008), Tarafdar et al. (2007) and Shapiro and Huges (1996). Empirical research can help us understand not only which concrete mental capacities are considered most critical in today's information environment but also whether there are demographic differences in individuals' preparedness and ability to adapt to this new situation. The scales proposed in this paper should be seen only as a first step to understand the consequences of the paradigm shift in communications for professionals, it is not however, an instrument to measure individuals' skill or even to predict individual's vulnerability to burn-out and other stress-related conditions.

This paper focuses on individual's mental readiness to handle the new modes of collaboration and communication that are arising in the changing media environment. Organizational and material readiness were not examined in this paper; however, we are aware that an organization's leap into the social web also depends on organizational and material structures. Further research could shed light on which organizational structures should be supported and what types of organization-level measures can be undertaken to enhance individuals' mental social media literacy.

5.4. The Stress of Being Social – Reassessing the Notion of Technostress for Social Media

By Eliane Bucher, Christian Fieseler & Anne Suphan

Abstract: Social media are transforming the nature of work. With the rise of social media, the discussion about the stress potential of new media once again becomes pertinent. Facebook, twitter, and other social media reshape workplaces and accelerate traditional stress factors, such as information overload, the invasion of work into the private domain, and constant change in the applications being employed. However, because they are socially mediated and transcend the traditional boundaries between the professional and private domains, these new social technologies may not necessarily diminish enjoyment and job satisfaction. Based on a survey of 1.015 marketing and communication managers, we argue that the traditional elements of technostress experienced in the face of social media may strain individuals' resources and reduce time off-periods, but they may also make work more stimulating, thus positively affecting perceived enjoyment and job satisfaction. Furthermore, we posit that individuals' "nativeness" – their experience and skill in using social media – moderates the relationship between (techno-) stressors and enjoyment. Therefore, in this contribution, we posit that in the context of social media, the consequences of technostress should be revisited to account for positive as well as negative effects on wellbeing and job satisfaction.

Keywords: *technostress; information overload; enjoyment; social media; workplace settings*

5.4.1. Introduction

Judging from the growing body of literature on technostress (e.g., Tarafdar et al., 2011, 2007; Tarafdar et al., 2010; Ayyagari et al., 2011; Connolly & Bhattacherjee, 2011), the notion that changing media and IT environments are accompanied by a certain stress potential has maintained its topicality. The connection between change and stress may be particularly strong for knowledge- and exchange-intensive workplaces that are experiencing change through the rise of a new, social media-enabled communication paradigm (O'Reilly, 2005; Shirky, 2008; Kaplan &

Haenlein, 2009; Benkler, 2006; Chiang et al.; 2009, Bawden, 2008; Grimes & Warschauer, 2008). Many knowledge workers are now in constant exchange with their peers through social media applications. Communication via short messages, status updates and mobile devices has rendered communication and access to information faster, more social and more transparent.

On the downside, communication on facebook, twitter, and other forms of social media never ceases and presents much more potentially relevant information than can be meaningfully processed, thus straining individual resources. Situations of information overload are bound to occur along with the invasion of work into the private domain and uncertainty with regard to how one's attention should be divided among the different social platforms and communities (Ayyagari et al., 2011; Tarafdar et al. 2011; Ragu-Nathan et al., 2008). Although the technostress literature generally regards stress experienced due to overload, invasion, or uncertainty as having a negative impact on employees' wellbeing and enjoyment (Brod, 1984; Tarafdar et al., 2011, Tarafdar et al., 2010), there is also evidence that the opposite might be the case under certain circumstances (Le Fevre et al., 2003, McGowan et al., 2006; Bicknell & Liefooghe, 2010); work in stressful environments can be rewarding as well as stimulating.

In this article, we are interested in what this (potentially) constant connection to one's friends, work contacts and acquaintances through social media means for the perception of stress, for the enjoyment of these new forms of media, and, ultimately, for job satisfaction. We argue that because these forms of social technology are social and are related to issues that have (perceived) personal relevance, they may differ in the nature of their stressors and may have positive instead of negative effects on work enjoyment and satisfaction. Stress and wellbeing are not necessarily mutually exclusive; there may be "behavior that is at the same time both stressful and enjoyable" (Bicknell & Liefooghe, 2010, p. 38). In this paper, we draw upon this line of argumentation and understand stress as a possible driver of both negative and positive emotional reactions. In this light, we revisit the relationship between the factors that create technostress and perceived enjoyment as well as the relationship between perceived enjoyment and job satisfaction in social media environments.

For this purpose, we will first examine the recent literature regarding (technology-induced) stress and enjoyment in social media contexts. We will also introduce nativeness in the form of experience, skill and social media usage as a possible mediator of stress creators and enjoyment. Often casually discussed as a generation gap in the enjoyment of social media, we will use the model developed later in the article to determine whether there are differences in the emotional response to stress between individuals who are highly experienced and skilled in the use of social media and those who are not. Second, we propose a model of stress and enjoyment in social media work environments that is based on the existing research on technostress and enjoyment. Third, with the help of a multi-national survey of 1.015 communication professionals, we will test the hypothesized model for users who are comfortable, skilled and confident in the social media environment (Social Media Natives), on the one hand, and users who are more hesitant, less skilled and less confident in their use of social media (Social Media Immigrants), on the other hand. Fourth, we will discuss our findings with a particular emphasis on the influence of *nativeness* on enjoyment and stress. Finally, we will illustrate the practical implications of our research and map out paths for future research.

5.4.2. Theoretical Grounding

5.4.2.1. Social media Environments bear a high Stress Potential

Social media, in both private and professional contexts, demand high levels of engagement and interaction from participants (Ayyagari et al., 2011). Based on the technostress literature (e.g., Brod, 1984; Tarafdar et al., 2011; Ragu-Nathan et al., 2008; Bucher et al., 2013; Cooper et al., 2001), three conditions that are especially stressful can be identified in this context. *First*, through social media outlets, professionals are increasingly challenged with an amount of information that may be too large for them to meaningfully process, which may generate situations of overload (Ayyagari et al., 2011, Karr-Wisniewski & Lu, 2010; Ragu-Nathan et al., 2008; Cooper et al., 2001; Edmunds & Morris, 2000). *Second*, the boundaries between the private and work domains are increasingly blurred because the conversation on social media never rests and workers can be connected to social media 24 hours a day on their (mobile) communication devices. This constant

connection may lead to an invasion of work and work themes into the private domain and vice versa (Ayyagari et al., 2011; Farnham & Churchill, 2011; Hogan, 2010; DiMicco et al., 2008; Greenhaus, Allen & Spector, 2006; Greenhaus & Powell, 2006; Ammons & Markham, 2004). *Third*, the conversation on social media outlets takes place on a myriad of new and often changing platforms and applications at once, such that it becomes difficult to keep track of relevant sources and community movements. This situation has the potential to create a high level of uncertainty (Ayyagari et al., 2011).

5.4.2.2. How Technology-induced Stress impacts individual Wellbeing

In the literature, environments that are stressful due to technology are generally associated with the experience of a variety of negative effects on one's wellbeing (Brod, 1984; Ayyagari, 2012; Ragu-Nathan et al., 2008). Technology-induced stress in the workplace is associated with decreased job satisfaction and increased job burnout (Hu & Cheng, 2010; Hendrix et al., 1995). Gasser and Palfrey (2008) link negative psychological effects, such as anxiety, depression, low motivation and sometimes even panic, to the stress induced by new technological environments. Moreover, consistent with Tennant (2001), they add physical strains, such as increased heart rate, migraines, reduced attention span and restlessness to the list of possible negative consequences. Tarafdar et al. (2011) warn that stress in a new technological environment may significantly reduce job satisfaction, commitment, innovation, and productivity.

The direct relationship between stress (e.g., in the form of overload, invasion or uncertainty) and perceived enjoyment in social media workplaces has not yet been explicitly examined. Consistent with Gasser and Palfrey (2008), Hu and Cheng (2010) and Brod (1984); however, it can be stated that the literature on workplace stress and technology-induced stress generally assumes a negative correlation between stress and perceived enjoyment.

However, as Cooper et al. (2001) note, it is often not the actual stress or the stress-inducing factors that tend to be harmful but the inability to manage a stressful environment in a sustainable manner. From this perspective, stress may be neither good nor bad but simply a necessary condition in the workplace. More generally, stress may not only entail negative consequences but also beneficial ones. In this

context, Folkman (2008) observes that during an intensely stressful experience, positive and negative emotions may co-occur. As Le Fevre et al. (2003, p. 727) note, common management practice assumes that "a reasonable amount of pressure, anxiety, or fear in the [work] environment leads to higher performance among employees than if stress is not present". Similarly, various authors argue that stress, if negotiated appropriately, can produce positive outcomes and can be stimulating and energizing (Nelson & Simmons, 2003; Benson & Allen, 1980; Certo, 2003; Lussier, 2002, Quick et al., 1990). These arguments may explain why organizations generally attempt to manage stress at optimal levels instead of attempting to eliminate it (Le Fevre et al., 2003). Although the notion of "good stress" (or "eustress", as Selye (1956, 1974) calls it) regularly comes up in the literature, there is little empirical evidence of the phenomenon (Le Fevre et al., 2003; Bicknell & Liefooghe, 2010, 2006), which has led many authors to reject the "good stress" notion altogether (e.g., Sulsky & Smith, 2005, Le Fevre et al., 2003). One of the few empirical advances on the topic comes from McGowan et al. (2006), who show a positive relationship between task-oriented coping and eustress (a positive affective outcome of stress). On a general note, Bicknell and Liefooghe (2010, 2006) criticize the current academic discourse for being dominated by a positivist view and not accounting for the heterogeneity of stress experiences.

There are numerous ways to approach stress in modern work environments, and most of these emphasize the individual who responds to and interprets a straining condition. According to Sisley et al. (2000, p. 4), stress in the workplace is a "dynamic process between physiological, psychological, and behavioural entities that are cognitively interpreted by the individual". Furthermore, consistent with Lazarus and Folkman (1984) and Rahe (1999), workplace stress can be seen as the dynamic product of interactions between a person and his or her environment and the individual's cognitive assessment of stressors and coping resources. Similarly, according to Edwards (2008), who based his work at least partially on Lazarus and Folkman (1984) and Folkman (2008, 1997), stress in the workplace occurs when there is a dysfunctional fit between a person and his or her environment. Bicknell and Liefooghe (2006, p. 391) posit that "stress […] is created and experienced by the self uniquely and contextually". Summing up these definitions, it can be said that whether a work situation or setting is considered stressful is always individual-specific (Mark & Smith, 2008; Park & Folkman, 1997).

5.4.2.3. Nativeness and Stress in Social Media Workplaces

If we examine this finding from a social media perspective, we can conclude that not all professionals working with social media react equally to the stressors presented in the immediate work environment. Some individuals may be more prone to display negative affective reactions in the face of technostress, whereas others may react less negatively or even positively. Although stress vulnerability may depend on a variety of characteristics, generational factors, such as age, experience or confidence in using a new technology, appear to be predominant in the literature (Tarafdar et al., 2011; Ragu-Nathan et al., 2008). In their work on technostress, Tarafdar et al. (2007) note that professionals with greater computer confidence generally experience less technostress because they are likely to have more faith in their ability to handle the disruptions arising from stress-creating conditions in the work environment. With respect to age and experience, Tarafdar et al. (2011, p. 119) note that "intuitive reasoning suggests that younger people, being more familiar with technology, would experience less technostress". However, these authors' findings show that older professionals experience less technostress because they may be better able to manage stress in general due to their maturity and experience (Tarafdar et al., 2011).

5.4.3. Deriving Hypotheses

To offer a basis for discussion to revisit the prevalent assumptions of negative stress related to technology, we derived four hypotheses on the distinct relationships between three of the five (techno-)stress-inducing factors that are generally applicable to a social media context (Bucher et al., 2013): *overload*, *invasion* and *uncertainty,* on the one hand, and perceived *enjoyment,* on the other hand. Additionally, we expect enjoyment to correlate with *job satisfaction* (Fig. 1). Furthermore, we expect *nativeness,* in the form of social media experience, usage and skill, to have a considerable impact on all of the aforementioned relationships.

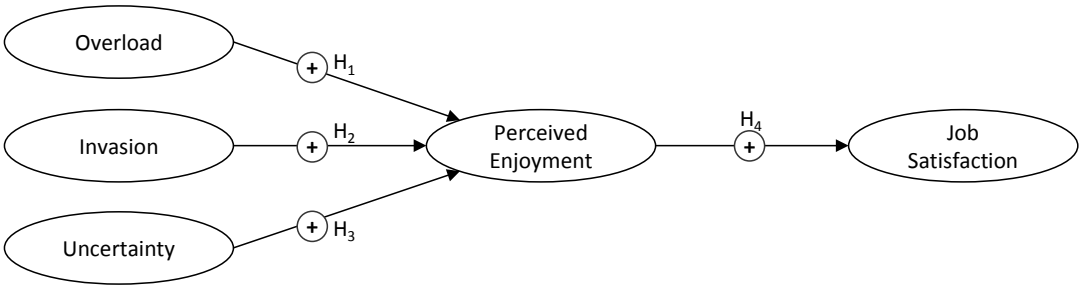

Figure 26: Hypothesized Relationships between Technostressors, Enjoyment and Job Satisfaction

Building on the evidence from the academic literature outlined above, we hypothesize, unlike much of the technostress research in other domains of ICT, that in the social media environment, some stress creators may actually lead to higher rates of enjoyment and thus higher rates of job satisfaction (Nelson & Simmons, 2003; Benson & Allen, 1980; Certo, 2003; Lussier, 2002, Quick et al., 1990; Selye, 1956).

First, we expect this positive connection between stress and enjoyment to exist with regard to overload. A large variety of tasks and an abundance of information may be overwhelming when not managed appropriately (Bawden, 2008; Eppler & Mengis, 2004), but it may also be stimulating and exciting (Boyd, 2010), especially for a person who was brought up in a digital environment and thus possesses a certain level of digital information literacy (Gasser & Palfrey, 2008). We live, as Boyd (2010, p. 26) puts it, "in a world where information is everywhere", and we are past the stage of being mere consumers of information. In this line of argumentation, the notion of overload as a harmful condition may lose some of its topicality because overload may be seen as the default setting for our information environment. Thus, we hypothesize that in the hyper-connected world of social media, it may no longer be appropriate to perceive overload solely as a threat to enjoyment.

H1: Overload in social media work environments has a positive effect on perceived enjoyment.

The invasion of work into the private domain is generally regarded as a hazard when family time and recreation periods are reduced (Ayyagari et al., 2011; Farnham & Churchill, 2011; Hogan, 2010). However, it may also create a sense of being important and even indispensable, thus positively affecting self-esteem and a

feeling of organizational belonging, which may create and increase enjoyment (Arnold, 2003; Frissen, 2000; Gillard et al., 1997). Being connected to work on mobile devices, for example, may be associated with a social or business life that is, as Arnold (2003) puts it, “dynamic, lively, often unpredictable, but certainly full”. The enjoyment of this connection may be especially prevalent in social media environments because people are inherently social (O’Reilly, 2005; Shirky, 2008), and interactions with others using social media, even in their spare time, may appeal to people’s need to communicate with others and to be heard on a very basic level. Constructs of sociometric popularity suggest that people with more social contacts are generally regarded as more interesting and attractive than people with less social interaction (Tong et al., 2008; Parkhurst & Hopmeyer, 1998).

H2: Invasion of social media work environments into the private domain has a positive effect on perceived enjoyment.

Generally, work environments that are dominated by constant technological change are ascribed feelings of uncertainty and disorientation because frequent upgrades and changes in hardware or software often produce a need for new skill sets, rendering extant expertise obsolete (Ayyagari et al., 2011; Smith & Zook, 2011; Tarafdar et al.; 2010; Venkatesh & Bala, 2008). At the same time, uncertainty related to frequent changes in the software and hardware used in the workplace may have a positive effect on enjoyment because a dynamic and ever-changing media environment may be perceived as stimulating, creating new opportunities to learn and to play (Jenkins et al., 2006).

H3: Uncertainty in social media work environments has a positive effect on perceived enjoyment.

We further hypothesize that enjoyment and job satisfaction are closely linked because job satisfaction can be seen as "a pleasurable affective condition resulting from one's appraisal of the way in which the experienced job situation meets one's needs, values and expectations" (Davis & Lofquist, 1984, p. 72). This link is also evident in the scales measuring job satisfaction that frequently draw on enjoyment as an indicator of job satisfaction (Brown & Peterson, 1994; Spector, 1997; Giri & Kumar, 2009; Agho et al., 1992).

H4: Perceived enjoyment has a positive effect on job satisfaction

Lastly, we hypothesize that although some stressors in the social media environment may positively affect enjoyment and job satisfaction, nativeness is expected to have a moderating effect on all of the previously outlined relationships. We suggest that professionals who are more skilled and experienced in using social media have a different propensity to react to overload, invasion, and uncertainty in a positive way than their less experienced and less skilled counterparts (Ragu-Nathan et al., 2008; Tarafdar et al., 2010). We therefore seek to examine the following research question regarding the relationship between overload, invasion, and uncertainty, on the one hand, and enjoyment and (indirectly) job satisfaction, on the other.

RQ1: To what extent do the relationships in the technostress-enjoyment model (H1-H4) differ between social media natives and social media immigrants?

In the following, we test these four hypotheses and the additional research question in a proposed model of technostress and enjoyment in social media environments.

5.4.4. Research Method

To test the presented hypotheses, we conducted an online survey of professional communicators in Europe. Individuals in the marketing and (corporate) communications fields who manage and process information from an increasing number of sources each day are particularly exposed to the challenges created by social media (Kaplan & Haenlein, 2009; Jue et al., 2010; Grimes & Warschauer, 2008; Schneckenberg, 2009; Zerfass et al., 2011; Eyrich et al., 2008; Curtis et al., 2010). Our sample represents the database of the European Association of Communication Directors (EACD). We invited 17.000 professionals via email to participate in the survey during October 2010.

Overall, 2.079 professionals from 30 different European countries completed the online questionnaire. A total of 1.015 answer sets were complete and deemed suitable for further analysis. Within the sample, women are slightly over-represented, constituting 53.9 percent of all participants. Most participants are between 30 and 40 years of age and hold a master's degree. The respondents

primarily work in higher-ranking positions and for privately held companies. The profiles and demographics of the respondents are summarized in Table 28.

Variables	Distribution	Percent
Gender	Female	53.9
	Male	46.1
Age	Below 30 years	11.7
	30-35 years	22.2
	36-40 years	21.0
	41-45 years	17.8
	46-50 years	13.0
	Above 50 years	14.3
Academic Degree	Doctorate	6.2
	Master's	56.5
	Bachelor's	29.9
	No academic degree	7.4
Position	Chief Communication Officer	31.9
	Head of Sub-Unit	23.4
	Senior Team Member	17.9
	Junior Team Member	4.3
	Other	22.5
Classification of Organization	Publicly traded company	26.6
	Privately held company	30.4
	Government-owned/Political Organization	19.6
	Non-Profit Organization/Association	23.3

Table 28: Profile of Respondents

With regard to the research question, the questionnaire was primarily based on measures found in the literature on workplace stress, technostress and overload, with additional literacy scales applied. The scales for *overload*, *uncertainty*, and *invasion* were borrowed from Ragu-Nathan et al. (2008) and Tarafdar et al. (2007). The measurement of Enjoyment was based on Bala and Venkatesh (2008). The items on job satisfaction were retrieved from Brown and Peterson (1994), Spector (1997) and Giri and Kumar (2009). The construct of nativeness was captured by an index of experience, skill and usage. The experience scales were based on Venkatesh et al. (2003) and Gasser and Palfrey (2008). In accordance with Hargittai (2009) and Kaplan and Haenlein (2009), the term social media usage, as applied in the survey, includes the use of the most common social media instruments: social networking sites (e.g., facebook), microblogs (e.g., twitter) and content networks (e.g., youtube). Finally, the scales for participants' social media skill levels were

borrowed from Leung (2009) and rooted in the literacy literature. However, because none of these scales was originally intended for use in a social media context, we modified their phrasing slightly to fit the current work situation in professional communication. The initial pre-test was conducted by five academic and six managerial experts in the field of marketing and communications. These experts assessed the relevance and validity of the items in terms of each construct. The resulting item portfolio was then tested by 32 respondents in the final pilot test. The testers were once again asked to comment on the selected items regarding wording and comprehensibility. All of the items used in the final online survey are shown in Appendix A. The participants were asked to rate their disagreement or agreement on a five-point Likert scale (from "1=strongly disagree" to "5=strongly agree").

5.4.5. Results

To test the hypothesized model and answer the research question, we used a four-step analysis approach. First, we evaluated the hypothesized measurement model employing factor analysis to establish the unidimensionality and internal consistency of the constructs. Second, we tested the structural model for all respondents (H1-H4) using Mplus (Muthén & Muthén, 2006). Third, we performed a hierarchical cluster analysis to split our sample into clusters of different levels of nativeness. The resulting clusters of Social Media Immigrants and Social Media Natives established the basis for the subsequent fourth step, the multiple group analysis, which scrutinized the differences in the relationship between social media stressors and enjoyment as well as between enjoyment and job satisfaction, depending on individuals' nativeness levels (Q1). In the following paragraph, items are labeled in short form. Appendix A shows the underlying item set of the cluster analysis.

5.4.5.1. Measurement Model

As suggested by Anderson and Gerbing (1988a, 1988b), we evaluated the measurement model before testing the structural model. Therefore, an exploratory factor analysis was conducted to test for unidimensionality and scale reliability on the indicator and construct level. For the documentation of the rotated component matrix, see Appendix B. No item fell below the threshold of 0.40 (Bollen, 1989; Netemeyer et al., 2003). On the construct level, we used Cronbach's alpha (α),

composite reliability (C.R.) and average variance extracted (AVE) to assess the internal consistency of the scale. Table 29 lists the results. Cronbach's alpha, C.R. and AVE were all above the criterion values. Therefore, (scale) reliability can be assumed.

Construct	**Item**	**Standardized loading**	**Mean (S.D.)**	**A**	**C.R.**	**AVE**
Overload (OL)	OL 1	0.737	3.099 (1.289)	.835	0.838	0.634
	OL 2	0.822				
	OL 3	0.826				
Invasion (INV)	INV 1	0.626	2.052 (1.280)	.804	0.815	0.598
	INV 2	0.832				
	INV 3	0.843				
Uncertainty (UNC)	UNC 1	0.736	2.647 (1.242)	.798	0.799	0.571
	UNC 2	0.803				
	UNC 3	0.725				
Enjoyment (ENJ)	ENJ 1	0.775	3.796 (1.056)	.885	0.886	0.722
	ENJ 2	0.935				
	ENJ 3	0.831				
Job Satisfaction (SAT)	SAT 1	0.944	3.866 (1.634)	.969	0.968	0.909
	SAT 2	0.956				
	SAT 3	0.960				
Criterion		≥ 0.5		≥ 0.7	≥ 0.6	≥ 0.5

*** $p < 0.001$

Table 29: Measurement Model

Due to the applied pretest and scale development, content and convergent validity can be assumed. Hence, as shown in Table 30, the measurement model has discriminant validity.

		Squared multiple correlations				
Construct	AVE	OL	INV	UNC	ENJ	SAT
OL	0.634	-	0.27	0.13	0.05	0.00
INV	0.598		-	0.11	0.06	0.00
UNC	0.571			-	0.13	0.00
ENJ	0.722				-	0.00
SAT	0.909					-

Table 30: Fornell-Larcker Criteria

5.4.5.2. Structural Model

Based on the postulated hypotheses, Figure 27 presents the structural equation model tested with Mplus. The results of this first step include the standardized

coefficients based on maximum likelihood estimation and the total variance explained for each dependent construct for all participants (N=1.015). As shown in Table 31, the model provided good fitness measures. As depicted in Table 32, the relationship between overload and enjoyment (p=0.047) as well as the relationship between enjoyment and job satisfaction (p=0.022) turned out to be non-significant (p>0.01). The relationships between invasion and enjoyment and between uncertainty and enjoyment proved to be significant (p<0.01).

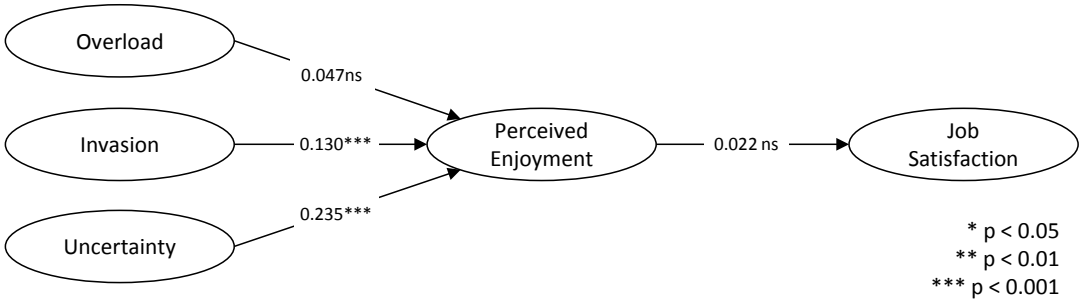

Figure 27: Structural Equation (Base) Model

Index	Measurement Model	Criterion
Chi-squared (p)	208.148 (0.000)	-
Degree of freedom	83	-
Chi-squared/d.f.	2.50	≤ 3
CFI	0.987	≥ 0.90
TLI	0.983	≥ 0.90
SRMR	0.034	<0.05
RMSEA	0.039	≤0.05

Table 31: Fit Indices

Hypothesis	Relationship	Std. Estimate (t-value)	Result
H 1	OL → ENJ	0.054 (0.217)	rejected
H 2	INV → ENJ	0.129 (0.003)	supported
H 3	UNC → ENJ	0.292 (0.000)	supported
H 4	ENJ → SAT	0.013 (0.706)	rejected

* p < 0.05 ** p < 0.01

Table 32: Parameter Estimates and Hypothesis Testing

5.4.5.3. Hierarchical Cluster Analysis

To identify the subgroups (clusters) that show similar response patterns concerning nativeness within the sample, we performed a hierarchical cluster

analysis based on social media usage, experience and skill. The cluster analysis revealed a three-cluster solution of Social Media Immigrants (N=426), Social Media Natives (N=481) and non-users (N=41) with 67 missing cases. In the analysis, we applied Ward's method (e.g., Chatfield, 2004; Ward, 1963) as a clustering technique and the squared Euclidian distance as a distance measure. We relied on the so-called "elbow criterion", which examines the percentage of variance explained as a function of the number of clusters (Honarkhah & Caers, 2010; Thorndike, 1953), to determine the adequate number of clusters. To confirm this cluster solution, we performed a discriminant analysis that showed that 83.5 percent of the original grouped cases were correctly classified. Furthermore, the discriminant functions had sufficient eigenvalues and – as demonstrated by the analysis of the residual Wilks' lambda – all of the variables remain significant for the separation of the groups (Appendix C). Therefore, the three-cluster solution can be deemed applicable.

The first cluster, Social Media Immigrants, displays a rather low usage of social media instruments as well as moderate self-reported social media skill levels and limited experience with social media in the workplace. The second cluster was called Social Media Natives because the participants in this cluster appear to be "born into" a work environment characterized by social communications. The Social Media Natives bring vast experience in working with social media and have a high self-reported skill level in using social media at work. The main differences in the level of "nativeness" between Social Media Immigrants and Social Media Natives are displayed in Table 33. In addition to differences in usage, experience and skill, these clusters show differences in age: at an average age of 41.12 years, the Social Media Immigrants are significantly older than their more native colleagues, who have an average age of 38.94 years. The third cluster, the non-users, was excluded from further analysis for two reasons. First, for a participant to contribute to a better understanding of overload, invasion and uncertainty in social media environments and their impact on enjoyment, minimal experience with social media is required. Second, the non-user cluster had only 41 participants and was too small to allow meaningful conclusions through multiple group analysis.

	Cluster 1 Social Media Immigrants	Cluster 2 Social Media Natives	Sample Basis for the Multiple-Group Analysis
	53.03% N=481	46.97% N=426	100% N=907
Extent of Usage of Social Media Platforms (average value on a 5-point Likert scale)			
Social Networking Sites	2.96	4.31	3.64
Microblogging Services	4.31	1.88	3.10
Content Networks	1.88	3.92	2.90
Experience in Working with Social Media (average value on a 5-point Likert scale)			
When did you begin using social media?	Up to 2 years	Up to 4 years	Up to 3 years
Self-reported Social Media Skill Level (average value on a 5-point Likert scale)			
I am able to publish content in social media.	3.68	4.77	4.22
I am able to create multimedia content (video or podcast).	2.63	3.97	3.30
I find it easy to engage in conversations with social media audiences.	2.94	4.25	3.59

Table 33: Cluster-Basis for the Multiple Group Analysis

5.4.5.4. Multiple Group Analysis

To answer research question Q1, to what extent do the relationships in the technostress-enjoyment model (H1-H4) differ between social media natives and social media immigrants, we conducted a multiple-group structural equation modeling (multiple-group SEM) on the basis of the results derived through the cluster analysis. To assess the equivalence of the measurement model for respondents with lower and higher levels of nativeness, we followed the three-step procedure suggested in the literature (e.g., Bollen, 1989; Byrne, Shavelson, & Muthén, 1989; Mullen, 1995; Steenkamp & Baumgartner, 2000; Cheung & Rensvold, 2002). In the first step, we tested the model for configural invariance (i.e., no constraints between the two groups, and all parameters can be estimated separately). As shown in Appendix D, this unconstrained model (M_1) fit very well. In the second step, we tested the model for metric invariance. Therefore, all factor loadings were constrained to be equal between the groups in M_2. Additionally, the M_2 model fit indices were comparable to those of M_1. In other words, the fit indices between the unconstrained and constrained models did not decline. The last step was to constrain the intercepts between the two groups so that they were equal (M_3)

to test for scalar invariance. M_3 did not have a significantly worse fit than M_2. It is evident from the results in Appendix D that configural, metric and scalar invariance can be assumed for the model of the two groups. Thus, we can answer Q1 by comparing the technostress-enjoyment model, the path coefficients and means of the latent variables, between individuals with lower and higher levels of nativeness. Figure 28 presents the technostress-enjoyment model for both social media immigrants (lower levels of nativeness) and social media natives (higher values of nativeness). Differences were observed in the relationship between the latent variables among groups.

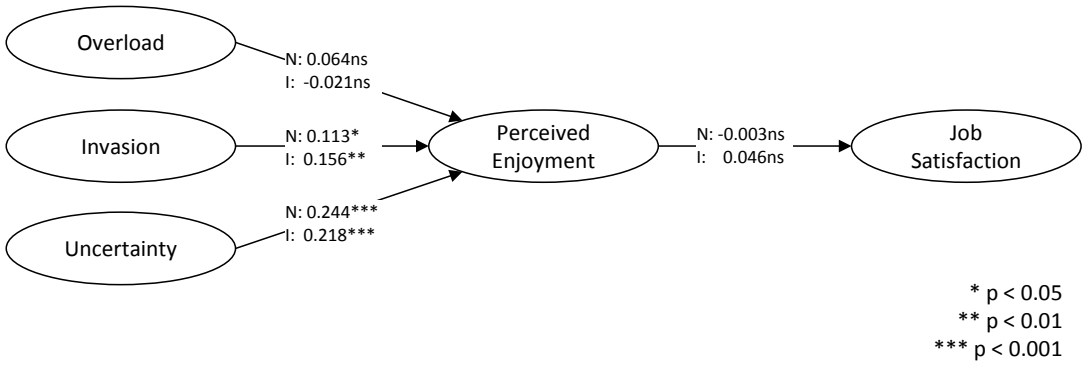

Figure 28: Standardized Estimates for Social Media Natives and Social Media Immigrants

Finally, we compared the estimated means of the latent variables between the two groups in Table 34. With the exception of job satisfaction, all of the factors are more prominent, with higher p-values in the group of Social Media Natives.

Means (p-value)	Social Media Immigrants	Social Media Natives
Overload	-	0.257***
Invasion	-	0.333***
Uncertainty	-	0.571***
Enjoyment	-	0.734***
Job Satisfaction	-	-0.015 (ns)

Table 34: Mean Comparison between Latent Variables

5.4.6. Discussion

In this paper, we showed that despite the stress potential that may be inherent in the usage of social media in the workplace and despite the general consensus among prominent researchers of organizational stress and technostress who study ICT,

overload, invasion and uncertainty do not evoke solely negative reactions within the workforce (e.g., Tarafdar et al., 2011; Tarafdar et al., 2010; Ayyagari et al., 2011; Connolly & Bhattacherjee, 2011). These factors may have also positive consequences, such as increased enjoyment. Furthermore, we highlighted the importance of nativeness as a moderator of the stress-enjoyment relationship by revealing clear differences with respect to stressors and to enjoyment between social media natives and social media immigrants. In the following, we will discuss our findings and map out implications for further research and practice, and we will note the main limitations of the present study.

5.4.6.1. The Janus Face of Invasion and Uncertainty

Throughout the survey, invasion and uncertainty presented somewhat counterintuitive properties. Although the previous literature generally assumes a negative correlation between general technology-induced invasion and uncertainty, on the one hand, and enjoyment, on the other hand (e.g., Brod, 1984; Tarafdar et al., 2011, 2007), we show that this assumption is not valid in workplaces where social media have become an integral part of work. The presence of work-related social community interaction in the private domain has a positive influence on people's enjoyment of social media. This finding suggests that professionals who conduct work-related tasks on twitter, facebook, and other social forums in their spare time generally enjoy working with social media. This finding is corroborated by various authors (e.g., Tong et al., 2008; Arnold, 2003; Frissen, 2000) who note that people enjoy playing a significant role in their social community and thus enjoy maintaining a large number of social ties. From this result, it can be assumed that work spillover through social media into the private domain may not necessarily be perceived as invasion but rather as personal reaffirmation and flattery. The positive relationship between invasion and enjoyment becomes even more salient for professionals with high levels of social media skill and experience.

Virtually the same is true for uncertainty; frequent changes in the social media work environment evoke enjoyment rather than being burdensome, as is often assumed in the technostress literature (e.g., Brod, 1984; Tarafdar et al., 2011, 2007; Ayyagari et al., 2011; Connolly & Bhattacherjee, 2011). Thus, it can be stated that the dynamic work environments provided by social media render work fun and interesting. This notion is reflected in the literature on general enjoyment (Davis et

al., 1992; Turel & Serenko, 2012; Monk, Hassenzahl, Blythe & Reed, 2002) because enjoyment measures are often based on items such as "fun", "entertainment", "interest" or "excitement", all of which may apply to dynamic and frequently changing digital work environments (Jin, 2010; Jin & Sternquist, 2004; Davis et al., 1992).

5.4.6.2. Overload Remains a Vexing Issue

The hypothesized positive relationship between overload and enjoyment was rejected altogether. Thus, confronting an overabundance of sources and information during a conversation on social networking sites or microblogs does not increase enjoyment and is assumed to be a strain on individual wellbeing (cf. Koroleva et al., 2010; Tarafdar et al., 2010). The potential to be overwhelmed by the sheer amount of information and the myriad channels through which conversations take place is a major issue that must be taken seriously in the context of professional social media usage.

Furthermore, evidence from the SEM (see Table 32) suggests that the enjoyment of social media at work does not fully translate into general satisfaction at work. This finding makes sense because enjoyment in using a particular work tool may be only one determinant of the historically diverse and complex construct of job satisfaction. Scarpello and Campbell (1983) posit that the best way to measure job satisfaction is a single-item facet measure (e.g., "Overall, how satisfied are you with your job?"). Nagy (2002) confirmed that in some ways, the single-item approach yielded favorable results compared to prominent multi-item measures such as the Job Description Index (JDI) (Smith, Balzer, Josephson, Lovell, Paul, Reilly, Reilly & Whalen, 1989) or the Minnesota Satisfaction Questionnaire (MSQ) (Weiss, Dawis, England & Lofquist, 1967). A glimpse into this academic debate (single-item approach vs. multi-item approach) may help to illustrate some of the difficulties in mapping out a direct influence from social media enjoyment to job satisfaction in social media workspaces.

5.4.6.3. A new Perspective on Nativeness

As revealed in the multiple group analysis, social media natives not only experience higher values for overload, invasion and uncertainty, but they also experience significantly higher levels of enjoyment. This finding makes sense when

we assume that professionals with high levels of experience and skill in using social media tend to be much more involved in the conversation and are thus more likely to encounter situations of overload, invasion and uncertainty, on the one hand, and to experience enjoyment, on the other hand. The notion of nativeness as a condition that spurs enjoyment in working with social media is generally supported by Gasser and Palfrey (2008) and by Bennet, Maton and Kervin (2008). Nevertheless, our understanding of nativeness is not entirely congruent with the extant literature on the net generations (e.g., Tapscott, 1998; Oblinger & Oblinger, 2005; Howe & Strauss, 2000) because in the professional context, we deem generational affiliation alone to be insufficient to determine one's aptitude and skill level (Jones, Ramanau, Cross & Healing, 2010). Based on the findings of the multiple group analysis, we suggest a new perspective on nativeness that is not primarily rooted in age but rather in actual usage, experience and skill level. The finding that age is not a sufficient differentiator between groups with higher and lower technology literacy is supported by various critics of the current digital native/digital immigrant approach (e.g., Czerniewicz & Brown, 2010; Selwyn, 2009). Experience and skill level may prove to be viable alternatives for the age criterion; instead of natives, we propose a schematic along the lines of higher and lower social media literacy (Bucher et al., 2013).

5.4.6.4. Conclusion and Limitations

Social media bring various challenges to the workplace. They bring more information than can be meaningfully handled, they are an ever-present source of interruption and distraction throughout our daily routines, and they have a tendency to disrupt extant work patterns through frequent changes in our digital work environment. Yet, the stressor overload, invasion and uncertainty that are inherent in this constellation do not diminish the enjoyment of working with social media. Invasion and uncertainty in social media workplaces can even increase enjoyment. These relationships become more salient with increasing nativeness in social media in the form of experience, skill and usage range. Several limitations apply to the present study. *First*, within the sample, only professional communicators who manage social media on a daily basis were considered. The results of this study are therefore most valid when applied to a similar population. In a next step, it would be interesting to apply the stress-enjoyment model within other professional

contexts to test for further generalizability. *Second*, we assume a self-reporting bias that affects the perception of overload, invasion and uncertainty as well as social media aptitude (Donaldson & Grant-Vallone, 2002). More to the point, we believe that it is possible that at least a small group of respondents either overrated their aptitude or underestimated their stress vulnerability in the questionnaire. Third, despite our finding of a positive relationship between some stressors and enjoyment, we by no means seek to belittle or underestimate the negative consequences of stress in the workplace. The harmful effects of stress on individual wellbeing are well documented (e.g., Brod, 1984; Tarafdar et al., 2011; Ayyagari et al., 2011) and are one of the most pressing matters in organizational research. This contribution merely seeks to elucidate both sides of the stress perception. Although stress and insufficient coping resources take an emotional toll in many workplaces, they may also have stimulating and motivating effects (for instance, in the case of social media workplaces) that have been largely neglected in the debate so far.

At first sight, the findings put forth in this contribution may appear to be counterintuitive. However, a closer look at the stress literature (e.g., Folkman, 2008; Nelson & Simmons, 2003; Lussier, 2002; Selye, 1956, 1974) and the drivers of enjoyment (e.g., Jin, 2010; Davis et al., 1992) reveals that the relationship between stress and wellbeing does not have to be unidimensionally negative but most likely contains positive as well as negative aspects. Here, we support Folkman's (2008, 1997) call for a more balanced perspective regarding the role of positive emotions in the stress process. In the case of social media, positive emotions such as enjoyment may be particularly salient, as confirmed in our survey for the communication profession. Furthermore, stress and enjoyment should not be understood as a one-way street. Future research could not only seek to confirm the multi-dimensional effect of stress on enjoyment, but, as also proposed by Jin (2010), could examine the potentially moderating effect of enjoyment on stress.

5.4.7. Appendix A:

List of Variables in the Structural Equation Model

Construct	Item	Wording
Overload (OL)	v_100	The immediacy of social media puts me on very tight time schedules.
	v_101	I am forced to change my work habits to adapt to social media.
	v_102	I have a higher workload because of the increased complexity and variety of social media.
Invasion (INV)	v_103	I spend less quality time with my family because of social media.
	v_104	I have to be in touch with my work, even during my vacation, to stay connected to the ongoing conversation in social media.
	v_281	I have to sacrifice my vacation and weekend time to keep current on new social media developments.
Uncertainty (UNC)	v_180	Social media drive constant changes in our communication strategy.
	v_181	The social media applications that we use are continuously changing.
	v_182	There are frequent upgrades in the social media portfolio of our organization.
Enjoyment (ENJ)	v_161	Using social media is a good idea.
	v_162	Using social media makes work more interesting.
	v_163	Working with social media is fun.
Job Satisfaction (SAT)	v_287	I like doing the things I do at work.
	v_288	I feel a sense of pride in doing my job.
	v_289	My job is enjoyable.

Appendix B: Rotated Component Matrix[a]

	Component				
	1	2	3	4	5
I like doing the things I do at work.	0.966				
I feel a sense of pride in doing my job.	0.969				
My job is enjoyable.	0.971				
Using social media is a good idea.		0.862			
Using social media makes work more interesting.		0.9			
Working with social media is fun.		0.895			
The immediacy of social media puts me on very tight time schedules.			0.85		
I am forced to change my work habits to adapt to social media.			0.836		
I have a higher workload because of the increased complexity and variety of social media.			0.821		
I spend less quality time with my family because of social media.				0.77	
I have to be in touch with my work, even during my vacation, to stay connected to the ongoing conversation on social media.				0.818	
I have to sacrifice my vacation and weekend time to keep current on new social media developments.				0.867	
Social media drive constant changes in my company's communication strategy.					0.787
The social media applications that we use are continuously changing.					0.86
There are frequent upgrades in the social media portfolio of our organization.					0.815

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

[a.] Rotation converged in 5 iterations.

Appendix C: Discriminant Analysis and Quality Criteria of Cluster Analysis

Classification Results[a]

			Predicted Group Membership			
Ward's Method			0	1	2	Total
Original	Count	0	41	0	0	41
		1	80	358	43	481
		2	0	33	393	426
	%	0	100.0	0.0	0.0	100.0
		1	16.6	74.4	8.9	100.0
		2	0.0	7.7	92.3	100.0

[a.] 83.5% of the original grouped cases were correctly classified.

Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	2.276a	95.6	95.6	.834
2	.104a	4.4	100.0	.308

a. First 2 canonical discriminant functions were used in the analysis.

Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	Df	Sig.
1 through 2	.276	1211.482	14	.000
2	.905	93.626	6	.000

Appendix D: Multiple Group Analysis

		M_1	M_2	M_3	Criterion
	Constraints	Unconstrained	Factor loading	Intercepts	-
Chi-squared Test of Model Fit	Value (Chi-squared)	247.288	263.503	324.144	-
	Degrees of Freedom (df)	166	176	186	-
	P-Value	0.000	0.000	0.000	-
	Chi-squared/ df	1.49	1.50	1.74	≤ 3
RMSEA	Estimate	0.033	0.033	0.040	<0.05
CFI/TLI	CFI	0.990	0.989	0.983	≥ 0.90
	TLI	0.987	0.987	0.981	≥ 0.90
SRMR	Value	0.039	0.043	0.049	≤0.05

6. Discussion and Conclusion

This dissertation strives for a better and more differentiated understanding of social media and their impact on individuals in modern workplaces. More to the point, it examines individuals' ability and willingness to adopt social media in their everyday work as well as their mental readiness to do so in a sustainable manner. To this end, two streams of literature are consulted, namely technology adoption (see chapter 2) and technology-related stress in the workplace (see chapter 3). On the basis of this theoretical foundation, four intermediate research objectives are proposed, each one informing a key aspect of the overall research objective. These key aspects are (1) social media usage in communication professions, (2) factors determining or impeding social media adoption at work, (3) mental aspects of professional social media literacy and (4) social media-related stress in the workplace. Each intermediate research objective is dedicated a separate paper with two research questions in this cumulative dissertation. The findings of each paper with their theoretical and practical implications have been discussed extensively in chapter 5. By way of synthesizing the discussion on the research results with the theoretical foundations of this dissertation, this final chapter presents four theoretical insights that transcend the boundaries of the single research questions and directly inform the overall research question. In the following, the findings of each paper are discussed with a particular emphasis on their theoretical and practical implications. Second, with the help of three extrapolating theses on the prospective impact of social media on the technology, the data, the human and the institutional layer, a non-managerial perspective on this dissertation's findings shall be inspired. Third, limitations and directions for future research are provided and fourth, in a final conclusion, the advancements made on the research objective will be summarized.

6.1. The Impact of Social Media on Communication Theory and Practice

The points made in this section are going beyond the conclusions and considerations of every single paper and present an integral view of the research results against the background of the theoretical foundations laid in chapters 2 and 3. In the following, each of the core findings of this dissertation will be presented first as a synthesis of findings, second with respect to its theoretical relevance and third with respect to possible practical implications.

		Integral Findings			
		Looking Beyond Demography (6.1.1)	**Foster Work and Play** (6.1.2)	**Consider Coping as an Aspect of Literacy** (6.1.3)	**Account for Stress and Stimulation** (6.1.4)
Finding derived from …	Technology Adoption	✓	✓		
	The Stress of Being Social		✓	✓	✓
	Paper I: Social Media Typologies	✓			
	Paper II: Social Media Adoption		✓		
	Paper III: Social Media Literacy		✓	✓	✓
	Paper IV: Stress and Enjoyment in Social Media Workplaces	✓		✓	✓

Table 35: Integral Findings of the Dissertation

6.1.1. Looking beyond Demography to explain Adoption, Stress and Enjoyment

The first integral finding refers to a change in perspective on demographic variables as explanatory differentiators in social media workplaces. As social media adoption advances to become a given in communication workplaces, demographic variables are not suitable to distinguish the users from the non-users, the enthusiasts from the skeptics and the stressed from the non-stressed anymore. Here, a new conceptual approach on nativeness could offer explanations on how individuals use and perceive social media.

6.1.1.1. Synthesis of Findings

Even though among European communication professionals there are considerable differences in the variety of social media platforms used as well as in the extent of usage, none of these differences can be traced back to classic demographic variables such as gender, age, education, income or work experience. Among the advanced and social media savvy user-cluster social media enthusiasts, demographic variables do not differ significantly from any other usage cluster. Female communication practitioners for example use the social media just as much as their male colleagues while they display equal levels of virtuosity, skill and confidence in engaging in the conversation on facebook, twitter and co. Not even the somewhat hesitant social media usage within the cluster of skeptic traditionalists corresponds with observations made in well-established explanatory models, such as the digital native/digital immigrant framework (e.g. Gasser & Palfrey, 2008; Tapscott, 1998) where younger and often male users are assumed to be more savvy and comfortable within new technological paradigms. Furthermore, a quite similar picture is shown in the contexts of stress perceptions and enjoyment. Here, whether or not a professional perceives overload, invasion and uncertainty to be an issue and whether or not one derives enjoyment form the work with social media does not depend so much on gender, age, education or work experience, but instead on skill, confidence and experience in using social media. According to the observations made in the sections 5.4 as well as 3.3.1, more experienced and skilled professionals not only have a stronger perception of the stressors overload, invasion and uncertainty, at the same time, they also enjoy their work with social media more than their less skilled and less usage-experienced colleagues. Thus, in the case of professional social media usage, stress perception and enjoyment, a novel theoretical perspective on demographic differentiators may be called for.

6.1.1.2. Theoretical Implications

In the literature, there are various studies with divergent findings on the demography subject. At large, they can be divided into three different categories: While contributions on private and more voluntary computer and Internet usage tend to assume a stronger influence of demographic variables on adoption, usage and attitudes (e.g. Morris, Goodman & Brading, 2007, Hargittai & Walejko, 2008; Hargittai & Shafer, 2006; Sanchez-Franco, 2006; Morahan-Martin, 1998; Gasser &

Palfrey, 2008), contributions that focus on the professional and often less voluntary (yet not mandatory) use of technology adoption generally assume a weaker but still present influence of demography (e.g. Venkatesh et al., 2003, Venkatesh & Davis, 2000; Simmers & Anandarajan, 2001). Furthermore, there is a growing body of research on knowledge professions that found no significant impact of demography on professional Internet usage, skill and attitudes at all (e.g. Knight & Pearson, 2005; Everett, 2004, Molluzo & Dwyer, 2009; Rainer, Laosethakul & Astone, 2003).

The findings of this dissertation on demography and social media in communication workplaces are particularly interesting in the light of the latter development in the literature. The evidence that in communication professions there is no demographic disparity associated with social media usage, enjoyment and stress perceptions clearly corresponds to the evidence gathered by Knight and Pearson (2005) as well as Everett (2004). The notion that "differences in age and gender no longer predict computer usage among knowledge workers" (Knight & Pearson, 2005, p. 59) is true for social media contexts as well.

By way of explaining why their findings showed no influence of demography on Internet and computer usage in knowledge professions, Knight and Pearson (2005) point to the high level of computer skills and usage maturity in the respective professional culture. Knight and Pearson (2005) go as far as to compare the adoption and usage of new technology in the workplace with basic literacy skills such as reading and writing which have long advanced to becoming preconditions for participation in today's professional environment and workforce.

Similarly, in modern communication workplaces, facebook, twitter and co. have become standard tools for connecting with and monitoring various audiences (Zerfass et al., 2011) (see 5.1.2). In the course of this research endeavor, among 2.597 communication practitioners who participated in our survey (Bucher et al., 2011), 97.4 percent use social media in their daily work, which translates to an exceptionally high rate of social media adoption. Since virtually every member of the workforce – men and women as well as older and younger employees – is expected to at least understand the basics of the social media paradigm, it makes sense that the main differences among practitioners do not follow a demographic pattern, but a pattern of skill, confidence and experience instead.

In order to address the growing maturity of social media in knowledge professions in general and in the communication profession in particular, we propose the consideration of nativeness in the form of self-reported social media skills, social media usage experience as well as social media confidence as a new indexed differentiator of social media usage, attitudes and social media-related stress perception. Here, this dissertation follows Selwyn's (2009) call to find a construct that is more a descriptive device (what actually distinguishes different groups of social media users?) than solely a discursive instrument.

By calling the new construct *nativeness*, which stands for the degree to which one is deeply familiar with and skilled in the usage of social media, this dissertation seeks provide a link to extant research on the digital native/digital immigrant binary (Gasser & Palfrey, 2008; Bayne & Ross, 2007; Tapscott, 1998). A high nativeness thus comes with high social media skills, experience and confidence. With the help of the new differentiator nativeness, the savvy users could be effectively differentiated from the less sophisticated users, the stressed from the less stressed and the ones enjoying working with social media from those who are still somewhat skeptic towards work in the social media paradigm.

According to the classic notion, the digital native/digital immigrant framework is "a deeply essentialising vision of selfhood as determined by generational positioning" (Bayne & Ross, 2007, p. 2). In this somewhat rigid vision, individuals of a younger generation are considered "native speakers of the new digital language" (Long, 2005, p. 187), which implies that individuals of an older generation will never be as good at "digital" as they are (Long, 2005).

Contrarily, the novel vision of nativeness proposed by this dissertation allows for the possibility of overcoming demographic boundaries. According to this demography-independent nativeness conception, an individual who enters a position as a social media *novice* can become a *native* simply through the accumulation of skill, experience and confidence over time. A demographic bias is not assumed as a person's nativeness does not depend on a particular date of birth and thus on a generational affiliation, but instead on experience, skill and confidence. Thus, regardless of age, gender or position, if a communicator has taken the leap into the social media sphere earlier and has – through work and play with the new applications – reached a certain level of skill and confidence, he or she is

more likely to use social media, to have a stronger perception of overload, invasion and uncertainty and at the same time, derive positive simulation such as enjoyment from working with social media.

Despite these findings, this dissertation in no way seeks to dismiss the nuanced differences that may be inherent in the way women and men as well as older and younger practitioners feel towards and use social media (e.g. Lin, Lu, Hsiao & Cheng, 2010; Sanchez-Franco, 2006) but the present findings stress, that a demography perspective too undifferentiated may be detrimental to achieving a holistic and realistic understanding of how social media impact on the workplace and on the workforce.

6.1.2. Foster Work and Play in Communications

The second integral finding focuses on the changing drivers of technology adoption in social media workplaces. Never before was organizational and social support more important in fostering the adoption of a new technological phenomenon among the workforce. Yet in order to render social media a functioning part of the professional communication tool-kit, support should go beyond simply granting access to social media platforms and instead actively encourage practitioners to work, experiment and play within the social media paradigm.

6.1.2.1. Synthesis of Findings

This dissertation's findings on technology adoption emphasize organizational facilitating conditions as the strongest direct determinant of social media use in the workplace. Accordingly, a professional will most likely use social media and engage in the new communication paradigm, if he or she feels supported by the organization and in possession of the necessary infrastructure and resources (Venkatesh et al., 2003). Yet previous work on adoption remains curiously vague when it comes to how exactly organizational support, resources and infrastructure should look like (see 5.2). In accordance with the literature on digital and social media literacy (see 5.3), intrinsic motivation (see 2.2.1.4) as well as stress avoidance (see 5.4), this dissertation defines organizational facilitating conditions as a combination of (1) technological infrastructure, (2) skills facilitation and the (3)

support of enjoyment, playfulness and fun in social media workplaces as a basis for learning. The technological infrastructure entails access to hardware such as mobile communications technologies or multi-media equipment on the one hand as well as access to social media platforms such as facebook, twitter and co. on the other hand. Skills facilitation encompasses learning in the sense of formal training as well as experimentation and play. Furthermore, enjoyment, playfulness and fun are expected to foster an environment where the learning of intuition and empathy in the conversation with audiences is supported.

6.1.2.2. Theoretical implications

Even though, many communication practitioners are highly skilled and experienced in their use of social media (Zerfass et al., 2011; Bucher et al., 2011), there is still considerable potential for a large part of the professional population to "catch up" and improve their adoption of social media (Payne, 2008). An amelioration of organizational facilitating conditions could be the key to foster said improvement. To date, there is no commonly accepted definition of the construct organizational facilitating conditions for the social media context. Yet, there are two decades of research on facilitating conditions for general technology adoption which may inform the conceptualization of facilitating conditions in a social media workplace.

Thompson et al. (1991) were among the first to propose organizational facilitating conditions as a determinant of adoption in their model of PC utilization where they argued that facilitating conditions were "objective factors that make an act easy (or difficult) to do" (p. 170). As an example for facilitating conditions, Thompson et al. (1991) name "access to a personal computer" (technological infrastructure) without which the actual usage of a personal computer would be impossible to achieve. In the case of social media, the problem of physical access barriers is still pertinent as various organizations block the use of facebook, youtube or twitter on corporate PCs for fear that "staff might spend too much time networking instead of working" (Kaplan & Haenlein, 2009, p. 66). In the communication profession, this restricted access to social media platforms can be a severe hindrance. Furthermore, in order to support the adoption of social media, a basic physical infrastructure (e.g. mobile communication devices) is needed. But "un-blocking" social media services and providing basic hardware is not enough to

truly foster social media adoption at work. Yet, this view on facilitating conditions is still very much rooted in the technological layer and thus too narrow to be applied to the entirety of the social media phenomenon.

A broader approach on organizational facilitating conditions is proposed by Venkatesh et al. (2003) who define facilitating conditions as part of the UTAUT model (see 2.2.2.3) as "the degree to which an individual believes that an organizational or technical infrastructure exists to support use of a system" (p. 453). Elaborating on their definition, Venkatesh et al. (2003) propose "help and assistance on the job" (p. 453) as an example for organizational support (skills facilitation). In the context of social media, this may foremost translate into providing optimal conditions to learn and to individually develop and increase one's social media competencies. Here, a combination of formal training on the one hand (DiStaso et al., 2011) and autonomous learning in the form of experimentation and play on the other hand is called for (Paroutis & Al Saleh, 2009; Jenkins et al., 2006; Buckingham, 2008; Squire, 2011). Thereby, formal training may focus on conveying the legal and strategic guidelines of an organization's social media approach (DiStaso et al., 2011; Payne, 2008), while autonomous learning pertains to making room for experimenting and playing with new applications and platforms (e.g. Buckingham, 2008; Jenkins et al., 2006). According to Jenkins et al. (2006), *play* as one of the most basic forms of learning can be defined as "the capacity to experiment with one's surroundings as a form of problem-solving" (p. 22). Experimentation and play render employee's interaction with audiences on the social media more natural and comfortable, lead to greater fluidity in navigating information landscapes, increase the ability to multitask and make rapid decisions about the quality of information and further collaboration among the workforce (Jenkins et al., 2006, p. 10).

Through play, communication professionals have the possibility to try on various roles and experiment with their communication style and language (Jenkins et al., 2006) until they become an established voice within a particular platform or community. This familiarization with an eye-level conversation style depends to a large part on intuition and empathy which are best developed in the playful yet realistic setting of the social media and not in a seminar room.

Furthermore, experimentation and play might foster intrinsic factors such as enjoyment, playfulness and fun among practitioners which are central in current motivation and adoption research (Payne, 2008; Ryan & Deci, 2000; Monk et al., 2002) as they relate to an inherent human desire to learn and to assimilate: "From birth onward, humans, in their healthiest states, are active, inquisitive, curious, and playful creatures, displaying a ubiquitous readiness to learn and explore, and they do not require extraneous incentives to do so" (Ryan & Deci, 2000, p. 56).

Based on these three components of organizational facilitating conditions, this dissertation proposes that in the case of social media, the organization should support adoption not only by providing access to the necessary tools and technologies, but also by consciously leaving room for experimentation and play within the new communication paradigm and by fostering aspects of enjoyment and fun in social media workplaces.

6.1.3. Consider Mental Coping as a new Literacy Dimension

The third learning from this dissertation scrutinizes coping as one of the foundations of social media literacy facilitation. Since the social media-related stressors can hardly be eliminated, being literate in the new communication paradigm entails being able to cope with overload, invasion and uncertainty in a sustainable manner. In this sense, coping is a means to avert psychological and physical strain as well as detrimental consequences for one's job performance.

6.1.3.1. Synthesis of Findings

Workplace stress, according to the process-based understanding taken on by this dissertation, encompasses several mandatory elements: First, there needs to be an antecedent, such as a radical change in the immediate work environment (e.g. the introduction of social media), which initiates a stimulus-response reaction. Second, there are one or several stressors (stimuli) linked to the antecedent. Third, each stressor entails one or several physical, psychological or job-performance-related strains (responses) (see 3.3.3). According to this definition, the absence or reduction of either stimuli or responses impacts on the overall stress level in the workplace. For example, an individual may be exposed to a variety of stressors and not feel any detrimental effects on their wellbeing and health; thus, in the absence of a strain,

there is no workplace stress. On the other hand, if one feels depressed, anxious, or unable to focus on the task ahead even in the absence of workplace stressors, a different form of stress (e.g. family stress (Liu, Gonzales, Fernandez, Millsap & Dumka, 2011) or a potentially pathological condition other than workplace stress may be assumed. Consequently, a possible moderation of strains through coping (Yip et al., 2008) is a promising avenue to reduce overall workplace stress and render work in a social media environment more sustainable in terms of individual physical and psychological wellbeing as well as job performance (see 5.4). In this sense, coping as a means to reduce or eliminate technology-related stress in the workplace should be considered as a constituting element of social media literacy (see 5.3).

6.1.3.2. Theoretical implications

Research on literacy in general and professional literacy in particular currently lives through a momentous change as many of the skill-sets necessary to participate in today's work and communication environment are markedly different from the skill-sets needed only a decade ago. Today, being literate encompasses being information literate (e.g. Leung, 2009; Farmer & Henri, 2008) or information fluent (e.g. Bawden, 2001), digitally literate (Lankshear & Knobel, 2008), Internet and computer literate (e.g. Livingstone, 2008) or simply e-literate (e.g. Bawden, 2008). Despite the various cognitive skill-sets associated with these literacy approaches, none of the previous literacy conceptions sufficiently account for the mental capacities needed in order to participate in the changed work environment in a sustainable manner. This current underestimation or even neglect of mental factors in literacy research becomes all the more interesting in view of the rapidly growing body of research on workplace stress (e.g. Choudhury, 2013; Griffin & Clarke, 2010) and technology-related stress (e.g. Tarafdar et al., 2011; Ayyagari, 2007, Ayyagari et al., 2011) as well as corresponding strains such as burnout syndrome (e.g. Hu & Cheng, 2010), anxiety (e.g. Bawden, 2008), depression (Thomée, Härenstam & Hagberg, 2011) or exhaustion (e.g. Mulki, Jaramillo & Locander, 2006). In this light, this dissertation proposes a novel approach on literacy, namely one that is rooted in coping as a mental capacity to foster a sustainable participation in a stressful work environment. Coping shall hereby be defined as a moderator between stressor and strain in the workplace or, in the words of Lazarus and

Folkman (1984), as "the cognitive and behavioral efforts used to manage specific external or internal demands appraised as taxing or exceeding the resources of the individual" (p. 141). Similarly, coping can be seen as an individual's cognitive and behavioral efforts to manage a specific demand that is overwhelming the individual" (Mikal, Rice, Abeyta & DeVilbiss, 2013, p. 4).

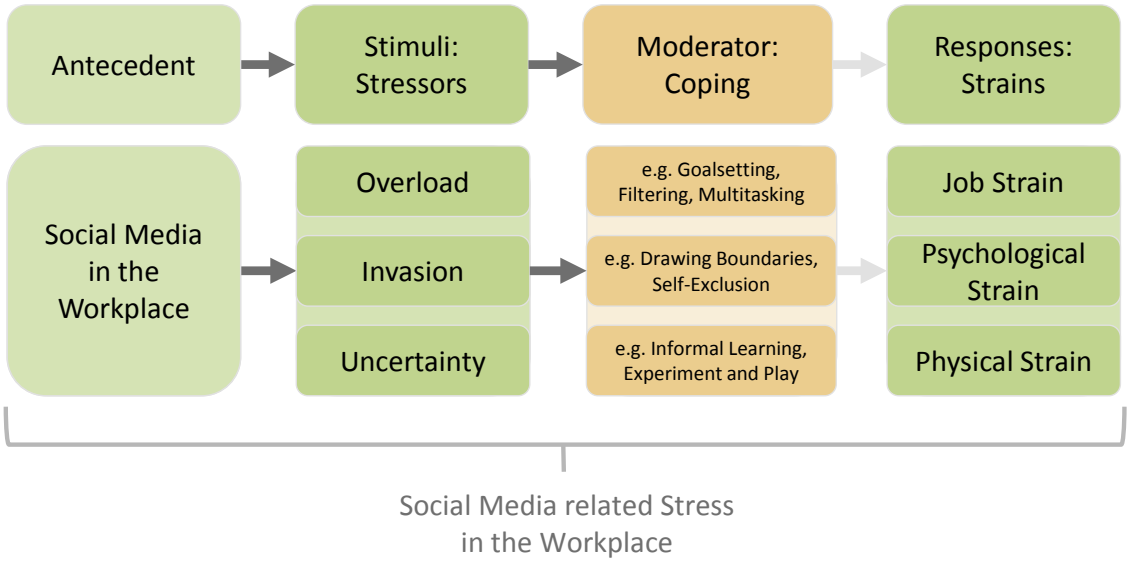

Figure 29: Coping as a Moderator in the Stress Process (Based on: Yip et al., 2008; Chan, 1994; see Chapters 5.3 and 5.4)

In order to derive possible coping behaviors for social media-related stress in the workplace, this dissertation consults and adapts behaviors from the rational problem-solving strategy proposed by Chan (1994) in his ways of coping questionnaire (WCQ) (see 5.3). Confirmative studies (e.g. Yip et al., 2008) have found 'rational problem-solving' measured through a 14 item scale to be most effective in reducing burnout, which is why rational problem solving shall be proposed as a foundational scale for an extended literacy approach. More to the point, the coping behaviors deduced from rational problem solving shall moderate the relationship between the social media-related stressors overload, invasion and uncertainty on the one hand and the respective strains on the other hand (see Figure 19).

Based this argumentation, professional literacy in the age of social media shall be defined as the ability to (1) participate in workplaces which are marked by the

advent of social media, (2) without taxing or exceeding one's psychological or physical resources. Consequently, literacy according to this dissertation is held to be a combination of relevant cognitive skills such as finding, aggregating, interpreting, combining and presenting digitally and socially produced content (e.g. Leung, 2009; Bawden, 2001; Bawden & Robinson, 2008; Lankshear & Knobel, 2008) on the one hand and the ability to cope with the stressors and strains inherent in the social media environment (e.g. Tarafdar et al., 2011; Ragu-Nathan et al., 2008; Yip et al., 2008; Lazarus & Folkman, 1984) on the other hand. Here, the present contribution seeks to enrich extant theory on professional literacy, which to date relies largely on works grounded in literacy and participation research, by proposing coping, technostress and workplace stress as theoretical extensions which inform a new and important dimension to the professional literacy construct (see Figure 20).

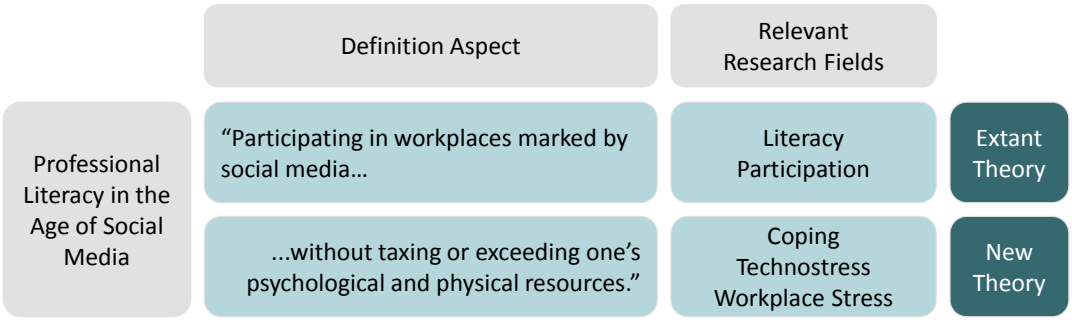

Figure 30: Conception of Professional Literacy in the Age of Social Media

6.1.4. Account for Stress as well as Stimulation

The fourth integral finding deduced form this research endeavor concerns the perception of stress as a part of a stress/stimulation duality and the different stress perceptions among practitioners with more or less experience and skill. The changes associated with social media in the workplace are associated with several stressors on the one hand and a series of stimulators on the other hand. More experienced and skilled practitioners have a stronger perception of the stressors (e.g. in the form of overload, invasion and uncertainty) as well as the stimulators (e.g. in the form of inspiration, self-affirmation and excitement) than their colleagues who are less engaged in the social media phenomenon.

6.1.4.1. Synthesis of Findings

While the adoption of social media in the workplace is generally thought to entail a series of stressors for individual professionals (see 5.3 and 3) there can be observed not only negative consequences such as anxiety or burnout arising from the changing communication paradigm, but also positive ones such as increased enjoyment (see 5.4). This might be evidence in favor of a more differentiated conception of social media-related stress in the workplace, one that does not only account for negative, but also for positive outcomes (see 3.3.2 and 3.3.3). Therefore, this dissertation proposes a return to the traditional understanding of stress as an environmental change (Selye, 1956, 1988) that may entail negative consequences (stressors and strains) as well as positive consequences (simulators and stimulations) (see 3.3.3).

Even though, almost all communication practitioners have made their first steps in the social media, (1) not all of them are equally motivated and ready to take the leap into the new communication paradigm and communicate on an eye-level with stake holders and (2) not all of them are equally experienced and skilled in their use of social media (see 5.1 and 5.2). Experience and self-reported skill-level as main differentiators among social media enthusiasts and social media skeptics (see 5.1) are also the sole criteria that distinguish practitioners with a stronger stress and stimulation perception from those who feel neither particularly stressed nor stimulated through the advent of social media (see 5.4). Accordingly, professionals with more experience and skill in their use of social media not only have a stronger perception of the stressors overload, invasion and uncertainty than their less experienced and less skilled counterparts but they also have a stronger perception of enjoyment and job satisfaction when working with social media (see. 5.4).

6.1.4.2. Theoretical Implications

Kranzberg's (1986) first out of six laws of technology reads: "Technology is neither good nor bad; nor is it neutral" (p. 545). By this, Kranzberg (1986) means (1) that the consequences of technology go far beyond the immediate purposes of the technical devices and practices themselves, and (2) that "the same technology can have quite different results when introduced into different contexts or under different circumstances" (p. 545). The latter explanation strongly corresponds with this dissertation's perception of social media as neither a good, nor a bad

phenomenon but simply as an undisputed cause for tremendous change in modern workplaces. While the changes brought on the by social media phenomenon are sometimes regarded with a certain amount of skepticism (Tu et al., 2005; Tarafdar et al., 2011) (see 3.3.2 and 1.1), they are also thought to bring new opportunities and stimulation to the workforce and especially to communication professionals (Shirky, 2008; Solis & Breakenridge, 2009; Benkler, 2006) (see 1.1). In this sense, individuals in social media workplaces may well be challenged to adapt to their new work environment and devote precious resources, psychological and physical, in the process. Yet, this not only entails the risk for strain in the form of anxiety, exhaustion or even burnout (García-Montes et al., 2006; Speier et al., 1999; Weil & Rosen, 1997), but also for stimulation in the form of enjoyment or job satisfaction (Ryan & Deci, 2000). Thus, when we speak of stress in the social media environment, we should also account for stimulation. Considering this notion, a holistic definition of social media-related workplace stress may have to account for the risks of stressors and strains as well as for the possibilities of stimulators and stimulation (see 3.3.3).

However, whether or not a particular environmental change is perceived as a burden or an opportunity, as a stressful situation or a stimulating experience depends very much on the individual. According to McVicar (2003), "stress perception is highly subjective" (p. 633) and while some individuals might perceive a particular change in the (work) environment to be a positive stimulation or eustress (Selye, 1988) others may perceive it to be negative stress or distress (Selye, 1988). Similarly, certain individuals may have a tendency to react more strongly to a stressful or stimulating situation while others may be less responsive to the changes in their environment. This individual responsiveness to environmental change is largely confirmed by the findings of this dissertation as professionals with a high degree of nativeness in the form of social media skill and experience are likely to have not only a strong perception of the stressors but also of the stimulators in the social media sphere. In this sense, highly skilled and experienced communication practitioners feel more overloaded, invaded and uncertain in the face of social media than their less versed colleagues, but they are also more inspired, excited and self-confident when working with facebook, twitter and co. This is in line with Tu et al. (2005) who postulate that employees with less

computer literacy feel less stress than their counterparts who are more computer literate (Tu et al., 2005, p. 80).

In this light, harnessing the full potential of social media might not just be about avoiding the negative consequences of stress through coping (see 6.1.3), but also about actively embracing the positive stimulators such as inspiration, self-affirmation or excitement as well.

6.2. The Impact of Social Media goes well beyond the Workplace

The impact of social media on individual professionals has been discussed from a management and communication workplace perspective in the previous section. In order to provide the basis and inspiration for a more holistic discussion of this dissertation's findings, the present section will additionally draw several hypothesized inferences on the technology, data, human and institutional layer (see Figure 32).

6.2.1. Thesis I: The Demographic Divide among Social Media Users and Non-Users is Closing

Communication professionals are a good population on the basis of which to study the advent of social media as they are not only highly technology literate, they are also among the first to experience the shift in the communication paradigm on a daily basis. Also, the communication profession provides a good cross section of demographic variables. Older and younger, male and female, less and more educated, higher as well as lower ranking professionals are faced with the same changes in their immediate and daily work environment. One main finding of this dissertation suggests, that (1) professionals' social media literacy as their ability to participate in a sustainable manner in the conversation going on in the social media does not follow demographic patterns and that (2) professionals use social media and experience stress and enjoyment in their work with social media regardless of their age, gender, position or education. To date, in the private realm, the picture looks very different. Here, the usage of and attitudes towards social media still depend on age, educational background or gender. This observation is largely summarized in the digital native/digital immigrant concept. Yet, the idea of a

dichotomy of highly literate native users (e.g. young, well educated, managerial job) on the one hand and immigrant users who are by tendency lagging behind and struggling with social media (e.g. older, less educated, non-managerial job) on the other hand may have to be reconsidered. As evidence from the managerial context suggests, experience and skill are the main predictors of social media usage, enjoyment and stimulation. Thus, as more and more people – of all backgrounds and ages – make their first steps in the online realm and gain experience and skill, this *demographic divide is expected to be closing*. Current research done within a population of the unemployed points precisely in this direction (e.g. Feuls, Fieseler & Suphan, 2012) as more unemployed individuals – many of whom are considered digital immigrants – discover the possibilities of the social web. It can be assumed that once they become experienced in using social media and improve their skills, the unemployed will be no less savvy, enthusiastic or original in their use of social media than their native counterparts.

A consequence of the continuously closing demography divide could be that *communities who come together for example on social network sites may become much more diverse and interest-driven* while being shaped less and less by demographic user-profiles. On the technology layer, this could mean that *applications as well as technological devices in the future may have to cater to the demands of a very diverse potential user-base* - and not just to a strictly native population. Also, technology design may have to take into account that skill and experience are the main levers to boost usage and enjoyment of an application or a platform. Thus, different levels of skill should perhaps be accounted for when designing a device or application. For example, in order to *lower the usage-threshold*, an application could be launched in a beginner version with reduced functionalities and complexity as well as in an advanced version which introduces more complex functionalities to users who are already experienced and skilled in the use of the beginner application. On the data layer, it can be implied that as the demographic differences in the social media user base are expected to become much less pronounced, user generated content and by extension *Internet culture could become richer and less shaped by a relatively small digital "elite" or avant-garde*. As a consequence, some of the criticism voiced by Andrew Keen (2007) as well as Czerniewicz and Brown (2010) with respect to a growing digital divide may lose its urgency as the population active in the social media may by tendency mirror the

population, opinions and concerns of the non-digital society. Accordingly, on an institutional layer, it can be assumed, that *movements and opinion polls in the social media may be given more weight and credibility as more (kinds of) people are actually partaking in the conversation*. This will be particularly interesting in the academic field, as with the social media population becoming more representative of the overall population, new opportunities for representative research in the social media become available. Furthermore, from an economic point of view, the finding that demography does not necessarily correlate with social media usage or aptitude might encourage organizations to *look beyond age or education when recruiting personnel in new media areas and instead focus on skill, experience and knowledge* that is specific to communities relevant to the organization.

6.2.2. Thesis II: Social Media-related Stress and Stimulation occur in the Private and in the Professional Realm

Another key finding of this dissertation pertains to the duality of stress as a conception of positive as well as negative implications. Stress in the face of social media entails the stressors overload, invasion and uncertainty on the one hand and stimulators such as inspiration, self-affirmation or excitement on the other hand. While the stressors may lead to anxiety, depression or even burn out, the stimulators may foster enjoyment at work and job satisfaction. Thus, the individual reactions to a work or other environment marked by the advent of the social media are likely to be positive as well as negative, with the extent of either reaction depending on the individual. This finding pertaining to the professional realm is expected to be applicable – at least in part – to the private domain as well.

Since the professional usage of social media usually takes place in a semi-voluntary or non-voluntary setting, the negative consequences of social media-related overload, invasion and uncertainty may at first sight be more prevalent in the workplace than in the private domain. Particularly this might be the case as (1) in the professional context individuals may be forced to work in communities where they may not be familiar with the prevailing language, community dynamics or communication style and (2) through social media they may be forced to occasionally deal with work-related content even in their spare time. However, even in the (supposedly) voluntary and spontaneous usage context of the private realm

where individuals generally communicate with audiences they are familiar with and have an intrinsic motivation to stay in touch with, stressors in the form of overload, invasion and uncertainty may occur. This is especially the case when the desire to stay "hooked" to the conversation takes on compulsory dimensions which leads to a reduced attention span and focus in everyday life (see Figure 31). The case for stimulation presents very similarly. While one would expect stimulation to be a prevalent occurrence in the private domain where social media are primarily used to stay in touch with friends and keep current on private interests, this thesis presents strong evidence, that stimulation in the form of enjoyment and satisfaction is inherent in workplaces as well.

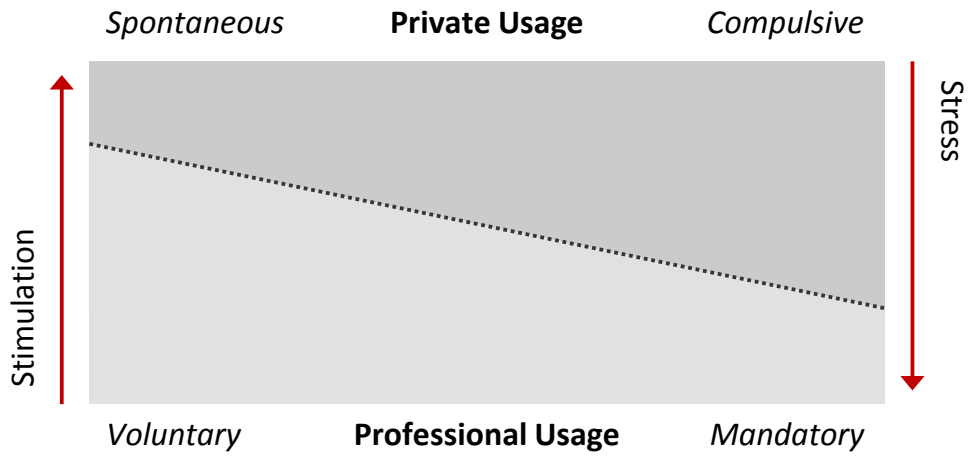

Figure 31: The hypothesized Relationship of Stress and Stimulation beyond the Workplace

Based on these reflections and observations, it can be hypothesized that whereas (1) the potential for stress and stimulation seems to be inherent in private as well as professional usage situations, (2) stimulating usage experiences may be more prevalent in voluntary and spontaneous settings while (3) stressful experiences might occur more pronounced in mandatory or even compulsive usage situations.

Based on this hypothesis, technology design in the future might particularly seek to account for the limited resources of the subject, regardless of the usage context as private and professional users alike experience overload, invasion and uncertainty. Here, design simplicity and end user friendliness may be key. Yet, at the same time, applications and communication devices should not just seek to avoid stress, but actively foster stimulation as well. Therefore – even if designed strictly for a work

context – inspiring, self-affirming and exciting features could be considered as well. Accordingly, it will be a future challenge on the technology layer, to *find a balance between reductionist design and stimulating features*.

As is suggested by the findings of this dissertation, organizational facilitating conditions are a key driver of social media adoption at work. According to the thesis presented in this section, organizations could best facilitate their employees' social media adoption by *promoting non-mandatory usage settings where individuals are granted the freedom to experiment and build relationships with their stakeholders on their own terms*. This way, employees can develop their own presence and style in the social media which may in turn foster stimulation in the form of as self-affirmation and inspiration instead of overload or invasion.

6.2.3. Thesis III: Quality and Popularity in the Social Media are not the same

As a third core finding of this dissertation, coping with mental challenges such as overload, invasion and uncertainty is proposed as an addition to extant curricula or professional literacy. Yet, even beyond the workplace, coping with a flood of socially produced information and content is expected to be one of the most prevalent issues in the social media. In fact, all main stressors in the social media environment may be traced back in one way or another to a "too much" of socially produced content. While (1) overload refers to an individual's inability to meaningfully process the flood of information, (2) invasion occurs when too much socially produced content and conversation are pushing the boundaries of different work or private domains and (3) uncertainty is inherent in situations when it becomes impossible to keep track of the relevant content and turns in the ever-evolving social media conversation.

To date, in academia and practice, there have been various approaches to framing this issue as either a proliferation of content (e.g. Bawden, 2011) or a failure of gatekeepers and filters (e.g. Shirky, 2008). Yet another way to look at the topic would be from the perspective of information quality (e.g. Gasser et al., 2012). In this view, one might argue that there has always been too much information for individuals to meaningfully process and there have always been filters in place that were biased and thus failing in or way or another. Yet what has changed is that in

the social media, the most relied upon filters in the social web employ popularity as a main criterion to sift through the flood of socially produced content. Thus whatever is "liked", linked or commented frequently in the social media is eventually swept to the top of bulletin boards, review sites and page rankings. As a consequence, the findings we are most likely to encounter in the social web are not necessarily the most relevant or sound ones (e.g. Eppler, 2003; Gasser et al, 2012), but the most popular ones instead (Lerman & Gosh, 2010; Keen, 2007; Salganik, Dodds & Watts, 2006). Therefore, when seeking to cope with (socially produced) information overload – be it in a work or other setting – one should keep in mind that while quality and popularity of socially produced information often overlap, they are by no means congruent. When applied to the social reality of individuals, this observation has far reaching consequences.

Popularity is arguably a powerful criterion to distinguish more valuable content or contributions from "noise" which is why crowdsourcing or crowd-voting as proposed by Howe (2009) work well in particular settings. Yet since popularity is always a compromise, it is likely that *the truly original, creative or complex ideas are being lost in the flood of information* as they are either misunderstood by a majority of "voters" or they are simply not in conformity with the current aesthetic and functional quality criteria held by the majority of the crowd. Thus, while true creativity and originality are certainly present in the flood of socially produced, mediated and aggregated content, it might be difficult for them to prevail within the popularity-driven social media culture. This point is strongly advocated by Keen (2007) who points out that creative talent is "a limited resource, the needle in today's digital haystack" (p. 30) and locating it may prove to be too great a challenge for a social crowd of amateurs.

Therefore, as a counterweight to the popularity orientation prevalent in the social media, *the opinions and estimates of experts may have to be considered as an additional means of navigation and quality assurance* in the social media. Here may lay quite some potential for traditionally valued gatekeepers and experts, such as news agencies, journalists or academics who evaluate content with the help of a much more refined set of quality criteria than solely popularity. In this sense, the quality of a content or information should not only rely on the judgment of the majority, but on "the functional, technical, cognitive, and aesthetic requirements of

information producers, administrators, consumers, and experts" (Eppler, 2003, p. 45) as well.

Consequently, in order to cope with the "too much" inherent in overload, invasion and uncertainty in digital work environments, one may have to embrace the possibilities that the social media offer to filter, evaluate and structure content, but at the same time *be well aware of the social media's limits when it comes to assessing content quality, originality, creativity and complexity*. While the social media are effective judges of vast amounts of content, they are also superficial ones, relying first on popularity and not on relevance (comprehensive, accurate, clear and applicable content) or soundness (concise, consistent, correct and current content) (Eppler, 2003; Gasser et al., 2012).

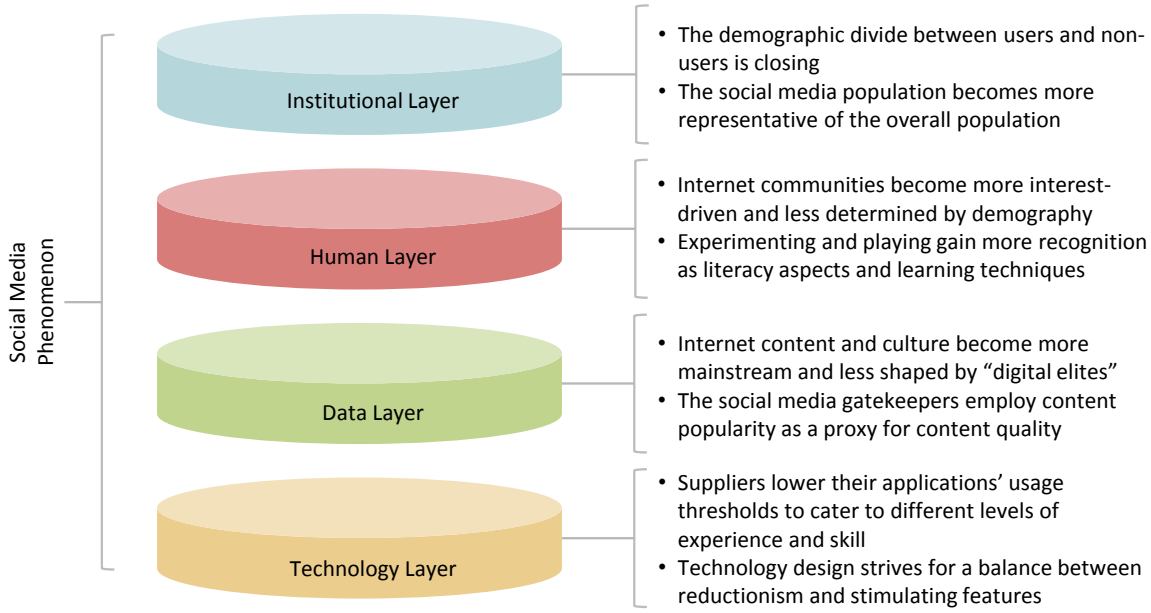

Figure 32: Practical Implications of Social Media beyond the Workplace according to Theses I, II and III

6.3. Limitations and Outlook on Future Research

In the course of this dissertation, several key decisions had to be taken with respect to the *research field* that the overall research project is set in, the *methodological perspective* that was taken on, the *theories* that were considered to inform the models of this dissertation and finally the *target population* that built the empirical basis of this contribution. Each decision is crucial in framing the research objective and rendering the focus of the dissertation more concise and clear. At the

same time, each decision imposes limitations on the scope of the dissertation. In the following I will render these limitations pertaining to the overall research project transparent and offer an outlook on future research (for paper-specific limitations and research implications, see 5.1.5, 5.2.6, 5.3.5, 5.4.6).

Limitations on the Sample Population

In line with the research objective, a representative sample of knowledge workers built the empirical foundation of this project. Thus, the findings and implications gained in the research process pertain mainly to the managerial context and are expected to be most valid when looked at from the perspective of similar populations. Even though the work with communication practitioners unveiled some mechanisms that are expected to be applicable to other usage contexts as well (e.g. see 6.2.1), a sample population within a different professional field could offer more insight into how exactly the "professional bias" of communication experts played a role in shaping their social media usage, adoption, literacy and stress perceptions. Furthermore, the present dissertation is set in Europe and populations with other cultural backgrounds might react very differently to the changes brought to their workplaces by the social media. This is corroborated by Tu et al. (2005, p. 81) who show that Chinese managers react differently to technology-related stressors than their US counterparts. Additionally to a comparison with other professional fields, it might be most insightful to contrast the findings of this thesis with the findings gained from a population in the private context. Here, current work on the social media adoption and usage of the unemployed (e.g. Feuls et al., 2012), of young people and their parents (e.g. Madden, Cortesi, Gasser, Lenhart & Duggan, 2012) or of (former) college students (e.g. Hargittai & Litt, 2011) may be a good starting point for building respective hypotheses. The insights gained from a comparison with the private usage context may be used in turn to explore social media usage in non-mandatory settings and make deductions for intrinsic motivation in social media workplaces.

Limitations on the Theoretical Foundation

The models applied implicitly or explicitly in this dissertation were derived from previous research on adoption (see chapter 2) as well as stress and workplace stress (see chapter 3). Consequently, the factors used to model social media adoption are mainly based and adapted from technology adoption research. Yet, as the social

media cannot be understood as a technological phenomenon alone, social media usage and usage intention in particular might in reality depend on constructs that have not yet been considered in previous research. Here, qualitative research could offer a more nuanced understanding of social media usage intention and possibly unveil new constructs to ameliorate our modeled understanding of social media adoption. Similarly, qualitative research could offer deeper insights into the relationship between stress and stimulation. While the negative reactions to technology-related change are understood and documented extensively, the stimulations emanating from changes in the technology layer are somewhat neglected in this dissertation – and in extant research. Thus, an avenue for further research could be a qualitative assessment of social media-related stimulators such as inspiration, self-affirmation or excitement in addition to the social media-related stressors. As a theoretical basis for this endeavour, research in the areas of intrinsic motivation and attitudes (e.g. Fishbein & Ajzen, 1975; Ajzen, 1991; Davis et al., 1992) or flow as the "theory of optimal experience" (Csíkszentmihályi, 2002, p. 4) (e.g. Csíkszentmihályi, 2002; Boyd, 2010; Agarwal & Karahanna, 2000) may be considered.

Limitations on the Methodology

This dissertation is based on a quantitative approach employing a survey design to gain a first understanding of how the advent of social media impacts on individual professionals (see chapter 4). The chosen methodological approach is deemed ideal to explore a large and international sample of respondents. Yet, a systematic bias inherent in the survey method cannot be precluded with certainty. Therefore, it would be interesting to employ a different methodological approach on the same sample and research questions to improve validity and reduce possible systematic distortions inherent in the method (Bickman & Rog, 1997, p. 94-95). This methodological triangulation is expected to help reduce or at least reveal the extent of a possible self-reporting bias (e.g. professionals overestimating their literacy or underestimating their vulnerability to social media-related stressors) in the present method. As an example, individual professionals' technology adoption intention and behavior could be additionally scrutinized in qualitative focus groups, interviews or through participant observation (Thurmond, 2001, p. 255).

Limitations with respect to the Research Field

The advent of the social media phenomenon has been explored in this dissertation from the viewpoint of individual professionals who are in the midst of the changes brought to their work environment by new technological antecedents, new forms and modes of data production, new aspects of professional literacy and a new paradigm of societal and professional communication. While some of the systemic characteristics of the social media phenomenon have been accounted for by the multi-layered conception taken on by this contribution, the majority of the findings presented here are limited to the human layer (see 1.1.3) and here to the theoretical perspectives of digital and computer mediated communication as well as management research. Yet, other research areas in social science such as information systems and computer science (e.g. technology layer), library and information science (e.g. data layer), psychology and anthropology (e.g. human layer), as well as sociology and law (e.g. institutional layer) are expected to offer rich additional insights and thus may in the future contribute to a more holistic and systemic understanding of the social media and their impact on our workplaces, on our society and on our lives.

General Limitations

This dissertation's finding that work environments may be stressfull and stimulating at the same time is not to be understood as a denial of the fact that stress is a very real and well documented threat to wellbeing and health (e.g. Brod, 1984; Hu & Cheng, 2010; Ragu-Nathan et al., 2008) in the workplace. This contribution merely wishes to emphasize that the individual mental reactions to changes in the workplace may be of a dual nature and encompass positive as well as negative emotions. Thus, this dissertation strongly supports Folkman's (2008, 1997) call for a more balanced view on the consequences of stress. At the same time, the scales offered to measure stressors in the workplace must not be understood as an instrument to measure individual literacy and ability to participate in modern workplaces. Instead, the scales proposed are a call for mental aspects such as coping with overload, invasion and uncertainty as an addition to future literacy curricula (see 5.3).

6.4. Final Conclusion

At the beginning of this dissertation, the advent of the social media has been compared to a powerful tempest that brought encounters of seemingly endless possibilities to a community that has been relatively secluded before. We are now at a point where this initial 'tempest' begins to calm and as the clouds part, we can take stock of the aftermath and the changes brought by the new communication paradigm to the reality of our lives. Which of these changes will remain for the professional generations to come? And which of them will eventually fade into obscurity or become relicts of a euphoric yet short-lived hype?

What can be said with confidence is that the current social media phenomenon is in many ways an embodiment of larger societal trends such as individualism, connectivity or convergence (e.g. Horx, 2008). As such, the essential social media functions of self-promotion, networking and social content creation as well as the accessibility of platforms through a variety of devices and functions are expected to contribute to the very foundations of any future work and communication environment.

Yet on an individual level, there is evidence that the current manner in which the social media are being used and integrated into extant routines and work structures may have to be revisited in the future. Even though the social media are being used quite enthusiastically by knowledge workers of all ages and backgrounds around the globe, the issue of social media-related stress becomes more and more pertinent. Difficulties to process and structure the socially produced content flood as well as the ever-lingering temptation to engage in work-related conversations even when away from the workplace are putting a strain on individuals' attention spans, work capacities and eventually even on mental wellbeing or sanity.

Consequently, it may be time to reevaluate what it means to be truly literate in the new professional environment. For this purpose, the current notion of literacy as a prerequisite for participation in societal or professional settings may have to be extended by the aspect of coping. Accordingly, in the future, a professionally literate individual would be able to actively engage in the conversation with various audiences and at the same time be able to mentally and physiologically cope with the stressors inherent in this fast changing, information rich and ever-busy communication environment in a sustainable manner. In unison with these changes

in literacy curricula, organizations may adapt their structures to better fit the realities and needs of their workforce in a way that they grant more flexibility and freedom to shape job routines and communication tasks in a personalized and ultimately sustainable way.

If we look some years into the future we might once again picture Miranda who was one of the many protagonists of the social media outset and whom we have met right at the beginning of this endeavor. Much like her Shakespearian namesake, Miranda on her first encounter with her "brave new world" saw "beauty, goodliness and utopian possibility" (Greene, 2000, p. 138) in the changed environment and the people populating it.

A little ways down the road, Miranda's view on the changes brought to her life by the social media has grown more differentiated and cautious. Now a team leader in an international communication agency, she still embraces and enjoys the opportunities and stimulations inherent in her social media workplace. When she is at work – in the office, on the plane to her next meeting or in her home – she is immersed in the dynamic stream of content and the social nature of her job renders work inspiring, self-affirming and exciting. At the same time Miranda realizes how precious her time and attention have become and she takes good care of how to spend them. Consequently she now reflects carefully before adding new contacts to her social networking site, she diligently separates her closest circle of friends form her work contacts and she handpicks a number of trusted sources – blogs, newspapers or twitter profiles – to provide her with relevant, interesting or entertaining information and content.

Over the years, Miranda has learned to cope with her stressful environment in her own way and as the tempest passes, she sees the social media for what they truly are: not a new world at all, but a brave world none the less, filled with ordinary people and their thoughts, dreams and hopes. Thus, for Miranda, the social media are no longer a utopian means to reach out and connect to foreign communities, but simply a means to better understand the ones close to her.

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