MASTER THESIS

Enterprise Social Software Acceptance: Overhauling the "One Size Fits All" Approach to Explain Social Intranet Usage

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PREFACE

This master thesis marks the end of my Master Business Information Technology, as well as time at the University of Twente. I am looking back at six great years of studying at this university, in which I have developed myself on a personal and professional basis. The last year has been all about my final project, which I have been working on at ORTEC for Communications. I would like to express my gratitude to several people who have helped me during the time I have been working on the master thesis.

First of all, I would like to thank ORTEC, my direct colleagues at the department ORTEC for Communications, and my manager Marijn Deurloo for the opportunity they have given me to conduct my research in cooperation with them. I have learned a lot during my time at ORTEC and I very much enjoyed working at the office. In particular, I would like to thank my external supervisor, Isabelle Hansen-Couturier, for continuous feedback and expertise. Our weekly meetings have been of great support and value to my thesis.

Secondly, I am very thankful for everyone who made time to participate in the case study by filling out a survey or taking part in an interview, even though the hindering COVID-19 circumstances.

Thirdly, I would like to thank Maria Iacob and Maya Daneva for their valuable feedback and guidance throughout the entire research process. This has been of great importance to the completion of my master thesis.

Lastly, I would like to thank my family and friends for their support during this graduation project. In particular, I would like to express my gratitude to my girlfriend, Vera Linke, who has given continuous feedback on my thesis, which has been an enormous help.

MANAGEMENT SUMMERY

Corporate intranets have undergone fast and dynamic developments in recent years, leading a growing number of organizations to implement platforms that incorporate Enterprise Social Software (ESS) technologies. Such platforms, which are also referred to as Social Intranets, pose new opportunities for organizations to support internal information sharing, stimulate internal collaboration, and enhance employee engagement. Yet, a significant number of organizations are experiencing challenges to achieve desired employee adoption rates. This study aims to contribute to the knowledge and practice needed for improving Social Intranet adoption, thereby enabling organizations to realize the full potential of their platform.

We make use of a two-fold research methodology, employing the Model-Building process and the Design Science Research Methodology (DSRM), which guides us through the process of designing a Social Intranet acceptance model and implementation guidelines, respectively. As part of the Model-Building process, we conducted a literature study to gather and evaluate existing knowledge about those factors that influence the acceptance of Enterprise Social Software (ESS) and to examine acceptance models proposed by other scholars. A major outcome of the literature study is a classification of impact factors influencing various ESS technologies. Since there is a wide array of ESS technologies, which can be employed for fundamentally different uses, impact factors do not equally influence all ESS technologies. Since most Social Intranets consist of multiple components with distinct ESS technological aspects, we decided to design specific acceptance models for the different Social Intranet components (namely, Internal News Feature, External News Feature, Static Content Feature, People Finder, and Social Wall). The specified models have been tested by means of conducting a survey within the organization ORTEC. Structural Equation Modeling (SEM) techniques have been used to analyze the 74 responses and test the hypothesized relationships between the selected impact factors and continuous usage of five distinct Social Intranet components. To validate the acceptance models, we conducted five interviews with clients of ORTEC, which have implemented a Social Intranet designed by ORTEC for Communications (O4C). After we validated the acceptance models, thereby completing the Model-Building process, we continued by formulating Social Intranet design and implementation guidelines for O4C by following the first three steps prescribed by the DSRM.

Supported by the findings of our literature study, we designed five acceptance models for each Social Intranet component. The validated models indicate that Hedonic Motivation and Relationship Expectancy are strong determinants of continuous usage of the Internal News Feature and the Social Wall. The People Finder and the Static Content Feature are mainly influenced by Performance Expectancy and Effort Expectancy. This means that users of these features are mainly driven by the direct benefits they notice regarding their work deliverables and productivity, while for the aforementioned features it is more important that employees can engage with colleagues and feel entertained by its use. These outcomes give reasons to believe that depending on the functional components of the Social Intranets, the determinants of its acceptance differ.

The final acceptance models and the real-world examples and insights provided by the interviewees helped us to define guidelines that help O4C improve their product and implementation process. These guidelines have been grouped according to five focus areas, which are critical to the acceptance of the O4C platform. Therefore, our guidelines help O4C to design or implement a Social Intranet that (1) makes optimal use of benefits regarding employee engagement and work productivity, (2) supports content writers to produce relevant content, (3) simplifies the platform onboarding process, and (4) facilitates updates to be processed with the necessary precautions. Although these guidelines are specifically designed for O4C, we assume that other Social Intranet designers and implementers can benefit from them as well.

Our study is among the first to show that impact factors do not explain continuous usage of Social Intranet components equally well. Moreover, the proposed acceptance models point to the differences between the determinants explaining the continuous usage among the various components. Based on these insights we suggest that a combination of acceptance models is required to properly explain employees' acceptance of a Social Intranet. We strongly recommend scholars to design acceptance models for only a specific ESS technology, rather than for a large set of technologies. The main benefit is that these models will be more meaningful to designers and implementers of ESS because they are dealing with specific ESS technologies. This will provide them with adequate support to make well-informed decisions with respect to the design and implementation of the technology and will ultimately increase the likelihood of achieving higher adoption rates.

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LIST OF ACRONYMS

AVE	Average Variance Extracted
CA	Cronbach's Alpha
CEO	Chief Executive Officer
CFA	Confirmatory Factor Analysis
COVID-19	Coronavirus disease
CR	Composite Reliability
CU-EX	Continuous Usage of the External News Feature
CU-IN	Continuous Usage of the Internal News Feature
CU-PF	Continuous Usage of the People Finder
CU-SC	Continuous Usage of the Static Content Feature
CU-SW	Continuous Usage of the Social Wall
DS	Design Science
DSRM	Design Science Research Methodology
DW	Digital Workplace
ECS	Enterprise Collaboration System
EE	Effort Expectancy
EFA	Exploratory Factor Analysis
EoU	Ease of Use
ESM	Enterprise Social Media
ESMP	Enterprise Social Media Platform
ESN	Enterprise Social Network
ESS	Enterprise Social Software
ESSP	Enterprise Social Software Platform
FC	Facilitating Conditions
HCM	Higher-component Model
HM	Hedonic Motivation
HR	Human Resources
ILTAM	Individual-level Technology Adoption Model
ISNS	Internal Social Networking Site
IT	Information Technology
KME	Knowledge Management Environment
MRT	Media Richness Theory
O4C	ORTEC for Communications
PE	Performance Expectancy
PS	Perceived Security
PSME	Prior Social Media Experience
RE	Relationship Expectancy
RQ	Research Question
RSS	Really Simple Syndication
SD	Standard Deviation
SEM	Structural Equation Modeling
SI	Social Influence
SMS	Short Message Service
SQ	Sub-question
SR	Structural Regression
TAM	Technology Acceptance Model
UGT	Uses and Gratification Theory
UTAUT	Unified Theory of Acceptance and Use of Technology

CHAPTER 1

INTRODUCTION

Intranets are widely embraced by organizations to provide supporting computing services which facilitate internal information sharing and collaboration. For a couple of years, these intranets appear to integrate Web 2.0 technologies [53]. Those intranets incorporating "Enterprise 2.0" technologies (Web 2.0 technologies applied in an organizational context) are being implemented by a growing number of organizations [32] leading to increased eminence in scientific literature [53]. These "Enterprise 2.0" technologies encompass social media capabilities such as blogs, social tagging, social networking, and bookmarking. This new generation of intranets, also referred to as Social Intranets, poses significant benefits for organizations regarding its productivity and innovativeness, when it is well-implemented [32].

Scientific studies showed that the acceptance of Social Intranets is one of the most considerable success factors. Yet, a significant number of organizations are experiencing challenges regarding the establishment of desired employee adoption rates [56][43][83]. For organizations to deal with this challenge, many scholars focused on user acceptance of "Enterprise 2.0" technologies and Social Intranets.

1.1 ORTEC

ORTEC is a large international organization focused on automation of business processes by applying mathematical optimization. The organization was founded in 1981 and has been growing ever since. Currently, ORTEC has around 1,000 employees, located in 13 countries around the globe. The industries in which ORTEC is active range from Manufacturing and Retail & Wholesale to Sports and Health Care. Within this wide range of industries, ORTEC designs solutions in many business areas. For marketeers, ORTEC develops software that supports marketing activities such as targeting and selecting the right content and channels. Furthermore, software is created to automate and optimize warehousing, asset management, workforce scheduling, routing, and loading and many more other business processes. Since ORTEC targets on a large variety of industries and business areas, their customers also range from SMEs to large international organizations.

ORTEC's organizational structure is flat and sub-divided in divisions (business units) which correspond to the business areas. Every sub-division is autonomous, meaning that they perform business activities such as marketing, sales, and product development themselves. However, some overarching divisions do support the sub-divisions with their activities. Moreover, the employees operate in an ambitious and knowledge management environment, leading to a pleasant atmosphere in which knowledge is shared easily within and between organizational units.

1.1.1 ORTEC for Communications

ORTEC for Communications (O4C), formerly ImgZine, is one of the business units within ORTEC. Since 2011, O4C focusses on internal communications and has been increasing its expertise ever since. With their standardized internal communication platform, called the *Relevance Platform*, O4C

optimizes the internal communications of their clients. A large team within O4C continuously improves and further develops this platform in order to meet client needs and to keep up with the latest trends.

1.2 Problem Definition and Motivation

For organizations to benefit from a Social Intranet, a significant number of employees need to use the platform. However, achieving desired Social Intranet adoption rates among their employees is experienced as a major challenge [56][43][83]. Challenges faced by organizations include, aligning the right tools with the needs of employees, properly integrating the system in the IT infrastructure, and increasing the awareness of the functionalities and its benefits [88]. Because adoption is a prerequisite for success, a considerable number of scholars have been focusing on this matter in recent years [95]. Scholars brought insights into factors and acceptance models that apply to ESS tools and Social Intranets. The acceptance models are often adapted from paradigms like the Unified Theory of Acceptance and Use of Technology (UTAUT) [91] and the Technology Acceptance Model (TAM) [27]. Next to these paradigms, scholars also adapted theories of other fields, like the Media Richness Theory (MRT) [26] and the Uses and Gratifications Theory (UGT) [49]. Despite all scientific contributions to provide clarity on adoption of Social Intranets, organizations are still struggling with achieving the desired adoption rates. O4C recognizes that their clients are facing challenges to achieve satisfactory adoption rates among their employees. In order to support O4C's clients with improving their adoption rates, O4C wants to further develop its products. However, they are incapable of doing so because of insufficient knowledge and guidance.

1.3 Research Goal

This research aims to solve a design problem which can be formulated according to the template defined by Wieringa [98]. The format of this template is as follows:

Improve *<problem context>*
By *<treating it with a (re)designed artifact>*
Such that *<artifact requirements>*
In order to *<stakeholder goals>*

By filling in the blanks, the following design problem has been formulated for this research project:

Improve *Social Intranet designs*
By *designing implementation guidelines*
Such that *the Social Intranet (product) reduces adoption challenges*
In order to *achieve satisfactory adoption rates at the O4C's clients*

In order to solve this design problem, answering a set of knowledge questions can be defined as a subordinate goal. Even though this goal is subordinate to solving the design problem, it constitutes the main scientific contribution of this research.

1.4 Research Questions

In order to reach our research goal and adequately address our design problem, the following research question is set:

What functional architectures enhance the adoption of a Social Intranet by organizations?

The research question can be decomposed into research sub-questions. In order to answer design questions, some knowledge questions about the context of Social Intranet acceptance need to be answered. On the next page, the first two sub-questions aim to investigate Social Intranet acceptance

factors and scientific models which explain adoption. These knowledge questions have been formulated as follows:

SQ1: What are the factors that influence acceptance of a Social Intranet?

SQ2: What predictive models for Social Intranet acceptance are present in scientific literature?

Social Intranets employ different types of "Enterprise 2.0" tools. Literature suggests these tools have varying adoption factors. The following sub-question aims to find out how the acceptance of a Social Intranet is influenced by a certain design (employing a set of ESS tools) and how this differs from other Social Intranet designs.

SQ3: How do adoption factors differ for varying functional architectures of a Social Intranet?

Based on the insights of the previous knowledge questions, conclusions can be drawn on how acceptance models can be improved. This model needs to be designed, operationalized, and validated.

SQ4: How can a Social Intranet acceptance model be designed and evaluated while taking into account the various possible Social Intranet's functional architectures?

After the validation of the model, implementation guidelines supporting the design of Social Intranets can be derived.

SQ5: What implementation guidelines can be derived from the designed acceptance model?

1.5 Thesis Structure

This thesis is structured as follows:

- Chapter 2 explains the two-fold research methodology of the current study.
- Chapter 3 provides theoretical background information from this field of study.
- Chapter 4 discusses the literature study approach and presents its findings. This Chapter provides answers to SQ1 and SQ2.
- Chapter 5 explains how we constructed our research model.
- Chapter 6 explains how we gathered and analyzed our data to test the research model.
- Chapter 7 presents the results of the survey. This Chapter, together with Chapter five and six, provide an answer to SQ3.
- Chapter 8 discusses the validation approach, its outcome, and redesigned acceptance model. This Chapter answers SQ4.
- Chapter 9 presents the implementation guidelines for ORTEC for Communications. This Chapter provides an answer to SQ5.
- Chapter 10 reflects on this study by discussing its contribution, limitations, and recommendations for future research.
- Chapter 11 concludes by providing answers to the sub- and research questions.

METHODOLOGY

In order to answer the research questions, a twofold research design employing an empirical Model-Building Process [12] and a Design Science Research Methodology (DSRM) process [79]. The main part of this research is focused on the empirical model building process in which a new Social Intranet acceptance model is introduced and validated. The second and minor part of this thesis employs the DSRM process to derive Social Intranet implementation guidelines from the recently introduced acceptance model.

2.1 The Model-Building Process

Bhattacherjee [12] formulated a Model-Building Process (Figure 1) in which several steps need to be taken in order to define a final model. He defines the term 'model' as: "a representation of all or part of a system that is constructed to study that system" [12]. To put this in perspective, a model *represents* a phenomenon while a theory tries to *explain* a phenomenon. As depicted in the graphical representation of the Model-Building Process, both inductive and deductive reasoning need to be applied in order formulate Preliminary Conclusions and, eventually a Final Model.

With both inductive and deductive reasoning, one draws conclusions based upon provided premises. However, with deductive reasoning the premise only gives some support, while with deductive reasoning one can always draw logically sound conclusions (given the premise(s) are true) [12]. Both ways of reasoning will help formulate an initial model that will be validated in a later stage of the research. Following Bhattacherjee [12], the answers to SQ1 and SQ2 function as input for the design of an initial model (Preliminary Conclusion*)* where its construction is subject to both inductive and deductive reasoning practices. To acquire the necessary scientific input, the systematic approach of Bandara et al. [9] has been used.

Once the literature study resulted into answers to SQ1 and SQ2, a first research model has been constructed. The validation of this model will result into an answer to SQ3 and will provide new insights in order to construct the final acceptance model (SQ4).
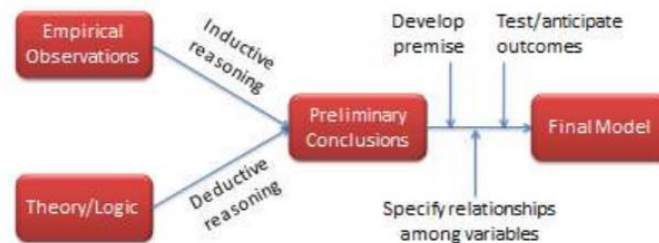

Figure 1: Model-Building Process [12]

2.1.1 Research Process

Bhattacherjee [12] also provides a generic roadmap (Figure 2) for functionalistic research including series of activities to perform during the research project. This roadmap supports the researcher to take the necessary steps to systematically design a Final Model. The roadmap only applies to functionalistic research and should be modified to specific needs and characteristics of individual research projects. The research activities as illustrated in the roadmap will also be performed in this research project. The following paragraphs will shortly introduce these activities.
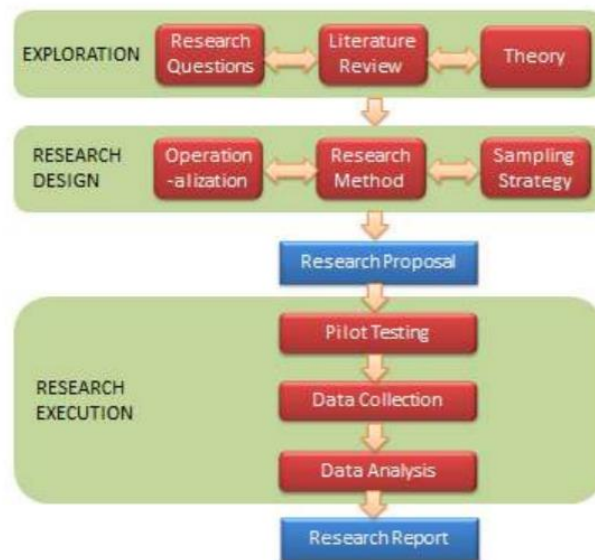
Figure 2: Functionalistic Research Process [12]

As previously introduced, the Exploration phase will be performed according to the stepwise approach proposed by Bandara et al. [9]. This phase includes the identification of the research questions (which have already been given above), the execution of a literature review and analysis of theories in the literature. Chapter 4 further explains how these activities are performed in line with the stepwise approach of Bandara et al. [9].

The Research Design phase is concerned with the creation of a blueprint of activities to take in order to answer the formulated research questions. This blueprint includes operationalization, deciding upon a research method and defining the target population with a sampling strategy. Operationalization is the process of designing measurable factors for the theoretical constructs. The research method defines how the researcher intends to collect the data necessary to answer the research questions. Finally, a target population needs to be chosen and a sampling strategy resulting in a representable sample needs to be developed. Researchers should avoid a biased sample by taking enough care of the sampling strategy. Detailed information about the Research Design phase will be given in Chapter 5.

Finally, the Research Execution phase employs three main consecutive activities, including Pilot Testing, Data Collection, and Data Analysis. A pilot test will be executed in order to detect any problems in the research design such as the validity and reliability of the measurement items. After a successful pilot test, the researcher proceeds with the Data Collection. What activities are involved here depend upon the defined methodology. The last activity is the Data Analysis and will be performed when the data has been collected.

The outcome of this research process will help answering SQ3. This new knowledge also enabled the researcher to redesign the initial model and thereby answer SQ4. The redesigned acceptance model will be validated by conducting interviews with five O4C's clients who have adopted a Social Intranet. This

validation process will be further explained in Chapter 8. Finally, the research project can proceed with the DSRM process in order to formulate implementation guidelines based upon the validated acceptance model. The following section elaborates on this methodology.

2.2 Design Science Research Methodology

The answers to SQ3 and SQ4 serve as input for the design of implementation guidelines. In order to design these guidelines, this research project follows the Design Science Research Methodology (DSRM) process (Figure 3) proposed by Peffers et al. [79]. This methodology is specifically designed for IS research aiming to create successful artifacts. It has been developed by combining components of prior influential research focused on Design Science (DS). The DSRM process incorporates principles, practices, and procedures supporting the execution of the research. This process includes six steps, structured according to a sequential order: Identify Problem & Motivate, Define Objectives of a Solution, Design & Development, Demonstration, Evaluation, Communication. Even though these steps are theoretically performed sequentially, in reality the researcher could start at any step and move outward to another. As mentioned earlier, the process of designing implementation guidelines is only a minor part of this research project. This means that the six steps will be executed in a fast and less comprehensible way. The following paragraphs shortly introduce each step in the DSRM process.

Figure 3: DSRM process [79]

Problem identification and motivation: The first stage includes the definition of the research problem and the justification of a solution's value.

Define the objectives for a solution: This stage is about inferring objectives of the solutions from the problem definition and existing knowledge. Required resources for defining the objective of the implementation guidelines are mainly qualitative information regarding Social Intranet Acceptance and current solutions for organizations to increase adoption among employees. Furthermore, the results of the literature study and the recently designed acceptance model will be used as input for defining the objectives.

Design and development: The third stage focusses on the creation of the implementation guidelines.

Demonstration and Evaluation: This stage involves the demonstration and evaluation of the artifact's performance to solving the problem. During this stage, expert interviews will be performed to evaluate the implementation guidelines.

Communication: The communication stage involves writing a report to expose the relevant components of this research.

BACKGROUND

The concept of corporate intranets is shifting to a second generation. As stated by Hinchcliffe [45], the 1.0 era of intranets is making place for the 2.0 era. He distinguishes both generations by its main focuses. Where the intranet 1.0 is characterized by self-service, integrated applications and content management, is intranet 2.0 more socially networked, autonomous, peer produced and unrestricted [45]. These different characteristics highly correlate with the understanding of "Web 2.0", a concept coined by O'Reilly in 2005. In general, this concept defines a set of economic, social, and technological trends which form the basis of the next internet generation [69]. Technologies incorporating this understanding is already visible in many tools in the B2C sectors. Well-known examples are *Facebook*, *YouTube*, *Twitter* and *Instagram.* The application of "Web 2.0" in a corporate setting, also referred to as "Enterprise 2.0" is starting to emerge. This derivative of "Web 2.0" was first coined by McAfee and is defined as a platform that provides employees with "Web 2.0" technologies improving productivity and eventually enhancing the efficiency and effectiveness of organizations [63]. Examples of tools building associated with "Enterprise 2.0" are blogs, wikis, social networking sites, tagging, social bookmarking, podcasts and RSS feeds.

3.1   Terms and Definitions

Research in the field of "Enterprise 2.0" and Social Intranets is still in its infancy [96]. Since research in this field recently started and is still evolving, researchers use different terms interchangeable to describe similar phenomena. In order to provide more clarity on the terminology used in this field, this sub-section defines most relevant terms.

The most central term used in this thesis is "Social Intranet" and has been defined by Ward [95] as:

> *"An intranet that features multiple social media tools for most or all employees to use as collaboration vehicles for sharing knowledge with other employees. A Social Intranet may feature blogs, wikis, discussion forums, social networking, or a combination of these or any other social media tool with at least some or limited exposure on the main intranet or portal home page"*

As the definition already states, a Social Intranet includes features associated with Social Media. In scientific literature many different terms referring to these features are present. One of these terms is Enterprise Social Software, which has been defined by Dittes and Smolnik [32] as:

> *"web-based IS that provide functionalities to support and foster social interaction among employees in terms of communication, collaboration and sharing in an organizational setting"*

Other terms referring to similar concepts are Enterprise Social Media (ESM), Organizational Social Media or Socially-enabled Collaboration Software.

Furthermore, there is a wide range of terms referring to Social Intranets, such as Enterprise Social Software Platform (ESSP), Socially-enabled Enterprise Collaboration System or Enterprise Social Media Platform (ESMP). However, some terms closely related to "Social Intranet" but refer to distinct phenomena. In order to avoid confusion, a schematic overview (Venn diagram) illustrating the

interrelationships between terms has been created (Figure 4). The foundation of this scheme is laid out by Schwade and Schubert [84] and is adapted based upon other definitions in the literature. A Digital Workplace can be defined as a collection of all digital tools in an organization that allow employees to do their jobs [7]. According to Greeven and Williams [39] an Enterprise Collaboration System (ECS) combines Enterprise Social Software components with traditional groupware components to support communication, collaboration, content and knowledge sharing within organizations. Moreover, Wehner et al. [96] 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.

Several important remarks regarding the schematic overview need to be made. First, not all terms are integrated in the diagram to reduce the complexity. However, other terms could be mapped onto the diagram by following the given definition. Second, this diagram should not be regarded as the truth or the only possible diagram. The scientific body includes many more and different terms and definitions which have not been consulted prior to the creation of this diagram. Other scholars can create other versions of this diagram based on different definitions and the interpretation of the interrelationships. Finally, the intention of presenting this model (see Figure 4) is merely to enhance the reader's understanding of the interrelationships between terms related to "Social Intranet" being discussed in this thesis.
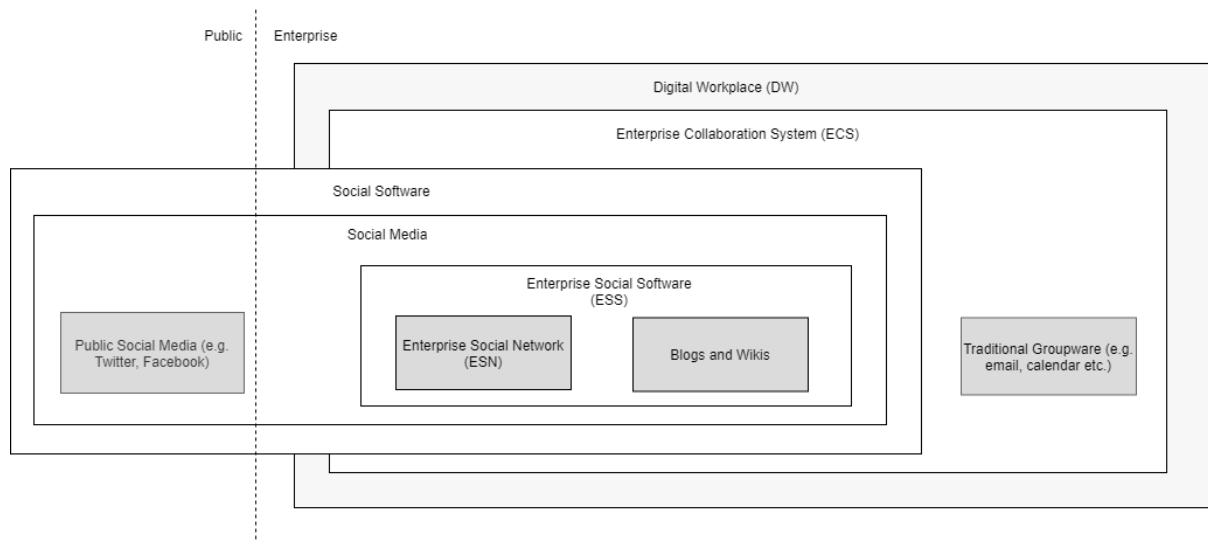

Figure 4: Venn diagram illustrating interrelationships between key terms

3.2 Enterprise Social Software

This sub-section discusses the classification of ESS, the different ESS tools and the organizational benefits of using ESS.

3.2.1 Classification

McAfee [63] is among the first who defined Enterprise Social Software technologies (2006). He uses the acronym SLATES to indicate the six main components: *Search*, *Links*, *Authoring*, *Tags*, *Extensions*, and *Signals*.

Search: First, employees need to be able to find what they are looking for the platform to be valuable. This can be realized through navigation aids and page layouts, or by using keyword searches.

Links: Links refer to the strategic design of a platform in which pages and other content is linked with each other. This helps employees to easily find relevant content on the platform.

Authoring: Many employees have something to contribute to the organization. By enabling employees to author through Enterprise Social Software, they can share knowledge, insights, experiences, and comments. Regarding authoring, blogs let employees' author individually (cumulative process), where wikis are updated over time (iterative process). In both cases, the group authorship creates more value to the entire system.

Tags: Tags refer to an improved search mechanism to better classify content on intranets. By letting employees tag their content it can be find easier. Tagging can be done according to an up-front categorization scheme (*taxonomy*) or a categorization that emerges over time (*folksonomy*). The benefit of a *folksonomy* is that it reflects information structures and the relationships in a way people actually use it, instead of how it is planned to be used.

Extensions: Some systems can apply pattern matching. This technology proposes content based on behavior or feedback given by the employee. In this way, the system reasons by extension and makes itself familiar with the needs and preferences of the individual.

Signals: Signals help the employee to stay updated about new content. Signals such as a push notification, email alerts or any other short messages signal the user about new interesting content. RSS (Really Simple Syndication) generates short notices about new content originated from various origins. In this way, the employee does not have to go to multiple pages to check for updates.

One year later (2007), Hinchcliffe [44] extended SLATES with 4 extra components which, in his opinion, better reflect the essential characteristics of Enterprise Social Software components. The redesigned acronym, FLATNESSES, also includes *Social*, *Emergent*, *Freeform* and *Network-oriented* components, which are discussed below.

Social: Social refers to the ability to connect, discuss, communicate, and have profiles in a transparent and non-hierarchical way.

Emergent: This characteristic of ESS allows content to be discovered by others. Interesting content might receive likes and emerge to a more visible location on the platform in order to be discovered by others.

Freeform: Freeform refers to the ability to input whatever is preferred in different formats, layouts or designs without any restrictions.

Network-oriented: This refers to the ability that the system is accessible via the web and is addressable.

3.2.2 Tools

In the previous section, main characteristics of ESS technologies have been explained without clarifying any differences between ESS technologies. Cook [24], however, describes 4 main functions (4Cs) of social software focusing on actions involved rather than the components. This 4C model, including *Communication*, *Cooperation*, *Collaboration,* and *Connection* shows how organizations can benefit from different Enterprise Social Software Tools. The main actions involved through ESS use are defined as follows:

Communication: Platforms that enable people to communicate

Cooperation: Platforms that enable people to share content with one another.

Collaboration: Platforms that enable people to collaborate one shared problem

Connection: Platforms that enable people to connect with others and content

Some of these functions have some overlap, especially for cooperation and collaboration. Cook [24] defines cooperation as individuals helping to achieve something without the knowledge gained from

the process to play a role, whereas, collaboration is focused on the knowledge that one gains from the process. To both cases applies that the achievement of producing together will be larger than when it has been produced alone.

For collaboration and connection, a higher degree of formality is required because people have to do things in a more structured way. Collaboration and cooperation require more interaction, because of the inherent focus on groups. The four functions of ESS technologies can be plotted onto the formality / interaction matrix (Figure 5), which can be used by organizations to make strategic choices regarding ESS use. This avoid buying ESS tools without any understanding of the organizational structure which could eventually lead to an unsuccessful implementation.
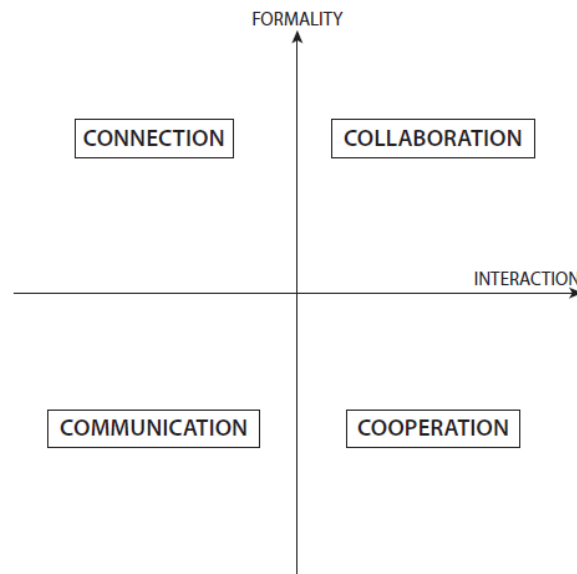

Figure 5: 4C formality / interaction matrix [24]

Within the realm of Enterprise 2.0, many different ESS technologies are available. Figure 6 illustrates key ESS technologies plotted onto the 4C formality / interaction matrix. The following will shortly introduce the various ESS technologies. The descriptions are based upon the definitions given by Cook [24].
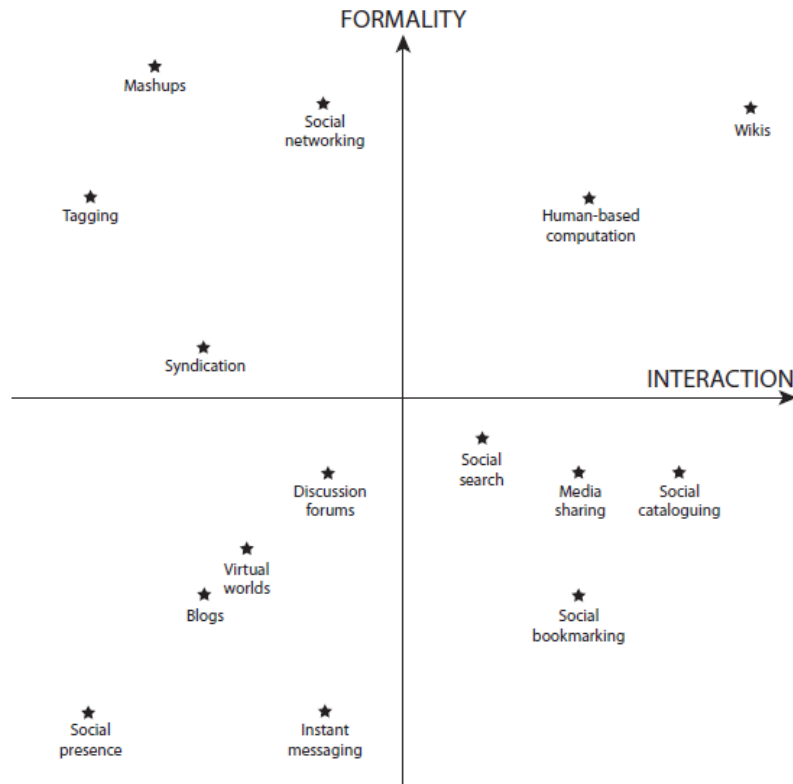
Figure 6: ESS tools plotted onto formality / interaction matrix [24]

Communication

- *Discussion forums:* These forums enable employees to discuss about certain topics by posting messages, which can be reviewed by others. These messages could include opinions, questions, responses to certain events. The degree to which employees are free to discuss about various topics depends on organizational wishes and the design of the discussion forums.

- *Virtual World:* This technology allows individuals to meet and interact with others in a virtual environment. This environment and the characters (avatars) reassemble the real world. A well-known example is Second Life.

- *Blogs:* Blogs are the online equivalent of journals where an author (blogger) periodically posts messages (blog) and encourage others to comment on it. Such a blog can initiate a discussion between multiple persons or bloggers. Other bloggers can comment on existing blogs by mentioning that blog via linking to the source post, which eventually creates a chain of blogs. After bloggers stopped posting, other can still read the blogs and use this intellectual capital created in the past. Where discussion forums are often relying on pre-defined categories, blogs are less structured and can easily switch to other topics.

- *Instant messaging:* Instant messaging allows employees to communicate real tie over the internet by using software. The communication is usually text-based and occurs between individuals or in a group. Instant messaging can be regarded as the online equivalent of face-to-face communication, allowing the participants to have several conversations at the same time.

- *Social Presence:* This technology allows individuals to send updates to a central location for further distribution to everyone who wants to know what they are doing. Such updates can be sent and

received via, web, email, SMS or other IT applications. Three kinds of social presence can be distinguished: informational, temporal and geolocational [24]. The informational social presence focusses on what a person is doing (such as Facebook), temporal social presence focusses on what someone is up to or has been up to recently (such as Twitter), and geolocational focusses on the location of certain people (such as the location sharing function of WhatsApp).

Cooperation

- *Social search:* Social Search refers to a social search engine that does not only present results based on the semantic relation between the search query and the content but takes the relationship between the results and the searcher into account. To give an example, LinkedIn also provides information regarding shared connections, education, or industries when someone searches for other LinkedIn profiles. Here, it can be noted that the search engine both applies both the semantic and relational correspondence to present valuable search results.

- *Media sharing:* This technology allows users to share media, such as videos, pictures, and other documents with one another. A perfect example is YouTube, which is a platform where users can upload and watch videos.

- *Social bookmarking:* This allows people to post links to pages or other content to share with others or for personal reference. Tagging is an important feature, which allows individuals to organize and structure the bookmarks according to self-developed tags.

- *Social cataloguing:* This feature helps users to catalogue things, such books, music, academic citations, or social contacts. Often, the collection can be handed over to other individuals for collective management. In this way a collection will be more up to date since it does not rely on only one administrator. Social bookmarking and social cataloguing are closely related, however the focus for social bookmarking is on strategically marking (tagging) the content where social cataloguing focusses on creating and managing a collection of content.

Connection

- *Syndication (RSS):* Syndication is a way to filter information that is available over the globe. An RSS ("Really Simple Syndication") feed, web feed or channels contain pieces of text which are updates from RSS-enabled web services. This helps users to receive updates in one location, without having to browse to all the sources. These RSS feeds can be read through aggregation software.

- *Tagging:* Tagging is a technology that is often employed by other technologies discussed here. Tagging is a process of associating content with related tags in order to make the content easier to find by the tagger and others. Some social software can collect content from disparate sources which are all related due to the similar tags (example: Twitter). Because the taxonomies are often user-generated, the user can decide how to organize the information.

- *Social networking:* This technology enables persons to connect with others based on hobbies, interests, or other causes. A user of this technologies can create an online profile that is representative and can start relations with other users.

- *Mashups:* Mashups combine output from multiple social software systems into an integrated experience. The use API facilitate this by accessing knowledge from multiple locations easy and quickly. This integration of knowledge generates more value than the knowledge separately.

Collaboration

- *Wikis:* Wikis are website with pages including information that is collectively updated by authors who have access to do so. In organizations this technology is useful for information that is

constantly changing. In this way, information is changed in real-time leading to up-to-date information for all users.

- *Human-based computation:* This technology is a computational process that requires steps taken by humans in order to perform its functions. By outsourcing certain steps, the software can provide better information to other persons.

The above-mentioned technologies barely occur isolated in ESS tools. ESS tools often incorporate multiple technologies and are used in different ways. The following section will introduce the key components of O4C's Relevance Platform and describe which ESS technologies are involved.

3.2.3 Organizational benefits

The integration of ESS tools in Social Intranets brings many new opportunities and benefits to organizations. Dittes and Smolnik [32] state that the outcome of ESS use can be defined on process, employee, and organizational level (Figure 7).
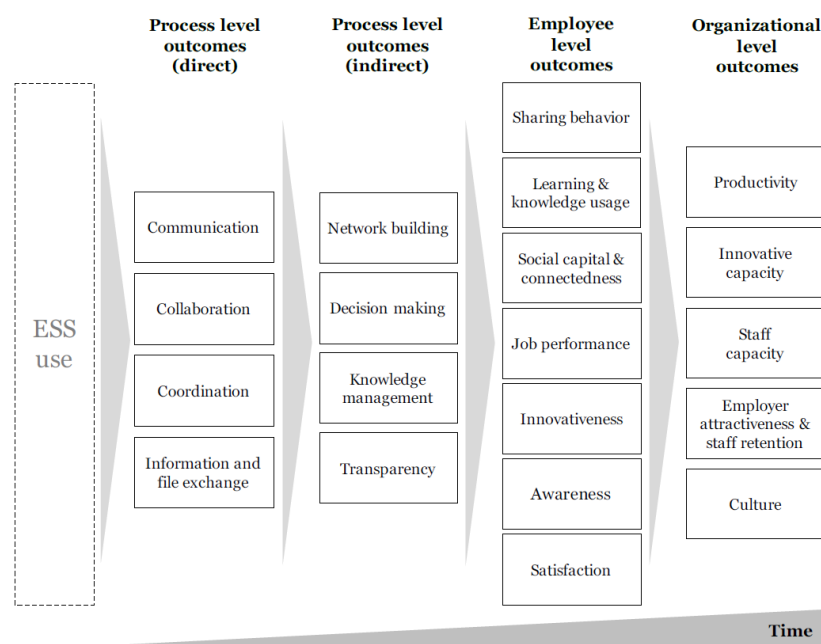
Figure 7: Outcome perspectives of ESS use [32]

The new functions of ESS tools improve the business processes *communication*, *collaboration*, *coordination* and *Information and file exchange*. The indirect outcomes are *network building*, *decision making*, *knowledge management* and *transparency*. These outcomes are no direct outcomes of use but occur as a result of the direct process level outcomes. Furthermore, Dittes and Smolnik [32] theorize that the process-level outcomes have an influence on the perception, behavior and task completion of the employee. This results in the employee level outcomes, which are *sharing behavior*, *learning & knowledge usage, social capital & connectedness, job performance, innovativeness, awareness,* and *satisfaction.* Eventually, the employee level outcomes result in value for the organization, which are the organizational level outcomes. These benefits relate to *productivity*, *innovative capacity*, *staff capacity*, *employer attractiveness & staff retention* and *culture.*

LITERATURE STUDY

The literature study is part of the Exploration phase of this research. SQ1 and SQ2, respectively focusing on ESS impact factors and ESS acceptance models, are addressed by this literature study. These insights provide an understanding of the current state of knowledge and will be useful for performing the research design phase. The following sub-sections respectively discuss the research methodology and results of the literature study.

4.1 Methodology

This literature research has been conducted following the systematic and tool-supported methodology designed by Bandara et al. [9]. This model (Figure 8) employs a four-phased approach which guides the researcher through the extraction, analysis, synthesis, and write-up stages of the literature study. At each phase, the researcher is assisted by suggestions regarding the required input, output, processing, and technology that can support the tasks. The researcher is likely to perform phases several times, which means that this process should not be regarded as a linear but rather as an iterative process. The following subordinate sections explain the research methodology in more detail.

Figure 8: Literature study methodology [9]

4.1.1 Identification and extraction of articles

Since SQ1 and SQ2 are closely related, it is likely that relevant articles are useful for answering both sub-questions. Therefore, the process of identifying and extracting articles has been combined for both sub-questions. Both the Scopus and Web of Science database have been used to extract relevant literature. We considered those databases because bibliographic studies [42] found them to be more comprehensive and inclusive in terms of scientific publications. The terms used in the search queries are extracted from prior consulted articles. These prior consulted articles were found by a search query which only included the key words in the research questions. These key words were "acceptance", "factors", "measure" and "Enterprise Social Software (ESS)". Based on the articles that were found,

other relevant key terms have been identified and included in the first official search query. During the process of extracting literature, more relevant key terms emerged, leading to multiple search rounds with different search queries. Table 1 provides an overview of the search queries, consulted databases and resulting number of articles.

Search Query	Database / date	Number of extracted articles
TITLE-ABS-KEY (("adopt*" OR "acceptance" OR "satisfaction") AND ("Enterprise Social Software" OR "Enterprise Social Network*" OR "Social Intranet" OR "Digital workplace" OR "Enterprise Social Media" OR "Corporate Social Network*" OR "Enterprise 2.0"))	Scopus (17-09-2019)	304 articles
TITLE-ABS-KEY (("engage*" OR "participat*") AND ("Enterprise Social Software" OR "Enterprise Social Network*" OR "Social Intranet" OR "Digital workplace" OR "Enterprise Social Media" OR "Corporate Social Network*" OR "Enterprise 2.0"))	Scopus (17-09-2019)	162 articles
TITLE-ABS-KEY(("adopt*" OR "acceptance" OR "satisfaction" OR "engage*" OR "participat*") AND ("Enterprise Social Software" OR "Enterprise Social Network*" OR "Social Intranet" OR "Digital workplace" OR "Corporate Social Network*" OR "Enterprise 2.0" OR "Enterprise Social Media"))	Web of Science (18-09-2019)	211 articles
TITLE-ABS-KEY(("Usage*" OR "utilization" OR "performance") AND ("Enterprise Social Software" OR "Enterprise Social Network*" OR "Social Intranet" OR "Digital workplace" OR "Enterprise Social Media" OR "Corporate Social Network*" OR "Enterprise 2.0"))	Scopus (28-11-2019)	248 articles

Table 1: Literature study search queries

The selection process has been performed according to the sampling process designed by Wolfswinkel et al. [100]. According to the steps defined by the sampling process, the following actions have been taken to select the final set of articles.

Step 1: Filter out doubles
925 articles were found by the four database searches. Of this set, we filtered out all doubles, which resulted in a set of 633 articles.

Step 2 and Step 3: Refine sample based on title and abstract and full text
The set of 633 articles has been refined to a set of 134 articles based upon the title and abstract and in a second round on the full text. For this refinement, the following criteria were considered:

- The paper needs to be published after 2009.

- Written language needs to be English or Dutch.

- The context of the paper should be the adoption or acceptance of Social tools in a corporate setting.

- The content of the article should be related to evaluation of user adoption, acceptance, or behavior.

A third and in-depth investigation of the 134 articles resulted in a sample of 68 articles which have been identified as most useful for answering the research questions.

Step 4: Forward and backward citations

Because of the limited scope of this literature study, an active forward and backward citation search could not be conducted. The resulted sample of 134 papers appeared to contain enough substance to answer the sub-questions. Only in case more information about references in papers appeared to be necessary for the understanding of the article, the reference has been consulted (backward citation).

4.1.2 Organization and preparation for analysis

Atlas.ti[1] (version 8) and *Mendeley*[2] have been used to perform the literature review. In order to prepare for the coding, all digital copies of the papers have been added to *Mendeley* and *Atlas.ti*. Based on suggestions for a high-level codification-scheme given by Bandara et al [9], several codes have been defined beforehand. These high-level codes were related to:

- Definitions of related terms

- Proposed acceptance models

- Influential factors

- Background of Enterprise Social Software

- Context of Enterprise Social Software

- Use behaviors

- Foundational theories

More specific sub-codes were not created upfront but appeared on an inductive basis during the coding process.

4.1.3 Coding and analysis

The coding was deductive on a high level and inductive on a more specific level. Since the sub-questions were set upfront it is clear what information is needed to answer the research question. However, within the scope of possible answers to the sub-questions, certain themes need to be derived from the literature. Therefore, while reading the literature, more specific sub-codes were created and continuously adapted. Based on the literature review, specific themes emerged in the mind of the researcher which is how the analysis occurs [8].

4.2 Results

This sub-section presents the results of the literature study. The following two sections respectively discuss ESS acceptance factors and ESS acceptance models. The final section concludes on the findings, underpinning the following research model development.

4.2.1 Adoption factors

This section describes the factors that influence ESS acceptance. 82 scientific sources discussing impact factors have been identified. In those papers the impact factors are described from multiple viewpoints and often grouped according to various themes. This literature study tries to include all relevant factors and to group them according to high-level themes. The present literature study grouped the factors according to their context in which they are applicable. The factors are either applicable to an *Individual*, a *Technical* or an *Organizational* context. Later in this study, we refer to these contexts as the main

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[1] https://www.atlasti.com/

[2] https://www.mendeley.com/

identified themes, which have been further divided into (sub-)factors. Table 2 provides the classification of themes and (sub-)factors with their respective scientific sources. The themes and (sub-)factors are presented in more details in the sub-sections that follow. In order to explain these factors concisely, only a few sources have been included as reference. However, the classification of impact factors does give a holistic overview of impact factors discussed and proposed by present scientific studies.

Themes	(Sub-)factor		Reference no.
Individual factors	*Prior Social Software experience*		33, 55, 78
	Social factor		2, 21, 55, 87
	Cultural factors		6, 76, 82
	Relative advantage		19, 20, 55, 56, 72, 77
Technical factors	*Ease of Use*		19, 20, 33, 66, 82
	Security		17, 19, 94
Organizational factors	*Corporate climate*		19, 48, 55, 62, 70
	Corporate support	*Technical*	4, 5, 21, 77
		Management	4, 16, 19, 20, 72, 77, 78
	Corporate strategy		4, 5, 19, 20, 29, 72

Table 2: (Sub-)factors with scientific references

4.2.1.1 Individual factors

Individual factors refer to all factors that directly related to the employee. This theme can be sub-divided into four sub-factors, which are *Prior Social Software Experience*, *Social factors*, *Cultural factors,* and *Relative Advantage factors*.

Prior Social Software Experience

The Prior Social Software experience relates to all experiences that a person has with private and corporate forms of Social Software. Patroni et al. [78] found that in general younger employees, the so called "social digital natives", are more familiar with the usage of Social Media and are therefore more likely to adopt ESS. In contrast to these "social digital natives", older people perceive the use of ESS as a burden and need to learn how and when to use the new type of electronic communication at work. Engler and Alpar [33] came to the same conclusion in their research. They found a positive relationship between prior private social media experience and the intention to use ESS. Especially for wikis, they argue that because of mark-up language, this type of ESS might seem complex and confusing for non-experienced users which could lead to demotivation to contribute to knowledge sharing on the platform.

Kügler et al. [55] also emphasize the key role that prior Social Media experience plays for the motivation to use ESS. They state that anchoring mechanisms, referring to using knowledge from prior experience, influence employee's perception of ESS. It is likely that when an employee did not use Social Software before, more resistance for using ESS will occur.

Social factors

The *social factors* relate to personal social benefits and implications as a result of ESS use. Kügler et. al. [55] theorize that reputation is a concern for employees to use ESS. An employee is more likely to use ESS when his or her image within an organization will be enhanced. In line with their findings, Alarifi et al. [2] found that both image and loss of knowledge power have an influence on respectively 'posting' behavior and 'lurking' behavior. When the image of a person enhances, he or she is more likely to share knowledge by using ESS. On the other hand, they found that people who are concerned about losing knowledge power, will most likely not actively participate on knowledge sharing features of ESS. Often, they only perform 'lurking' behavior, which refers to behavior of consuming knowledge shared by others rather than sharing own knowledge.

Chin et al. [21] have statistical evidence that Relationship Expectancy influences ESS usage. They state that using ESS is beneficial to initiating and maintaining relationships between colleagues. This motivates employees to use ESS.

Affecting image and losing knowledge can also be regarded as an uncertainty that employees perceive when adopting ESS. In this line of thinking, Trier et al. [87] defined 9 uncertainties which have an influence on using ESS. For example, the response-related uncertainty relates to reactions a user will receive on its contributions on ESS. Some interviewees mentioned that they are afraid that a post is interpreted differently than it was intended and that this would lead to undesirable situations or reactions.

Cultural factors
Many scholars found that the cultural background of a person has an impact on ESS use behavior. Park et al. [76] found that blog interface designs for Asian users differ significantly with designs of U.S. blog interface designs. The main difference is that Asian blog interfaces are more hierarchical while U.S. blog designs have a flatter structure. They also found that U.S. bloggers are likelier to reveal personal information compared to Asian users. Ardichvili et al. [6] studied the cultural influences on knowledge sharing through online communities. They conducted a case study among an online community by conducting in-depth interviews. They found that cultural expectations regarding modesty have an important influence on knowledge sharing in China. In Chinese culture it is not always fully accepted when speaking in public. Also seeking help from others is something that is more avoided in the Chinese culture compared to, for example US and Brazilian culture [6]. Furthermore, Chinese people tend to be more uncertain about their knowledge of the English language and might avoid posting messages and thereby sharing knowledge with others. Ardichvili et al. [6] also recognized that competitiveness and job-security fears are more present in China compared to US and Brazil. The economic conditions in China are competitive, which creates this high job-security concern among workers. As a result, workers with a Chinese cultural background intend to guard instead of share knowledge, in order to enhance their personal competitive advantage.

Furthermore, Chinese workers intend to tie the blogging activities more to their work. In contrast, users from the United States of America expect to gain more social benefits from corporate blogging. These findings can also be explained by the national differences in competitive nature of the economies and general fear of making mistakes.

Ruhi and Al-Mohse [82] studied the effects of National Culture traits on Knowledge Management Environment and Personal Information Behavior. Their results suggest that the extent to which a person accepts inequality in the workplace influences the information sharing behavior and knowledge management environment. Whether a person accepts such a power distance is highly influenced by the cultural background.

In conclusion, scholars agree that the cultural background of the employees impacts the use behavior of ESS. They also emphasis that a cultural background assessment is useful before an ESS is going to be implemented within an organization.

Relative advantage factor
The relative advantage factor refers to the degree of perceived benefits of ESS usage. During an interview performed by Kügler et al. [55] one interviewee said the following: "people at first want to be convinced regarding the benefits before they go ahead and use it". This quote perfectly describes what the relative advantage factor is about. Since there are many types of ESS technology, users experience many different benefits. Several main benefits which are regularly perceived by users are described in this section.

First of all, content quality and content relevance are benefits which are important to the users [72][56]. This means that the information that an employee can acquire by using ESS should be useful for his or

her work tasks. Secondly, the use of ESS is often perceived as enjoyable [20][19][77]. Employees tend to like helping others and the organization as a whole by sharing knowledge via ESS. This benefit of enjoying the use of ESS is defined as intrinsic motivation by Nielsen and Razmerita [72]. Next to the fact that helping is enjoyable, some employees understand that helping others generates value to the organization and use ESS because of this reason [72]. Thirdly, some are incentivized by extrinsic motivations such as monetary rewards and increased reputation [72][56]. Being helpful to others, the organizations or showing capabilities can enhance the reputation of an employee.

4.2.1.2 Technical factors

With the technical factors we refer to the general quality of the system. As stated by Jawadi and Bonis [47], the assessment of system quality is an object-based belief which is formed through user's perceptions of the system. Such an evaluation of the system quality, or the technical aspects of a system, has an impact on the acceptance of ESS. The technical factors can be sub-divided into Ease of Use and Security factors.

Ease of Use

Ease of Use (EoU) refers to the notion that Social Software needs to be free of physical and mental efforts [68]. Several studies found that the Ease of Use (EoU) of ESS has an impact on the acceptance of ESS [20][19]. An important aspect of EoU is accessibility. For example, interviewees of a case study [20] emphasized that the ability to access Social Software 24/7 and operates on multiple devices positively stimulates the adoption. As part of accessibility of a system, a user should be able to be easily understood by the employee, which is also referred to as Media Richness [82]. Ruhi and Al-Mohsen [82] state that when the ESS promotes understanding in a timely fashion, ESS acceptance will increase. Chin, et al. [19] argues that integration is another impact factor. System integration refers to how ESS is integrated in other system architectures present in an organization. Meske, et al. [66], regard ESS as a new IT architecture which needs to be adaptable in order to make it fit to the existing IT environment of the organization. Furthermore, Engler and Alpar [33] immediacy and concurrency of communication to be an important technological factor for acceptance. With immediacy of communication they refer to how quickly users can communicate with one another through the technology. Concurrency of communication refers to the extent to which users can perform other tasks parallel to communication through the technology. For example, communication through text messaging show a higher degree of concurrency than calling. Engler and Alpar [33] expect that a high degree of concurrency increases the intention to use ESS.

Security

Not only the EoU is important to ESS acceptance, also (perceived) security appears to play a key role according to several empirical studies [19][94][17]. Respondents of interviews conducted by Chin, et al. [19] mentioned that they highly value the security and confidentiality of a system. Some are afraid that the system could leak confidential information and are therefore limiting their ESS use. Therefore, it can be stated that (the perception of) the security of a system impacts its acceptance.

4.2.1.3 Organizational factors

Organizational factors refer to factors that directly relate to the organization itself, such as the company culture, facilitating conditions and aligned strategies. The following sub-sections describe these factors.

Organizational climate

Among a wide range of scholars, there is a consensus that the organizational climate has a significant impact on the ESS use behavior. It is important that an organizational climate, or environment is established in such a way that employees feel comfortable with using the Social Intranet. Such a comforting environment is closely tied to a well-established knowledge sharing culture or climate. However, there is no consensus on how such a climate employs in order to positively effect ESS use

behavior. Nevertheless, several key themes and perspectives regarding such a climate have been extracted from the literature.

First, trust is perceived as an important factor for a supportive organizational climate [55]. Trust, in this respect, refers to a notion of 'general' trust within a social unit rather than trust affiliated with a specific individual. This means that an employee needs to believe in the good intentions, behavior, and competence of co-workers. A positive belief will lead to effective knowledge sharing and collaboration among co-workers and, in turn, stimulates the adoption of Social Intranets [55]. Mazurek [62] supports this statement by arguing that a supportive organizational climate is based on mutual trust rather than formal procedures regarding sharing knowledge.

Secondly, collaborative norms, referring to an organizational consensus on co-operation, collaboration and teamwork [19] are also involved in the organizational climate. Employees are more triggered to adopt ESS when their behavior is in line with the organizational norms. An example is a pro-sharing norm, which refers to an organizational habit to share knowledge (via a Social Intranet) with co-works. When such an organizational habit is present, an employee is tempted to also perform this behavior. Kankanhalli et al. [48] even argued that a strong pro-sharing norm could outweigh the codification effort that is experienced by the employee. In other words, an employee is less bothered by codifying knowledge (creating a post) when he or she behaves according to the (sharing and collaboration) norms of the organization.

Thirdly, community identification plays an important role in the organizational climate [55]. Community identification refers to the feeling of being one with another entity, which can be another person, group of people, department or the entire organization [70]. Kügler et al. [55] found that when employees feel connected with co-workers, they are more likely to perform ESS use behavior. This finding is backed by assumptions made by Nahapiet and Ghosal [70]. Based on their literature research they suggest that employees who identify themselves with co-workers show more effective and frequent co-operation. Moreover, groups who have distinct and contradictory identities perceive more barriers related to collaboration and knowledge sharing.

To establish such a climate that stimulates Social Intranet adoption, communication should be based on trust, informality, mutual understanding and common interest, rather than formality, control and standard procedures [62]. When established organizational climate is not in line with those values, employees are less likely to perform ESS use behavior. Changing an organizational climate can be done by change management, however it is a slow and complex process.

Organizational support
Organizational support refers to efforts made by the organization to facilitate the acceptance of ESS. Two types of support can be distinguished. Those two types are technical support and support provided by management.

Technical Support
Several studies indicate that technical training and education regarding ESS has a positive impact on ESS use behavior [77][4][5][21]. Based on a qualitative study conducted by Alqahtani [4], two main reasons for providing education or trainings are extracted.

First, some employees were unfamiliar with the concept and don't know how to go about with this new concept [77][4]. Often, these people haven't had any pervious touch points with this new type of technology. Or some people might experience struggles when there is a technical change in general. By providing them education and training, they will get comfortable with the new concept and its purpose, which will positively impact the ESS use behavior.

Secondly, some employees faced problems regarding the required technical skills [4]. Despite their understanding of the concept and the purpose of the technology, they did not understand how to use it.

Organizations who actively familiarize their employees by means of training and education will have higher ESS adoption rates.

In general, a 'go there and experiment' familiarizing approach does not support the needs of employees who still need to get used to ESS. This will eventually lead to limited adoption among those employees [77].

Management Support
The management also plays a significant role in the adoption process of employees [72] [20] [21] [77]. Brzozowski et al. [16] performed a year-long empirical study at a technical organization and found a significant relationship between managers' participation and employees getting to start using ESS. Patroni et al. [78] argue that executives need to engage in a so called 'social digital leadership' in order to stimulate adoption of ESS. They state that the impact of the executives on ESS adoption can be explained by employees' tendency to perform similar behavior as executives. Employees perceive senior management's behavior as indicators of what are acceptable organizational behaviors and, therefore, tend to perform similar behavior.

Moreover, Chin et al. [20] found that management involvement gives the impression that ESS adoption is valuable and not a timewaster. This provides the employee with more motivation to start or sustain the adoption of ESS. However, based on responses from their conducted interviews among top managers from a large Australian organization, it became apparent that some managers are still skeptical about ESS. In such situations, employees feel discouraged to adopt ESS.

Alqahtani et al. [4] also emphasize the importance of management involvement. They argue that this importance lies in their significant ability to provide employees with gratitude and recognition. This appreciation by means of these intangible rewards is a large incentive for employees to start or sustain the ESS adoption. However, in situations where managers have concerns regarding ESS effectiveness, their influential power can also become a barrier to ESS adoption.

Despite the consensus on the impact of organizational management, there are still many organizations struggling with taking advantage of this possibility to incentivize adoption. Its fundamental cause for struggle is the organizational challenge to convert senior management into promoters of the ESS platform. Next to actively contributing to ESS, Patroni et al. [78] describe a few other actions that have a positive impact on ESS adoption when adopted by executives:

- Weekly updates: Executives can give weekly updates on their work-related activities, achievements, and challenges.
- Private life updates: Executives updating employees on their private life and thereby showing them that it is important to also socially interact with each other.
- Responding to posts: Actively responding to posts of employees will be perceived as an act of appreciation and will stimulate future contributions.

Organizational strategy
For organizations it is important to incorporate ESS in their (Knowledge Management) corporate strategy (also referred to as 'Web 2.0' strategy) for the ESS to succeed [5]. Such a 'Web 2.0' strategy provides endorsement as well as management support which encourages ESS adoption [4]. ESS policy provides employees with clear guidelines on how to use ESS and why this is beneficial to them and the organizations as a whole. Chin et al. [19] found that by providing such a clear policy, employees are more likely to perform ESS use behavior. However, managing ESS did not reach full maturity yet [29]. In other words, organizations still face challenges regarding the government of ESS. Nielsen and Razmerita [72] also acknowledge this organizational shortcoming. According to their perspective, many organizations fail in successfully adopting ESS due to a lack of purpose and a 'provide and pray' approach.

Several scholars describe what a promising strategy should involve. Alqahtani et al. [4] describe four key elements of a Web 2.0 strategy. First, the strategy should involve planning of implementation and adoption guidance. Concluding from their conducted interviews, a planning will avoid employees to perceive ESS as an 'extra thing' or a 'thing that only really passionate people use'. Second, it is crucial to define the objective of ESS when developing the strategy. Employees are less likely to use ESS when they don't know the organizational purpose of introducing the new technology. Third, the strategy should function as a policy, describing a set of principles that guide the employee in using ESS. Employees value such principles because it provides them with directions on how to use ESS, what to share and what not to share. Such a policy has three components which further explain the adoption: mandatory levels, eligible users and social use [4]. Mandatory levels describe whether ESS use is obligatory or optional. An obligation will increase the adoption among employees but may reduce the benefits of adopting ESS. It could be that adoption only takes place as a result of the obligation rather than a perceived benefit of adopting. The eligible user's component describes who is eligible for using which type of ESS features. These restrictions can eventually result in users perceiving ESS to be less relevant for them and not willing to use it. The social use component gives users guidance in how to use ESS in a social manner. The fourth key element of a Web 2.0 strategy is stewardship. Stewardship refers to the job of supervising and taking care of the ESS. It is important that certain employees are assigned to this role and make sure to sustain employees' motivation to use ESS.

Furthermore, Chin et al. [20] emphasize the cruciality of generating awareness among employees. In order to create awareness, it is important to align the Web 2.0 strategy with corporate visions on how to establish this awareness. Specific measures that can be taken are the following [20]:

- Assigning a community manager who manages the content distributed on ESS, ensures that the content arrives at the right person and questions are being answered.
- Awareness can be established by running awareness programs involving promotion through internal communication channels (e-newsletter, staff induction program), campaigns such as 'recognition day' or certain competitions
- Reward system can also be used to create awareness and incentivize employees to contribute to ESS.

Developing the right strategy that leads to a satisfactory ESS adoption is challenging, mainly because governing ESS needs to be done in a completely different way compared to other (regular) enterprise IS projects of which companies are familiar with [29]. There are no strict guidelines that directly result in success. However, in case the abovementioned components of a Web 2.0 strategy are considered and incorporated, successful adoption rates are likely to occur.

4.2.2 Acceptance models

This sub-section describes the literature research findings related to SQ2: What are possible ways to measure ESS acceptance? In order to answer this question, multiple acceptance models have been evaluated and compared. This assessment of acceptance models only includes research models complying with the following requirements:

- The object under investigation should be ESS, meaning that the Information Technology comprises Social features and is adopted within a corporate setting.
- The research model should aim to explain or predict intention to use, actual use behavior or continuous use of an employee rather than aim to explain adopting intentions of an organization.
- The research model has been validated. This avoids inclusion of models which might not be valid at all.

Based on these additional inclusion criteria, 13 scientific models related to ESS acceptance have been selected. Those selected acceptance models were subjected to further investigation. The results of this

investigation are presented in the following sub-sections. Table 3 provides the references of these scientific models and shows the respective employed theoretical backbone. The theoretical backbones will be introduced in the following sub-section. Subsequently, the ESS acceptance models will be discussed in Section 4.2.2.1 until Section 4.2.2.4.

Theoretical backbone	Occurrences in research models	References
UTAUT	5	3, 21, 34, 61, 94
TAM	3	5, 17, 66
Uses & Gratification Theory	2	33, 58
Other (only 1 occurrence)	3	47, 65, 82

Table 3: Theoretical backbones of acceptance models

Overview

The models explain acceptance by a wide range of independent variables and are conceptualized according to scientific 'paradigms'. Those 'paradigms' are the most influential theories in a specific field [67]. UTAUT [91], TAM [27] and UGT [49] have been most often used as a theoretical backbone for the design of ESS acceptance models (Table 3). Both UTAUT and TAM explain IS usage, where TAM's scope is a subset of UTAUT [67]. TAM addresses voluntary usages, while UTAUT covers both voluntary and non-voluntary use of Information Technology. UGT, however, is an influential sociological theory that explains individual behavior towards selecting specific media outlets [52]. UGT states that the motivation to adopt a certain type of media is defined by the experience of the communication process, content and fulfillment of the social interaction. Furthermore, three ESS acceptance models have been designed using other theoretical backbones, such as Social Capital Theory and IS success model. These theories only served once as theoretical backbone in the entire set of investigated acceptance models. The frequency of certain theoretical backbones adapted for ESS acceptance models is listed in Table 3.

The evaluation also included an investigation of the operationalization of the models. We extracted for each model the definitions of the constructs and how they have been turned into measurable factors. In Appendix A, a schematic overview of the acceptance models, including its constructs, relationships and operationalization references can be found. The acceptance models are grouped by their theoretical backbone and shortly introduced in the upcoming sub-sections.

4.2.2.1   UTAUT

UTAUT is a technology acceptance model that explains behavioral intention and subsequently use behavior of an information system [91]. Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Conditions are independent variables, where Gender, Age, Experience and Voluntariness of Use function as moderating variables [91]. The universal nature of UTAUT allows scholars to tailor the model for more specific contexts. Adoption models tailored to a more specific context, also referred to as Individual-Level Technology Adoption models (ILTAM), demonstrate the generalizability and robustness of the higher-level model [90]. UTAUT appears to have contributed to the ESS context, like its contribution to many other contexts. The following will explain how UTAUT is (variously) tailored in order to be applicable to the ESS context. Furthermore, we state how the constructs of these models have been operationalized.

First, Alexander and Stei [3] designed a research model applicable to predicting ESN use. They included all UTAUT's independent variables, excluded moderating variables, and added a higher-component model (HCM), in order to map ESN use dimensions on the independent variable (ESN use). The ESN use dimensions include Problem Solving, Ideas and Work Discussion, Event and Updates, Task Management and Informal Talk. By adding these dimensions, the model should give more insight into components that drive the use behavior. The validation of this model showed that Social Influence does

not have a significant impact on Intention to use ESN. Furthermore, Ideas and Work discussions have been found to be the largest driver of ESN use.

Second, Martensen et al. [61] also fully adopted the UTAUT-constructs, however instead of taking the use behavior construct, they differentiated six different use behaviors: Knowledge sharing, Knowledge seeking, Self-management, Network Building, Communication, and Collaboration. Their perspective corresponds to the believe of Alexander and Stei [3] in a way that distinct motivations drive the actual use. However, Martensen et al. [61] predict different use behaviors as an effect of Behavioral Intention, where as the model of Alexander and Stei [3] explain use behavior as a result of motivational drivers. Furthermore, a large difference is that Martensen et al.'s model is applicable to ESS, where the model of Alexander and Stei [3] is applicable to ESN, which is an instance of ESS (Figure 4).

Both models borrowed UTAUT constructs and took the scales given by Venkatesh et al. [91]. However, the ESN use dimensions and use behaviors have been operationalized. Alexander and Stei [3] took scales given by Mäntymäki and Riemer [60], who initially proposed the ESN use behaviors integrated in the research model. In contrast, Martensen et al. [61] defined new scales for measuring the different use behaviors.

Third, Engler and Alpar [34] distinguish between two major types of ESS use: consumptive and contributive use. Both use behaviors are performed in order to fulfill distinct goals. In line with this perspective, they tailored UTAUT in such a way that the independent variables impact both 'Intention to contribute content' (CONT) and 'intention to consume content' (CONS). These constructs are operationalized with scales defined by Venkatesh et al. [91]. The assessment of the relationships showed that Effort Expectancy does not have a significant impact on both CONT and CONS. Furthermore, Social Influence does not have a significant influence on CONS. The other relationships have been proven to be significant.

Fourth, the model of Chin et al. [21] also incorporates the distinction between contributive and consumptive use. They added Content Value and Relationship Expectancy as independent variables. These independent variables relate to both consumptive use and contributive use, hereby the mediating variable 'behavioral intention' has been omitted. Furthermore, this model extents Engler and Alpar's model by defining a 'Usage Gap' which, in turn, impacts overall ESN use. The Usage Gap refers to a discrepancy between contributive and consumptive use, where a high discrepancy leads to a lower overall ESN use. This hypothesis is backed by their belief that contribution without consumption constraints the benefits and that consumption without contribution leads to an unsustainable platform. This means that for a high overall ESN usage rate, the utility regarding employees' contribution and consumption, should be in balance. The two types of use have been given scales from Kügler and Smolnik [54] who operationalized several types of Social Software use in their research. Furthermore, the Performance Expectancy and Effort Expectancy have been given scales based upon scales from Davis [27] and Venkatesh et al. [91]. The added constructs Content value and Relationship Expectancy have been given respectively self-constructed scales and scales based upon research by Kankanhalli et al. [48].

Finally, the research model of Wang et al. [94] employs a mixture of several contexts-specific constructs which have been added to the UTAUT foundation. These context-specific constructs include IT-specific Individual Characteristics, Knowledge-sharing Outcome Expectancy and Social Influence. Moreover, the scholars categorize the end-users into social and silent users. Social users are individuals who prefer interaction as creators or prosumers of content while silent users limited their behavior to viewing content. Depending on the type of user, various constructs exhibit stronger relationships than other constructs. The constructs borrowed from Venkatesh et al. [91] have also been given the scales that originate from their model, while the context-specific constructs have been given scales which originate from a variety of studies in the IS field.

4.2.2.2 TAM

TAM model is a 'competitor' of UTAUT as they can both be used to explain and predict IS usage [67]. TAM employs two independent variables (Perceived Ease of Use and Perceived Usefulness) and behavioral intention as dependent variable [27]. A difference with UTAUT is that Social Influence and Facilitating Conditions are not part of TAM constructs. Another main difference is that TAM only applies to voluntary use while UTAUT applies to both voluntary and non-voluntary use. Like scientific contributions of UTAUT, TAM has also been used as a theoretical foundation to predict adoption in various contexts. Three identified ESS acceptance models employing TAM as a foundational backbone will be discussed in this sub-section.

First, Antonius et al. [5] adapted TAM to design a model that determines the adoption factors for ESS usage. They found that external factors and perceptions play a key role in the adoption of ESS. They propose that external variables influence the perception of ESS, which in turn impacts the usage. Based on their literature study, they identified individual factors, organizational factors, task complexity, organizational culture, and knowledge strategy as the external variables. These external variables influence an employee's perception. An employee's perception is constructed according to the TAM constructs Perceived Usefulness and Perceived Ease of Use. In line with TAM, those constructs impact acceptance of ESS. These TAM constructs have been operationalized with similar scales as given by Davis [27]. On the other hand, the external variables have been given self-constructed scales which have been defined based upon a combination of sources.

Second, the ESN Use Continuance model of Meske et al. [66] explains continuous use, which construct is impacted by Perceived Usefulness and Perceived Enjoyment of the employee. The rationale behind this design choice is the belief that an employee's decision to continue using an ESN is associated with achieving utilitarian and hedonic goals. The utilitarian goal involves the motivation to increase efficiency and improve job performance. The scholars conceptualized this by including the Perceived Usefulness construct to their model. The hedonic goal refers to external goals which are subordinated to the use of the system itself. The perceived enjoyment construct is defined as the extent to which using the ESS is perceived as enjoyable in its own right. Furthermore, Meske et al. [66] associate the introduction of ESS with the adoption process of a new work-oriented infrastructure. Therefore, they state that the basic key characteristics of such a new infrastructure need to be addressed in the model. Those key characteristics are borrowed from Pipek and Wulf [78] and are in the model referred to as: Perceived Adaptability, Perceived Invisibility-in-use, Perceived Interconnectedness and Perceived Versatility and Perceived Reflexivity. Meske et al. designed new constructs to measure these variables. Based on the validation, Meske et al. [66] showed that four of those infrastructural determinants influence the perceived usefulness of an ESN.

Third, Buettner [17] adapted TAM by adding Privacy Concerns as a third construct that influences Intention to Use an Internal Social Networking Site (ISNS). All constructs are operationalized with measures given by Davis [27], except for the Privacy Concerns construct. This construct has been operationalized with scales given by Xu et al. [101], who studied organizational IS privacy issues in general. The validation shows that Perceived Usefulness, Ease of Use as well as Privacy Concerns impact the intention to use. Furthermore, he concludes that privacy concerns play a key role when explaining an ISNS avoidance problem.

To summarize, the model designed by Antonius et al. [5] explains adoption of ESS, the model by Meske et al. [66] explains ESN Use Continuance, whereas the model from Buettner [17] explains Intention to Use an Internal Social Networking Site. Those three research models differ in what it tries to explain, both regarding its context (type of technology) and its dependent variable. On the other hand, all models show that Perceived Usefulness plays a key role when explaining either the intention to use or the actual use behavior of ESS.

4.2.2.3 Uses and Gratification theory

The Uses and Gratification theory (UGT) is an approach to understand people's choices for specific media and their underlaying motivation [49]. UGT postulates that people are seeking out media in order to accomplish certain goals and to satisfy certain personal needs [33]. This theory has been extensively researched in the private realm of social media by finding a broad range of motivations and needs for adopting certain functions of media [33]. Research models predicting adoption of Social Media within enterprises and building on the UGT theory exist in extant literature. Two of those models have been identified in this literature research and are discussed below.

First, Liu and Bakici [58] state that an employee's motivation to use ESM can be derived from a feeling of gratification. This gratification emerges from enjoyment of using the ESM technology itself, the quality of the content presented by ESM, or the social interaction that takes place by using ESM. The authors advocate that these types of gratification (content gratification, process gratification and social gratification) influence the ESM usage. Furthermore, the authors argue that experience with similar technology influences the user's perception of ESM. Therefore, they state that by incorporating prior Social Media Experience as a moderator, the model should improve the explanation of ESM usage. However, the validation did not prove that this moderator has a significant impact.

Second, Engler and Alpar [33] take another approach by distinguishing between different types of ESM tools. Since ESM tools are employed for fundamentally different uses, the motivation to adopt these tools also differ from employee to employee. Their model includes Technological and individual factors which have been tested in three parallel studies. Each study focused on another type of ESM tool, one for social networks, one for blogs and the third one for wikis. They hypothesized that all factors have an influence on ESM use. However, for blogs, Social Presence should have the strongest impact. For wikis, Social Media Experience and Knowledge Self-Efficacy should have the strongest impact. And for wikis, Immediacy, Concurrency and Anticipated Reciprocal Relationships should have the strongest relationship for social networks. In order to measure the variables, the scales from Brown et al. [15] have been adopted for most constructs. Only for Knowledge Self-Efficacy and Anticipated Reciprocal Relationship, the authors took scales from respectively Kankanhalli [48] and Bock et al. [14]. Even though not all hypotheses have been proven by their statistical analysis, the results indicate that motivation to use ESM tools depend on the type of tool.

4.2.2.4 Other reference models

Three research models [47][65][82] draw upon other scientific theories than UTAUT, TAM and UGT. These other theories only serve once as theoretical backbone and are therefore categorized under one sub-section. The following will shortly introduce those ESS acceptance models.

First, Meske et al. [65] theorize that employees' incentive to use an ESN is purely based on normative and hedonic motivations. Moreover, this model draws upon the Four-Drive Model which postulates that human behavior (in the workplace) is motivated by the drives to acquire, bond, comprehend and defend. These four drives are mechanisms that humans naturally want to satisfy. Meske et al. [65] theorize that when these drives are supported through the usage of ESN, the hedonic motivation will increase. In case the drives are not or to a lower extent supported, it has a negative effect on the hedonic motivation. The validation indeed showed that all four drives have an impact on the hedonic motivation to use ESN. Extrinsic motivation, such as monetary rewards, is explicitly excluded because according to their interpretation of extant literature, there is no evidence that it plays a motivational role. Measurement scales are borrowed from several sources. Hedonic Motivation and ESN Use Continuance is operationalized with measures from Venkatesh, et al. [92], while Normative Motivations is operationalized with measures from Venkatesh, et al. [91].

Second, the acceptance model by Jawadi and Bonis [47] draws upon the Integrated Model of User Satisfaction and Technology Acceptance by Wixom and Todd [99]. This backbone theory is a

combination of a technology acceptance perspective and a user satisfaction perspective. The authors believe that user satisfaction with a technology mediates the intention to use an IT. Therefore, this model states that Satisfaction with Information influences Perceived Usefulness and Satisfaction with the CSN influences the Perceived Ease of Use. Perceived Usefulness and Perceived Ease of Use have been operationalized with scales from Davis [91], while Satisfaction with CSN and Satisfaction with information has been operationalized with scales from Bhattacherjee [11].

Finally, Ruhi and Al-Mohsen [82] draw upon 5 theoretical theories, which in combination from a model that predicts Enterprise 2.0 Use intention for Knowledge Management. Form those theories they adopted constructs related to National Culture Traits, Technological attributes, Knowledge Management Environment, Organizational and Personal Information Behaviors. In a complex model, the constructs relate to each other and eventually predict the use intention of Enterprise 2.0 tools. Based upon the consultation of a variety of studies, the authors created proper scales for the constructs. Not all hypothesized relations were significant, however, the authors could conclude that Technological Perceptions, Media Richness and Technology Sophistication play a key role in employee's intentions to use Enterprise 2.0 technologies.

To summarize, these sub-sections introduced the various ESS acceptance models. The design of these models most often drew upon UTAUT, TAM and UGT, but some models have other theoretical backbones. The following section will further discuss similarities, differences and trends which emerged as a result of the literature analysis.

4.3 Preliminary Conclusions

This literature study identified a wide range of ESS acceptance factors, which have been grouped according to their context (*Individual, Technical, and Organizational*) and further sub-divided into sub-factors. We recognized that some factors are closely related. For example, Prior Social Software Experience and Technical Support can be regarded as two closely related factors. One can argue that when an employee has prior experiences with (Enterprise) Social Software, the impact of technical support on ESS acceptance will decrease. Another example is the interrelationship between organizational "Web 2.0" strategy and company culture. The way such a "Web 2.0" strategy is formed is influenced by the company culture. Moreover, a high management involvement can come from certain policies, indicating that those factors also interrelate. These interrelationships make it complex to define stand-alone themes. We theorize that this is the main reason why scholars have been defining impact factors according to various themes.

The second part of the literature study addressed the ESS acceptance models present in scientific literature. Most ESS acceptance models have been drawn upon UTAUT, TAM or UGT. This is surprising since these backbones have different scopes and focusses. The fact that many scholars suggest that pleasure plays a large role in the acceptance of ESS contradicts the extensive use of UTAUT and TAM as a theoretical backbone. However, some researchers indeed extended their UTAUT or TAM backboned model with constructs related to joy or hedonic motivation.

Furthermore, the ESS acceptance models do not predict or explain acceptance of the same kind of technologies. Some models only apply to Enterprise Social Networks [3][17][21][47][65][66], whereas other models stay on a higher level and predict Enterprise Social Software [5][34][58][61] or Enterprise 2.0 technologies in general [82][94]. An acceptance model explaining acceptance of Enterprise Social Software applies to multiple "Web 2.0" technologies, such as blogs, wikis, RSS feeds and Social Network. On the other hand, Enterprise Social Networks only apply to a reduced set of technologies with more specific characteristics. We argue that the type of ESS involved plays a significant role regarding the impact factors that actually influence acceptance. Models, which do not specify the type of Enterprise Social Software, explain acceptance only on a high level. This might not suffice when used for specific ESS technologies. This finding is in line with Engler and Alpar [33] who state that Web 2.0 technologies, or ESS, cannot be regarded as a single entity because the technologies significantly differ.

Another key observation is that a significant number of authors adopted scales from Davis [27] and Venkatesh et al. [91]. It appears that those scales suffice in order to measure UTAUT and TAM related constructs in the context of ESS. However, not all constructs have been operationalized with scales from those researchers. For example, Bock et al. [14] proposed scales for extrinsic motivators, social-psychological forces, and organizational climate factors, which are believed to impact knowledge sharing-intentions. Bhattacherjee [11], Kankanhalli, et al. [48] and Liu [57] also provide interesting scales, which can be adopted for operationalizing constructs in this field.

In conclusion, there is a high quantity of ESS acceptance models, which can be used to evaluate user acceptance in organizations. Models also employ various constructs with different measurement items, indicating that no consensus regarding ESS acceptance exists. Moreover, most of these models predict acceptance on a high level instead of for specific types of ESS technologies. Both the lack of consensus and the abstract contexts to which the models apply affect the usability of these models for organizations.

CHAPTER 5

RESEARCH MODEL DESIGN

From the literature research (Chapter 4), one can gather that there is a large number of models to evaluate ESS. The scope of these models varies considerably. Whereas some models focus on ESS, others only apply to a subset of ESS technologies such as ESNs. Furthermore, independent variables also vary widely, so do models which predict or explain the same independent variable. We can conclude that scholars did not reach consensus about a specific ESS acceptance model. The fact that many different technologies and systems can be classified as ESS might be an explanation for such a wide range of ESS acceptance models.

We suggest that more clarity on the type and strength of impacting factors applicable to certain ESS technologies is beneficial to the development of ESS acceptance models. Furthermore, these insights are also valuable to organizations and practitioners in the field of ESS. As acknowledged by O4C, the insights will provide an understanding of why certain modules or functionalities of their Social Intranet are well- or ill-adopted by end-users. O4C expects that such an understanding supports well-informed decision-making regarding the development and implementation of Social Intranet. In order to make a first contribution towards the clarification on impact factors, SQ3 needs to be answered:

How do adoption factors differ for varying functional architectures of a Social Intranet?

This sub-question will be answered by investigating ESS impact variables for multiple ESS technologies through a case study [102]. Based on the preliminary conclusions (previous section), a set of independent variables has been selected for the formulation of the research model. The following section further explains the model conceptualization. In order to measure the constructs in our model, we operationalized the model through existing measurement items available in scientific literature. The operationalization resulted in a survey which has been validated through a pilot test within two departments of ORTEC. After minor adaptions, the survey could be used for the case study. The survey was presented to all employees of ORTEC in order to measure the constructs. A regression analysis enabled us to estimate the cause-effect relationship model based upon the responses given by ORTEC employees. These calculations resulted in the acceptance model and the answer to sub-question 3. Subsequently, interviews have been conducted to validate the model, thereby evaluating the applicability of this model in a broader context.

5.1 Conceptualization

Answers to SQ1 and SQ2 from the literature study have been used to conceptualize the research model. The literature study yielded a classification of impact variables and possible models to explain ESS acceptance. From all identified acceptance models, some independent variables have been selected for the research model. The selection process is subject to a tradeoff situation, in which the model conceptualization pursues an optimum between employing all relevant impact variables and, at the same time, ensuring its simplicity. We aimed for selecting a set that covers the entire impact factor classification from the literature research while reducing an overlap between constructs definitions. Furthermore, we prioritized constructs, which appeared to have a high correlation with either the construct 'use' or 'intention to use'. Finally, an important criterium is a satisfactory validity and

reliability of the measurement items related to the construct. The validation of the measurement model will be discussed in Chapter 6. The following sub-section introduces the constructs selected for this study.

5.1.1 Independent variables

Most identified acceptance models draw upon UTAUT [91]. These models often adopted all independent variables including their respective measurement items of UTAUT. Since UTAUT is among the 'paradigms' of the IS field and most often used as the theoretical backbone in the field of ESS, we chose to use the UTAUT latent variables as well. Moreover, these latent variables have been used in many studies and their measurement items have been found reliable and valid.

Since the UTAUT variables do not cover all identified impact factors, other independent variables have been added. Five extra constructs originating from different studies appeared to be relevant to the acceptance of Social Intranets without creating overlapping definitions. The following paragraphs introduce the UTAUT latent variables and the five other relevant constructs. The introduction also indicates which (sub-)factor(s) identified in the literature study is or are related to the construct. Table 4 shows the mapping of the constructs onto the impact factor classification designed during the literature study. For example, "Performance Expectancy' in the rightmost column of the table corresponds to the Relative Advantage factor. In such a way, we mapped all constructs onto our factor classification, which ensures that our model covers all impact factors that are most frequently discussed in ESS literature. The following paragraphs introduce each selected construct by stating its definition and reason why we selected the respective construct.

Themes	(Sub-)factor		Constructs
Individual factors	*Prior Social Software experience*		Prior Social Media Experience
	Social factor		Social Influence
	Cultural factor		-
	Relative advantage		Performance Expectancy Hedonic Motivation Relationship Expectancy
Technical factor	*Ease of Use*		Effort Expectancy
	Privacy		Perceived Security
Organizational factor	*Corporate climate*		Knowledge Management Environment Organizational Context
	Corporate support	*Technical*	Facilitating Conditions
		Management	Facilitating Conditions
	Corporate strategy		Facilitating Conditions

Table 4: Constructs mapped onto factor classification

Performance Expectancy
Ten out of 13 acceptance models include the construct Performance Expectancy (also referred to as Perceived Usefulness), which indicates that this construct is highly relevant to ESS acceptance. Most scholars defined this construct according to the definition given by Venkatesh et al. [91]:

"The degree to which an individual believes that using the system will help him or her to attain gains in job performance."

The inclusion of this construct is supported by the findings of the literature study. Several studies showed that a personal belief about the usefulness of the system influences its acceptance. This construct is closely related to the Relative Advantage factor.

Effort Expectancy

Nine out of 13 acceptance model include Effort Expectancy (also referred to as Perceived Ease of Use), which indicates its relevance. Scholars most often define this construct according to the definition given by Venkatesh et al. [91]:

> *"The degree of ease associated with the use of the system."*

This construct is closely related to the Ease of Use sub-factor.

Social Influence

Social Influence (or subjective norm) is an independent variable in five identified models. This indicates the relevance of this construct for Social Intranet acceptance. Venkatesh et al. [91] defined this construct as follows:

> *"The degree to which an individual perceives that important others believe he or she should use the new system."*

This construct is closely related to the Social factor.

Facilitating Conditions

Facilitating Conditions appears three times in the identified models. Moreover, some of the identified models included similar constructs referring to the same or closely related phenomenon. Venkatesh et al. [91] defined this construct as:

> *"The degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system."*

This construct is related to both the *Corporate Support* and *Corporate Strategy* factors.

Hedonic Motivation

Feelings of pleasure, joy, and entertainment might be a reason for users to adopt ESS, according to several studies. Several acceptance models employ constructs related to such phenomena. For example, Liu and Bakici [58] found that entertainment positively affects ESS usage. Meske et al. [65] found a positive relationship between Perceived Enjoyment and ESN Use. These independent variables refer to similar constructs. Thus, we can conclude that feelings of pleasure, joy and entertainment are relevant factors for acceptance. Our research model employs Hedonic Motivation, defined by Venkatesh et al. [92], as construct that refers to those feelings. Venkatesh et al. [92] define Hedonic Motivation as:

> *"The fun or pleasure derived from using a technology."*

This construct can also be assigned to *Relative Advantage* since 'fun' can be perceived as a personal advantage gained through the use of the platform. This means that both Hedonic Motivation and Perceived usefulness refer to a derived advantage. However, Hedonic Motivation refers to a personal advantage derived from pleasure or fun, while Perceived Usefulness refers to a work-related advantage. Therefore, both constructs relate to the same factor without having overlapping definitions.

Perceived Security

Users might be influenced by privacy concerns or other possible security issues. Both Wang et al. [94] and Buettner [17] propose ESS acceptance models that take this phenomenon into account. Buettner's model employs a construct labelled as Privacy Concerns, focusing on privacy issues. The model by Wang et al. [94] consists of a construct labelled as Perceived Security. This construct has a broader scope and does not exclude any other possible risks associated with ESS use. Since we expect that the scope of the Privacy Concerns construct might be too limited, the Perceived Security construct has been chosen. The Perceived Security construct has been defined as in [94]:

> *"The extent to which an individual believes that using an information technology will be risk free."*

This construct can be assigned to the sub-factor *Privacy Concerns*.

Relationship Expectancy

Multiple ESS acceptance models include an independent variable associated with relationship outcomes. For example, Liu and Bakici [58] found that the development and maintenance of relationships could stimulate employees to use ESS technologies. Furthermore, Martensen et al. [61] suggest the personal need for network building could be a reason to use ESS technologies. For our research model the construct labelled as Relationship Expectancy has been selected. Our definition is based upon the definition given by Chin et al. [21]:

> *"The degree to which an individual believes that using ESS will provide benefits in initiating and maintaining relationships with other employees within the organization."*

Relationship Expectancy can be assigned to the sub-factor *Relative Advantage*. Where *Relationship Expectancy* solely refers to benefits related to social relationships, Performance Expectancy refers to work-related benefits.

Knowledge Management Environment

As indicated in the literature study (Chapter 4, Section 4.2.1.3), organizational climate influences users' acceptance towards using ESS. Multiple ESS acceptance models include constructs referring to organizational climate. Our model employs the construct Knowledge Management Environment, which has been defined by Ruhi and Al-Mohsen [82] as:

> *"Context and culture of an organization that nurtures a knowledge management initiative"*

This construct can be assigned to the sub-factor Organizational Climate.

Prior Social Media Experience

An employee's experience with Enterprise Social Software influences ESS acceptance. More prior experience with Social Media indicates that a person is more willing to accept ESS. This construct can be assigned to Prior Social Software Experience. Prior Social Media Experience is defined as:

> "*The extent to which an individual uses Social Media in daily life*"

Evidently, this construct is closely related to the Prior Social Media Experience factor.

The above-mentioned constructs cover all factors identified in the literature research (Chapter 4), except for the cultural factor. This can be explained by the fact that this factor influences some of the selected constructs. In other words, the cultural background influences an employee's perception of the organization and the system. Therefore, we assume that the construct 'cultural background' has an indirect effect on 'usage intention', which means that it explains this dependent variable via the independent variables. As a result of this assumption, we do not include any construct directly related to the 'cultural background' factor in our research model.

5.1.2 Dependent variables

Our research model tries to explain continuous usage of Social Intranet components. Therefore, the dependent variable is Continuous System Usage. Since there are various ESS technologies (referred to as system components), the research model tries to explain multiple dependent variables separately. During the case study, we will investigate the continuous usage intention of the five system components which are offered to them via the same Social Intranet. The components within the scope of this study are listed in Table 5. However, the Social Intranet under investigation includes more components, which

are not listed. The listed components are the most prominent functionalities integrated in most Social Intranets developed by O4C, which is the main reason why these components have been selected.

The construct 'continuous usage intention' explains why employees keep using the system, as well as why employees decided to discontinue using the system. The prerequisite is that employees need to be introduced to the system and that they have had the opportunity to use the system, which is the case for all ORTEC employees.

	Independent variable (Component)	Component definition
1	Continuous Usage of the *Internal News Feature*	The Internal News Feature is the core of the Relevance Platform. All the other features are often secondary and are built around this core feature. Personalized news features provide the employee with global (corporate) news and local (departmental) news based upon the user's characteristics, such as the department the employee works for, the country where this employee is located, or the preferred language.
2	Continuous Usage of the *People Finder*	This feature allows employees to find colleagues from the entire organization based on expertise, location, and knowledge. This is an easy way for employees to find colleagues they are looking for.
3	Continuous Usage of the *External News Feature*	This feature shows employees content shared on various Social Media platforms. Employees can often subscribe to different channels. This way, they can stay updated on what is being said about their organization on Social Media without having to browse through all the sources individually.
4	Continuous Usage of the *Social Wall*	This functionality allows all employees to share user-generated content with the entire organization or a specific target audience. This user-generated content can have multiple functions depending on how the organization want to make use of the Social Wall feature. One organization could use the Social Wall enabling employees to share work-related achievements, while another could use it to share personal highlights.
5	Continuous Usage of the *Static Content Feature*	The Static Content Feature provides employees with valuable information that does not require regular updating. Examples of static information that can be provided are emergency information, IT helpdesk information, HR documents, organizational vision and strategy, or guidelines supporting employees performing their work-related activities.

Table 5: Social Intranet components definition included in our research model

5.1.3 Conceptualized structural model

Having discussed the independent and dependent variables, the following conceptualized structural model specifies how the latent variables are related to one another (Figure 9). Having presented this structural model, there are two important remarks which need to be made:

- First, we do not expect the introduced variables to have similar effects on the various dependent variables. Moreover, some causal relationship represented by this conceptualized structural model might not even exist. Since this case study is exploratory of nature, we have chosen to empirically test all possible causal effects between the exogenous (variable explained outside the model) and endogenous (variable explained by the model) variables. Therefore, the model shows all possible causal relationships.
- Secondly, the structural model can be decomposed into five smaller models by taking the dependent variables apart from one another. In order to efficiently depict all causal relationships analyzed in this case study, the conceptualized structural models have been integrated in one illustration.

Figure 9: Conceptualized Structural Model

5.2 Operationalization

The measurement items for each of the constructs in Figure 9 have not been self-developed but borrowed from the respective studies. The measurement items scored satisfactory outcomes on the validity and reliability tests performed by the researchers presenting these measures. Most important for our research is the satisfactory Cronbach's Alpha [12], which is a measure for internal reliability. The Cronbach's Alpha's scores for each of the independent variables are .79 or higher, with an average of .86. Table 6 provides an overview of the references for each construct.

Construct	Scale reference	Remark
Performance Expectancy	Venkatesh et al. (2003) [91]	UTAUT
Effort Expectancy	Venkatesh et al. (2003) [91]	UTAUT
Social Influence	Venkatesh et al. (2003) [91]	UTAUT
Facilitating Conditions	Venkatesh et al. (2003) [91]	UTAUT
Hedonic Motivation	Venkatesh et al. (2012) [92]	UTAUT2
Relationship Expectancy	Chin et al. (2019) [21]	
Perceived Security	Wang et al. (2015) [94]	
Knowledge Management Environment	Ruhi and Al-Mohsen (2015) [82]	
Prior Social Media Experience	Liu and Bakici (2019) [58]	
Use Component	Venkatesh et al. (2012) [92]	UTAUT

Table 6: Scale references for constructs

The dependent and independent variables will be measured by means of conducting surveys within ORTEC. Conducting surveys is time-consuming and expensive for organizations. Thus, in order to reduce the length of the survey, some measurement items have been removed or combined. For such reasons, we also decided to model the independent variable Hedonic Motivation as an observed rather than unobserved (latent) variable. The three measurement items for this variable provided by Venkatesh et al. [92] are short and easily integrable, which gave us the opportunity to do this integration. To evaluate whether the measures are valid and reliable for our study, a pilot survey test has been conducted. The survey outline and the (results of the) pilot test will be discussed in Chapter 6.

5.3 Sampling Strategy

The sampling process comprises three stages according to Bhattacherjee [12]. These stages are:

1. *Population*: Define the group of items which have the required characteristics that one wants to study.
2. *Sampling* frame: Define the accessible section of the population from which a sample can be taken.
3. *Sample*: Define the final set of units to be studied.

Population

The present survey evaluates the factors influencing continuous usage from employees accessible to Social Intranets. This means that the entire population consists of individuals who have been provided access to their organizational communication platform that incorporates one the ESS technologies. The population does not exclude any types of employees or organizations.

Sampling frame (convenience sampling)

Unfortunately, due to resource constraints there is no access to all organizations adopting Social Intranets. Since this research is conducted in cooperation with ORTEC, the sampling frame only consist of their clients, which are currently using the Social Intranet. However, the distribution and completion of surveys is time-consuming for employees of organizations limiting the number of organizations willing to participate in this case study. After contacting several clients from ORTEC, we concluded that a survey study within those organizations is not possible. Since ORTEC also adopts a Social Intranet developed by themselves, we decided to perform the survey study within this organization. Due to the restricted accessibility to organizations adopting ORTEC's Social Intranet, we chose employees working at ORTEC as our sampling frame for the conduction of the survey.

Sample

The sample taken within ORTEC is random [36]. In an effort to include all ORTEC's employees in the survey, we tried to reach out to as many as possible. The way we reached out to the employees will be discussed in Section 6.3.

RESEARCH EXECUTION

This Chapter describes the execution of the case study. The first sub-section describes the structure of the survey. This is followed by a description of how the measurement reliability and validity have been evaluated based upon pilot testing. The third section discusses the data collection process. The last section discusses the data analysis process.

6.1 Survey Structure

Our survey questionnaire consists of multiple sections in order to make filling out the survey easy and understandable. In the first section, the respondent is given a brief introduction to the purpose, structure, and other practical information of this survey. The introduction is followed by an overview of the main functionalities of the Social Intranet ensuring a proper and aligned understanding of the different functionalities among all respondents.

After the introduction of the five main functionalities, the respondents are asked to provide an interval-level response to indicate how much they agree with statements presented by the survey. A five-point Likert scale, ranging from 'Strongly disagree' to 'Strongly agree', has been used. By providing this response format, respondents could respond to multiple statements applicable to the various functionalities of the system. The provided statements correspond with the measurement items of the constructs Performance Expectancy, Effort Expectancy, Social Influence, Hedonic Motivation and Relationship Expectancy. For each of the five main functionalities, the respondent had to respond to the measurement items of the above-mentioned constructs.

We do not expect Perceived Security and Facilitating Conditions to differ for each of the functionalities as these constructs only apply to an entire Social Intranet rather than single functionalities within one system. Therefore, respondents only had to respond once to measurement items belonging to these two constructs (considering the platform as a whole).

The last two independent variables Knowledge Management Environment and Prior Social Media Experience do not directly relate to the platform or any of the functionalities. This means that respondents had to respond once to the measurement items belonging to these constructs.

In the last part of the survey, the respondent has been asked to indicate his or her continuous usage intention for each of the main functionalities and to provide demographical information. The survey has been made available in both Dutch and English language. Appendix D presents the survey statements in both English and Dutch language. Appendix E contains two screenshots of the survey which illustrate how the statements have been presented to the respondents.

6.2 Pilot Testing

Our goal of performing the pilot test is to detect any unclarities and grammatical mistakes and to evaluate the validity and reliability of the measurement items. Printed copies of the survey have been distributed within two departments of ORTEC. Based on 15 responses we could optimize the layout, language, and introduction of the survey. Furthermore, the internal consistency reliability and the

convergent validity of the measurement items have been evaluated in order to improve the measurement model. The remainder of this sub-section will further elaborate on the reliability and validity of the measurement items.

Since this study deals with imaginary and multi-dimensional constructs, its measurement is rather complex [12]. The fact that they are imaginary means that the constructs are intangible and unobservable. The multi-dimensionality asks for a clear understanding of the different dimensions and how to measure them. A measurement instrument is valid, if it adequately measures the underlying construct it is set out to measure, while a reliable measurement instrument provides outcomes, which are consistent. This means that it is important to use a set of measurement items which are both reliable and valid. The following paragraphs explain how we evaluated our set of measurement items based on these "psychometric properties" [12].

6.2.1 Scale reliability

There are several ways of estimating the reliability of the measures, such as the inter-rater reliability, test-retest reliability, split-half reliability, and internal consistency reliability. Due to limited resources, not all measures could be used to evaluate reliability. However, we were able to measure the internal consistency reliability in terms of average inter-item correlation, also known as Cronbach's Alpha. Cronbach's Alpha measures the extent to which measurement items belonging to the same construct are answered in a similar way. In other words, the correlation between answers to measurement items belonging to the same construct should be similar for all respondents. The value of Cronbach's Alpha technically ranges from -1 to 1, where a value below 0 barely occurs. A value close to 0 means that the measurement items do not show similar correlations across the respondents, where a value close to 1 means that the measurement items are correlated. A Cronbach's Alpha higher than 0.7 is acceptable for a set of measurement items [25]. Appendix B illustrates the Cronbach's Alpha for all sets of measurement items we evaluated during the pilot test.

6.2.2 Scale validity

There are various ways to evaluate measurement validity. In our study, we chose to estimate the convergent and discriminant validity as per the recommendations of Campbell and Fiske [18]. Convergent validity refers to the closeness between measurement items of the same construct, while discriminant validity refers to the closeness between measurement items of different constructs [37]. These measurements give insights into whether the measurement items measure the underlaying construct it is purported to measure, instead of measuring other constructs. Scales belonging to a common construct should exhibit a factor loading of 0.6 (same-factor loading), meaning that the measurement items adequately measure their respective construct [37]. The items purported to measure different constructs should have a factor loading of 0.30 or less. This matrix has been used as reference for identifying factors that might have to be removed or adapted.

Based on the evaluation of scale reliability and validity, we concluded that the measurement items measuring Effort Expectancy, Social Influence, and Knowledge Management Environment needed to be revised. Due to the time-constraints, we were not able to conduct a second pilot test in order to verify whether the measurement reliability and validity improved. An overview of the final set of measurement items is presented in Appendix C.

Figure 10 illustrates the conceptualized measurement model for this case study. The observed variables are illustrated as rectangles, while the unobserved variables have an elliptical shape. As mentioned before, the independent variable Hedonic Motivation is modelled as an observed variable in order to reduce the size of the survey. All other independent variables are modelled as unobserved (latent) variables.
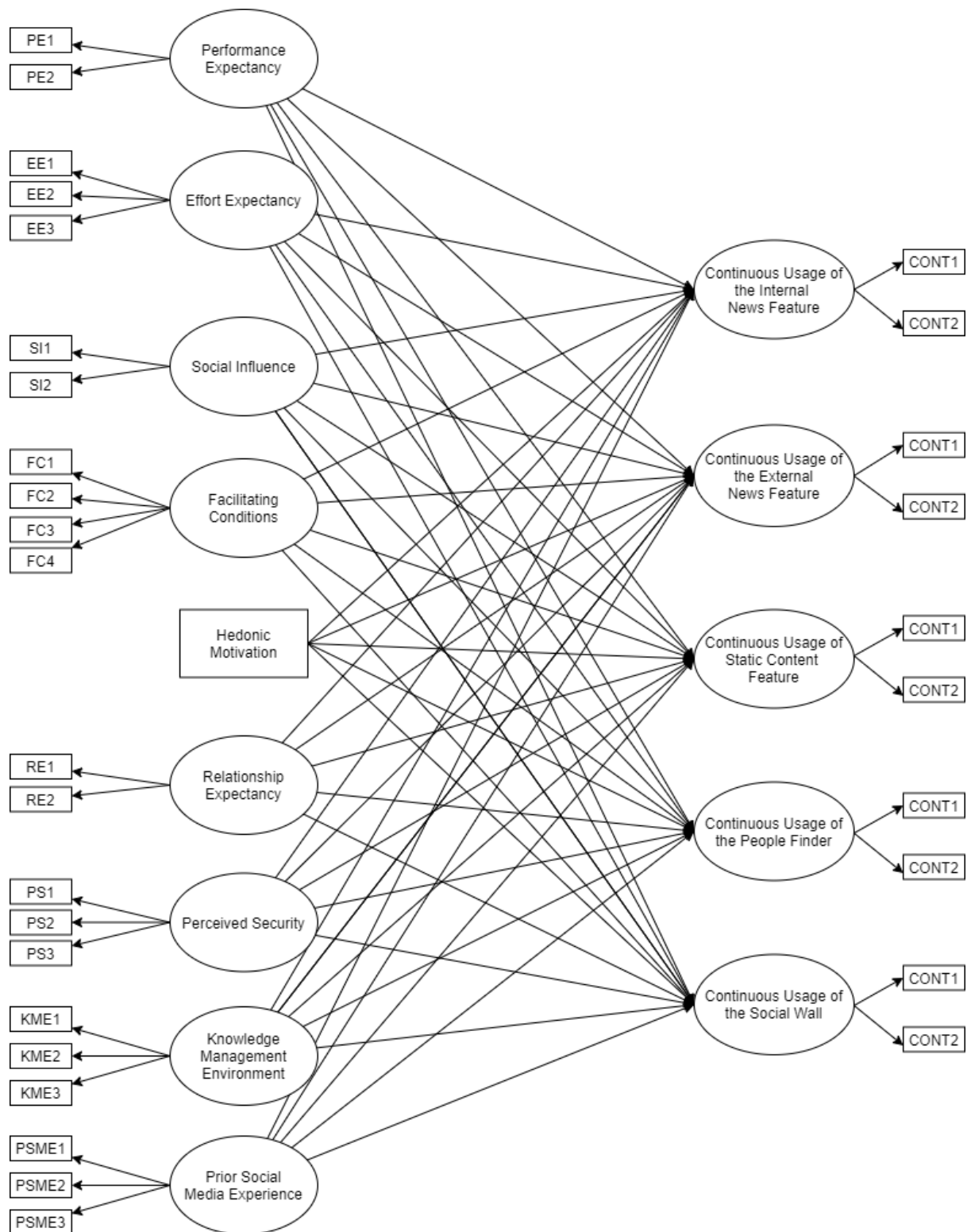
Figure 10: Measurement model used in our case study at ORTEC

6.3 Data Collection

Contrary to the pilot test, the actual survey has been created in Microsoft Forms and distributed and made accessible via the Social Intranet. We are aware that this could potentially lead to a bias because employees who are often using the platform would have more chance to fill out this survey. To tackle this bias, we intended to send out emails to all employees kindly asking them to fill out the survey. Unfortunately, due to circumstances evoked by the COVID-19 pandemic, we made the decision that notifying all employees via email would not be in line with their recently updated policy. To reduce potential bias, we contacted multiple managers from different departments to kindly ask their employees on an informal basis to fill out the survey. All employees have been given two weeks to fill out the survey. Microsoft Forms automatically records all responses to the survey.

6.4 Data Analysis

In order to detect causality between the independent and dependent variables, this data analysis encompasses Structural Equation Modeling (SEM) techniques. Berkout et al. [10] define SEM as:

> *"the term for a broadly applicable set of statistical techniques that allow researchers to precisely represent constructs of interest, measure the extent to which data are consistent with a proposed conceptual model, and to adjust for the influence of measurement error."*

As defined by Berkout et al. [10], SEM encompasses a wide variety of statistical techniques. Confirmatory factor analysis (CFA) and structural regression (SR) are associated most to with this term. CFA can be applied to test alignment of the data, confirming a researcher's understanding of a construct's nature. On the other hand, SR allows a researcher to test predictive relationships between variables. In the present study both confirmatory factor analysis and structural regression will be conducted for each of the five conceptualized models.

6.4.1 Confirmatory Factor Analysis

Confirmatory factor analysis can be used for four major purposes [41]:

- Psychometric evaluation
- Construct validation
- Testing method effects
- Testing measurement invariance

Our CFA has the primary purpose to *validate the constructs* in our conceptualized measurement model. More specifically, the focus of the CFA is on the internal consistency of the measurement items. High factor loadings on the respective constructs indicate that the measurement items are reliable. The confirmatory factor analysis will be conducted for each of the five conceptualized measurement models.

Next to the factor loadings, the Cronbach's Alpha (CA), Average Variance Extracted (AVE), and the Composite Reliability (CR) are calculated for additional testing on measurement validity and reliability.

The independent variable Hedonic Motivation has been modelled as an observed variable which means that the factor loadings as well as the additional reliability and validity estimations cannot be calculated for this construct.

6.4.2 Structural Regression

Once the confirmatory factor analysis has been conducted, the data analysis proceeds with the structural regression. With the structural regression we intend to find out whether causal relationships exist between the proposed endogenous and exogenous variables of the conceptualized structural model. In order to check whether we can assume a relationship between the variables, we will evaluate the

(standardized) regression weights (patch coefficients) and the t-statistics (p-value) as per recommendations of Berkout et al. [10]. The Squared Multiple Correlation has been estimated to check the proportion of variance in the dependent variable that can be predicted by the independent variables. The following summation further explains these used measures:

- *Standardized regression weights (path coefficient)*: The estimate explains the explanatory power of a of the causal relationships. The closer this value is to 1, the stronger the causal relationship between the constructs. An estimate approaching 0 indicates that there is no or only a slight explanatory power between the constructs or factors.
- *p-Value*: The p-Value reveals whether the regression weight is significant.
- *Squared Multiple Correlation (R^2)*: This coefficient denotes what fraction of the variance in the dependent variables is explained by the independent variable(s).

6.4.3 SPSS Amos

IMB SPSS Amos[3] is structural equation modeling software that supports researchers in performing their multivariate analysis methods. This program is able to process the required statistical calculations and further enables us to graphically design our structural and measurement models.

As IMB SPSS Amos is an extension of the IMB SPSS statistics software package, we first pre-processed the data using this basic software package. This pre-processing included converting respondents' answers (ranging from 'Strongly Disagree' to 'Strongly Agree'). The answers have been converted into a numerical interval, where 'Strongly Disagree' (lower bound) corresponds with the number one ('1') and 'Strongly Agree' (upper bound) corresponds with the number five ('5'). Secondly, we assigned the answers to specific questions to their respective measurement item. In other words, we defined our variables in SPSS. We specified the label, data type, and possible values for each of the variable.

After pre-processing the data, we could use it as input for the IMB SPSS Amos software. We started using this tool by graphically designing the measurement model, as well as the structural model for each of the individual dependent variables. Subsequently, the measurement items (as defined using the main IMB SPSS software) have been assigned to their respective constructs. Finally, regarding the structural model, we defined the error terms for each of the measurement items. After the model specification, the software could run the statistical analysis and provide us with the output. This output is presented in Chapter 7.

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[3] https://www.ibm.com/nl-en/marketplace/structural-equation-modeling-sem

SURVEY RESULTS

In this section, the results of the survey will be presented. The first sub-section will provide the respondent's demographic characteristics. The next two sub-sections will present the results of respectively the CFA and the structural regression.

7.1 Demographic Characteristics

As already indicated in the previous Chapter, the survey has been made available in both Dutch (41 responses) and English (33 responses) language. Since all survey questions were mandatory to proceed to following sections of the survey (or to complete the survey), the analysis did not have to deal with missing or incomplete responses. This also meant that no responses had to be excluded from the analyses.

74 ORTEC employees located at various offices around the world have filled out the survey. More than 50% of the respondents are Dutch. Aside from the Dutch nationality, at least 11 other nationalities were represented by the respondents. Employees with an American and Belgian nationality are respectively second and third most represented among the respondents. See Table 7 for more information on respondents' nationalities. Regarding respondents' gender, 44 responses have been received from male respondents and 23 responses came from female employees. Moreover, two responding employees have a non-binary gender and five employees chose to not reveal their gender. This distribution is visualized in Table 8. Finally, the respondents have been asked to provide their age category. As shown in Table 9, the majority of respondents indicated to be between 25 and 40 years old.

Nationality	Number of respondents	Percentage of all respondents
American	9	12,16%
Australian	1	1,35%
Belgian	6	8,11%
Brazilian	2	2,70%
Dutch	41	55,41%
French	1	1,35%
German	2	2,70%
Greek	2	2,70%
Italian	1	1,35%
Romanian	4	5,41%
Singaporean	1	1,35%
Other	1	1,35%
Unknown	3	4,05%
Total	*74*	*100%*

Table 7: Survey respondents' nationalities

Gender	Number of respondents	Percentage of all respondents
Male	44	59%
Female	23	31%
Non-binary	2	3%
Unknown	5	7%
Total	*74*	*100%*

Table 8: Survey respondents' gender

Age category	Number of respondents	Percentage of all respondents
<25	6	8,1%
25-40	43	58,1%
40-50	10	13,5%
50-60	10	13,5%
60+	2	2,7%
Unknown	3	4,1%
Total	*74*	*100%*

Table 9: Survey respondents' age categories

7.2 Confirmatory Factor Analysis

The CFA has been conducted to determine the indicator reliability for each of the five measurement models. The results of the CFA as well as the Cronbach's Alpha (CA), Average Variance Extracted (AVE), and Composite Reliability (CR) can be found in Tables 10 to 14. The following paragraphs will shortly summarize the results of the five measurement models.

7.2.1 Factor loadings

Most factor loadings are above the recommended threshold of 0.70 [22], indicating that the sets of measurement items are consistent regarding what they intend to measure [54]. However, a few measurement items do not meet this threshold, of which the measurement items for the construct Facilitating Conditions (FC) are most critical. None of these measures meet the 0.7 threshold in any of the measurement models. On the other hand, the factor loadings are all significant at $p<0.05$. Nevertheless, due to the low factor loadings we cannot fully rely on Regression Analysis outcomes related to this construct.

Regarding the other constructs, some loadings of the constructs Social Influence (SI) and Knowledge Management Environment (KME) do not meet the threshold either. However, these unsatisfactory factor loadings do not occur in each measurement model and do not deviate from the threshold as much as the factor loadings of FC.

7.2.2 Average Variance Extracted (AVE)

The Average Variance Extracted (AVE) defines the amount of variance that is explained by the indicators relative to the amount due to measurement error [22]. For example, an AVE of 0.5 means that 50% of the variance in the latent variable has been captured by the indicators and the other 50% is due to random error. This means that an AVE close to 1.0 is what researchers strive for. However, an AVE is recommended to be greater than 0.5 [22] and indicates internal reliability of the latent variable. Regarding our measurement models, Facilitating Conditions lacks construct reliability as their AVE does not meet the threshold of 0.5. The AVE of SI is fluctuating between 0.7 and 0.48 among the five measurement models. The AVE of KME is close to 0.5 in all five measurement models but it never meets this threshold. All other latent variables meet the 0.5 threshold for the AVE which indicates that these constructs are internally reliable.

7.2.3 Cronbach's Alpha and Composite Reliability

Both Cronbach's Alpha (CA) and Composite Reliability (CR) [22] were calculated to assess the internal consistency reliability of the constructs. Both the CA and CR should exceed 0.7 [73] to assume that the latent variable has internally consistent measurement items. All latent variables meet this threshold, except for Facilitating Conditions and Social Influence. The CA and CR of Facilitating Conditions (average CA: 0.55, average CR: 0.58) deviate more from this threshold compared to the values of Social Influence (average Ca: 0.64, average CR: 0.68).

7.2.4 AVE and construct correlations

Finally, the discriminant validity has been assessed by comparing the AVE measures and the square of the correlations between the latent variables. According to Chin [22], discriminant validity of a latent variable can be assumed when the square root of the AVE is higher than the highest correlation between this latent variable and the other constructs. Appendix F shows the tables including the squared root of the AVEs and the correlations between the latent variables for each of the measurement models. Most latent variables meet this threshold but this is not always the case for each measurement model. The fact that Facilitating Conditions does not meet this threshold in any of the measurement models stands out. Therefore, the data confirms that, for all measurement models, latent variables often (except for FC) have discriminant validity established on construct level.

Indicator		Construct	Loading	p-Value	Mean	SD	CA	AVE	CR
PE1_IN	<---	Performance Expectancy	0.594	***	7.1	1.58	0.73	0.64	0.77
PE2_IN	<---	Performance Expectancy	0.960	-					
EE1_IN	<---	Effort Expectancy	0.732	-	11.8	2.21	0.77	0.53	0.77
EE2_IN	<---	Effort Expectancy	0.762	***					
EE3_IN	<---	Effort Expectancy	0.694	***					
SI1_IN	<---	Social Influence	0.862	***	7.8	1.66	0.82	0.70	0.83
SI2_IN	<---	Social Influence	0.815	-					
FC1	<---	Facilitating Conditions	0.559	***	15.7	2.13	0.55	0.27	0.58
FC2	<---	Facilitating Conditions	0.633	***					
FC3	<---	Facilitating Conditions	0.381	0.009					
FC4	<---	Facilitating Conditions	0.456	-					
RE1_IN	<---	Relationship Expectancy	0.815	***	7.2	1.82	0.78	0.64	0.78
RE2_IN	<---	Relationship Expectancy	0.780	-					
PS1	<---	Perceived Security	0.906	-	11.0	2.50	0.92	0.79	0.92
PS2	<---	Perceived Security	0.841	***					
PS3	<---	Perceived Security	0.921	***					
KME1	<---	Knowledge Management Environment	0.643	-	10.8	2.34	0.73	0.49	0.74
KME2	<---	Knowledge Management Environment	0.702	***					
KME3	<---	Knowledge Management Environment	0.750	***					
PSME1	<---	Prior Social Media Experience	0.910	-	8.6	3.60	0.90	0.75	0.90
PSME2	<---	Prior Social Media Experience	0.790	***					
PSME3	<---	Prior Social Media Experience	0.894	***					
CONT1_IN	<---	Continuous Usage (Internal News)	0.771	-	8.2	1.42	0.77	0.64	0.78
CONT2_IN	<---	Continuous Usage (Internal News)	0.826	***					

Table 10: Outcome CFA for Internal News Feature

Indicator		Construct	Loading	p-Value	Mean	SD	CA	AVE	CR
PE1_SM	<---	Performance Expectancy	0.832	***	5.0	1.71	0.81	0.68	0.81
PE2_SM	<---	Performance Expectancy	0.815	-					
EE1_SM	<---	Effort Expectancy	0.863	***	6.5	1.62	0.73	0.62	0.83
EE2_SM	<---	Effort Expectancy	0.700	***					
EE3_SM	<---	Effort Expectancy	0.788	-					
SI1_SM	<---	Social Influence	0.626	***	6.2	1.56	0.65	0.48	0.65
SI2_SM	<---	Social Influence	0.759	-					
FC1	<---	Facilitating Conditions	0.547	0.004	15.7	2.13	0.55	0.26	0.58
FC2	<---	Facilitating Conditions	0.609	0.003					
FC3	<---	Facilitating Conditions	0.443	0.010					
FC4	<---	Facilitating Conditions	0.436	-					
RE1_SM	<---	Relationship Expectancy	0.892	***	6.0	1.84	0.88	0.78	0.88
RE2_SM	<---	Relationship Expectancy	0.876	-					
PS1	<---	Perceived Security	0.897	-	11.0	2.50	0.92	0.79	0.92
PS2	<---	Perceived Security	0.840	***					
PS3	<---	Perceived Security	0.930	***					
KME1	<---	Knowledge Management Environment	0.663	-	10.8	2.34	0.73	0.48	0.74
KME2	<---	Knowledge Management Environment	0.719	***					
KME3	<---	Knowledge Management Environment	0.700	***					
PSME1	<---	Prior Social Media Experience	0.908	-	8.6	3.60	0.90	0.75	0.90
PSME2	<---	Prior Social Media Experience	0.791	***					
PSME3	<---	Prior Social Media Experience	0.895	***					
CONT1_SM	<---	Continuous Usage (External News)	0.902	-	5.9	2.15	0.86	0.76	0.86
CONT2_SM	<---	Continuous Usage (External News)	0.843	***					

Table 11: Outcome CFA for External News Feature

Indicator		Construct	Loading	p-Value	Mean	SD	CA	AVE	CR
PE1_S	<---	Performance Expectancy	0.789	***	6.7	1.54	0.86	0.77	0.87
PE2_S	<---	Performance Expectancy	0.963	-					
EE1_S	<---	Effort Expectancy	0.720	-	10.0	2.47	0.82	0.60	0.82
EE2_S	<---	Effort Expectancy	0.831	***					
EE3_S	<---	Effort Expectancy	0.769	***					
SI1_S	<---	Social Influence	0.360	0.077	6.9	1.39	0.50	0.52	0.64
SI2_S	<---	Social Influence	0.949	-					
FC1	<---	Facilitating Conditions	0.554	0.003	15.7	2.13	0.55	0.26	0.58
FC2	<---	Facilitating Conditions	0.609	0.002					
FC3	<---	Facilitating Conditions	0.414	0.013					
FC4	<---	Facilitating Conditions	0.457	-					
RE1_S	<---	Relationship Expectancy	0.718	***	6.2	1.64	0.79	0.67	0.80
RE2_S	<---	Relationship Expectancy	0.905	-					
PS1	<---	Perceived Security	0.898	-	11.0	2.50	0.92	0.79	0.92
PS2	<---	Perceived Security	0.836	***					
PS3	<---	Perceived Security	0.932	***					
KME1	<---	Knowledge Management Environment	0.639	-	10.8	2.34	0.73	0.49	0.74
KME2	<---	Knowledge Management Environment	0.673	***					
KME3	<---	Knowledge Management Environment	0.788	***					
PSME1	<---	Prior Social Media Experience	0.907	-	8.6	3.60	0.90	0.75	0.90
PSME2	<---	Prior Social Media Experience	0.789	***					
PSME3	<---	Prior Social Media Experience	0.898	***					
CONT1_S	<---	Continuous Usage (Static Content)	0.901	-	7.2	1.81	0.86	0.76	0.86
CONT2_S	<---	Continuous Usage (Spaces)	0.837	***					

Table 12: Outcome CFA for Static Content Feature

Indicator		Construct	Loading	p-Value	Mean	SD	CA	AVE	CR
PE1_PF	<---	Performance Expectancy	0.862	***	6.0	2.10	0.83	0.72	0.83
PE2_PF	<---	Performance Expectancy	0.829	-					
EE1_PF	<---	Effort Expectancy	0.740	-	10.7	2.62	0.83	0.62	0.83
EE2_PF	<---	Effort Expectancy	0.736	***					
EE3_PF	<---	Effort Expectancy	0.880	***					
SI1_PF	<---	Social Influence	0.734	***	6.3	2.68	0.61	0.46	0.62
SI2_PF	<---	Social Influence	0.610	-					
FC1	<---	Facilitating Conditions	0.607	0.004	15.7	2.13	0.55	0.27	0.58
FC2	<---	Facilitating Conditions	0.602	0.004					
FC3	<---	Facilitating Conditions	0.394	0.021					
FC4	<---	Facilitating Conditions	0.424	-					
RE1_PF	<---	Relationship Expectancy	0.875	***	6.0	3.66	0.80	0.68	0.81
RE2_PF	<---	Relationship Expectancy	0.768	-					
PS1	<---	Perceived Security	0.899	-	11.0	2.50	0.92	0.79	0.92
PS2	<---	Perceived Security	0.836	***					
PS3	<---	Perceived Security	0.931	***					
KME1	<---	Knowledge Management Environment	0.644	-	10.8	2.34	0.73	0.49	0.74
KME2	<---	Knowledge Management Environment	0.719	***					
KME3	<---	Knowledge Management Environment	0.725	***					
PSME1	<---	Prior Social Media Experience	0.907	-	8.6	3.60	0.90	0.75	0.90
PSME2	<---	Prior Social Media Experience	0.790	***					
PSME3	<---	Prior Social Media Experience	0.897	***					
CONT1_PF	<---	Continuous Usage (People Finder)	0.920	-	6.4	6.30	0.88	0.79	0.88
CONT2_PF	<---	Continuous Usage (People Finder)	0.852	***					

Table 13: Outcome CFA for People Finder

Indicator		Construct	Loading	p-Value	Mean	SD	CA	AVE	CR
PE1_SW	<---	Performance Expectancy	0.806	***	5.5	1.69	0.76	0.62	0.76
PE2_SW	<---	Performance Expectancy	0.767	-					
EE1_SW	<---	Effort Expectancy	0.858	-	11.5	2.41	0.85	0.66	0.85
EE2_SW	<---	Effort Expectancy	0.795	***					
EE3_SW	<---	Effort Expectancy	0.784	***					
SI1_SW	<---	Social Influence	0.817	***	6.7	1.53	0.64	0.50	0.66
SI2_SW	<---	Social Influence	0.584	-					
FC1	<---	Facilitating Conditions	0.540	0.003	15.7	2.13	0.55	0.26	0.58
FC2	<---	Facilitating Conditions	0.600	0.002					
FC3	<---	Facilitating Conditions	0.455	0.006					
FC4	<---	Facilitating Conditions	0.439	-					
RE1_SW	<---	Relationship Expectancy	0.794	***	7.4	1.94	0.80	0.66	0.80
RE2_SW	<---	Relationship Expectancy	0.834	-					
PS1	<---	Perceived Security	0.903	-	11.0	2.50	0.92	0.79	0.92
PS2	<---	Perceived Security	0.843	***					
PS3	<---	Perceived Security	0.923	***					
KME1	<---	Knowledge Management Environment	0.642	-	10.8	2.34	0.73	0.49	0.74
KME2	<---	Knowledge Management Environment	0.701	***					
KME3	<---	Knowledge Management Environment	0.752	***					
PSME1	<---	Prior Social Media Experience	0.902	-	8.6	3.60	0.90	0.75	0.90
PSME2	<---	Prior Social Media Experience	0.794	***					
PSME3	<---	Prior Social Media Experience	0.900	***					
CONT1_SW	<---	Continuous Usage (Social Wall)	0.941	-	7.2	1.91	0.85	0.76	0.86
CONT2_SW	<---	Continuous Usage (Social Wall)	0.792	***					

Table 14: Outcome CFA for Social Wall

7.3 Structural Regression

By performing the structural regression analysis, we assessed the strength and significance of the relationships between the independent and dependent variable. The estimated path coefficient indicates the strength of the relationship while the p-value indicates the significance of these relationships. The p-value should be lower than 0.1 to accept the relationship. However, relationships with a p-value of 0.01 or lower are preferred. In case the p-value does not meet this threshold, the hypothesized paths will be rejected. Figure 11-15 illustrate the results of the regression analysis for the various research models. The following sub-sections will further explain the results for each model.

7.3.1 Internal News Feature

The value for R^2 indicates that the independent variables explain around 89% (Figure 11) of the variance in the in the dependent variable. As shown in Figure 11, five out of the nine independent variables appear to have a significant relationship with Continuous Usage of the Internal News Feature (CU-IN). From these five independent variables, Relationship Expectancy has the highest explanatory power (0.632***). Effort Expectancy (0.466***) and Facilitating Conditions (0.402*) have a comparable influence on CU-IN. However, due to unsatisfactory validity and reliability of the measurement items belong to Facilitating Conditions, we cannot fully rely on its positive impact indicated by this regression analysis. Furthermore, Hedonic Motivation and Prior Social Media Experience have a respectively significant positive (0.216**) and significant negative (-0.184*) impact on CU-IN. However, the predictive relevance of these constructs is smaller than the other three constructs mentioned before. Finally, the impact of Performance Expectancy (-0.102), Social Influence (0.093), Perceived Security (-0.112), and Knowledge Management Environment (-0.020) are very small and not significant.

7.3.2 External News Feature

The value for R^2 of the construct Continuous Usage of the External News Feature (CU-EX) shows that about 70% (Figure 12) of the variance is accounted for by the independent variables. The results for the path coefficients show (Figure 12) that five out of nine independent variables have significant influence on CU-EX. Performance Expectancy (0.444***) and Hedonic Motivation (0.434***) have the largest predictive power, followed by Facilitating Conditions (0.345**), Effort Expectancy (0.318***), and Social Influence (0.247**). Again, we cannot fully rely on the predictive power of Facilitating Conditions as the CFA indicated unsatisfactory measurement reliability and validity for this construct. Lastly, Relationship Expectancy (0.118), Perceived Security (-0.118), Knowledge Management Environment (-0.027), and Prior Social Media Experience (-0.137) have a low and insignificant impact on CU-EX.

7.3.3 Static Content Feature

About 63% (Figure 13) of the variance in the Continuous Usage of the Static Content Feature (CU-SC) is accounted for by the independent variables. The path coefficients in the research model (Figure 13) reveal that CU-SC is mainly driven by Effort Expectancy (0.610***) and Performance Expectancy (0.375***). With a lower explanatory power, CU-SC is also impacted by Relationship Expectancy (0.170**) and Prior Social Media Experience (-0.190*). Social Influence, Facilitating Conditions, Perceived Security, and Knowledge Management Environment do not significantly impact CU-SC according to this research model.

7.3.4 People Finder

The value for R^2 of Continuous Usage of the People Finder (CU-PF) is 0.96 (Figure 14), which is the highest value among all five research models. As shown in Figure 14, three out of four significant relationships between CU-SC and the dependent variables show a relatively high explanatory power.

These are Performance Expectancy (0.462***), Effort Expectancy (0.578***) and Relationship Expectancy (0.583***). Hedonic Motivation (-0.209***) appears to have a negative effect on CU-SC. Social Influence (-0.018), Facilitating Conditions (-0.091), Perceived Security (-0.086), Knowledge Management (-0.057), as well as Prior Social Media Experience (-0.103) have a low, negative and insignificant impact on CU-SC.

7.3.5 Social Wall

About 65% (Figure 15) of the variance in Continuous Usage of the Social Wall (CU-SW) is explained by the independent variables. Hedonic Motivation (0.649***) stands out regarding its strong impact on CU-SW. Furthermore, Performance Expectancy (0.292*), Effort Expectancy (0.243**), and Relationship Expectancy (0.266*) have a comparable predictive relevance. Social Influence (-0.024), Facilitating Conditions (0.043), Perceived Security (-0.060), Knowledge Management Environment (-0.034) and Prior Social Media Experience (0.062) are not significantly related to CU-SW. These results of the structural regression analysis for the Social Wall component are also illustrated in Figure 15.
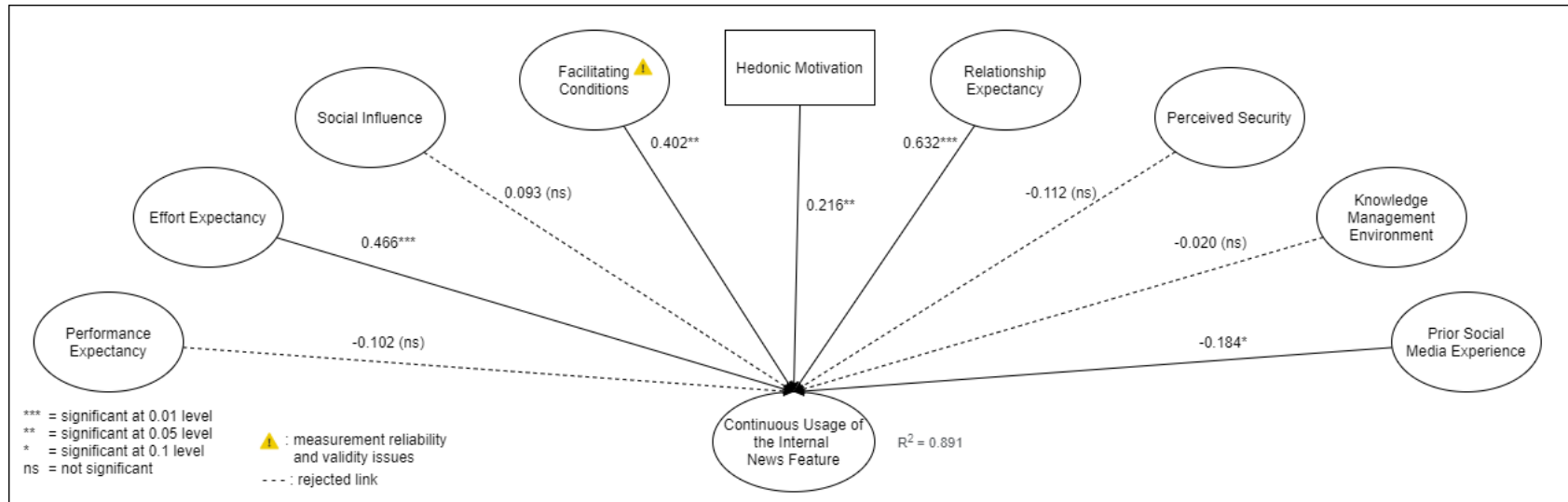
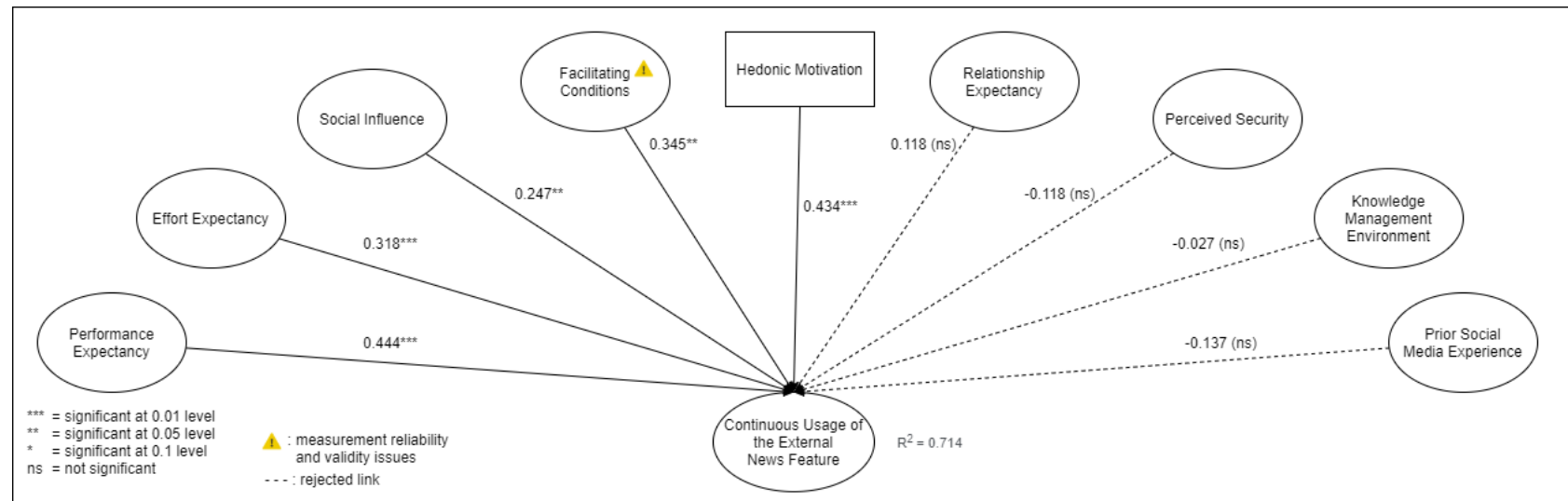*Figure 11: Results structural regression analysis: Internal News Feature*

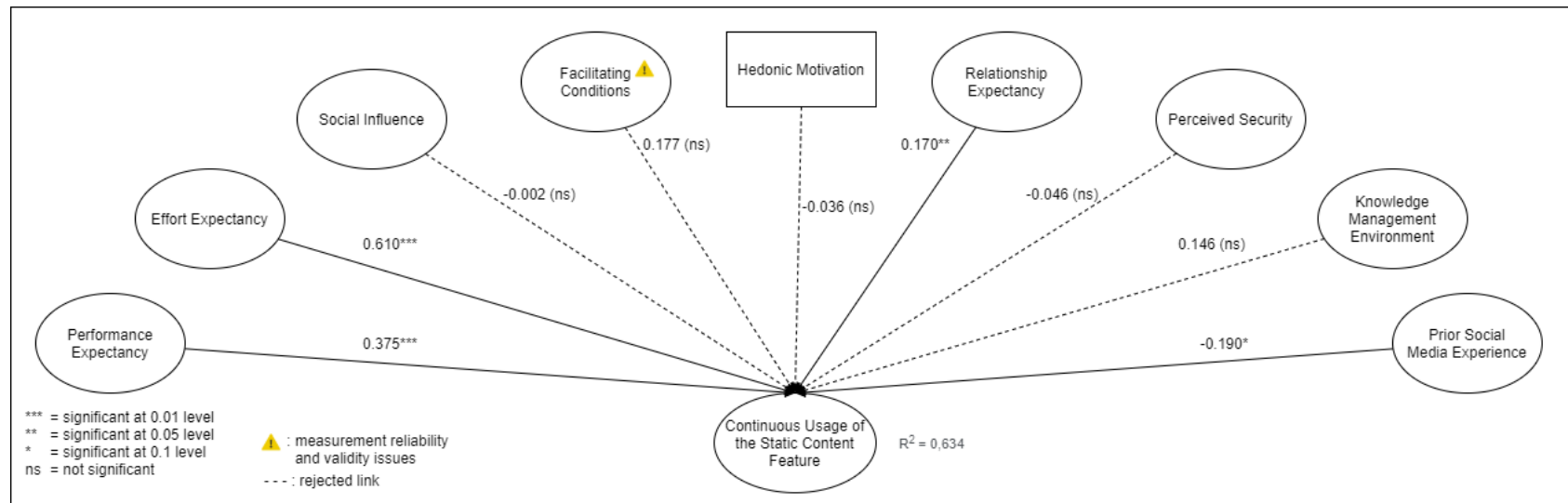*Figure 12: Results structural regression analysis: External News Feature*

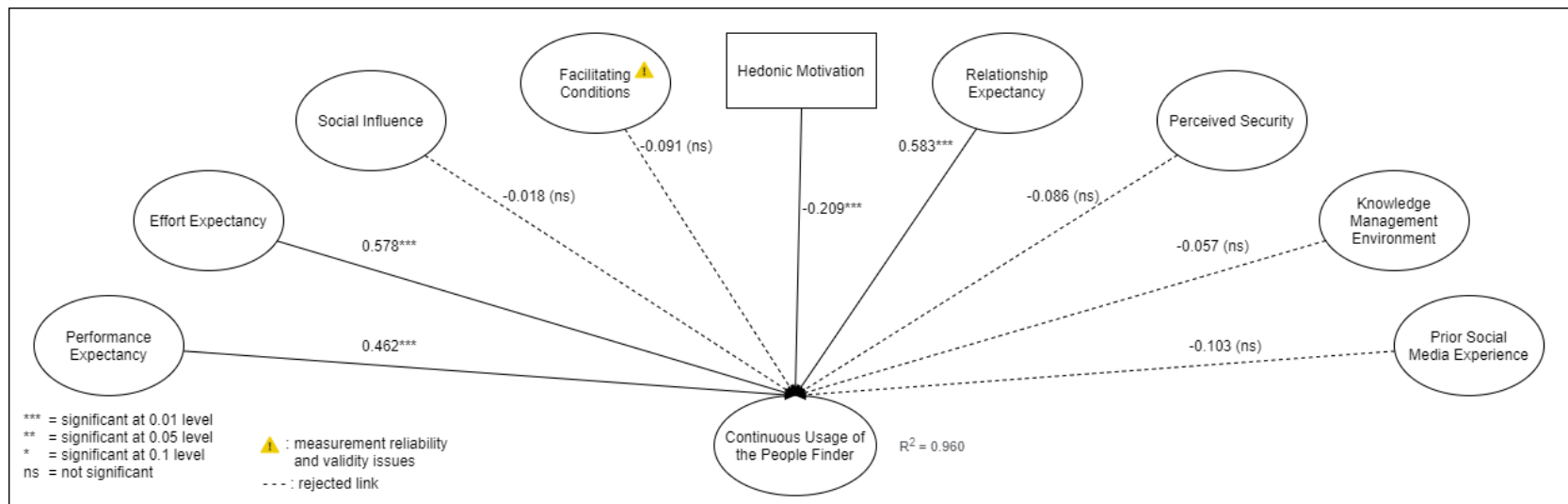*Figure 13: Results structural regression analysis: Static Content Feature*

Figure 14: Results structural regression analysis: People Finder

Figure 15: Results structural regression analysis: Social Wall

VALIDATION

We validated the results of the survey presented in the previous Chapter by means of conducting interviews with clients from ORTEC for Communications. This Chapter will address the validation process, the validation outcomes, and the redesign of the acceptance models.

8.1 Validation Approach

Our validation approach employs interview-based techniques [50]. The recommendations of Malterud et al. [59] about defining the right sample sizes for qualitative interview studies have been taken into account to define our interview sample size. The interviews of the current study have been conducted with employees who have a (shared) responsibility for managing the Social Intranet. The main reason for interviewing these employees is that they are likely to have the best overview on and insights into the system acceptance within their organization.

Multiple clients of O4C have been contacted with the kind request to participate in an interview. Since clients have different Social Intranets with distinct features, we prioritized clients based on the number of features that are offered by the Social Intranet from the clients. This means that we preferred conducting an interview with a client, whose organization's Social Intranet offers most of the main features. After contacting several clients, we found six organizations willing to participate in the validation process. For reasons of personal convenience, one of these clients filled out an open-question questionnaire as a replacement for the interview. The participating organizations and their Social Intranets are introduced in the sub-section Validation Outcome. The remainder of this sub-section discusses the structure of the interviews and the data analysis.

8.1.1 Interviews and questionnaire

Each of the interviews was conducted with one or two employees responsible for managing the Social Intranet within their organization. All interviews were, with the interviewee's consent, audio-recorded for later transcription. In line with the validation approach as presented by King et al. [50], the one-hour semi-structured interview has been divided into three parts:

1. Organizational background, goals, and challenges regarding the Social Intranet
2. System and component acceptance
3. Adoption factors

In the first part, interviewees provided background information about goals and challenges related to the Social Intranet. This was necessary for a proper understanding of topics discussed during the upcoming parts of the interview. In the next part, the general adoption and continuous usage of the employees was discussed. During the last part, each of the nine independent variables has been discussed with the interviewee. An overview of the interview outline and questions can be found in Appendix G.

8.1.2 Questionnaire

The interview questions have been transformed into a questionnaire. During the interviews, the researcher is able to steer the conversation in the preferred direction and to provide additional explanations. This is in line with the research practices of the interview study method [50]. Meanwhile, data gathering by means of a questionnaire does not allow the researcher to provide additional guidance or explanations. In order to reduce the possibility that the questionnaire respondent would run into problems, the questions have been extended with additional background information and extra guidelines on how to answer them. The questionnaire can be found in Appendix H.

8.1.3 Data analysis

The practical guidelines of Dey [30] have been taken into account for the entire procedure of the qualitative data analysis. Our approach complies with his perspective on this type of analysis, as well as his strategies to deal with common pitfalls and paradoxes. Furthermore, he advocates that computers can contribute to greater creativity and efficiency in the analysis. Therefore, our analysis has been supported by *Atlas.ti*[4] for coding and management of relationships. The upcoming paragraphs will elaborate on these analysis tasks.

Before starting the analysis, all audio files were transcribed into a written format. These files were read multiple times before the process of coding started. This reading process gave the researcher the opportunity to understand and relate the different concepts discussed during the interviews. This process supports the researcher to construct meaningful and effective codes. These codes categorize (part of) the responses according to the various concepts which emerged during the initial reading process. Also during the coding process itself, additional codes have been added.

Atlas.ti is a data analysis tool, which supports the researcher with the coding process. By using this system, the researcher can easily keep track of the multiple codes and the pieces of text, which have been assigned with a code. This coding management helped to link the pieces of text (data) with one another. Pieces of data may have mutual relationships, such as confirmative or contradictive. Tools offered by *Atlas.ti* have been used to visualize these possible relationships.

The linked data helped the researcher to understand the underlying concepts and opinions regarding the relationships between the independent and dependent variables in our research model. The underlying concepts and opinions on the various constructs and the relationships between them are discussed in the following sub-section. Based on the analysis, estimations of the explanatory power of every independent variable on the dependent variable were made.

8.2 Validation Outcome

This section will discuss the outcome of the interviews. In the first sub-section, the participating organizations are introduced. The second sub-section discusses the underlying concepts and opinions for each of the independent variable regarding its relationships with the five dependent variables.

8.2.1 Organizations

Table 15 provides an overview of the participating organizations in the validation process. The size of these organizations ranges from small and medium-sized enterprises to large multinationals. The organizations operate in different industries. The organizations are indicated by 'Organization' plus a number, since the participation is anonymous. Table 16 shows the functionalities offered by the Social Intranet of each client. The Social Intranets either support three or four main functionalities and all main

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functionalities are at least supported by three Social Intranets. The following sub-sections briefly introduce the participating organizations.

Organization	Data gathering method	Respondents	Industry	Location Head Quarter	Number of employees	Adoption rate (January 2020)
Organization1	Interview	Interviewee1	Biotechnology	Netherlands	1,000 – 5,000	64%
Organization2	Interview	Interviewee2.1 Interviewee2.2	Cleaning service sector	Netherlands	1,000 – 5,000	52%
Organization3	Interview	Interviewee3	Aviation	Western Europe	10,000 – 50,000	60%
Organization4	Interview	Interviewee4	Care and Well-being sector	Netherlands	100 – 500	78%
Organization5	Interview	Interviewee5	Telecom	Germany	10,000 – 50,000	95%
Organization6	Questionnaire	Interviewee6	Funeral service industry	Netherlands	1,000 – 5,000	60%

Table 15: Participating organizations in the validation process

Organization	Internal News Feature	External News Feature	Static Content	People Finder	Social Wall
Organization1	x	x		x	x
Organization2	x		x	x	x
Organization3	x	x			x
Organization4	x		x		x
Organization5	x	x	x		
Organization6	x	x		x	x

Table 16: Functionalities offered by Social Intranets of the clients

8.2.1.1 Organization 1

Organization1 is a large multinational operating in the biotechnology sector. With the number of employees within the range of 1,000 to 5,000, they have a Social Intranet adoption rate of about 64% in January (2020). From the five main platform functionalities, their Social Intranet supports the Internal News Feature, the External News Feature, the People Finder, and the Social Wall.

Motivation and goals

Organization1's previous intranet contained a lot of information, including documentation and news. Because the communications department recognized that news was read poorly by employees, they decided to distribute a monthly newsletter containing all relevant news. However, this process came with a number of disadvantages, labor-intensiveness above all. Furthermore, news often became outdated before reaching the employees. Therefore, the organization created a new solution to optimize this process, which also allowed them to reach out to those employees they could not easily connect with before. This includes, for example, employees who do not work behind a desk, such as production hall workers or (local) farmers. By offering a native app and a web application, Organization1 manages to keep all employees up to date within the organization.

Aside from the Internal News Feature, the Social Wall pursues the goal of stimulating engagement among employees in the organization all over the world. The Social Wall provides employees with a channel to share all kinds of company-related content, which helps them connect with colleagues all over the world. Finally, in order not to decrease the number of functionalities offered by the previous intranet, the People Finder has been added to this Social Intranet.

Main challenge(s)

The main challenge for Organization1 is to properly address the various audiences with the right content in the right language. Organization1 is located all over the world and not all employees master either the Dutch or English language, which means that local communication managers are asked to translate news to their local language. Unfortunately, these employees do not always have the time or do not see the necessity for translating news articles. This means that sometimes, content is only available in a foreign language, thereby hampering local employees to visit the Social Intranet and to read these articles. Furthermore, the education level of Organization1's personnel varies widely, leading to difficult decisions about how complex the content of articles should be. Creating content that is relevant and interesting for all employees is a challenging task for Organization1.

For some departments it is difficult to keep the Social Intranet interesting through regular new content. This issue arises especially within smaller departments. Evidently, less newsworthy activities are performed at smaller departments, which means that less content can be posted on the platform. Moreover, smaller departments often lack human resources to either translate or create new content.

8.2.1.2   Organization 2

The number of employees in Organization2 lies between 1,000 and 5,000. This organization operates in the Dutch cleaning service sector. They had an adoption rate of 52% in January (2020), which means that 52% of their employees visited the Social Intranet at least once during that month. Their Social Intranet offers the Internal News Feature, the Static Content Feature, the Social Wall, and the People Finder.

Motivation and goals

The choice to adopt a Social Intranet arose from the strategic goal to convert employees into ambassadors of the organization. In order to achieve this, a way to reach out to all employees had to be made. Before the implementation of the Social Intranet, there was no suitable channel to keep in touch with all employees. Therefore, Organization2 decided to adopt a Social Intranet that enables the communications department to send up-to-date information to all employees, as well as to receive feedback from them. The interviewees think that providing employees with the possibility to think along with the company's strategy and operations will make them feel more engaged within the organization.

An additional goal of the platform is to facilitate the creation and maintenance of relationships between colleagues within and across departments. According to the interviewees, the Social Wall is a large contributor to this goal. Furthermore, the usage of the platform should be pleasurable in order to sustain the satisfaction of employees. Interviewee2.2 summarized their goals of the Social Intranet with the following quote: "Actually, it is about binding, captivating, and retaining".

Main challenge(s)

As indicated by Interviewee2.1 and Interviewee2.2, the main adoption challenges for Organization2 are the insufficient language skills to read the content and the onboarding process of the Social Intranet. Organization2 employs workers with many different nationalities, which do not always have a good command of the Dutch or English language. For these employees, it is difficult to understand the content on the Social Intranet. Regarding the onboarding process, employees often face difficulties to install and log-in on the platform. Detecting which employees face difficulties with onboarding, followed by adequately assisting them, is a challenging task.

8.2.1.3 Organization 3

Organization3 is a West-European organization operating in the aviation sector with a number of employees that lies between 10,000 and 50,000. In January (2020), the Social Intranet was visited by 60% of their employees at least once. Their Social Intranet offers at least the Internal News Feature, the External News Feature, and (temporarily) the Social Wall.

Motivation and goals

Organization3 needed a means to reach out to employees more easily and to keep everybody informed. Therefore, it was important to provide employees with several options as to how they want to stay in touch with the organization. The fact that the Social Intranet can be accessed both via a native app and a web application offers employees a freedom of choice, which lowers the barrier to adopt the Social Wall, and in turn, enhances reachability of the communications department.

Another goal of the Social Intranet is to enhance engagement among all employees. Social Wall functionalities, enabling employees to share user-generated content, were introduced for a special event within the organization. These functionalities were introduced to facilitate bonding among employees and foster engagement toward this event.

Main challenge(s)

The main challenge for Organization3 is to communicate with employees in such a way that it satisfies their needs. The organization employs many different people working at various departments. This means that the content and the way it is presented should be optimized in a way that appeals to all employees. Interviewee3 believes that employees will only continue reading content and using the platform, if they feel adequately addressed.

8.2.1.4 Organization 4

Organization4 operates in the Care and Well-being sector in the Netherlands. Their number of employees lies between 100 and 500. In January (2020), this organization had an adoption rate of 78%. Their Social Intranet offers an Internal News Feature, a Static Content Feature, and a Social Wall. Furthermore, this organization added extra work-related functionalities, such as access to schedules, email and pay slips. Although we did not focus on these functionalities during the interview, they do have an influence on user behavior. Therefore, these applications have also been taken into consideration for this analysis.

Motivation and goals

The results of the employee satisfaction survey indicated that the internal communications of Organization4 could use some improvement, which has been the main cause to adopt a Social Intranet. Due to the widespread work locations all over the Netherlands, employees had no or little information about what takes place in other parts of the organization. Keeping all employees updated about what is happening at the headquarters and at other locations is the main goal for the introduction of the Social Intranet. Secondly, the organization wanted to offer a central location form where employees could get access to all information and other applications needed for their job. Via the Social Intranet, employees now have access to their email, schedule, and all kinds of other relevant information.

Main challenge(s)

The main challenge of Organization4 is that their daily operations do not offer many opportunities for employees to visit the Social Intranet and to read content. Therefore, the communications department stimulates employees to visit the app during breaks or outside working hours. Especially right after the launch of the Social Intranet, not all employees were motivated to use this app on private mobile phones outside working hours. After several months, the resistance to use outside working hours grew weaker.

Secondly, not all employees are actively using the Social Intranet. For example, older employees, who could not be reached easily via email, have adopted the Social Intranet only to a limited extent. Enabling this group of 'low-adopters' to start using the Social Intranet is a challenge for this organization.

8.2.1.5 Organization 5

Organization5 operates in the Telecom industry and is located in Germany. The number of employees working here lies between 10,000 and 50,000. In January (2020), the Social Intranet has been adopted by 95.3% of all employees. The platform offers the Internal News Feature, the External News Feature, and Static Content Feature.

Motivation and goals

Before the introduction of the Social Intranet, Organization5 used classic intranet channels, which were not easily accessible for all employees. Internal news was distributed through an actual newspaper, which, as Interviewee5 put it, is not something a company can still do in times of a digital transformation. Thus, the management decided to take a digital and mobile first approach, enabling employees to consume news in an effortless manner.

One of the requirements of the Social Intranet is that it should be independent from restricting factors such as IT infrastructure and corporate devices. This was also one of the reasons why Organization5 opted for a Social Intranet web application and a native app. This is in line with their goal of offering news in a way that employees prefer to consume.

Main challenge(s)

Interviewee5 sees that behavior regarding media consumption is changing, which means that the platform and its news distribution should adequately respond. Producing news, which can be in all kinds of formats (written article, podcast, video etc.), should be consistent with user behavior and preference. However, aligning their news offer with user behavior within this organization is a constant challenge.

A second challenge perceived by Interviewee5 is preventing overcommunication on the Social Intranet. There is a lot of content available, which makes differentiating between important and less important content difficult for employees. By establishing unique content created by the communications department, they give more focus on the important content. However, fully tackling this problem remains a challenge.

8.2.1.6 Organization 6

Organization6 operates in the Dutch funeral service industry. This organization has a number of employees between 1,000 and 5,000. 60% of their employees used the Social Intranet at least once in January (2020). The Social Intranet offers the Internal News Feature, the External News Feature, the People Finder, and the Social Wall.

Motivation and goals

The first goal of Organization6 is to increase the speed of news distribution within the organization. This way, all employees are up to date about country-wide news within the organization. Secondly, the organization wants to enhance engagement among all employees by showing them what is happing at other departments. Eventually, they want employees to become proud of their organization and what they are doing.

Main challenge(s)

As indicated by interviewees from organizations discussed above, Organization6 also faces challenges regarding motivating employees to (actively) use the Social Intranet. Furthermore, Organization6 is struggling to frequently post new content on the platform. A more specific challenge is to motivate all employees to provide personal contact details in the People Finder. As a result of the incomplete overview of contact information in the People Finder, employees are not optimally supported by this feature.

8.2.2 Independent variables

This section discusses experts' opinions on the various independent variables in our research model. As the interviews were semi-structured, experts had the opportunity to somewhat deviate from the specific interview questions. Despite their possibility to do so, the (additional) topics or comments were always related to one of the nine independent variables. Therefore, the experts' opinions have been summarized and discussed according to the variables.

8.2.2.1 Performance Expectancy

Opinions about whether a Social Intranet could enhance work-related performance and whether this impacts the continuous usage behavior of employees differs among the interviewees. Interviewee5 explained that reading news is relevant for all employees, because it gives them an understanding of what is happening within the organization, which is necessary to be productive. Interviewee3 mentioned that the extent to which employees read news articles is fully dependent on the way different organizational divisions offer the Internal News Feature. In Organization3, every division has its own responsibility for the creation and distribution of news, leading to variation in potential work-related benefits that can be derived from reading the articles. Interviewee2.1 explained that the usefulness of reading internal and external news depends on the audience. She mentioned that for employees in higher management positions, reading news could have an impact on work-related performance, while for other employees this information is regarded as an update with no further impact on their work. Interviewee4 agrees that for most employees, reading internal news articles is 'practical'. However, he could not point out the exact practical benefit of reading these articles. Interviewee1 mentioned that reading news articles on their Social Intranet does not influence the work performance of employees, because they made the strategic decision to keep distributing company-crucial information via email.

Regarding the Static Content Feature, all interviewees agree that its usage could have beneficial effects on the work performance. Interviewee5 explained that this feature has been useful to their employees as his organization recently merged with another organization in the Telecom industry. During the integration process, the Static Content Feature of the Social Intranet has been used to provide employees from both organizations with equal access to all integration-related information until the IT infrastructure was merged successfully. Organization2 also provides static information regarding regulations, collective employment agreements and organizational confidential counselors on their Social Intranet. In both cases, this information is relevant to the work performance of the employees.

Interviewees from organizations offering a Social Intranet that includes a People Finder agree that this functionality could enhance the work performance of their colleagues. However, in the situation of Organization1, Microsoft Teams is regarded as more useful by employees than the People Finder. This is the main reason that People Finder is barely used within this organization. Other interviewees also mentioned that the People Finder does not bring enough added value to be highly adopted.

All interviewees from organizations with a Social Intranet that offer a Social Wall agree that this functionality does not influences the work performance of employees or only does so to a limited extent. Only Interviewee4 mentioned that he could imagine that some people could derive some useful work practices from the Social Wall. However, he could not elaborate on the actual impact it could have on continuous usage of the Social Wall.

Content quality and relevance

Three interviewees mentioned that news articles need to be relevant and of good quality. Interviewee5 explained that the internal communications department (which is often also responsible for content creation) should ensure that the content is relevant and trustworthy in order to motivate employees to read it. Especially now that people can choose from a wide variety of Social Media platforms, organizations need to be able to compete with other sources. Interviewee5 explained that when employees have a few minutes to read content, internal news from his or her organization should be

more attractive than content available at other platforms, otherwise employees will leave the Social Intranet aside. Interviewee3 agrees that relevant content is read more often. She recognized that during the COVID-19 pandemic, employees read more internal news related to this topic because they find it relevant.

Furthermore, as indicated by both Interviewee4 and Interviewee5, content needs to be a pleasure to read as well. If content is not entertaining, people will not feel motivated to read. This means that content writers need to take content quality into account. More about the impact of pleasure onto the continuous usage of Social Intranets will be provided in Section 8.2.2.5.

Additional Social Intranet features
The Social Intranet can support more functionalities than only the main features. Therefore, many clients chose to add extra functionalities to stimulate the adoption of the system. The organizations often integrated extra applications, which are useful for employees' daily work activities. Since these applications are attractive for employees, they will have to visit the Social Intranet, which increases the chance that they will also make use of the main functionalities. Some additional features or functionalities that drive adoption of the Social Intranet are listed below:

- Organization4 decided to use the Social Intranet for providing employees access to their email, working schedule, and personal work documents, among others. The interviewee called his Social Intranet a 'one-stop-shop' providing all employees with everything they need on the platform. In case employees have any questions, they are firstly referred to the Social Intranet.
- Organization5 made the employee portal only accessible via the Social Intranet. This means that all employees must visit the Social Intranet in order to access HR and other relevant information available on the employee portal. This organization also decided to make the working schedule available via the Social Intranet. This integration significantly boosted the adoption of the platform.
- Organization5 decided to present the weekly updated canteen menus on their Social Intranet. This functionality made checking menus and deciding where to have lunch much easier for all employees. This 'killer use case', as referred to by Interviewee5, significantly stimulated adoption. Furthermore, Oganization5 also added work-related applications, such as a room-booking and a 'property ticket' functionality. Contrary to the canteen menu feature, these additional functionalities did not have a large impact on the adoption.

8.2.2.2 Effort Expectancy

All interviewees indicated that Effort Expectancy can have an influence on Continuous Usage of the Social Intranet. As explained by the interviewees, most effort related issues arise during the installation and log-in processes. Every person needs to go through the installation process to download the application on the mobile phone, except for employees who receive a company phone from their employer. Depending on the mobile operating system, this process differs in complexity. When employees cannot figure out how to complete the installation, they often do not try a second time, which drastically affects the adoption of the Social Intranet. This impact has been recognized by Interviewee4. This effect also holds for employees who fail to login to the Social Intranet. Interviewee2.2 explained that older employees require more assistance with logging in than younger employees. On the other hand, several Social Intranets do support single sign on, which allows users to log in with a single user ID and password for several independent software systems used by the organization. In general, this reduces the number of times that employees need to log in. Despite sophisticated login technology, organisation2 had to deal with occasional situations where the system failed to login an employee.

Although the interviewees indicated that most effort related issues occur during the installation and login process and that the usage of the system requires minimal effort, other issues associated with the actual usage of the Social Intranet are mentioned during interviews. First of all, two interviewees from

organisation1 and organisation2 mentioned that their organization also hires workers who do not master the Dutch or English language. This is for some employees a barrier to adopt the Social Intranet because they must provide extra effort to understand the content. In comparison to reading news articles, it can be expected that this language barrier has smaller influence on the Continuous Usage of the Social Wall. Secondly, as mentioned by Interviewee5, overcommunication can also be perceived as a barrier for employees to adopt the Social Intranet. In case there is a lot of information available on the Social Intranet, it is more difficult for employees to filter out the most relevant content for them. Furthermore, Interviewee5 mentioned that content needs to be easy to understand, otherwise employees might not want to consume the content and will, eventually, stop using the Social Intranet. Interviewee2.1 pointed out that system updates can be an inconvenience to employees. In an example she explained that the Social Intranet provided special orange dots indicating whether an employee already read a specific article. However, after a system update, the Social Intranet did not show these dots anymore, which led to negative feedback from the employees. On top of that, updates often require employees to log in again, which forms a risk that people who were regularly using the Social Intranet will come across login problems again.

Interviewee5 pointed out that the accessibility of the Social Intranet via both a native app and a web application is beneficial to the continuous usage. He calls these different ways to reach the employee 'touch points'. By providing as many 'touch points' as possible, employees are free to choose their preferred manner of consuming news, thereby reducing the effort each person has to make.

Introduction by means of gamification
Organization5 made quizzes and pairing games available to test the extent to which employees did understand certain content available on the Social Intranet. In this way, employees had the opportunity to learn multiple functionalities and content types in a playful way. This is an example of how gamification can be used to familiarize employees with the platform. This learning process lowers the required effort in following Social Intranet visits. This can positively influence employees to continue using the platform.

8.2.2.3 Social Influence
Our interviewees disagree on the extent to which Social Influence impacts the continuous usage of the Social Intranet and its various components. On top of that, interviewees found it difficult to exactly point out when and how this effect takes place. The various interviewee responses related to this impact factor are discussed below.

Interviewee3 does not assume that employees in her organization are exposed to social influence regarding the use of the Social Intranet. However, she could imagine that when relevant content is presented on the platform, such as COVID-19 related content, more employees discuss this content in the workplace, which could stimulate other employees to also visit the Social Intranet and read this content. Interviewee5 agrees with Interviewee3's opinion by stating that when content is more relevant, it is more likely to be discussed in the workplace and may animate others to also take notice of it. Next to relevance, Interviewee5 explained that the amount of views for an article depends on the source or content writer of this article. He recognizes that messages from the CEO or other employees in higher management positions are often thoroughly read and more frequently discussed in the workplace.

Two interviewees explicitly mentioned the possibility that employees could feel left out when their colleagues talk about content that they did not read or see on the Social Intranet. As mentioned before, the more relevant this content is, the stronger this feeling will be. In some cases, employees who discontinued using the platform because they could not login were now motivated to seek assistance in order to get access to the content. This example illustrates that Social Influence can have a strong influence on the behavior of employees.

However, as mentioned by Interviewee2.2, Social Influence does not only impact adoption in a positive way. In the work environment of Organization2, employees working on location are closely managed by one manager whose opinion can have a strong impact on colleagues. This means that when a manager is not convinced of or satisfied with the Social Intranet, it is likely that his or her colleagues will have the same opinion.

Despite of the various opinions on the effects of Social Influence, many organizations employ certain strategies to make this effect work to their advantage. Examples of such strategies are:

- Managers responsible for the Social Intranet understand the power of employees with a leadership role. Therefore, many organizations actively promote the Social Intranet among these colleagues. They are often also requested to promote the platform among their direct colleagues. For example, the CEO of Organization4 often uses the Social Wall by responding to many posts. Interviewee4 expects this behavior to motivate employees to keep using the feature of the Social Wall.
- Organization1 described a situation in which the communications department announced, exclusively via the Social Intranet, that all employees could pick up a gift at the entrance of the office building. As a result, employees who read the message entered the workplace with the gift and others without. This automatically caused conversations about the announcement on the platform. Interviewee1 is convinced that this event and such an incentivizing strategy stimulated employees to start or continue using the platform, so that they do not miss out on future announcements and possible rewards.
- Organization1 furthermore introduced quizzes on the platform which also caused discussions in the workplace.
- Interviewee2.2 shared with us the idea to introduce a game where teams from different locations can compete. One of the requirements to play the game is that there are enough employees within one team participating. This will be an incentive for employees to motivate colleagues to also install the application and join them in the competition.

8.2.2.4   Facilitating Conditions

Interviewees agreed that the construct Facilitating Conditions has an influence on Continuous Usage of the Social Intranet. Most organizations set up a helpdesk for employees who are in need of support regarding the use of Social Intranet. Other organizations have standardized communication lines, which should also be used for dealing with problems on the platform. Employees from Organization4 and Organization2, who are working on location, should contact their direct manager in case further assistance is needed. These managers can either provide support themselves or they can forward the issue to the employees responsible for the Social Intranet.

Interviewee2.1 pointed out that the quality of assistance delivered by these direct managers is fully dependent on their opinion on the platform. For example, managers who do not believe that using the Social Intranet has any value, are less likely to provide support than managers who fully stand behind the importance of using the platform. Furthermore, Interviewee2.1 was not convinced that all employees know about this communication line, which could hold them back from seeking help. To ensure that all employees know where to find help, Organization1 drew special attention to the helpdesk contact information during the launch of the platform. Conversely, Interviewee5 does not believe in the necessity of a special helpdesk for his colleagues since he perceives that employees know that the Social Intranet is a product from the communications department.

Related to the technical support, Interviewee4 mentioned that some employees could not download the native app because their mobile phones did not support the software. Moreover, he casts doubt on practices that transgress the line between work life and private life, such as asking his employees to download work-related software on a private mobile phone. Interviewee1 received similar feedback by

his employees, who expressed reluctance to download the app onto a private phone, - on the one hand because they wish to keep work life and private life separate and, on the other hand, because it would cost too much storage on their device.

As mentioned above, a number of employees working at Organization1 depend on local internal communication managers to translate content into their language. Whether they gain access to content is thus a matter of whether these managers have enough time at their disposal and whether they deem content to be worthy to spread. Despite efforts of the main communication department to stimulate these managers to translate content, sufficient translated material still falls short in many places, according to Interviewee1.

8.2.2.5 *Hedonic Motivation*

All interviewees agree that the use of some Social Intranet components can be perceived as enjoyable or fun. The Social Wall is seen as the most enjoyable feature of the five investigated system components. Five interviewees indicated that employees like to read and share content on the Social Wall. Interviewee2.2 mentioned that he enjoys reading and seeing what colleagues are doing that work in different locations. This opinion is shared by many other interviewees.

Pleasure can also be associated with the use of the Internal and External News Features. However, the interviewees did not perceive the impact of Hedonic Motivation on the use of these features as comparably large to the impact it has on the use of the Social Wall. For example, Interviewee3 stated that reading news is not particularly funny or enjoyable but rather interesting to employees. She would agree with Interviewee4, who explained that although reading news can be enjoyable, the main reason for employees to consume news articles is to stay up to date with everything that is happening in their organization. In order to attract people to read news, his organization tries to find the right balance between news that is relevant and fun to read. Interviewee5 mentioned that content of good quality should be enjoyable to read. He would therefore agree with Interviewee4 that news can be enjoyable to read.

None of the interviewees indicated that the Static Content and the People Finder are enjoyable to use. Therefore, we assume that there is no relationship between Hedonic Motivation and continuous usage of those two platform components.

Several interviewees indicated that their organizations introduced (or have the idea to introduce) additional functionalities that make using the Social Intranet more enjoyable. A few examples are listed below:

- As discussed in a previous section, Organization2 plans on introducing a game, in which teams from different locations can compete. Similarly, Organization4 has the idea to start a game related to the Dutch television program 'Wie is de Mol'.
- Organization1 introduced a recipe contest on their platform. The employee, who shared the most original recipe, received a prize.
- Organization5 also introduced some gamification logic, which attracted people to use the platform and explore the various content formats available on the platform.

8.2.2.6 *Relationship Expectancy*

Interviewees agreed that Relationship Expectancy can have a strong influence on employees' decisions to continue using the internal and External News Feature and the Social Wall. None of the interviewees indicated that the Relationship Expectancy could have an influence on continuous usage of the Static Content Feature and the People Finder. This section will further elaborate on the impact of Relationship Expectancy on the continuous usage of the three system components it most likely has an effect on.

As indicated by five interviewees, employees use the Social Intranet because they want to be informed about what is happening in their organization and with other employees. This aspect of the personal need to be informed about others and the company is part of maintaining and developing relationships with the organization and its employees. As mentioned by Interviewee4, being up to date about recent events, activities, or personal highlights, is often an initiator of personal conversations in the organization. He recalls situations, in which he witnessed employees initiating conversations that were inspired by content on the Social Intranet.

Despite the support for initiating conversations, the use of the Social Intranet creates a better idea of the organization itself and can strengthen the feelings of pride. Being responsible for the Social Intranet in an international organization herself, interviewee1 explained that, especially, the usage of the Social Wall increases employees' understanding of what colleagues are doing in other countries. She agrees that these interactions on the Social Wall establish a common 'we'-feeling, rather than an 'us-and-them'-feeling between organizational departments. She expects this bonding nature of the Social Intranet to be even more impactful during the current COVID-19 pandemic, as many employees share how they are coping with the situation.

While most interviewees were fully convinced of the factor Relationship Expectancy having a large impact on continuous usage of the Social Wall, Interviewee2.1 remained rather reserved. She agrees that this functionality gives employees a good overview of what other employees are doing, but she does not see any effect with respect to the maintenance of relationship between employees.

Most interviewees indicated that engaging with each other is perceived as joyful by many employees. Therefore, this factor is closely related to the factor Hedonic Motivation. On the other hand, Interviewee1 mentioned that not all employees feel the need to further engage with the organization and colleagues. She recognizes that this group of employees spends less time reading news and using the Social Wall compared to other colleagues.

8.2.2.7   Perceived Security

Most interviewees had difficulties indicating the extent to which Perceived Security has an impact on Continuous Usage of the Social Intranet. However, based on the feedback from employees, the interviewees do not expect this factor to have a large influence on the continuous usage of any of the system components.

Two interviewees mentioned that, right after the introduction of the Social Intranet, a small number of employees had doubts about the security of the platform. For example, Interviewee2.1 remembered an employee that was afraid that his or her usage behavior would be tracked. After explanations on how the platform works and giving assurance that it is save and can be trusted, employees with initial doubts were no longer afraid to be tracked. Similarly, a small number of employees from Organization5 also questioned the trustworthiness and safety of the Social Intranet. To avoid employees being anxious about the security of the platform, Organization5 actively communicated to their employees that the system is safe. They assured employees that the system has been developed in consultation with security experts and that the data is stored according to all security standards. Interviewee5 believes that most of the doubt regarding safety must have been taken away through such conversations (in case there were any).

Interviewee3 mentioned that, because employees trust their organization, they often also trust the systems made available by their employer. There are multiple ways for organizations to build trust in their system among employees. For example, in case Organization1 wants to share a photo from the Social Wall on their public Social Media channels, someone from the communications department always asks permission from the Social Wall publisher first. By doing so, employees see that the organization takes privacy seriously. This can have an effect on the willingness to continue using the Social Intranet and the Social Wall in particular.

Finally, Interviewee4 assumes that the extent to which Perceived Security has an impact on an employee's continuous usage depends on this person's background. Therefore, he reasons that employees in his sector (Care and Welfare) would not take this into account as much as employees working in, for example, the IT sector.

In case interviewees indicated that Perceived Security impacts the continuous usage, they did not mention any difference in effect for the various system components. In other words, there is no indication that some employees might only be willing to use a selection of the offered functionalities due to their privacy-related concerns. On the other hand, some privacy related concerns regarding the Social Wall have been discussed during the interviews. This could be an indication that the Perceived Security has a slightly larger influence on the Continuous Usage of the Social Wall. This could be explained by the fact that on a Social Wall, employees expose something from themselves (active use), while other features only allow users to consume content (passive use). Therefore, employees being concerned with the security of the platform might be more reluctant to use the Social Wall.

8.2.2.8   Knowledge Management Environment

Interviewees had difficulties making a statement about the extent to which the Knowledge Management Environment has an impact on the continuous usage of the platform components. Interviewee4 gave an example illustrating that a particular work environment can have an influence on the usage of the Social Wall. He explained that in his organization, the type of work for many employees does not allow them to check their mobile phones, which reduces the opportunities to visit the Social Intranet.

Interviewee5 mentioned that in his organization, there are several internal communication systems available. These systems have their own distinct purposes, which are clear to distinguish for employees. This clarity on different purposes of systems can stimulate employees to also use them accordingly.

Another example showing that the environment can have an influence on the adoption of the Social Intranet has been provided by Interviewee1. She mentioned that employees require a trustful working environment in order to use or continue using the Social Intranet. Right before the launch of the Social Wall, she expected that employees with insufficient English language skills would not use the Social Wall often out of fear of making mistakes. However, as she witnessed, language did not appear to be a barrier to them, which showed her that colleagues trust one another.

The examples provided by interviewees indicate that an organizational (knowledge management) environment can have an impact on the continuous usage. However, the strength of this relationship, and whether it would impact only several components of the Social Intranet, was difficult to determine.

8.2.2.9   Prior Social Media Experience

Three interviewees agreed that there is a relationship between Prior Social Media Experience and the Continuous Usage of the Social Intranet. Interviewee4 mentioned that employees with prior knowledge about Social Media find it easier to start using the platform. Moreover, both Interviewee2.2 and Interviewee3 agree with him, stating that employees with less Social Media experience require more assistance with respect to adopting the platform. In the situation of Organization4, employees with less experience eventually adopt the platform as well. However, this group of employees is expected to be underrepresented among the Social Wall users.

Interviewee2.1 further elaborated on this construct by stating that the extent to which employees are familiar with Social Media (partly) depends on their cultural background. She recognizes that employees with certain cultural backgrounds have less experience with and knowledge about Social Media. Not surprisingly, these employees have more difficulties adopting the Social Intranet.

Contrary to what has been stated above, findings of an internal survey conducted by Organization5 indicated that there is no significant effect of age on the adoption of their Social Intranet. They assumed that younger employees would make more use of the platform since they are more used to this type of

content consumption. The cause for this equal adoption rate among all employees, as he identified it, could be that all employees (young and old) are quite tech-savvy since the organization operates in the telecom industry, meaning that they all have at least basic knowledge about public Social Media. However, he still believes that employees with prior social media experience are more likely to explore additional features available on the Social Intranet, such as the External News Feature.

Given the responses from the interviewees, it is likely that Prior Social Media Experience has a larger impact on the continuous usage of the Social Wall and the External News Feature than on the other three system components.

8.3 Model Redesign

The validation process provided insights into the relationships between the adoption factors and Continuous Usage of the five system components. Based on the gained insights we were able to draw new conclusions on the extent to which the results from the survey are applicable to a wider context. In the following sub-sections, the updated acceptance models for each of the system components are presented.

The representation of the acceptance model is updated with colored constructs (see Figures 16-20), indicating the validation outcome of the respective relationships with Continuous Usage. *Green* represents a construct with a significant relationship (as a result of the structural regression analysis) that has been confirmed by the (most of the) interviewees. These constructs and their relationships are part of our final acceptance model. *Red* represents the constructs that are not part of the final acceptance model. This color has been assigned to a construct in two possible ways. The first possibility is that the interviewees agreed with the outcome of the survey that there is no relationship between this construct and the dependent variable (validated unrelatedness). Additionally, constructs, which appeared to have a significant relationship (based upon the structural regression analysis) but did not receive sufficient support from the interviewees (unvalidated relationship), have also been marked red.

Although a lot of feedback and insights have been acquired during the interviews, there are still uncertainties about the actual impact of several independent variables. Therefore, a third color (*yellow*), indicating that further investigation is required, has been applied. This color has been assigned to a construct in case the existence of a (significant or insignificant) relationship is debatable. A causal relationship is considered disputable, if there is no consensus among interviewees regarding this relationship or if the interviewees indicate that there should be a relation when, actually, the structural regression analysis proved the opposite. The upcoming sub-sections will elaborate on the final acceptance models.

8.3.1 Internal News Feature

Figure 16 shows the redesigned acceptance model for Continuous Usage of the Internal News Feature (CU-IN). Interviewees agreed that Effort Expectancy, Facilitating Conditions, Hedonic Motivation and Relationship Expectancy have an impact on CU-IN. Therefore, these constructs have been adopted in our final model.

There were various opinions regarding the impact of Performance Expectancy and Social Influence on CU-IN. The feedback on Performance Expectancy hinted at the direction that the extent to which this factor has an impact on CU-IN depends upon the type of news article that is available on the Social Intranets. This gives the impression that this factor might impact CU-IN in specific contexts. Therefore, we do not include this relationship in the final model. However, we suggest future research to investigate possible impacts of this factor.

Most of the interviewees mentioned that the Social Influence could have an impact on CU-IN. Yet, the structural regression analysis proved the opposite. We suggest further investigation on this relationship to uncover the actual impact of this factor.

The feedback on Perceived Security, Knowledge Management Environment, and Prior Media Software experience did not convincingly indicate that there is a relationship between these factors and CU-IN. Therefore, these constructs and its relationships have been removed from the acceptance model.

8.3.2 External News Feature

Figure 17 illustrates the redesigned acceptance model for Continuous Usage of the External News Feature (CU-EN). Consensus among the interviewees on the effect of Effort Expectancy, Social Influence, Facilitating Conditions, and Hedonic Motivation on CU-EN validates the existence of the relationships.

Our findings indicate that there is no support for Performance Expectancy to have an impact on CU-EN, while the structural regression did indicate a strong relationship. Therefore, we recommend future research to pay special attention to this relationship. Regarding Relationship Expectancy, there is some evidence provided by interviewees that the usage of the External News Feature could be influenced by the Relationship Expectancy, while, on the other hand, the structural regression analysis yielded opposite results. Due to these contradictory findings we call upon academics in this field to conduct further research.

As the External News Feature is often offered as an additional functionality of the Social Intranet, organizations do not actively stimulate the adoption of this feature. Moreover, this functionality is closely related to the usage of public Social Media as it often shows content from the organizational Social Media channels. The affinity with social software is therefore regarded as a motivator to explore this additional feature in the Social Intranet. This expectation is supported by some of the interviewees as well. Therefore, we suggest researchers to investigate the impact of Prior Social Media Experience on CU-EN.

Interviewees do not expect that there is a strong relationship between Perceived Security and CU-EN. Regarding Knowledge Management Environment, interviewees could not provide strong feedback on the possible relationship. Therefore, these two constructs have been removed from the final acceptance model.

8.3.3 Static Content Feature

The redesigned acceptance model for Continuous Usage of the Static Content Feature (CU-SC) is illustrated in figure 18. The large impact of both Performance Expectancy and Effort Expectancy on CU-SC has been confirmed by all interviewees. Therefore, these constructs have been adopted in the final acceptance model.

It is worthwhile noting that none of the interviewees had the impression that colleagues or managers socially influence another to continue using the Static Content Feature. This is in line with the outcome of the structural regression analysis. This means that due to this validated unrelatedness, the construct has been removed from the acceptance model.

Since interviewees indicated that Facilitating Conditions is a factor that impacts the Social Intranet as a whole, we assume that this factor also impacts CU-SC. However, this assumption is contradictory to the outcome of the structural regression analysis. As a result of these contradictory outcomes, we suggest future research to further investigate this relationship.

Finally, the remaining constructs have been removed as well, because either the outcome of the structural regression analysis was not supported by the feedback (unvalidated relationships) or the rejected links were supported by the interviewees (validated unrelatedness).

8.3.4 People Finder

Figure 19 illustrates the redesigned acceptance model for Continuous Usage of the People Finder (CU-PF). The impacting factors for CU-PF are similar to the ones for CU-SC discussed in the previous section. Both the relationships of Performance Expectancy and Effort Expectancy have received sufficient support from the interviewees. Furthermore, the interviewees expect Facilitating Conditions to also have a significant impact on CU-SC. Due to the measurement reliability and validity issues, as well as the rejected relationship path by the structural regression analysis, we recommend future research to further investigate this disputable relationship.

The strong explanatory power of Relationship Expectancy on CU-PF has no support from any of the interviewees. Therefore, we decided to remove this construct from the final model. Similarly, we decided to remove Hedonic Motivation as there is no evidence that a negative relationship exists between this variable and CU-PF. The unrelatedness of the remaining variables is in line with the responses from the interviewees.

8.3.5 Social Wall

Figure 20 illustrates the redesigned acceptance model for Continuous Usage of the Social Wall (CU-SW). The interviewees supported the impact of Effort Expectancy, Hedonic Motivation and Relationship Expectancy on CU-SW. The support for an impact of Social Influence, Facilitating Conditions, Perceived Security and Prior Social Media Experience on CU-SW contradicts the outcome of the structural regression analysis. We suggest further research to investigate whether there is an actual impact of these factors on CU-SW.

As for all other system components, the interviewees were unable to validate a possible relationship between Knowledge Management Environment and CU-SW. Therefore, we removed this construct from this acceptance model. Finally, the outcome of structural regression analysis indicates that there is a relationship between Performance Expectancy and CU-SW. Although a few examples provided by the interviewees could indicate a small impact, most interviewees expect that this factor does not influence employees' decisions to continue using the Social Wall. Therefore, we decided to remove this construct from the final acceptance model.
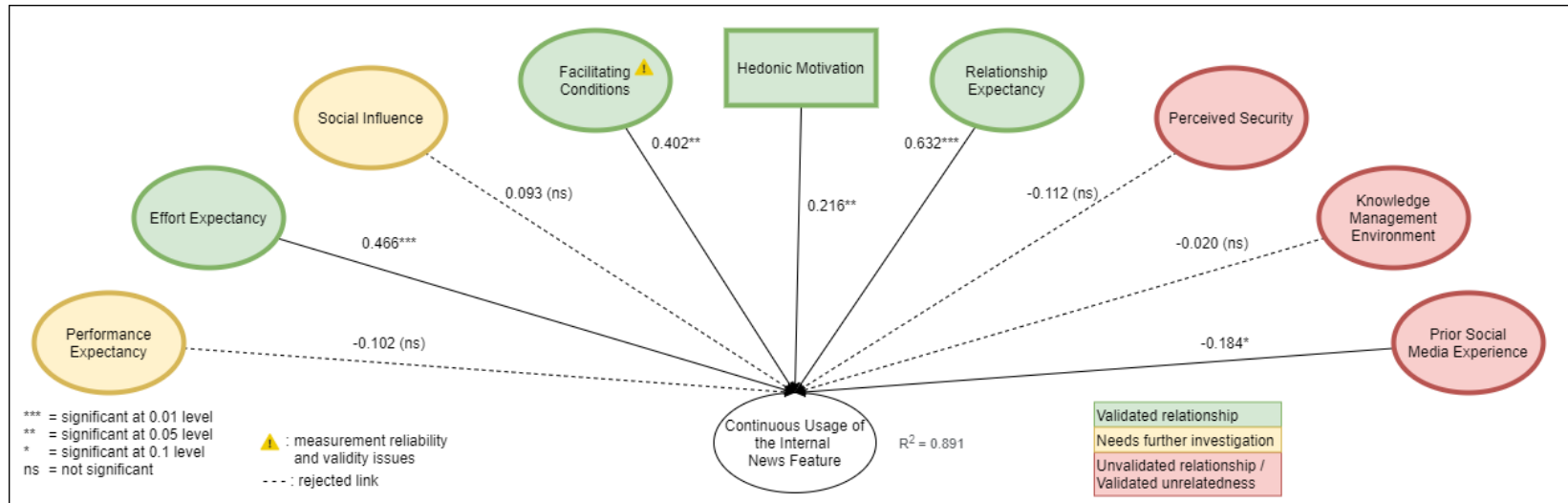
Figure 16: Redesigned Acceptance Model: Internal News Feature
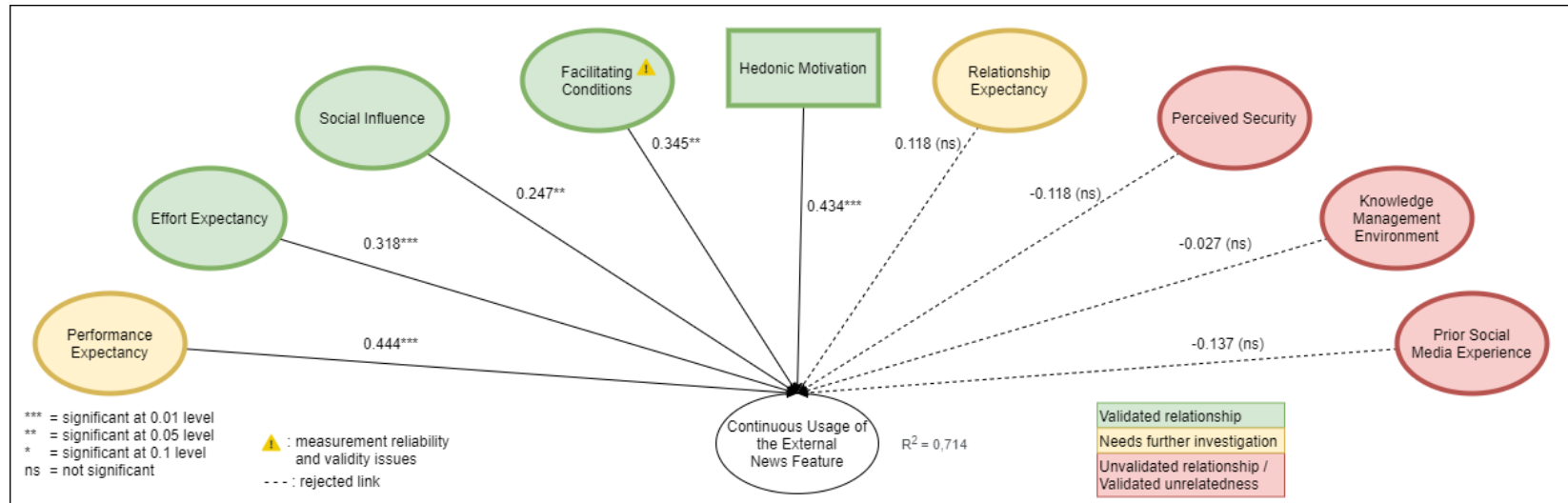

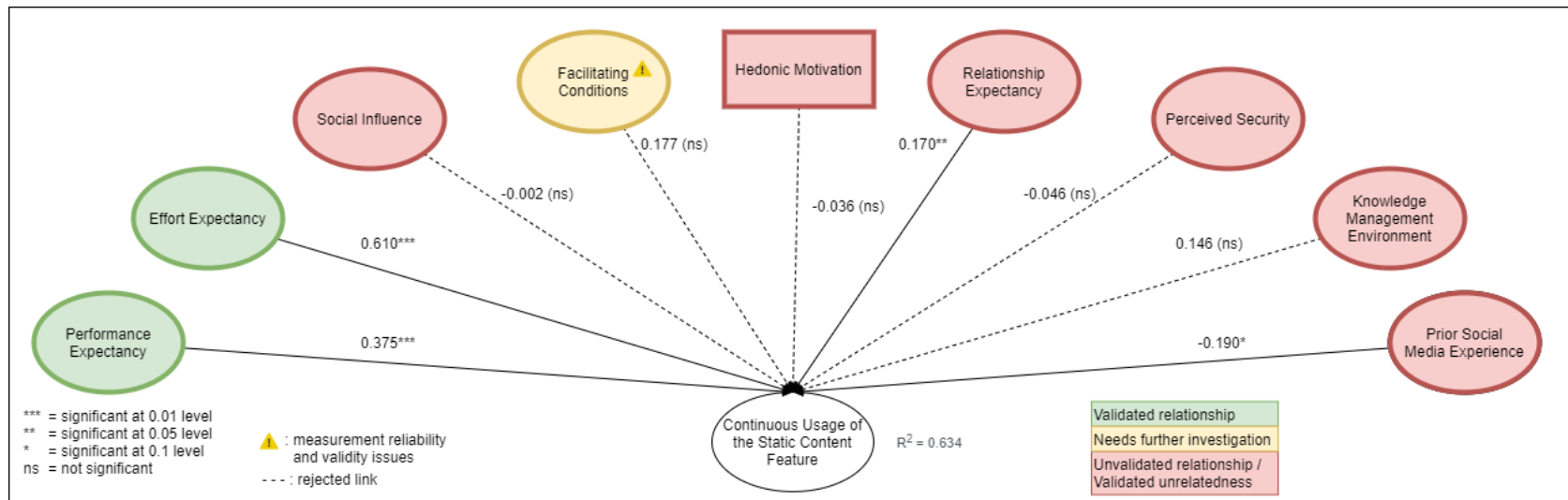*Figure 17: Redesigned Acceptance Model: External News Feature*

Figure 18: Redesigned Acceptance Model: Static Content Feature

Figure 19: Redesigned Acceptance Model: People Finder

Figure 20: Redesigned Acceptance Model: Social Wal

IMPLEMENTATION GUIDELINES

By conducting Design Science, we designed guidelines that seek to support ORTEC with the development of their platform and services towards their clients. By means of designing implementation guidelines we contribute to the improvement of Social Intranet designs, thereby increasing the likelihood of higher adoption rates of the *Relevance Platform*. As discussed in the Introduction, we followed the DSRM proposed by Peffers et al. [79], which supports scientists to structurally conduct design science in the field of information systems. The methodology consists of multiple steps, which incorporate principles, procedures, and practices to carry out the research. Unfortunately, only the first three steps (Identify Problem & Motivation, Define Objectives of a Solution, Design & Development) of the DSRM have been carried out. The limited scope of this research did not allow us to proceed with the demonstration of the designed guidelines. The following sub-sections introduce our approach towards the design of guidelines by considering the provided guidance from the DSRM.

Identify problem and motive
The problem and motivation for the design of a solution is in line with the grounds for conducting the case study. The literature study showed that organizations implementing Social Intranets face difficulties with generating satisfactory system adoption rates. However, to fully benefit from this investment, high adoption rates are required. This means that organizations need solutions that help them achieve higher adoption rates. All interviewees acknowledge that motivating employees to use the platform is challenging. Our developed solution addresses the demand to support and stimulate employees to adopt the Social Intranet, which has been made available by their organizations.

Objectives for a solution
The prior case study resulted in new insights into adoption factors applicable to various Social Intranet functionalities. These insights have been used to develop a solution that helps O4C improve their platform or service regarding the implementation process. Due to time constrains we were not able to develop redesigned components of the Social Intranet or implementation procedures. Therefore, we decided to design guidelines, which can be used by ORTEC for Communications to improve their platform and services themselves.

Focus areas
1. *Focus on engagement*

As indicated by the interviewees, the news features and Social Wall are frequently used functionalities of the Social Intranet. For these functionalities, Relationship Expectancy is a strong motivator. We suggest O4C to focus on the implementation of functionalities that facilitate interaction between colleagues. For example, the Internal and External News Features could be improved by allowing employees to respond to news articles. This extra functionality gives employees the opportunity to also engage with colleagues who are not working in a shared work environment.

Moreover, the Social Wall functionality could be further improved by revealing the names of employees who gave a 'like' to a post. Currently, publishers only see the amount of 'likes' that the post received. By showing them who gave a 'like', employees can create stronger bonds with one another. Similarly,

allowing employees to mention/tag their colleagues in posts or responses stimulates more interaction on the platform. We suggest sending out notifications once employees have received a 'like', a comment, or when they have been 'mentioned' in a comment. That way, more interaction on the platform can be fostered.

Besides the increased interaction emerging on the platform, an expected side effect will be that more interaction about the content will take place in the physical work environment. This reinforces the bonds and relationships between employees. On the other hand, employees who missed out on the content on the platform will feel left out and are, as a consequence, more motivated to also start using the platform.

2. *Focus on content quality*

Based on the interview responses, we have a strong indication that the adoption rates of the news features are highly dependent on the quality of the content. Although O4C does not have any influence on the content that their customers distribute via the platform, there are possibilities to support clients with creating content of good quality. The following paragraphs will provide some implementation advice regarding content quality.

First of all, clients should understand the importance of content creation. They have to be aware that the quality of the content directly influences employees' perception of the platform, which in turn, impacts the adoption rates. It is advisable that clients hire a content manager who ensures content quality that matches with the interests of the employees.

Furthermore, the editors' dashboard can be improved to give clients even more insights into the attractiveness and usefulness of content. Currently, the editors' dashboard provides Social Intranet managers insights into which articles are more popular than others. However, this does not say anything about why these articles are popular. Therefore, we suggest O4C to develop the editor's dashboard in a more sophisticated way, which can explain why certain articles are favored over others. For example, an extra feature of the editor's dashboard could give the user the opportunity to classify articles. Combining this classification with the other statistics could give insights into the type of content that employees like most. Having these insights per business unit would be even more interesting to the content writers. These preferences give a better idea about the audience (employees) and how to address them.

If content matches with the following general requirements, it is likely that many employees will read the content:

- Content needs to be interesting. Not all employees are interested in the same type of content. We advise to create content in such a way that it is interesting for the targeted audience.
- Understanding the content should not require much effort. Whether understanding requires effort also depends on the background of the employees. Be aware that the background and level of education can vary widely among employees within an organization.
- Reading the content should be enjoyable. Be aware that not everybody enjoys reading the same type of content.
- Articles should not be too extensive. Based on statistics from O4C about their platform usage, articles which can be read within two to three minutes are most likely to be read completely. Therefore, we suggest content creators to ensure that their articles do not exceed this reading time. However, we do understand that for some articles it will be challenging or impossible to limit the required reading time to 2 to 3 minutes. In that case, we advise content writers to limit the article to only the important information and to ensure that the previous requirements in this listing are properly met.

3. *Focus on onboarding*

In the initial onboarding process, employees need to invest extra effort before they can benefit from the platform. These extra efforts are needed for the installation process, logging in, and familiarizing themselves with the platform. Employees often do not have experienced the benefit of using the Social Intranet before these processes are successfully finished. Therefore, when something goes wrong during the initial steps, a relatively large number of employees feel reluctant to try a second time. This strong impact of expected effort on the adoption of the platform is supported by both the results of the regression analysis and its validation. Since the onboarding process is critical to all examined organizations, simplifying the process or supporting the users is expected to have a large positive impact on the adoption of the platform for all clients.

We advise O4C to continuously develop the installation process of the platform. The easier it is to download and install the app on all kinds of devices, the more likely it is that employees will start using it. The same holds for the log-in process. On the other hand, next to the efforts from O4C, it is also important that clients (in most cases the internal communications department) support their own employees during the onboarding steps.

Since the success of the Social Intranet at the customer has a direct influence on customer satisfaction, it is important that customers take the necessary steps to assist their employees. O4C could support them by sharing documentation, guidelines, and best practices. Moreover, offering implementation services to the clients could also be an effective solution.

4. *Focus on Performance Expectancy*

Although Performance Expectancy does not influence the acceptance of all Social Intranet components, employees are strongly triggered by this factor. O4C's clients are aware of the important impact that this factor can have on the adoption. Therefore, these clients have chosen to integrate extra functionalities to the platform that will drive adoption among their employees. We expect that when O4C focusses on offering additional applications that are beneficial to the work results and productivity, it can help to increase the adoption rates. For example, offering integrations with digital working environments such as Office 365, Facebook Workplace, Yammer or other collaboration tools used by O4C's clients, could add more value to the Social Intranet.

The People Finder is one of the components that supports employees with doing their work more efficiently. However, a majority of the interviewees stated that their colleagues do not find it useful. Colleagues that are also able to use Microsoft Teams preferred this tool over the People Finder because it has more useful functionalities. Therefore, we suggest O4C to further develop the People Finder in a way that it can compete with similar tools. Another possibility is to build an integration with Microsoft Teams (or other similar tools) to make the functionalities also available within the Social Intranet.

Integrating all necessary tools for employees could turn the Social Intranet into a 'one-stop-shop', where all digital tools for an employee are available on or accessible via one platform. The Social Intranet being a 'one-stop-shop' appeared to be an effective solution for increasing the adoption, according to two interviewees. We advise O4C to investigate the possibilities to turn their Social Intranet into a more central platform where employees can find everything that need to successfully perform their job. However, we are aware of the fact that the Social Intranet being a 'one-stop-shop' is not the value proposition that all clients are looking for. Therefore, we suggest that the actual needs of the clients should be carefully examined before a decision can be made about what functionalities should be added to the platform.

5. Focus on system updates

System updates are necessary to improve the stability of the software, remove outdated feature, add new functionalities or to increase the user experience on the platform. Despite the necessity of updating the Social Intranet, these updates can affect the continuous usage of the platform. We advise to take a number of precautions when designing and running system updates. It is important that the system update will be processed in consultation with the clients to avoid a significant decrease in adoption. The following points should be considered when planning a system update:

- When functionalities are removed from the Social Wall, ensure that all employees are informed about the update and be clear about what changed and why in order to avoid confusion. Interviewee3 explained that an update of their Social Wall removed a certain functionality that led to confusion within the organization. This was mainly caused by the fact that many employees found it a practical feature and did not know about this removal. Thus, in order to prevent employees from actively resisting updates, we advise O4C and their clients to sufficiently and comprehensively inform users about changes in the system.
- Likewise, we advise O4C and their clients to inform employees in case new functionalities are added to the platform. Only when employees know about new features and their added value, they will start using it. Both internal promotion by platform managers and a virtual tutorial on the platform after the first time employees log in to the recently updated Social Intranet, are possible ways to deal with this challenge.

Summary
The abovementioned guidelines will be useful for O4C to improve their platform and customer services. However, they can also be used by customer from O4C or other organizations which adopted a Social Intranet. Table 17 summarizes the proposed implementation guidelines for each of the Focus areas.

Focus area	Guidelines
Focus on engagement	**Improve and increase the number of (sub-)functionalities that enhance employee engagement.** • Allow employees to comment on articles on the platform. • Allow employees to 'mention' other employees within a comment. • Allow employees to see who liked their Social Wall post. • Send employees a notification when they receive a comment on their article, receive a comment on their comment, or when they have been mentioned in a comment or post.
Focus on content quality	**Support customers with creating content of good quality.** • Make customers and content writers aware that the quality of content has a direct impact on adoption rates. • Improve the editor's dashboard with extra insights that help content writers to create content of good quality. • Make sure that content is interesting, enjoyable, does not require much effort to understand, and does not take too long to read.
Focus on onboarding	**Reduce the effort required for the Social Intranet onboarding process.** • Continuously develop the installation process of the platform to allow users to easily download and install the application on their (company) phone. • Reduce the number of times that employees need to log in. Preferably, make use of single sign-on technology. • Develop technology (such as gamification technology) to support employees to easily familiarize themselves with the various functionalities and content types available on the Social Intranet. • Expand customer support by assisting customers during the implementation process. One could think of sharing documentation, guidelines, and best practices regarding the implementation process of the Social Intranet.
Focus on Performance Expectancy	**Stimulate employees to use the Social Intranet by integrating functionalities which are beneficial to work results and productivity.** • Offer integrations with other Digital Workplaces such as Office 365, Facebook Workplace, or Yammer. • Increase the usefulness of the People Finder, which motivates employees to use this functionality rather than competing functionalities on other Digital Workplaces such as Microsoft Teams. • Introduce extra functionalities which support the employee with performing its daily work tasks. • Convert the Social Intranet into a 'one-stop-shop' for customers who could clearly benefit from it.
Focus on system updates	**Be precautious when processing a system update.** • Plan and run system updates always in consultation with the customer. • Make sure that users are informed about newly introduced or removed functionalities. • Be prepared for employees facing problems with logging in after the system update.

Table 17: Summary of O4C's implementation guidelines

DISCUSSION

Using a twofold research design employing different research techniques, we tried to find more insight into functional architectures that enhance the adoption of Social Intranets. In order to do so, we started by conducting a scientific literature study to create a detailed understanding of adoption factors and acceptance models in this study field. We continued using this information to design our own acceptance models, which we tested by conducting a survey within the organization ORTEC. Structural Equation Modeling (SEM) techniques were used to examine the hypnotized relationships between the constructs. Eventually, semi-structured interviews with (Social Intranet) platform managers from O4C's clients were conducted to validate the outcome of the structural regression analysis. The results from the interviews and surveys have been combined to redesign our final acceptance models. Finally, we extracted implementation and design guidelines from the new insights. The outcome of this extensive research process makes several contributions to both the scientific field and practitioners. Section 10.1 elaborates on these contributions. Section 10.2 and Section 10.3 respectively discuss the limitations and the recommendations to future research and practitioners.

10.1 Contribution

In this section, the contribution made by this study will be discussed. The upcoming sub-sections will elaborate on both the contribution to science and practitioners in the ESS field.

10.1.1 Contribution to research

As discussed in the introduction of this paper, ESS comprises many types and variations of systems. Evidently, the adoption of ESS can have various outcomes to organizations and employees as stated by Dittes and Smolnik [32]. In our current study, we focused on specific Social Intranet components which can be regarded as ESS. The outcome of this study brings new insights into the acceptance of Social Intranets. First of all, the study shows the various factors that influence the acceptance of several Social Intranet components. Secondly, the interviews with clients of ORTEC clearly illustrate that and how the factors, which were proven to have a significant impact on the acceptance of the respective Social Intranet component, express themselves in real-world examples.

Moreover, this research is among the first that showed Social Intranet components to employ dissimilar motivational drivers. Its findings also point to the differences between these factors employed by the various ESS functionalities. This can help future researchers to design better acceptance models in the field of ESS.

We expect that our acceptance models for the specific Social Intranet components are applicable to all organizations that use these ESS technologies, whether the technology is part of a larger Enterprise Collaboration System or not. This expectation is backed up by the systematic and disciplined validation process that involved organizations of different sizes and operating in various sectors. Our reasoning regarding the applicability of the models across similar but different organizations is grounded on the methodological paper of Seddon and Scheepers [85]. Although for some organizations, such as

organizations operating in the IT sector, the predictive power of certain determinants may slightly differ, we did not encounter significant deviating findings during the interviews.

Furthermore, the new insights allow scientists to reflect on the applicability and usability of the extant acceptance models in the ESS field. In the sub-section below, we provided our reflection on the ESS literature by taking into account the new perspective on ESS acceptance models.

10.1.1.1 Reflection on ESS literature

As mentioned above, the outcome of this study allows us to reflect on the claims made by other researchers in the ESS field. In the literature study, we collected all adoption factors and classified them as an individual, technical, or organizational themed factor. Based on this classification we selected nine independent variables for our acceptance models. Given the results of our study, some variables have a strong and significant impact on continuous use of certain Social Intranet functionalities, while other variables only have a slight impact or none at all. For example, Prior Social Media Experience appears to have no or only a slight influence on the continuous usage of most Social Intranet components. Especially regarding the Internal News Feature, People Finder, and Static Content Feature, there is no impact accounted for by this factor. This does not mean, however, that Prior Social Media Experience has no influence on the usage of any of the ESS technologies. Possible reasons for this finding could be that the components are easy to use, or that using the component is regarded as advantageous, which stimulates employees with no prior Social Media experience to also familiarize themselves with this type of technology.

Perceived Security is another example for a factor with low explanatory power on most Social Intranet components. The interviewees indicated that only few employees voiced concerned about privacy. Occasions like that mostly rose right after the introduction of the platform. The fact that only a small number of employees expressed security concerns of the platform is likely to be the results of a certain trust that the company had built already. As a consequence, most employees are not worried that their organization will offer an unsecure platform that poses risks of information misuse. with a high threat of information misuse. Besides, some interviewees indicated that Perceived Security (PS) does affect the continuous usage of the Social Wall because this functionality, in contrast to the other features, allows employees to share their own content. Our results are therefore in line with the findings of Buettner [17] and Chin et al. [19], who state that security issues influence the acceptance of Enterprise Social Networks. On this type of ESS, sharing user-generated content is a central functionality. On the other hand, our results contradict the findings from Wang et al. [94], who claimed that PS affects the behavioral intentions to use Enterprise 2.0 applications. Our results do not indicate that PS does not have an impact at all, but it gives reason to believe that the continuous usage of some ESS technologies are not influenced by this factor. Therefore, we suggest that their model should be specified to a smaller scope of ESS technologies.

We found UTAUT [91], TAM [27], and UGT [49] as most frequently used theoretical backbones for ESS acceptance models. Since most scholars claimed that UTAUT independent variables also impact the intention to use ESS technologies, we decided to use these constructs in our acceptance model. Our results show that continuous usage of most Social Intranet components is indeed (partly) influenced by constructs originating from UTAUT. This means that the outcome is in line with most researchers' choices to take UTAUT as their acceptance model backbone.

Nonetheless, the integration of UGT components in ESS acceptance models is also supported by this research. As claimed by Liu and Bakici [58] the acceptance of ESS technologies is driven by feelings of gratification. These feelings emerge from either the enjoyment of using the technology, the quality of the content that is presented, or the social interaction that takes place on the platform. These three feelings of gratifications were often mentioned by interviewees as a motivator for employees to use the platform. Therefore, our results confirm Liu's and Bakici's claims about the impact of the three feelings of gratification.

While the impact of constructs originating from both UTAUT and UGT is corroborated by this research, both paradigms are missing important independent variables to properly explain ESS usage. We found that for explaining some Social Intranet components, the four independent variables (Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions) do not suffice. For example, Relationship Expectancy and Hedonic Motivation constitute additional important constructs, which are not part of UTAUT but are significant determinants of continuous usage of the news features and the Social Wall.

Several researchers who took UTAUT as a backbone for their ESS acceptance model, made up for the missing impact factors by extending their model through additional constructs. For example, Martensen et al. [61] added a construct labelled as Realization of One's Value, which refers to a belief that using ESS yields feelings of intrinsic happiness. This construct has an overlapping meaning with the construct Hedonic Motivation in our acceptance model. Furthermore, the UTAUT backboned acceptance model proposed by Jawadi and Bonis [47] includes additional constructs, such as Relationship Expectancy and Content Value. On the other hand, Mäntymäki and Riemer [60] do not have any constructs related to a person's gratification. Our study confirms that constructs related to those from both UTAUT and UGT are required in acceptance models to adequately explain ESS adoption.

Our findings are, however, not fully in line with researchers' claims [61][60][43] that Performance Expectancy impacts all possible ESS technologies. According to our study, only the acceptance of People Finder and the Static Content Feature are significantly influenced by this factor. Contrary to the other investigated functionalities, using the People Finder and the Static Content Feature have clear benefits to the work results and productivity. However, the interviewees did indicate that content quality and content relevance are key drivers of content consumption. This means that only some content on the News features and the Social Wall could be beneficial to work performance. Therefore, the impact of Performance Expectancy on Continuous Usage of the news features and the Social Wall remains debatable.

Moreover, interviewees' responses regarding content quality and content relevance are in line with Chin et al. [21] who claimed that "Content Value" impacts Enterprise Social Network (ESN) use. He defines "Content Value" as:

> *"The degree to which the resources available in a network provide benefits for the individual."*

Although their study is limited to ESNs, we expect this construct to also affect some Social Intranet components examined in our research.

10.1.2 Contribution to practice

The current study is unique in the ESS field as it combines statistical analysis techniques with a qualitative data analysis. This combination of research methods allowed us to validate the theoretical acceptance models in real-world contexts. By employing our unique approach, the outcome of the current study brings significant contributions to practitioners in this field.

First, the prior literature study (Chapter 4) discusses most significant adoption factors and acceptance models, which can help organizations successfully implement ESS technologies.

Secondly, the case study is useful for all organizations offering or designing Social Intranets. The acceptance models (Chapter 8, Section 8.3) can be used as a reference when deciding what features to offer via the Social Intranet. Furthermore, an understanding of the determinants of adopting Social Intranet components allow communication managers to effectively stimulate adoption for the separate Social Intranet components. Moreover, our study differentiates itself from other studies presenting ESS acceptance models, because we validated these models by means of conducting interviews at organizations using Social Intranets (Chapter 8). As this thesis provides real-world examples,

practitioners with no scientific background in this field can easily understand the abstract concepts and terms used in scientific literature. Therefore, our study allows all Social Intranet managers to understand and respectively utilize the proposed acceptance models.

Thirdly, during interviews, we discussed organizational goals, challenges, and best practices related to the Social Intranet (Chapter 8, Section 8.2). As the organizations taking part in our case study are very diverse, the way they benefit from the Social Intranet and the way they cope with challenges differs as well. The wide range of goals, challenges, best practices, and common pitfalls support other organizations to make well-informed decisions about whether to adopt a Social Intranet and on how to successfully manage such a platform.

Finally, although the guidelines presented in Chapter 9 have been designed specifically for O4C, other practitioners can also benefit from them.

10.2 Limitations

This study employs a twofold research design, which include an empirical Model-Building Process [12] and a Design Science Research Methodology [79]. This section discusses the limitations of our study.

Model-Building Process
The Model-Building Process guided the researchers through the phases in order to define a final model. In the Exploration Phase of the Functionalistic Research Process (Figure 2), we conducted a literature study before we could define our conceptual research model. By following the guidelines by Bandara, et al. [9], the literature search and analysis were executed according to a structured process increasing the replicability of this study. Furthermore, this literature study is not subject to any bias from neither the author nor the supervisors, because none of them would gain any benefit from any possible outcome. This is also beneficial to the reliability of this study. Additionally, the list of influencing variables has been discussed with several experienced workers in the field of Social Intranets. According to their knowledge and experiences, the categorization includes all key impact factors. However, due to the limited scope of the literature study only the Web of Science and Scopus databases have been consulted. Even though many papers were found and respectively included, the possibility of having omitted relevant papers cannot be eliminated. Unfortunately, due to the limited scope of the literature research, time to evaluate each paper was reduced. This fast sampling process, however, poses the risk that relevant papers have accidentally been excluded. For similar reasons, forward and backward citations had to be left out as well.

After the literature study, we were able to design our conceptual research model. This model has been tested by conducting surveys within ORTEC. To test the hypothesized relationships in our acceptance model, we designed a measurement model based on measurement items borrowed from other studies in the IT adoption field. In order to prevent the survey from becoming too large, we reduced the number of measurement items. In doing so, we combined or removed some of the scales. For example, we decided to measure Hedonic Motivation with only one measurement item, which means that we treated this construct as an observed variable. Although we did our best to ensure a consistent and valid measurement model by means of conducting a pilot test, the reduction of measurement items still affected this model. Also, in the final measurement models we detected some reoccurring construct validity and reliability issues for the construct Facilitating Conditions. This affected the trustworthiness of the regression analysis outcome regarding this construct. More details on the validity and reliability of the measurement model can be found in Section 7.2.

Furthermore, we have only conducted surveys within one organization. A larger sampling frame would have been beneficial to the generalizability of the regression analysis outcomes. On top of that, ORTEC operates in the IT sector, which means that their employees are likely to be tech-savvy, and, therefore,

more open to embrace new IT systems. This affects the generalizability of the proposed acceptance models.

The survey has been published on the Social Intranet as this platform is the most suitable channel to reach out to most ORTEC employees asking them to fill out the questionnaire. Unfortunately, employees were constrained in their everyday work life through the outbreak of the COVID-19 pandemic. The organization responded to this by only sending out high priority information via email to reduce the burdens employees experience during this time. As a solution to still reach out to employees who are barely or not using this Social Intranet, we asked managers from several ORTEC departments located in different countries to notify their colleagues about the survey. By switching to this second-option procedure, we could not ensure that the survey has been brought to the attention of all employees. Nonetheless, 74 responses from employees spread over various departments have been yielded (including employees who barely use the Social Intranet).

To examine the generalizability [85] of the regression analysis outcome, we conducted multiple interviews with ORTEC clients who adopted one of their Social Intranets. The main reason to interview employees responsible for the Social Intranet from the side of the client is that these persons are likely to have the best vision on why their employees do or do not adopt the platform. However, except for the interview at Organization2, we have only been able to discuss impact factors with one employee from each client. Conducting interviews with multiple employees from the same client would have contributed to a more reliable view on the impact of certain factors. Moreover, some interviewees found it difficult to indicate the extent to which certain factors impact continuous use of certain Social Intranet components. A second or third interviewee from the same client could have complemented their colleague's vision on impact factors, leading to more reliable insights. Furthermore, conducting interviews with employees from more clients would have resulted in better insights into the generalizability of the acceptance models in various contexts. We assume that multiple clients were reluctant to participate in the case study as the emerging COVID-19 pandemic brought new challenges to communication managers, which had priority.

Design Science Research Methodology
Following the DSRM proposed by Peffers et al. [79], we designed Social Intranet implementation guidelines. Due to the limited scope of this study, we could not perform the Evaluation and Demonstration steps as prescribed by the methodology. This means that we did not test whether the implementation guidelines actually help O4C to improve the functional architecture and implementation of the Social Intranets, thereby increasing the adoption rates of their platforms.

10.3 Future research

This section discusses recommendations for future research. First of all, as indicated in our acceptance models, further research is required to examine the explanatory power of several constructs. For these constructs, the outcome of the regression analysis contradicts the outcome of the validation, which means that this study is not able to draw conclusions regarding the impact of these independent variables. We suggest future research to investigate the impact of Facilitating Conditions in particular, as we expect this factor to be a significant determinant of continuous usage of most, if not all, Social Intranet components.

Secondly, we suggest future studies to focus on designing more acceptance models for other Social Intranet components or ESS technologies. Our study is among the first to show that adoption factors do not explain the continuous usage of various Social Intranet components equally. Rather, significant adoption factors vary for these distinct components of Social Intranets. To the best of our knowledge, only Engler and Alpar [33] came to a similar conclusion when they state that there are varying adoption factors for ESM tools as they can be employed for fundamentally different uses. Furthermore, they claim that "ESM should not be treated as a single entity when analyzing users' motivation" [33]. Their

claims reinforce our advice to scholars to design acceptance models for ESS components with specific use cases. An additional advantage is that these insights contribute to a deeper understanding of the determinants of employees' decisions to adopt the platform. In turn, this supports practitioners in making well-informed decisions on how to effectively design and implement ESS.

Thirdly, we strongly recommend scholars to consider the impact of content value for future acceptance models. As previously mentioned, the results of the validation process indicate that the construct 'Content Value', which is a strong determinant of ESN use [21], also influences the adoption of other ESS technologies. The reason that we did not include this construct in our research model is that only a minority of scholars deem the value of content to be influential in Social Intranet adoption.

Furthermore, we suggest future research to test whether the proposed Social Intranet implementation guidelines support the design and implementation of Social Intranets. If it appears to be necessary, the list of guidelines could be adapted or extended to better support practitioners.

Finally, we suggest future research to explore whether and how the functional architecture of a Social Intranet facilitates unintended fortunate discoveries. McCay-Peet et al. [64] defines serendipity as an unexpected experience prompted by an individual's interaction with information, objects, or phenomena. They also claim that the interaction of an individual with a certain environment is important for serendipity to occur [64]. Their results indicate that digital environments, such as Social Media platforms and Intranets, are conducive to serendipity, which gives reason to believe that Social Intranets can be designed in such a way that it facilitates experiences of serendipity. This means that certain functional architectures could direct employees to discoveries of new content or functionalities with the consequence of enhancing the overall adoption of the Social Intranet.

CONCLUSION

The current study aimed to investigate what functional architectures enhance the adoption of Social Intranets. We formulated and answered one research question and five sub-questions in order to address the design problem. The study has been executed in line with the Model-Building process (Figure 1) as proposed by Bhattacherjee [12] and the Design Science Research Methodology (Figure 3) as proposed by Peffers [79]. In this section, we will provide an answer to each knowledge question, followed by the answer to our research question.

SQ1:   What are the factors that influence acceptance of a Social Intranet?

As part of the Exploration phase in our functional research process, we investigated the factors that influence acceptance of a Social Intranet by means of conducting a literature study. We found that the body of scientific knowledge contains a significant amount of studies related to factors that influence ESS acceptance. These factors have been classified as either an individual, a technical or an organizational factor. Regarding individual factors, we suggest that Prior Social Media Experience, Social factors, Cultural factors and Relative Advantage play a key role in ESS acceptance. For the technical factors, we found Ease of Use and Perceived Security to play a key role. Related to the organizational factors, we identified Corporate Climate, Corporate Support and Corporate Strategy as key factors for explaining ESS acceptance. This classification of impact factors (Table 2) does not include all factors found during the literature study. Nevertheless, the proposed classification covers all frequently discussed impact factors in the ESS field.

SQ2:   What predictive models for Social Intranet acceptance are present in scientific literature?

Examining the predictive models for Social Intranet acceptance has also been part of the literature study. We analyzed a significant amount of ESS acceptance models. One can conclude that these models predict acceptance in various ways and that there is no consensus regarding a specific theory. However, we suggest that Perceived Usefulness and Hedonic Motivation play a key role since these factors often appear in the models. Furthermore, we found that use behavior can be sub-divided into more specific use behaviors related to various motivations and goals. Not only behavior can be sub-divided, we also found that ESS can be sub-divided into more specific technologies. We anticipate that models applicable to more specific contexts might be more meaningful. There is a wide range of scales available to measure the constructs. Multiple measures are available for similar constructs. Depending on what constructs need to be measured, proper scales can be found in the ESS literature (Appendix A).

As prescribed by the Model-Building process (Figure 1) [12], we formulated our preliminary conclusions based on the literatures study. In our preliminary conclusions (Section 4.3), we stated that there is no consensus regarding how ESS acceptance should be predicted. Furthermore, most of these acceptance models predict ESS adoption on a high level instead of for specific ESS technologies. Both the lack of consensus and the broad technological contexts, which the predictive models apply to affect the practical support that the ESS adoption field can offer designers and implementors of Social Intranets.

SQ3:   How do adoption factors differ for varying functional architectures of a Social Intranet?

Based on the conclusions we drew from the literature study, we were able to specify our research model that predicts the continuous usage of Social Intranets. Considering the preliminary conclusions, we decided to design specific acceptance models for distinct Social Intranet components. By doing so, we were able to compare the extent to which certain impact factors determine the acceptance of various Social Intranet components. The results of the regression analysis (Section 7.3) indicate that acceptance of certain Social Intranet components is explained by varying sets of impact factors. Continuous Usage of the Internal News Feature is mainly impacted by Effort Expectancy, Hedonic Motivation, and Relationship Expectancy. Our empirical data let us conclude that the Continuous Usage of the External News Features can be explained by Effort Expectancy and Hedonic Motivation. In comparison to the previously mentioned features, the People Finder and Static Content Feature are mainly driven by Performance Expectancy and Effort Expectancy. This shows that employees are mainly motivated to use these functionalities through the direct benefits they have for deliverables and productivity, while for the News features it is more important that employees can engage with one another and feel entertained by its use. Moreover, the factors Relationship Expectancy and Hedonic Motivations are likely to have an even stronger predictive power on the Continuous Usage of the Social Wall. Additionally, it is more likely that the Social Influence, Perceived Security, and Prior Social Media Experience are stronger determinants for this feature compared to the other functionalities. Section 7.3 elaborates on the impact factors determining the Continuous Usage of the five Social Intranet components.

The regression analysis outcome gives us reason to believe that depending on the functional components of a Social Intranet, determinants for accepting the platform varies. In short, the results indicate that Social Intranets offering functionalities beneficial to performing work-related activities are strongly driven by Performance Expectancy, while Social Intranets offering functionalities in which the organization and employees can engage with one another are strongly driven by Hedonic Motivation and Relationship Expectancy.

SQ4:   How can a Social Intranet acceptance model be designed and evaluated while taking into account the various possible Social Intranet's functional architectures?

As the results show that adoption factors do not explain the continuous usage of various Social Intranet components equally, we decided to design distinct acceptance models for each of the components. By means of conducting interviews and a questionnaire with clients from ORTEC, we have been able to validate our acceptance models. With few exceptions, the questionnaire and the responses from the interviewees confirm the outcome of the regression analysis. However, further research remains necessary to examine the predictive power of certain impact factors. The results indicate that acceptance models differ for various functionalities, which can be offered by one Social Intranet. Therefore, in order to take the various functional possibilities of a Social Intranet into account, a combination of acceptance models is required to properly explain employees' acceptance towards the platform. Consequently, creating a comprehensive Social Intranet acceptance model requires designing multiple "sub" acceptance models that explain the acceptance of distinct functional components respectively.

SQ5:   What implementation guidelines can be derived from the designed acceptance model?

The first three steps of the Design Science Research Methodology [75] have been followed to derive implementation guidelines from the designed acceptance models (Chapter 9). These implementation guidelines (see Table 17) are specifically designed for O4C to improve the design of their product and its implementation process at the client. However, we assume that the guidelines are also useful for other designers and implementors of other Social Intranets or ESS with similar functionalities. The guidelines are structured according to five focus areas, which are critical to the adoption of the Social Intranet. First of all, Social Intranets that offer functionalities allowing employees to engage with one

another and the organizations should also properly facilitate this. Secondly, the content creators should be aware that the quality of content is critical for the adoption of the platform. Therefore, the platform and the implementation process should support content managers to create content of high quality. The third focus area stresses the importance of employee onboarding in relation to the Social Intranet. The design and implementation process should make the required steps to start using the platform as easy as possible for employees. Furthermore, adoption rates of Social Intranets are likely to increase when additional functionalities are offered, which aim at improving work results. Finally, system updates should be managed in order to prevent problems to occur. These guidelines contribute to solving our design problem because they will support the design of Social Intranets in such a way that it reduces adoption challenges and motivates more employees to start or keep using the platform. Chapter 9 elaborates on the various implementation guidelines.

RQ: **What functional architectures enhance the adoption of Social Intranet by organizations?**

The answers to the sub-research questions above allow us to give an answer to the main research question. Depending on the functional components of a Social Intranet, the determinants of its acceptance differ. A Social Intranet that employs a functional architecture with clear benefits to the employee is likely to enhance its adoption. Social Intranets that are beneficial to work productivity, facilitate employee engagement, or are simply fun to use are likely to be highly adopted. However, employees' needs differ depending on their age, level of education, and interests, among others. Finally, Social Intranet designs should also minimize the efforts needed to gain access to or familiarize oneself with the platform. To sum up, in order to increase the adoption of a Social Intranet, its functional architecture should be aligned with the organizational context and employees' background respectively.

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APPENDICES

Appendix A – Acceptance models in ESS field

Backbone	Ref. no.	Construct	Hypothesized paths	Description	Borrowed / Self-Constructed	Scale Source
UTAUT	[3]	**Understanding the Determinants of Enterprise Social Network Use**				
		ESN Use (U)	dep.		BOR	Venkatesh et al. (2003) [91]
		Intention to Us (IU)	IU > U	Behavioral Intention to use ESN	BOR	Venkatesh et al. (2003) [91]
		Performance Expectancy (PE)	PE > IU	The degree to which an individual believes that using the system will help him or her to attain gains in job performance	BOR	Venkatesh et al. (2003) [91]
		Effort Expectancy (EE)	EE > IU, PE	The degree of ease associated with the use of the system.	BOR	Venkatesh et al. (2003) [91]
		Social Influence (SI)	SI > IU	The degree to which an individual perceives that important others believe he or she should use the new system	BOR	Venkatesh et al. (2003) [91]
		Facilitating Conditions (FC)	FC > U	The degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system	BOR	Venkatesh et al. (2003) [91]
		Ideas and Work Discussion (IWD)	IWD > U	ESN use to obtain ideas and participate in work-related discussions	BOR	Mäntymäki and Riemer (2016) [60]
		Problem Solving (PS)	PS > U	ESN use to obtain solutions for work problems	BOR	Mäntymäki and Riemer (2016) [60]
		Task Management (TM)	TM > U	ESN use to manage and co-ordinate tasks with colleagues	BOR	Mäntymäki and Riemer (2016) [60]

	Events and Updates (EU)	EU > U	ESN use to give and receive updates on events and topical issues in one's work environment	BOR	Mäntymäki and Riemer (2016) [60]
	Informal Talk (IT)	IT > U	ESN use for discussions related to matters of general interest that are not related to work, such as sports, news and politics	BOR	Mäntymäki and Riemer (2016) [60]
[61]	**Collaboration in the consulting industry: analyzing differences in the professional use of social software**				
	Performance Expectancy (PE)	PE > BI	The degree to which an individual believes that using the system will help him or her to attain gains in job performance	BOR	Venkatesh et al. (2003) [91]
	Effort Expectancy (EE)	EE > BI	The degree of ease associated with the use of the system.	BOR	Venkatesh et al. (2003) [91]
	Social Influence (SI)	SI > BI	The degree to which an individual perceives that important others believe he or she should use the new system	BOR	Venkatesh et al. (2003) [91]
	Behavioral Intention (BI)	BI > KSH, KSE, SM, NB, COM, COL	*No explicit definition*	BOR	Venkatesh et al. (2003) [91]
	Knowledge Sharing (KSH)	dep.	Contribute information, know-how and content	SELF	Combination of sources
	Knowledge Seeking (KSE)	dep.	Search for Information, know-how and content	SELF	Combination of sources
	Self-Marketing (SM)	dep.	Promote oneself by presenting one's identity, skills and achievements	SELF	Combination of sources
	Network Building (NB)	dep.	Establish connections with colleagues and clients	SELF	Combination of sources
	Communication (COM)	dep.	Communicate with others, both in real-time and asynchronously	SELF	Combination of sources
	Collaboration (COL)	dep.	Coordinate, cooperate and work together on specific documents and tasks	SELF	Combination of sources
[34]	**Contribution and consumption of content in enterprise social media**				

		Performance Expectancy (PE)	PE > CONT, CONS	The degree to which an individual believes that using the system will help him or her to attain gains in job performance	BOR	Venkatesh et al. (2003) [91]
		Effort Expectancy (EE)	EE > CONT, CONS	The degree of ease associated with the use of the system.	BOR	Venkatesh et al. (2003) [91]
		Social Influence (SI)	SI > CONT, CONS	The degree to which an individual perceives that important others believe he or she should use the new system	BOR	Venkatesh et al. (2003) [91]
		Facilitating Conditions (FC)	FC > CONT, CONS	The degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system	BOR	Venkatesh et al. (2003) [91]
		Intention to Contribute Content (CONT)	dep.	Intention to continue contributing content on ESM	BOR	Venkatesh et al. (2003) [91]
		Intention to Consume Content (CONS)	dep.	Intention to continue consuming content on ESM	BOR	Venkatesh et al. (2003) [91]
	[21]	**Understanding factors influencing employee's consumptive and contributive use of enterprise social networks**				
		Performance Expectancy (PE)	PE > CONS, UG	The degree to which an individual believes that using the system will help him or her to attain gains in job performance	BOR	Venkatesh et al. (2003) [91]
		Effort Expectancy (EE)	EE > CONS, CONT, UG	The degree of ease associated with the use of the system.	BOR	Venkatesh et al. (2003) [91]
		Social Influence (SI)	SI > CONT, UG	The degree to which an individual perceives that important others believe he or she should use the new system	BOR	Moore and Benbasat (1991) [68]
		Facilitating Conditions (FC)	FC > CONS, CONT, UG	The degree to which individual believes that an organizational and technical infrastructure exists to support the use of technology	SELF	Non-defined
		Content Value (CV)	CV > CONS, CONT	The degree to which the resources available in a network provide benefits for the individual.	SELF	Non-defined
		Relationship Expectancy (RE)	RE > CONT	The degree to which an individual believes that using ESN will provide benefits in initiating and maintaining relationships with other employees within the organization	BOR	Bock et al. (2005) [14]

		Consumptive Use (CONS)	CONS > UG	The degree to which an employee uses ESN for acquiring information and knowledge from the platform	BOR	Kügler and Smolnik (2014) [54]
		Contributive Use (CONT)	CONT > UG	The degree to which an employee uses ESN for contributing information and knowledge to the platform	BOR	Kügler and Smolnik (2014) [54]
		Usage Gap (UG)	UG > OU	Absolute terms (CONS - CONT)	SELF-CONSTRUCTED	-
		Overall ESN Use (OU)	dep.	*No explicit definition*	-	-
	[94]	**Exploring determinants of adoption intentions towards Enterprise 2.0 applications: an empirical study**				
		Behavioral Intention (BI)	dep.	Not explicitly defined	BOR	Venkatesh et al. (2003) [91]
		Perceived Usefulness (PU)	PU > BI	The degree to which an individual believes that using the system will help him or her to attain gains in job performance	BOR	Venkatesh et al. (2003) [91]
		Perceived Ease of Use (PEU)	PEU > BI, PU	The degree to which an individual believes that using an information technology will require little effort	BOR	Venkatesh et al. (2003) [91]
		Subjective Norms (SN)	SN > BI	The perceived pressures on a person to perform or not to perform a given behavior	BOR	Venkatesh et al. (2003) [91]
		Personal Innovativeness Information Technology (PIIT)	PIIT > PEU, PS	The willingness of an individual to try out a new information technology	BOR	Compeau and Higgins (1995) [23]
		Extrinsic benefit expectations (EBE)	EBE > BI	Individual's judgement of possible extrinsic benefits that his or her knowledge-sharing activities will produce for him- or herself	BOR	Compeau and Higgins (1995) [23]
		Computer Self-Efficacy (CSE)	CSE > PEU, PS	The belief that one is capable of using a computer in diverse situations.	BOR	Agarwal and Karahanna (2000) [1]
		Perceived Security (PS)	PS > BI	The extent to which an individual believes that using an information technology will be risk free	BOR	Fong et al. (2001) [35]

		Realization of one's value (ROV)	ROV > BI	The degree to which an individual believes that his or her information-sharing activities via E2.0 applications will yield feelings of intrinsic happiness, accomplishment, and personal value	BOR	Bock et al. (2005) [14]
		Perceived Network Externality (PNE)	PNE > BI	User's perception of whether an information technology has attracted a sufficient number of users to indicate that critical mass has been reached	BOR	Hsu and Lu (2004) [46]
TAM	[17]	**Analyzing the Problem of Employee Internal Social Network Site Avoidance: Are Users Resistant due to their Privacy Concern?**				
		Perceived Usefulness (PU)	PU > IU	The degree to which a person believes that using a particular system would enhance his or her job performance	BOR	Davis (1989) [27]
		Perceived Ease of Use (PEU)	PEU > IU	The degree to which a person believes that using a particular system would be free of effort	BOR	Davis (1989) [27]
		Privacy Concerns (PC)	PC <> PU, PEU	*No explicit definition*	BOR	Xu et al. (2011) [101]
		Intention to Use (IU)	dep.	The intention to use an Internal Social Networking Site	BOR	Venkatesh et al (2003) [91]
	[66]	**Enterprise Social Network as Digital Infrastructure - Understanding the Utilitarian Value of Social Media at the Workplace**				
		Perceived Versatility (PV)	PV > PU	The degree to which the user perceives the ESN as being useful for different purposes.	SELF	Pipek and Wulf (2009) [80]
		Perceived Adaptability (PA)	PA > PU	The degree to which the user perceives the ESN as being adaptable to the given environment of the company.	SELF	Pipek and Wulf (2009) [80]
		Perceived Invisibility-in-Use (PIU)	PIU > PU	The degree to which the user perceives the ESN to be operating in the background without consciously noticing it	SELF	Pipek and Wulf (2009) [80]
		Perceived Interconnectedness (PI)	PI > PU	The degree to which the ESN is interconnected with the existing processual, technological and social infrastructures.	SELF	Pipek and Wulf (2009) [80]
		Perceived Reflexivity (PR)	PR > PU	The degree to which the user perceives his/her activities as having an influence on the ESN's development over time.	SELF	Pipek and Wulf (2009) [80]

		Perceived Usefulness (PU)	PU > UC	The degree to which the individual evaluates the ESN as useful.	BOR	Davis (1989) [27]
		Perceived Enjoyment (PE)	PE > UC	The degree to which the user perceives the usage of the ESN as enjoyable	BOR	Davis et al. (1992) [28]
		ESN Use Continuance (UC)	dep.	The intention of the user to continuously use the ESN.	BOR	Agarwal and Karahanna (2000) [1]
	[5]	**Factors influencing the adoption of Enterprise Social Software in Australia**				
		Perceived Usefulness (PU)	PU > AD	The determination of how perceived usefulness influence the adoption of ESS	BOR	Davis (1989) [27]
		Perceived Ease of Use (PEU)	PEU > AD	The determination of how perceived ease of use influence the adoption of ESS	BOR	Davis (1989) [27]
		Adoption Decision (AD)	dep.	The determination of the decision to adopt ESS	BOR	Davis (1989) [27]
		Individual Factors (IF)	IF > PU	*No explicit definition*	SELF	Combination of sources
		Organizational Factors (OF)	OF > PU, PEU	*No explicit definition*	SELF	Combination of sources
		Task Complexity (TC)	TC > PEU	*No explicit definition*	SELF	Combination of sources
		Organizational Culture (OC)	OC > PU, PEU	*No explicit definition*	SELF	Combination of sources
		Knowledge Strategy (KS)	KS > PEU	*No explicit definition*	SELF	Combination of sources
UGT	[33]	**Does one model fit all? Exploring factors influencing the use of blogs, social networks, and wikis in the enterprise**				
		Intention to Use (IU)	dep.	Not explicitly defined	BOR	Brown et al. (2010) [15]
		Social Presence (SP)	SP > IU	The degree of salience of other person in the interaction and the consequent salience of the interpersonal relationship	BOR	Brown et al. (2010) [15]
		Immediacy of Communication (IC)	IC > IU	The extent to which a collaboration technology enables the user to quickly communicate with others	BOR	Brown et al. (2010) [15]

		Concurrency of Communication (CC)	CC > IU	The ability of collaboration technology to enable an individual to perform other tasks at the same time as using the technology	BOR	Brown et al. (2010) [15]
		Social Media Experience (SME)	SME > IU	Not explicitly defined	BOR	Brown et al. (2010) [15]
		Knowledge Self-Efficacy (KSE)	KSE > IU	Beliefs in one's capabilities to organize and execute the courses of action required to manage prospective situations	BOR	Kankanhalli et al. (2005) [48]
		Anticipated Reciprocal Relationships (ARR)	ARR > IU	The degree to which one believes one can improve mutual relationships with others through one's knowledge sharing	BOR	Bock et al. (2005) [14]
	[58]	**Enterprise Social Media Usage: The motives and the moderating role of public social media experience**				
		Enterprise Social Media Usage (U)	dep.	*No explicit definition*	BOR	Bhattacherjee and Sanford (2009) [13] and Kankanhalli et al. (2005) [48]
		Information Sharing (ISH)	ISH > U	Wanting to share information with others	BOR	Liu et al. (2016) [57]
		Self-documentation (SD)	SD > U	document one's own life and to keep track of what they are doing in order to derive gratifications	BOR	Liu et al. (2016) [57]
		Information Seeking (ISE)	ISE > U	browsing content, posting a question, or using messaging to seek about one's personal or professional needs of information	BOR	Liu et al. (2016) [57]
		Social Interaction (SI)	SI > U	Developing or maintaining personal connections with others to gratify social connection needs	BOR	Liu et al. (2016) [57]
		Entertainment (E)	E > U	Not explicitly defined	BOR	Liu et al. (2016) [57]
		Public Social Media Experience (PSME)	PSME <MOD> ISH, SD, ISE, SI, E	Not explicitly defined	BOR	Liu et al. (2016) [57]
Other	[82]	**Enterprise 2.0 Technologies for Knowledge Management: Exploring Cultural Organizational & Technological Factors**				

		Power Distance (PD)	PD > KME, PIB	The extent to which members of an organization in a specific culture accept and expect inequality in the distribution of power	SELF	Combination of Sources
		Long Term Orientation (LTO)	LTO > KME	Values of perseverance and future planning	SELF	Combination of sources
		Perceived Ease of Use (PEU)	PEU > PU	Employee's expectations of the targeted system's required level of effort	SELF	Combination of sources
		Perceived Usefulness (PU)	PU > IUS	The degree of belief that using a particular system will enhance an employee's job performance	SELF	Combination of sources
		Enterprise 2.0 Richness (ER)	ER > PEU, IUS	Demonstrating the richest available medium of communication to convey messages properly and to ensure successful communication	SELF	Combination of sources
		Enterprise 2.0 Sophistication (ES)	ES > ER, PU, KME	Tools diversity and maturity to enhance the end-user's technology interaction and overall use	SELF	Combination of sources
		Knowledge Management Environment (KME)	KME > PIB, OIB, IUS	Context and culture of an organization that nurtures a knowledge management initiative	SELF	Combination of sources
		Personal Information Behavior (PIB)	PIB > IUS	Individual's own actions and practices in exchanging information and collaborating with others	SELF	Combination of Sources
		Organizational Information Behavior (OIB)	OIB > PIB, IUS	The practices that employees observe and draw upon for information and knowledge sharing at the organizational level	SELF	Combination of Sources
		Intention of Use of System (IUS)	dep.	Intention to continue using Enterprise 2.0 for knowledge management	SELF	Combination of Sources
	[65]	**Explaining the emergence of hedonic motivation in enterprise social networks and their impact on sustainable user engagement**				
		Drive to acquire (DA)	DA > HM	An individual's desire to procure significant amounts of resources	BOR	Koivumäki et al. (2008) [51]
		Drive to bond (DB)	DB > HM	An individual's desire to form long-term relationships that are mutually caring	BOR	Gefen and Straub (2004) [38]
		Drive to comprehend (DC)	DC > HM	An individual's desire to understand the world around us and to make sense of it	BOR	Zhang et al. (2010) [103]

		Drive to Defend (DD)	DD > HM	An individual's desire to protect oneself and the ones dearest to him or her from the outside world	BOR	Posey and Ellis (2007) [81]
		Hedonic Motivation (HM)	HM > UC	*No explicit definition*	BOR	Venkatesh et al. (2012) [92]
		Normative Motivation (NM)	NM > UC	An individual's belief about what others think should be done and one's own willingness to comply with those expectations	BOR	Venkatesh et al. (2003) [91]
		ESN Use Continuance (UC)	dep.	*No explicit definition*	BOR	Venkatesh et al. (2012) [92]
	[47]	**Understanding the Determinants of the Usage of Corporate Social Networks: An Integrative Perspective**				
		The CSN usage (U)	dep.	*No explicit definition*	BOR	Venkatesh et al (2003) [91]
		Perceived Usefulness (PU)	PU > U	The determination of how perceived usefulness influence the adoption of ESS	BOR	Davis (1989) [27]
		Perceived Ease of Use (PEU)	PEU > PU, U	The determination of how perceived ease of use influence the adoption of ESS	BOR	Davis (1989) [27]
		Satisfaction with CSN (SCSN)	SCSN > PEU	*No explicit definition*	BOR	Bhattacherjee (2001) [11]
		Satisfaction with information (SI)	SI > PU, SCSN	*No explicit definition*	BOR	Bhattacherjee (2001) [11]
		Intranet Quality (IQ)	IQ > SCSN, SI	*No explicit definition*	BOR	Wixom and Todd (2005) [99]

Legend

Symbol	Meaning
>	Impacts
<MOD>	Moderating variable
Dep.	Dependent variable
No explicit definition	The respective paper does not explicitly state the definition of the variable
BOR	The scales for the respective constructs are borrowed from another measurement model
SELF	The scales are self-constructed. Often, the researchers have been inspired by other measurement models with similar constructs.

Appendix B – Cronbach's Alpha and Inter-Item correlation (Pilot test)

Performance Expectancy

Reliability Statistics

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
INTERNAL NEWS	0,747	0,756	2
EXTERNAL NEWS	0,790	0,793	2
SPACES	0,911	0,913	2
PEOPLE FINDER	0,832	0,833	2
SOCIAL WALL	0,250	0,251	2

Inter-Item Correlation Matrix

	PE1_IN	PE2_IN		PE1_EN	PE2_EN		PE1_S	PE2_S		PE1_PF	PE2_PF		PE1_SW	PE2_SW
PE1_	1,000	0,608		1,000	0,656		1,000	0,839		1,000	0,713		1,000	0,144
PE2_	0,608	1,000		0,656	1,000		0,839	1,000		0,713	1,000		0,144	1,000

Effort Expectancy

Reliability Statistics

	Cronbach's Alpha[a]	Cronbach's Alpha Based on Standardized Items[a]	N of Items
INTERNAL NEWS	0,169	0,171	2
EXTERNAL NEWS	0,537	0,537	2
SPACES	0,161	0,181	2
PEOPLE FINDER	0,208	0,208	2
SOCIAL WALL	-0,196	-0,204	2

Inter-Item Correlation Matrix

	EE1_IN	EE2_IN		EE1_EN	EE2_EN		EE1_S	EE2_S		EE1_PF	EE2_PF		EE1_SW	EE2_SW
EE1_	1,000	0,093		1,000	0,367		1,000	0,099		1,000	0,116		1,000	-0,093
EE2_	0,093	1,000		0,367	1,000		0,099	1,000		0,116	1,000		-0,093	1,000

Social Influence

Reliability Statistics

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
INTERNAL NEWS	0,390	0,385	3
EXTERNAL NEWS	0,368	0,433	3
SPACES	0,357	0,415	3
PEOPLE FINDER[a]	-0,522	-0,118	3
SOCIAL WALL	0,487	0,480	3

Inter-Item Correlation Matrix

	SI1_IN	SI2_IN	SI3_IN		SI1_EN	SI2_EN	SI3_EN		SI1_S	SI2_S	SI3_S		SI1_PF	SI2_PF	SI3_PF		SI1_SW	SI2_SW	SI3_SW
SI1_	1,000	0,489	-0,183		1,000	0,326	-0,072		1,000	0,255	-0,114		1,000	0,408	-0,505		1,000	0,396	-0,050
SI2_	0,489	1,000	0,210		0,326	1,000	0,356		0,255	1,000	0,432		0,408	1,000	-0,013		0,396	1,000	0,360
SI3_	-0,183	0,210	1,000		-0,072	0,356	1,000		-0,114	0,432	1,000		-0,505	-0,013	1,000		-0,050	0,360	1,000

Relationship Expectancy

Reliability Statistics

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
INTERNAL NEWS	0,759	0,759	2
EXTERNAL NEWS	0,734	0,741	2
SPACES	0,809	0,815	2
PEOPLE FINDER	0,832	0,836	2
SOCIAL WALL	0,586	0,637	2

Inter-Item Correlation Matrix

	RE1_IN	RE2_IN		RE1_EN	RE2_EN		RE1_S	RE2_S		RE1_PF	RE2_PF		RE1_SW	RE2_SW
RE1_	1,000	0,612		1,000	0,588		1,000	0,688		1,000	0,718		1,000	0,467
RE2_	0,612	1,000		0,588	1,000		0,688	1,000		0,718	1,000		0,467	1,000

General measurement items

Facilitating Conditions

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items	
0,713	0,744	4	

Inter-Item Correlation Matrix

	FC1_RP	FC2_RP	FC3_RP	FC4_RP
FC1_RP	1,000	0,854	0,300	0,300
FC2_RP	0,854	1,000	0,309	0,415
FC3_RP	0,300	0,309	1,000	0,350
FC4_RP	0,300	0,415	0,350	1,000

Perceived Security

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items	
0,840	0,853	3	

Inter-Item Correlation Matrix

	PS1_RP	PS2_RP	PS3_RP	
PS1_RP	1,000	0,557	0,757	
PS2_RP	0,557	1,000	0,663	
PS3_RP	0,757	0,663	1,000	

Knowledge Management Environment

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items	
0,298	0,350	4	

Inter-Item Correlation Matrix

	KME1_RP	KME2_RP	KME3_RP	KME4_RP
KME1_RP	1,000	0,432	0,420	-0,045
KME2_RP	0,432	1,000	-0,256	-0,189
KME3_RP	0,420	-0,256	1,000	0,350
KME4_RP	-0,045	-0,189	0,350	1,000

Public Social Media Experience

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items	
0,623	0,632	3	

Inter-Item Correlation Matrix

	PSME1_RP	PSME2_RP	PSME3_RP	
PSME1_RP	1,000	0,205	0,591	
PSME2_RP	0,205	1,000	0,295	
PSME3_RP	0,591	0,295	1,000	

Appendix C – Measurement items

Construct	Measurement item	Source
Performance Expectancy	1. Using the … increases my productivity. 2. Using the … increases the quality of my work results	Venkatesh et al. (2003) [91]
Effort Expectancy	1. My interaction with the … is clear and understandable. 2. I find the … easy to use. 3. It is easy to become skillful at using the …	Venkatesh et al. (2003) [91]
Social Influence	1. People who are important to me think that I should use the … 2. The senior management of this organization thinks that I should use the …	Venkatesh et al. (2003) [91]
Facilitating Conditions	1. I have the (technical) resources necessary to use *ORBIT*. 2. I have the knowledge necessary to use *ORBIT*. 3. *ORBIT* is compatible with other systems I use. 4. A specific person (or group) is available for assistance with *ORBIT's* difficulties.	Venkatesh et al. (2003) [91]
Hedonic Motivation	1. Using the … is fun, enjoyable, and/or entertaining.	Venkatesh et al. (2012) [92]
Relationship Expectancy	1. Using the … expands the scope of my connections with other people in the organization (e.g. Senior Management, peers from other departments etc.). 2. Using the … creates strong relationships with people who have common interests in the organization.	Chin et al. (2019) [21]
Perceived Security	1. I think the threat of unauthorized access to the web content or communication process is low. 2. I think the risk of information theft is low. 3. I think the threat of information use by third parties for other purposes without permission is low.	Wang et al. (2015) [94]
Knowledge Management Environment	1. My organization has a culture intended to promote knowledge and information sharing. 2. Knowledge and information in my organization is available and organized to make it easy to find what I need. 3. My organization makes use of information technology to facilitate knowledge and information sharing.	Ruhi and Al-Mohsen (2015) [82]
Prior Social Media Experience	1. I often use public Social Media (e.g. Facebook, Twitter, YouTube, etc.) to obtain information from and/or about friends. 2. I often use public Social Media (e.g. Facebook, Twitter, YouTube, etc.) to share information. 3. I often use public Social Media (e.g. Facebook, Twitter, YouTube, etc.) to maintain and strengthen communication with friends in life.	Liu and Bakici (2019) [58]
Continuous Usage	1. I intend to continue using the … rather than discontinue its use. 2. My intentions are to continue using the … rather than use any alternative means.	Venkatesh et al. (2012) [92]

Appendix D – Survey questions

The Table below shows the survey statement as they have been included in the questionnaire. The survey has been sub-divided into four categories (see column 1 of the Table below). Furthermore, the survey has been made available in English and Dutch language (see column 5 and 6). The second and third columns respectively indicate the construct and the measurement item that the statement represents. The fourth column shows the order in which the question has been presented to the respondents. Finally, the '…' is an open space which had to be filled out with each of the 5 system components (Internal News Feature, External News Feature, Static Content Feature, People Finder, and Social Wall). Finally, *ORBIT* is the name of the Social Intranet within ORTEC.

	Construct	Scale Label	Survey Position	Statement (English)	Statement (Dutch)
Part 1	**Performance Expectancy**	**PE1**	1.1	Using the … increases my productivity.	Het gebruik van de/het … verhoogt mijn werk-gerelateerde productiviteit.
		PE2	1.4	Using the … increases the quality of my work results.	Het gebruik van de/het … verbetert de kwaliteit van mijn werk.
	Effort Expectancy	**EE1**	1.9	My interaction with the … is clear and understandable.	Mijn interactie met de/het … is duidelijk en eenvoudig te begrijpen.
		EE2	1.2	I find the … easy to use.	Ik vind de/het … gemakkelijk om te gebruiken.
		EE3	1.6	It is easy to become skillful at using the … .	Het is gemakkelijk om vaardig te worden in het gebruik van de/het … .
	Social Influence	**SI1**	1.3	People who are important to me think that I should use the … .	Mensen die belangrijk zijn voor mij vinden dat ik gebruik zou moeten maken van de/het … .
		SI2	1.5	The senior management of this organization thinks that I should use the … .	Het hoger management vindt dat ik gebruik zou moeten maken van de/het … .
	Hedonic Motivation	**HM1**	1.8	Using the … is fun, enjoyable, and/or entertaining.	Het gebruik van de/het … is leuk en/of vermakelijk.
	Relationship Expectancy	**RE1**	1.10	Using the … expands the scope of my connections with other people in the organization (e.g. Senior Management, peers from other departments etc.).	Het gebruik van de/het … vergroot de reikwijdte van mijn connecties met andere mensen in de organisatie (bijvoorbeeld senior management, collega's van een andere afdeling, enz.).
		RE2	1.7	Using the … creates strong relationships with people who have common interests in the organization.	Het gebruik van de/het … zorgt voor sterke relaties met mensen die gemeenschappelijke belangen hebben in de organisatie.
Part 2	**Facilitating Conditions**	**FC1**	2.1	I have the (technical) resources necessary to use *ORBIT*.	Ik heb de (technische) middelen die nodig zijn om *ORBIT* te gebruiken.
		FC2	2.6	I have the knowledge necessary to use *ORBIT*.	Ik heb de kennis die nodig is om *ORBIT* te gebruiken.

		FC3	2.3	*ORBIT* is compatible with other systems I use	*ORBIT* is compatibel met andere systemen die ik gebruik.
		FC4	2.5	A specific person (or group) is available for assistance with *ORBIT*'s difficulties.	Een specifieke persoon (of groep) is beschikbaar voor assistentie wanneer ik problemen ondervind met *ORBIT*.
	Perceived Security	PS1	2.4	I think the threat of unauthorized access to the web content or communication process is low.	Ik denk dat de dreiging van ongeoorloofde toegang tot de webinhoud of het communicatieproces laag is.
		PS2	2.2	I think the risk of information theft is low.	Ik denk dat het risico op diefstal van informatie laag is.
		PS3	2.7	I think the threat of information use by third parties for other purposes without permission is low.	Ik denk dat de dreiging van informatiegebruik door derden voor andere doeleinden zonder toestemming laag is.
Part 3	**Knowledge Management Environment**	KME1	3.1	My organization has a culture intended to promote knowledge and information sharing.	Mijn organisatie heeft een cultuur die bedoeld is om het delen van kennis en informatie te bevorderen.
		KME2	3.2	Knowledge and information in my organization is available and organized to make it easy to find what I need.	Kennis en informatie in mijn organisatie is beschikbaar en georganiseerd zodat ik gemakkelijk kan vinden wat ik nodig heb.
		KME3	3.3	My organization makes use of information technology to facilitate knowledge and information sharing.	Mijn organisatie maakt gebruik van informatietechnologie om kennis en informatie-uitwisseling te vergemakkelijken.
	Prior Social Media Experience	PSME1	3.4	I often use public Social Media (e.g. Facebook, Twitter, YouTube etc.) to obtain information from and/or about friends.	Ik gebruik vaak Social Media (bijv. Facebook, Twitter, YouTube, enz.) om informatie te krijgen van en/of over vrienden.
		PSME2	3.5	I often use public Social Media (e.g. Facebook, Twitter, YouTube etc.) to share information.	Ik gebruik vaak Social Media (bijv. Facebook, Twitter, YouTube, enz.) om informatie te delen.
		PSME3	3.6	I often use public Social Media (e.g. Facebook, Twitter, YouTube etc.) to maintain and strengthen communication with friends in life.	Ik gebruik vaak Social Media (bijv. Facebook, Twitter, YouTube, enz.) om de communicatie met vrienden te onderhouden en te versterken.
Part 4	**Continuous Usage**	CONT1	4.1	I intend to continue using the … rather than discontinue its use.	Ik ben van plan de/het … te blijven gebruiken in plaats van het gebruik ervan te staken.
		CONT2	4.2	My intentions are to continue using the … rather than use any alternative means.	Het is mijn bedoeling om de/het … te blijven gebruiken in plaats van alternatieve middelen te gebruiken.

Appendix E – Survey screenshots

Below you will find two screenshots of the survey presented to ORTEC survey respondents.

1

Using the ... increases my work productivity. *

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Internal News feature	○	○	○	○	○
Spaces	○	○	○	○	○
Social Wall	○	○	○	○	○
People Finder	○	○	○	○	○
Social Media channel	○	○	○	○	○

2

I find the ... easy to use. *

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Internal News feature	○	○	○	○	○
Spaces	○	○	○	○	○
Social Wall	○	○	○	○	○
People Finder	○	○	○	○	○
Social Media channel	○	○	○	○	○

Screenshot 1

11

Please indicate how much you agree with the following statements. *

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I have the (technical) resources necessary to use ORBIT.	○	○	○	○	○
I think the risk of information theft is low.	○	○	○	○	○
ORBIT is compatible with other systems I use.	○	○	○	○	○
I think the threat of unauthorized access to the web content or communication process is low.	○	○	○	○	○
A specific person (or group) is available for assistance when I encounter difficulties with ORBIT.	○	○	○	○	○
I have the knowledge necessary to use ORBIT.	○	○	○	○	○
I think the threat of information use by third parties for other purposes without persmission is low.	○	○	○	○	○

Screenshot 2

Appendix F – Inter-Construct Correlation and discriminant validity

Internal News Feature

	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Conditions	Relationship Expectancy	Perceived Security	Knowledge Management Environment	Prior Social Media Experience	Continuous Usage
Performance Expectancy	**<u>0.80</u>**	-	-	-	-	-	-	-	-
Effort Expectancy	0.52	**<u>0.73</u>**	-	-	-	-	-	-	-
Social Influence	0.62	0.31	**<u>0.84</u>**	-	-	-	-	-	-
Facilitating Conditions	0.62	0.89	0.56	**<u>0.52</u>**	-	-	-	-	-
Relationship Expectancy	0.66	0.63	0.46	0.60	**<u>0.80</u>**	-	-	-	-
Perceived Security	0.31	0.42	0.16	0.65	0.31	**<u>0.89</u>**	-	-	-
Knowledge Management Environment	0.35	0.45	0.30	0.55	0.50	0.30	**<u>0.70</u>**	-	-
Prior Social Media Experience	0.21	0.15	0.28	0.27	0.14	0.17	0.45	**<u>0.87</u>**	-
Continuous Usage	0.51	0.83	0.42	0.81	0.84	0.33	0.39	0.03	**<u>0.80</u>**

Values situated in the diagonal represent the square root of the AVE

External News Feature

	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Conditions	Relationship Expectancy	Perceived Security	Knowledge Management Environment	Prior Social Media Experience	Continuous Usage
Performance Expectancy	**<u>0.82</u>**	-	-	-	-	-	-	-	-
Effort Expectancy	0.65	**<u>0.79</u>**	-	-	-	-	-	-	-
Social Influence	0.73	0.52	**<u>0.70</u>**	-	-	-	-	-	-
Facilitating Conditions	0.13	0.55	0.10	**<u>0.51</u>**	-	-	-	-	-
Relationship Expectancy	0.59	0.77	0.64	0.24	**<u>0.88</u>**	-	-	-	-
Perceived Security	0.12	0.43	0.17	0.67	0.14	**<u>0.89</u>**	-	-	-
Knowledge Management Environment	0.39	0.59	0.47	0.56	0.39	0.31	**<u>0.69</u>**	-	-
Prior Social Media Experience	0.57	0.39	0.47	0.28	0.42	0.17	0.47	**<u>0.87</u>**	-
Continuous Usage	0.72	0.82	0.65	0.51	0.71	0.26	0.50	0.37	**<u>0.87</u>**

*Values situated in the diagonal represent the square root of the AVE

Static Content Feature

	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Conditions	Relationship Expectancy	Perceived Security	Knowledge Management Environment	Prior Social Media Experience	Continuous Usage
Performance Expectancy	**0.88**	-	-	-	-	-	-	-	-
Effort Expectancy	0.45	**0.77**	-	-	-	-	-	-	-
Social Influence	0.39	0.34	**0.72**	-	-	-	-	-	-
Facilitating Conditions	0.46	0.60	0.24	**0.51**	-	-	-	-	-
Relationship Expectancy	0.37	0.59	0.36	0.49	**0.82**	-	-	-	-
Perceived Security	0.32	0.52	0.25	0.67	0.37	**0.89**	-	-	-
Knowledge Management environment	0.31	0.33	0.22	0.54	0.50	0.29	**0.70**	-	-
Prior Social Media Experience	0.25	0.34	0.44	0.27	0.26	0.17	0.43	**0.87**	-
Continuous Usage	0.61	0.71	0.24	0.61	0.50	0.35	0.38	0.13	**0.87**

Values situated in the diagonal represent the square root of the AVE

People Finder

	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Conditions	Relationship Expectancy	Perceived Security	Knowledge Management Environment	Prior Social Media Experience	Continuous Usage
Performance Expectancy	**0.85**	-	-	-	-	-	-	-	-
Effort Expectancy	0.76	**0.79**	-	-	-	-	-	-	-
Social Influence	0.90	0.66	**0.67**	-	-	-	-	-	-
Facilitating Conditions	0.50	0.66	0.47	**0.52**	-	-	-	-	-
Relationship Expectancy	0.78	0.78	0.72	0.48	**0.82**	-	-	-	-
Perceived Security	0.44	0.57	0.34	0.67	0.48	**0.89**	-	-	-
Knowledge Management Environment	0.37	0.46	0.35	0.56	0.53	0.30	**0.70**	-	-
Prior Social Media Experience	0.43	0.34	0.37	0.27	0.40	0.17	0.46	**0.87**	-
Continuous Usage	0.87	0.87	0.71	0.46	0.85	0.41	0.37	0.29	**0.89**

*Values situated in the diagonal represent the square root of the AVE

Social Wall

	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Conditions	Relationship Expectancy	Perceived Security	Knowledge Management Environment	Prior Social Media Experience	Continuous Usage
Performance Expectancy	**0.79**	-	-	-	-	-	-	-	-
Effort Expectancy	0.40	**0.81**	-	-	-	-	-	-	-
Social Influence	0.65	0.35	**0.71**	-	-	-	-	-	-
Facilitating Conditions	0.43	0.81	0.43	**0.51**	-	-	-	-	-
Relationship Expectancy	0.62	0.84	0.49	0.61	**0.81**	-	-	-	-
Perceived Security	0.10	0.48	0.08	0.67	0.31	**0.89**	-	-	-
Knowledge Management Environment	0.18	0.37	0.07	0.55	0.33	0.30	**0.70**	-	-
Prior Social Media Experience	0.26	0.22	0.23	0.28	0.38	0.17	0.45	**0.87**	-
Continuous Usage	0.65	0.75	0.34	0.61	0.84	0.27	0.25	0.27	**0.87**

*Values situated in the diagonal represent the square root of the AVE

Appendix G – Outline semi-structured interviews

--*Start interview outline*--

Introduction (5 min)

- Short introduction of my research
- Short introduction of the interview process / structure
- Asking permission for voice recording the interview

Interview (35 min)

Part 1: Organizational goal(s) (5 min)

> Researcher comments:
>
> [comment 1] The goal of part 1 is to get an overview of why the client adopted the communication platform.
>
> [comment 2] Based on this part, the researcher gets an idea of how well the client monitors / measures its achievements.

Q1: Why does *client* have this app?

Q2: What goals does *client* want to achieve with the app?

Q3: Do you monitor or measure whether you achieve this/these goal(s)?

- If so, how do you do this?

Q4: To what extent are you satisfied with the current achievements of the platform?

- Can you explain why?
- If not fully satisfied, what should improve?

Part 2: Adoption (10 min)

> Researcher comments:
>
> [comment 1] It is expected that *adoption* is a way to measure the platform's achievement. Therefore, we assume that the first question has already been answered. In case *adoption* has not been mentioned, the interviewer will do this here.
>
> [comment 2] All employees have access to all functionalities. However, we do expect that some functionalities are more popular than others. Furthermore, employees' tasks, ages, cultural backgrounds, and interests are expected to influence the overall and functionality specific adoption.
>
> [comment 3] Communication platforms provided by ORTEC do not support all and the same functionalities. Therefore, depending on the number of main functionalities (x) some of the questions belonging to Q2 will be formulated. For

Q1: To what extent are you satisfied with the overall adoption of the platform?

- Can you explain why?
- If not fully satisfied, what should improve?

Q2: Are all functionalities equally adopted by all employees?

- Can you explain why?
- What functionalities are most / least popular? Why is that?
- What are the characteristics of employees using the platform most / least? (culture, age, level of education, etc.)
    - o   In your experience, why are those employees using the platform the most / least?
- How does this relate to the main functionalities (func_1, func_2, …, func_x) of the platform?
    - o   In your experience, why are those employees using functionality (1 to x) the most / least?

Part 3:   Impact factors (20 min)

Researcher comments:

[comment 1] This is the most important part for the validation of the model. First (*part 1*), the researcher asks what the expert thinks are the most important motivators / inhibitors of using the platform as a whole and the various functionalities in particular. Second (*part 2*), the researcher uses the scheme on page three (*see next page*) to evaluate the existence and power of the identified independent variables.

[comment 2] Due to the limited available time for the interview, the approach of *part 2* is more structured. Only a short motivation is allowed, otherwise the interview takes too long.

[comment 3] In part two, the interviewer asks whether the independent variable has an actual influence on the usage of the various functionalities of the platform. However, we do expect that the interviewee won't be certain for some of the possible relationships (see page 4). In this case, the researcher won't be able to evaluate all possible relationships.

Part 3.1: General

Q1: According to your experience, what motivates employees to use the Social Intranet?

Q2: According to your experience, what holds employees back from using the Social Intranet?

Q3: Are the motivators / inhibitors different among possible employee groups (age, cultural background, nationality, education level etc.)?

Part 3.2: Impact factors on sheet (page 2)

1. *Ask for all impact factors whether this factor has a significant impact on the adoption of the system.*
2. *And if so, does this impact differ for the various components of the system?*
    - a. *See the research model (next page) for the possible relationships between the constructs. (page 3)*

Impact factor	Dependent variable*
Performance Expectancy	Internal News Feature: External News Feature: Static Content Feature: Social Wall: People Finder:
Effort Expectancy	Internal News Feature: External News Feature: Static Content Feature: Social Wall: People Finder:
Social Influence	Internal News Feature: External News Feature: Static Content Feature: Social Wall: People Finder:
Facilitating Conditions	Internal News Feature: External News Feature: Static Content Feature: Social Wall: People Finder:
Hedonic Motivation	Internal News Feature: External News Feature: Static Content Feature: Social Wall: People Finder:
Relationship Expectancy	Internal News Feature: External News Feature: Static Content Feature: Social Wall: People Finder:
Perceived Security	Internal News Feature: External News Feature: Static Content Feature: Social Wall: People Finder:
Knowledge Management Environment	Internal News Feature: External News Feature: Static Content Feature: Social Wall: People Finder:
Prior Social Media Experience	Internal News Feature: External News Feature: Static Content Feature: Social Wall: People Finder:

*Some components might not be available on the Social Intranet of some clients. In that case, the respective component(s) is/are not being discussed during the interview.

---End interview outline---

Appendix H – Questionnaire for client of ORTEC

Subject 1 – Organizational Goal(s)

This subject is about the organizational goals that *client* wants to achieve with the application.

Q1: What is the main reason (or main reasons) *client* decided to purchase / adopt the ***platform?***

Q2: What goals does *client* want to achieve by the adoption of ***platform***?

Q3: Do you monitor or measure the extent to which *client* achieves this/these goal(s)?

- If yes, how do you do this, and which metrics do you use?
- If no, can you explain why you do not do this?

Q4: To what extent are you satisfied with the current achievements of the ***platform***?

- Could you please explain why?
- If not fully satisfied, what should improve?

Subject 2 – Adoption

This subject is about the general 'user adoption' of the ***platform*** among all employees. With these questions we want to understand to what extent the employees make use of the platform.

Q1: To what extent are you satisfied with the overall adoption of the platform?

- Could you please explain why?
- If not fully satisfied, what should improve?

You could think of frequency of use, duration of platform visits, or what the employee does on the platform (user behavior).

Q2: Are all functionalities equally adopted by all employees? And can you explain why?

*With this question we would like to know whether all platform functionalities (**func_1, func_2, …, func_x**) are equally used by all your employees. Furthermore, can you explain why all functionalities are or aren't equally adopted? Please provide an answer to Q2 based upon the sub-questions below.*

Q2.1: Can you rank the functionalities from the most to the least popular from users' perspective? Please motivate this ranking.

Q2.2: Can you define certain groups of employees based upon similar characteristics (such as age, culture, level of education, job position etc.) which use the platform more often or less often? In your experience, why are those employee groups using the platform more often or less often?

Q2.3: How does the previous question relate to the various functionalities (**func_1, func_2, …, func_x**)**?** In your experience, why are those employees using certain functionalities the most / least?

Subject 3 – Impact Factors

In this part we are asking about what employees stimulate or hold back from using *platform*. In part 3.1 (see below) we ask three sub-questions which we would like you to answer (like you did before). In part 3.2 we ask you to tell us (based upon your experience / vision) to what extent you think certain factors influence (presented by us) the adoption. Further explanation on these factors will be given after part 3.1.

Part 3.1

Q1.1: According to your experience, what motivates employees to use the *platform*?

Q1.2: According to your experience, what holds employees back from using the *platform*?

Q1.3: Are the motivators / inhibitors different among possible employee groups (age, cultural background, nationality, education level etc.)?

Part 3.2

In this last part of the questionnaire we ask you to fill out an answer scheme (Table C). Please carefully read the description in order to avoid misunderstandings.

In this part we want to know whether you think that certain factors influence the adoption of the platform as a whole *and* whether these factors influences the adoption of specific functionalities of the (**func_1, func_2, …, func_x**). Please first read **Table B**, which provides a short introduction of the factors. After you read the introduction, please see **Table C** which is your answer sheet. You are asked to enter a rating that reflects to what extent you think that each of the factors influences the adoption of both *platform* as a whole *and* the various functionalities of the platform. To reformulate this into a question:

<u>To what extent do you think that each of the factors influence the choice of **client's** employees to use the platform *and* the various functionalities in particular?</u>

In order to indicate the degree of influence (how much you think the factor influences the adoption of the employees), please use the <u>possible ratings in the table below.</u>

Table A: Rating scheme

Rating	Meaning
1	No influence
2	Hardly any influence
3	Medium influence
4	Normal influence
5	High influence

In **Table C** (which is your answer sheet and where you would enter your answers), the first column of the scheme shows the factors and repeats the definition of the factor. In the second column you are asked to rate, based upon your experience, the extent to which the factor influences the adoption of the platform as a whole. In the third column, you are asked to rate, based upon your experience, the influence that the factor has on the use of the various functionalities of the platform. Please use the rating in **Table** 1 (ranging from 1 to 5) for both columns. In the fourth column, please motivate why you chose the rating in column 2 and the ratings in column 3. In other words, why did you choose the given rating?

We are aware that specifying the degree of influence can be challenging. In case you do not know what to answer, we hope you are still able to provide a ranking. In the Motivation column (**Table C**) you can state that your decision is relatively unsure. We appreciate your efforts!

The following bullet points give a short recap of how to understand and fill out the answer scheme (**Table C**):

- First column [{No answer required}]: It repeats the factors and their definition.
- Second column [{Rating required (see Table A)}]: Based on your experience, to what extent does the factor influences employees' adoption of the ***platform***? Please rate this by using the ratings in **Table A**. Please only provide a number ranging from 1 to 5.
- Third column [{Rating required (see Table A)}]: Based on your experience, to what extent does the factor influences employees' adoption of the various functionalities (***func_1, func_2, …, func_x***)? Please rate this by using the rating in **Table A**. Please only provide a number ranging from 1 to 5.
- Fourth column [{Textual motivation required}]: Please, shortly motivate the answers given in the second and third column. In case you found it difficult to provide a rating in either the first or second column, please motivate this is the case.

Table B: Definitions of Factors

Factor	Definition
Performance Expectancy	The expectancy of gaining work-related benefits from using the system / functionality.
Effort Expectancy	The expectancy that using the system / functionality requires effort. Or the expectancy that using the system is difficult to learn.
Social Influence	The degree to which an individual perceives that important others believe he or she should use the system / functionality.
Facilitating Conditions	The degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system.
Hedonic Motivation	The fun or pleasure derived from using a technology the platform / functionality.
Relationship Expectancy	The degree to which an individual believes that using the platform / functionality will provide benefits in initiating and maintaining relationships with other employees within the organization.
Perceived Security	The extent to which an individual believes that using the platform / functionality will be risk free (such as information theft).
Knowledge Management Environment*	Context and culture of an organization that nurtures a knowledge management initiative.
Prior Social Media Experience	The extent to which an individual uses Social Media in daily life.

This factor is about the organizational culture regarding sharing knowledge. You can think of the way knowledge is shared within the organization (are there any policies, if so, do employees obey them. Or are there any knowledge management systems available which support sharing knowledge?) In the answer scheme you are asked whether you think that the state of this environment influences employees' decision to use the platform.

Table C: Answer scheme

Factor	Impact on Platform	Impact on Functionalities		Motivation
	Does impact factor has an influence on the adoption of the *platform*? (**Rating 1 to 5**)	To what extent does it influence the use of the platform functionalities in particular? (**Rating 1 to 5**)		Can you shortly motivate your answers in column 2 and 3? (**Textual motivation**)
Performance Expectancy The expectancy of gaining work-related benefits from using the system / functionality.		func_1 func_2 func_3 func_4 func_x		
Effort Expectancy The expectancy that using the system / functionality requires effort. Or the expectancy that using the system is difficult to learn.		func_1 func_2 func_3 func_4 func_x		
Social Influence The degree to which an individual perceives that important others believe he or she should use the system / functionality.		func_1 func_2 func_3 func_4 func_x		
Facilitating Conditions The degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system.		func_1 func_2 func_3 func_4 func_x		
Hedonic Motivation The fun or pleasure derived from using a technology the platform / functionality.		func_1 func_2 func_3 func_4 func_x		
Relationship Expectancy The degree to which an individual believes that using the platform /		func_1 func_2 func_3 func_4		

functionality will provide benefits in initiating and maintaining relationships with other employees within the organization.		func_x		
Perceived Security		func_1		
The extent to which an individual believes that using an information technology will be risk free.		func_2		
		func_3		
		func_4		
		func_x		
Knowledge Management Environment*		func_1		
Context and culture of an organization that nurtures a knowledge management initiative.		func_2		
		func_3		
		func_4		
		func_x		
Prior Social Media Experience	_	func_1		
The extent to which an individual uses Social Media in daily life.		func_2		
		func_3		
		func_4		
		func_x		

*This factor is about the organizational culture regarding sharing knowledge. You can think of the way knowledge is shared within the organization (are there any policies, if so, do employees obey them. Or are there any knowledge management systems available which support sharing knowledge?) In the answer scheme you are asked whether you think that the state of this environment influences employees' decision to use the platform.

---End questionnaire---