To measure organizational wellness with AI

- *A future competitive advantage?*

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Abstract

This study's purpose is to contribute to increased quality when measuring organizational wellness (OW) by exploring the potential of utilizing Artificial Intelligence (AI). The concept of OW consists of several factors, for instance, safety, performance, and employee wellness. Measuring these factors too seldom may not generate profound and relevant data regarding the organization's current state. A potential solution for measuring OW more frequently is AI, which collects and analyses vast amounts of data. Therefore, this study aims to explore the potential of utilizing AI when measuring OW.

The study was conducted with an inductive, qualitative research approach. We executed the data collection through semi-structured interviews and a thematic analysis approach. The following five themes were identified; Importance of measuring organizational wellness, Opportunities and challenges utilizing AI measuring organizational wellness, Awareness, GDPR, and Transparency. These five themes were analyzed and discussed together with previous research on OW and AI.

In conclusion, we present the potential for utilizing AI when measuring OW as prominent. Arguably, the technical opportunities are tremendous for utilizing AI and there exists a perceived need amongst HR managers to improve their measurement processes. However, organizations need to consider legal and ethical frameworks when measuring OW. There are also factors within the concept of OW that are more or less optimal to measure with AI, depending on if they consist of soft factors. This research offers a practical implication for organizations on utilizing AI to increase the quality when measuring OW.

Key words: Organizational wellness, Artificial Intelligence, AI in HR, Opportunities with AI, Challenges with AI, Measurement processes, Soft factors

Acknowledgements

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1. Introduction

In this initial chapter, we present relevant background information to highlight the problem and why this is a relevant study. Furthermore, a description of the problem discussion, purpose, research questions, delimitations and outline follow.

1.1 Background

During our previous studies, we came across the importance of organizational wellness (OW) and how technology can develop and push organizations and society forward. However, based on previous work experiences, we found that OW is not measured frequently. We considered this surprising, as the wellness of employees and the organization should be prioritized for every business as healthy organizations perform better (Gagnon, John & Theunissen, 2017). Thus, we could see a potential of utilizing technology when measuring OW to increase the quality of the measurement process. Based on this notion, we applied a qualitative study approach exploring the potential of utilizing AI when measuring OW.

1.1.1 Organizational wellness

In recent years, factors such as safety and psychological health, have received more attention within today's organizations (Prevent, 2020). It could be issues regarding workload, leadership, conflicts, and stress that affect these factors and all relate to the wellness of the organization (Prevent, 2020). Research states that factors relating to the psychosocial work environment results in a major impact on the individual, and organizations can improve this environment through constant, active intervention (Myndigheten för arbetsmiljökunskap, 2020).

However, there exist indications that employees are starting to feel worse at the workplace. In research conducted by Skandia (2018), it is shown that the amount of sick leave, due to mental illness, amongst the Swedish population has increased from 30% to 48% in the last decade. The research shows that this also entails high costs for the society, as in 2018, the societal loss amounted to 64 billion SEK. By constantly working with preventing factors that cause illness will decrease the societal loss due to shorter sick leave (Skandia, 2018). Arguably, this should be prioritized for today's organizations since they are currently losing vital internal competence due to factors that could be measured, identified, and remedied in an earlier stage.

1.1.2 AI in organizations

In today's constantly changing business world, organizations implement different technological tools to stay competitive (Grant, 2015). Organizations and HR departments have started to utilize

AI within recruitment and in other areas, such as learning and development and workplace safety (CognitionX, 2018; Sen, 2020). Even though utilization of AI is expected to increase organizational opportunities, there is a risk that it would lead to a reduction in jobs (European Parliament (2020).

AI enables automation of repetitive tasks, such as compiling and verifying documents (Fohlin, 2020). Within the manufacturing industry, for instance, AI can automate repetitive processes and increase production levels (Lee, 2020). Fohlin (2020) further states that human-based decision making may require comprehensive analysis of data, which is often considered as time consuming. He means that AI can be used for precise analyzing and structuring of data and therefore streamline the decision making process and suggest potential solutions. As AI can facilitate work processes, organizations will have the opportunity to focus on activities they consider more vital. However, to make this possible, organizations need to make sure that they can access and handle vast amounts of data (Fohlin, 2020). Organizations also need to ensure that internal competence exists in order to utilize these systems correctly and create conditions for success (Fohlin, 2020).

1.2 Problem discussion

In order for an organization to perform towards its targets, the level of OW needs to be high as a healthy organization performs better (Gagnon, John & Theunissen, 2017). Therefore, it can be considered crucial for organizations to collect data and keep track of the level of OW. By analyzing and recognizing patterns based on these data, preventative measures can be applied.

There can be a gain for organizations by improving the quality when measuring OW, as healthy workers are more productive and generate profitability for the business (Bennett, Cook & Pelletier, 2010). However, today's research is mainly focused on how AI can help organizations become more effective and productive (Eubanks, 2019), not necessarily on how it can measure and identify internal factors such as OW. Based on our previous experience, we reasoned that current approaches of measuring OW are lacking, for which we also have strong incentives from our empirical data. Due to the notion that we have not found any reference point regarding how OW is measured today, we do not know how it is measured in the best possible way. Based on this knowledge gap, this study intends to explore the potential of utilizing AI when measuring OW and, through that, provide constant, vital information and feedback for organizations.

1.3 Aims and objectives

Today there exists a research gap for the topic of utilizing AI when measuring OW. We desire that this research and its findings will be relevant to a broad range of stakeholders. The interviewees who participated in this study represent different organizations within various industries. Therefore, we hope that organizations that both work actively with measuring OW, as well organizations that do not, find this interesting on how they can evolve and take advantage of this

process. Furthermore, we consider this research relevant for organizations with a technological niche, such as specific software companies, that possess the knowledge and potential to develop this type of service for measuring OW.

1.4 Purpose and research questions

The purpose of this study is to contribute to the level of quality when measuring OW. This will be achieved by exploring the potential of utilizing AI when measuring OW.

In this study, the *potential* is motivated by the possibility to improve the quality when measuring OW by utilizing AI, to help organizations receive constant feedback and apply preventative actions. In order to explore the potential, we consider it relevant to include three aspects. Hence, the research questions include legal aspects in relation to AI when measuring OW, technical aspects regarding AI and the HR aspect in terms of need and interest. We consider it essential to incorporate ethics in the legal aspect as legal regulations are often based on ethical frameworks and disregarding technology development, ethical notions are constant which jurisdiction is not (Hansson, 2009).

Our research question is the following:
Is there a potential to utilize AI when measuring organizational wellness?

To determine the potential for utilizing AI when measuring OW, we ask the following subquestions:

- How is OW measured today?

- When measuring OW, are there any challenges for HR managers today?

- What is the perceived need among HR managers to utilize AI when measuring OW?

- What are the technical possibilities and challenges of applying AI in this context?

- What is the legal/ethical perspective utilizing AI when measuring OW?

1.5 Delimitations

To answer our research questions we decided to limit the research scope to the following areas of AI and OW. With these two areas as a foundation, we decided to focus on the potential for utilizing AI when measuring OW. Thus, in order to limit the research we excluded potential actions and solutions for increasing the level of OW. Consequently, as this is not the same thing as a measurement approach and requires more research on organizational change and management theory.

We have decided to conduct qualitative research. The qualitative data collection is based on interviews with AI experts, legal experts, and HR managers. We believe these are the most relevant perspectives in order to provide a comprehensive analysis with the objective of providing answers for our purpose and research questions. Thus, the study excludes the interviewee perspective of an employee whose data is being collected when measuring OW.

1.6 Outline

This thesis contains six chapters. Introduction, chapter one introduces the reader to the background of the research and presents research questions and problem statement. Methodology, chapter two, presents our choice of a qualitative research approach and how empirical material was collected and analyzed. Literature background, chapter three, provides the reader with a more in-depth understanding of the concepts OW and AI and other relevant aspects. In chapter four, we present our empirical data, followed by chapter five, discussion and analysis. The research finishes with a conclusion, chapter six, where we summarize and conclude with practical implications, contributions, and suggested future research.

2. Methodology

The following chapter provides a description of our choice of research approach, design, and data collection method. Including a presentation of our prior knowledge and experiences of conducting research studies. The chapter ends with a critical reflection regarding choices of the method.

2.1 Prior knowledge

As this is a qualitative research where we as researchers are a part of the study, we needed to remain reflexive (Finlay, 1998). To maintain reflexivity we needed to acknowledge how our own judgments, beliefs, and practices could affect the outcome of this study (Finlay, 1998). We have tried to accomplish reflexivity in line with Finlays' practices (1998) by being aware of and presenting our previous experiences.

While conducting this research study, we studied the master's program in management at the School of Economics and Management at Lund University. During the program, we had become acquainted, for instance, with the importance of well-performing employees and technology in an organizational context. Since one of the authors holds a bachelor's degree in Human Resource Development and the other author holds a bachelor's in Information Systems Analysis, we decided to aim towards a topic that includes perspectives from both academic fields. Thus, how technological tools can be utilized in order to provide organizations with fruitful feedback and data.

During our bachelor studies, we were provided education in research methodology and both of us conducted qualitative research case studies for our bachelor theses. Thus, we have experience in regards to conducting qualitative studies. However, despite this prior knowledge, we approached this study with the utmost humility.

2.2 Research Design

In this section, we present our choice of research strategy and design in order to gather empirical data of profound character. Thus, to gain enough material to provide an in-depth analysis where we can conclude the potential for utilizing AI when measuring OW.

2.2.1 Qualitative method

In the initial part of a research, the choice of the research strategy is important for the meaningfulness of the study (Bryman, 2011). According to Bryman (2011), there are two research strategies, quantitative and qualitative research that are most often used in social science research.

Since this study intends to collect subjective data and experiences in a social context, we have decided to apply a qualitative approach with an interpretive perspective.

Myers (1997) states that through a qualitative approach, the presence of the researcher is important for the quality of the study and the process of data collection. Therefore, we applied semi-structured interviews, that according to Myers (1997) helps the researcher to study and understand people and their social context. Due to the current situation (covid19) we were not able to be physically present while collecting data and therefore lacked informal experiences and meetings. However, we do not believe this adversely affected the quality of the study.

In regards to qualitative research, Bryman (2011) states that subjectivity is a potential challenge and critique may arise in terms of the quality of this research. According to Bryman (2011), we may tend to be subjective since we bring our own meanings to the study and create a personal relationship with the interviewees'. However, we thought this relationship was essential to learn about the interviewees' meanings of the research topic, which according to Creswell (2009), is a vital role of the qualitative researcher.

Based on the above, we believed it was important to highlight the challenges for our thesis. Therefore, we have worked actively to be transparent throughout the study. Furthermore, we have demonstrated transparency by continuously describing the choices we have made where we highlight both advantages and disadvantages as well as justification for why they are considered relevant to our study.

2.2.2 Inductive approach

For this study, an inductive approach has been applied, as according to Bryman (2011) is the most commonly used approach for a qualitative research methodology. Inductive approach is when a researcher constitutes an idea based on literature or practice, and collects empirical data that can contribute with new knowledge to already existing theory or literature (Bryman, 2011). We considered inductive research as the most suitable approach for our study since our purpose was unexplored and lacked already existing information and literature. However, the areas included in this study, AI and OW have previously been researched on.

As we applied an inductive approach, we as researchers aimed to keep a high level of transparency by staying critical and questioning in relation to previous literature and theory. This was constantly checked during the process by stop and reflect session, where we as researchers reflected regarding the importance of previous research in connection to our purpose and research questions.

2.3 Data collection method

2.3.1 Semi-structured interviews

Our choice of data collection method is interviews, specifically focused on a semi-structured approach. Semi-structured interviews are useful as they can provide reliable and valid data that has a high level of relevance for the purpose of the study and to answer the research questions (Saunders, Lewis & Thornhill, 2007).

We used semi-structured interviews as these, according to Saunders, Lewis and Thornhill (2007), enable interviewees' to build on their answers and describe more in detail. We also wanted to leave room for improvisation during the interviews, which Bryman (2011) states is possible when using an semi-structured interview approach. Furthermore, a semi-structured interview is a suitable approach when trying to understand the interviewees' meaning of the topic the study aims to explore (Saunders, Lewis & Thornhill, 2007). This as the interviewees use specific wording and bring new insights to the study, and these individualized answers can add depth and important aspects to the overall collected data (Saunders, Lewis & Thornhill, 2007).

Depending on how the research questions are framed, a semi-structured interview is more or less useful (Saunders, Lewis & Thornhill, 2007). In our study, we believed that a semi-structured interview was useful as our questions are complex and open-ended, as we tried to explore the potential for utilizing AI when measuring OW.

2.3.2 Target selection

We performed a target-oriented selection as this is considered one of the most appropriate selection methods within qualitative research (Bryman, 2011). Hence, we wanted to choose interviewees that generated information that provided answers to the research question and the purpose of the study (Bryman, 2011). Since our study intended to explore the potential of utilizing AI when measuring OW, we considered it suitable to include interviewees that could contribute with an AI-expert perspective, legal perspective and HR-perspective.

As mentioned previously, in order to provide fruitful answers in relation to the purpose and the research questions of the study, we needed to find interviewees within these three areas. Thus, HR managers, AI experts, and legal experts in regards to personal data and AI. Regarding HR managers, we decided to initially use our own networks, such as previous colleagues and mentors. To not only gain perspectives from similar organizations within the same industry, we approached HR managers representing different-sized companies within various industries. This approach was successful and generated insights regarding their views on the use of AI in relation to measuring OW. In regards to the AI experts, we received suggestions of potential interviewees from our supervisor and attended the AI Lund-open-office at Lund University. Both of the AI experts that we interviewed work with solutions for how AI can measure OW. In regards to legal experts, we

contacted the Faculty of Commercial Law at Lund University School of Economics and Management where we presented our purpose with the study and were then referred to people with appropriate expertise.

During this research we provide the reader information regarding how the interview selection has been performed to, according to Bryman (2011), ensure the reliability, validity and replicability of the research. Bryman (2011) states that researchers have the tendency of not describing how the selection of interviews and interviewees have been implemented. When conducting this study we have constantly tried to demonstrate transparency, arguments and reflections regarding specific approaches.

2.3.3 Selected interviewees and completed interviews

In total, we conducted 12 interviews which provided us with interesting insights and opinions based on the expertise of the interviewee. The interviewees work within different industries and based on this broad range of perspectives, this study has received interesting views in regards to the purpose.

In order to gain insights in regards to the legal context and the technical aspect of AI, we decided to interview two experts within each area of expertise. In terms of the HR managers, we first interviewed four individuals, however we noticed that a saturation was not reached as new insights were shared. Therefore we decided to interview four more HR managers and in the two last interviews there was no new knowledge gained and the data collection could be considered saturated (Guest, Namey & Chen, 2020).

Interviewees	A	B	C	D	E	F	G	H	I	J	K	L
Role	HR-manager	HR-manager	HR-manager	HR-manager	HR-manager	HR-manager	HR-manager	HR-manager	AI-expert	AI-expert	Legal-expert	Legal-expert
Industry	Medicine	Publishing	Energy	Transportation	Academical	Manufacturing	IT & Communication	Retail	Consultancy	Manufacturing	Layer	Layer

2.3.4 Interview guide

Before conducting our interviews, we decided to create a comprehensive interview guide. An interview guide can be described as a shorter list that includes main subjects and topics to include during a semi-structured interview (Bryman, 2011). While conducting the interviews, we made sure to leave room for improvisation and thus decided to formulate potential supplementary questions. Furthermore, we decided to create a comprehensive template that was possible to modify depending on the interviewee. The interview guides are presented in appendix B, C and D.

2.3.5 Audio- Recording

For the semi-structured interviews, we choose to audio-record the interviewees. There are several advantages and disadvantages with audio-recorded interviews. One main advantage is that by producing a full recording by audio-recording and transcribing the interview, there is a larger incentive that potential biases are avoided (Saunders, Lewis & Thornhill, 2007). Furthermore, collected data can be considered more reliable than without these methods in place (Saunders, Lewis & Thornhill, 2007).

During the interviews, we decided to both make rough notes and record. One of us took notes and was in charge of recording while the other one guided the interview. Note-taking is a good tool as it makes it easier for the interviewer to concentrate on listening to what the interviewee says and, based on that, generate follow-up questions (Bryman, 2011; Ghauri & Grønhaug, 2005). This is crucial for a semi-structured interview, as well as that the note taker can ask questions and support the interviewer (Bryman, 2011; Ghauri & Grønhaug, 2005).

As a researcher, it is important to remember that audio recordings may affect the relationship between the interviewer and the interviewees (Saunders, Lewis & Thornhill, 2007). In regards to the ethical aspects of recording an interview is that it may contain sensitive information that the interviewee do not want to disclose to others (Walsham, 1995). To avoid this fear and the potential hazard of less legitimate responses we decided to write a consent intro (see appendix A) where we promised confidentiality, and that all material would be deleted once the study was finalized. We believed that even if there are disadvantages with audio-recording, we considered the advantages prominent.

2.3.6 Transcription

We chose to transcribe the interviews to find hidden structures in expressions and tacit purports in conversations between the interviewer and interviewee (Denscombe, 2016). Our transcriptions excluded language like "Uhm" but overall it was conducted as scrupulously as possible.

Transcription is quite time-consuming as many researchers state that every hour of interviews takes between six to ten hours to transcribe (Bryman, 2011; Robson, 2002). This is because a qualitative

research study is interested in not only what is said but also the way it was said, which can make transcription a lengthy process (Saunders, Lewis & Thornhill, 2007). The main reason why we transcribed the interviews, even though it is time-consuming, was to gain an extra learning opportunity. Furthermore, we thought that listening to the interview again could ease the analyzing process as it creates an extra feedback loop and new insights might be gained in the transcription process.

2.4 Thematic analysis

Thematic analysis is one of the most commonly applied analytical methods concerning qualitative data (Ryan & Bernard 2003). We applied a thematic analysis as we were looking for patterns in the empirical material (Ryan & Bernard 2003). According to Ryan and Bernard (2003) the most common methods are to identify differences, similarities, and repetitions. We used a step-by-step approach in order to create and finalize themes. The first step was to compile all answers to each of the interview questions. This was done in three tables as we had different interview guides for legal experts, AI experts and HR managers. The second step was that we used three colours to mark interesting aspects in each interview; red for differences, green for similarities and yellow for repetition. The third step was to put these finiding into themes that emerged during the compiling of data. We came up with five themes which were: importance of measuring organisational wellness, opportunities and challenges utilizing AI, awareness, GDPR and transparency. However, we decided to not include the themes: discrimination, leadership and change management as they are not in line with the purpose of the research.

Our aim of executing a thematic analysis was to identify relevant data for the study and sort out irrelevant data (Bazeley, 2009). However, as Bazeley (2009) mentions, we tried to not focus exclusively on thematic analysis, as it is only a part of the larger analysis process. Instead we used thematic analysis as a first step of sorting out relevant data in the overall analysis process. Thus, to help us get a profound understanding of the data collected.

2.5 Ethical consideration & quality assurance

2.5.1 Ethical guidelines

Research ethics was essential for this qualitative study as we collected data in natural settings and created close connections to interviewees (Hammersley & Traianou, 2012). In regards to qualitative researchers' relationship with the interviewees, Oakley (2013) argues that this relationship needs to be equal, which we tried to ensure by considering the interviewees' as collaborators. However, Oakley (2013) states that it can be difficult to create this equal relationship as the qualitative method section often is not as clear as in quantitative studies. In order to create trustworthiness both from a qualitative and ethical perspective, we tried to clearly explain with our

interview guide, how we intended to study our interviewees' (Carpenter, 2018). This interview guide was sent in advance to all interviewees.

According to Carpenter (2018), there are several frameworks for how researchers have to act ethically in their data collection. These are built on virtue ethics and utilitarianism ethics, and several academic and government institutions where ethical principles are conceptualized. Based on several of these principles, Carpenter (2018) has condensed them to a set of principles for an ethical qualitative study. We have applied these principles by asking for consent before collecting data from interviewees, which is important in order to fulfill these ethical requirements. We have also been transparent regarding how we collected the data. Thus, the most important part for a qualitative researcher is to, during the whole process of the study, remain reflective with an ethical mindset (Carpenter, 2018).

Furthermore, we have applied the four guiding ethical principles of the Swedish Research Council (2021) for a high level of research ethics in a study. These four principles are *reliability* which means that the researcher must ensure a high degree of quality of the study, which is shown by choice of method and how resources have been used. *Honesty* is crucial as well for containing a high level of research ethics, where the researcher has extensively presented the study and examined these results as fairly and objectively as possible. The researcher also has to have great *respect* for all participants of the study as well as the environment and other stakeholders. The last principle is *accountability* for the whole process from beginning to publication and what consequences the study can have after it is published (Vetenskapsrådet, 2021).

2.5.2 Validity

To maintain validity, the researchers have to prove that they have gained access to knowledge and experiences that the interviewees possess (Saunders, Lewis & Thornhill, 2007). We utilized semi-structured interviews as this method helped us to have flexible interactions where the interviewees were free to extend their answers.We also used probing questions that eased potential in-depth discussions regarding our research topic. Based on our choice of method, we believe that the validity of this research is consistent with the definition of Saunders, Lewis & Thornhill (2007).

2.5.3 Generalisability

As our study is performed with a qualitative research method, we aimed to generalize our findings to theory (Bryman, 2011). We have tried to accomplish this by analyzing our empirical data with previous research in order to discuss the level of generalizability of our findings. Further, since our sample size is limited, Given (2008) means it could be hard to generalize our research. However, by including different perspectives and areas of knowledge, and since the HR managers work within different industries, we believed that the studys' outcome would contribute with a general insight about the potential of utilizing AI when measuring OW.

2.5.4 Reliability

Our semi-structured interviews may lack reliability as they were not standardized and provided varied answers (Marshall & Rossman, 1999). However, in order to accomplish reliability for this research we presented our interview guides, method approach, data collection approach and critical reflections of these methods. Hence, to make sure that other practitioners can understand our process and be able to redo an analysis based on our data collection (Marshall & Rossman, 1999).

2.5.5 Biases

The role of the interviewer is problematic due to interviewer bias (Saunders, Lewis & Thornhill, 2007). Interviewer bias can lead to the interviewer unintentionally forcing their own beliefs on the participant (Saunders, Lewis & Thornhill, 2007). We have tried to avoid interviewer bias by reacting neutral to each response and not confirming if an answer is right or wrong.

Further, if the interviewee does not trust the interviewer, interviewee bias can arise (Saunders, Lewis & Thornhill, 2007). Interviewee bias is affecting the data collection as answers may be of lesser quality (Saunders, Lewis & Thornhill, 2007). Before conducting our interviews, we sent out an interview guide with a consent form regarding confidentiality and the notion that we will delete all material after the end of the study. We believed this could undermine the interviewee bias as it builds trust and creates a picture of us as professionals.

Moreover, it was important for us to acknowledge the hardship of recognizing biased data (Bryman, 2011). We tried to act in good faith, which Bryman (2011) describes as when the researchers have not consciously let their own values and theoretical focuses affect how the study was performed. Aware of this notion, we considered potential biases that could affect the result of our research.

3. Literature Background

This chapter aims to present previous research to ascertain what has been studied before and thereby demonstrate the knowledge gap that exists. The following material, together with the empirical data, is considered as a foundation for performed analysis. We will present the following concepts; measuring OW, the emerging potential of AI, and legal frames for measuring personal data.

3.1 Screening, selection, and reference criticisms.

In the following section, we will describe our choice of approach regarding the search of theory and selection. In order to provide more credibility and a study of high quality, critique of the choice of references will also follow.

3.1.1 Screening and selection

For the literature background chapter, formal and written documentation has been used, such as books, reports, theses, and online publications. Except for visiting the university library, we have mainly used Lubcat and Google Scholar to find relevant references that have provided background information and new insights. Both student research and more established research have been applied, and government sources from the Swedish authorities and the European Union. Specific keywords for the screening process were; AI, OW, opportunities and challenges with AI and AI in HR. These keywords are examples of standard terminology, which can be described as that the search terms constitute a concept or word that belongs to the standard scientific terminology (Backman, 2016).

Furthermore, we have received feedback when discussing potential references and keywords for the research. Thus, by communicating with specific institutions or individuals, which Backman (2016) argues can help researchers gain fruitful information to find relevant data. During this research, we have communicated continuously with our supervisor, who has provided us with suggestions for literature and keywords.

3.1.2 Criticism of references

We consider it essential to be transparent about the screening process and selected literature and references. One reason for this is that the reader should feel confident that the references are valid and reliable. Therefore, while searching and analyzing references as a researcher, several points are taken into account. For instance, it is always important to consider the authenticity of the reference by analyzing the author and her/his incentives, or what organization is the originator of the information (Källkritik, n.d.). Due to the time constraints of this study, this was something we

could not spend a considerable amount of resources to accomplish. However, it was something we always tried to keep in mind when we analyzed references and literature.

Some of our references are written and published by government agencies and the European Union. We believe that these sources are credible as they are not influenced by the interests of any specific person or company. However, it is crucial to keep in mind that these sources may not be unbiased, even if they are published by a government agency or international bodies.

A finishing note for criticism of our references is that AI and OW tends to be considered buzzwords, adapted by both organizations and scientists. Authors may hold an optimistic view of these buzzwords, and therefore unconsciously exclude critical aspects of the subject and disregard disconfirming sources (Heshmat, 2015). However, we believe that the sources we found are highlighting both opportunities and challenges with AI and OW. A weak part of the literature background is that no sources discuss the perceived need to utilize AI when measuring OW. Thus, this makes it challenging to compare previous studies with the empirical findings.

3.2 Measuring Organizational Wellness

In this section, we are presenting literature about OW. As there exists a lack of previous research in regards to how OW is measured with AI, this section aims to present previous research about OW and how it is measured. This to connect previous research to empirical findings and gain knowledge regarding how AI potentially could be utilized for measuring OW.

3.2.1 Definition of Organizational wellness

As of today, organizations do not always see the need to promote wellness at the workplace as these initiatives could be a costly improvement (Bennett, Cook & Pelletier, 2010). However, there can be a perceived need to implement actions for OW if the actions can increase effectiveness and provide cost reductions (Bennett, Cook & Pelletier, 2010). Previous research has proven that unhealthy employees correlate with decreased productivity levels which makes it essential for organizations to keep track of OW (Bennett, Cook & Pelletier, 2010). Diamante, Natale, and London (2006) states that a healthy organization benefits from improving job satisfaction, fewer accidents at work, lower absenteeism, and lower costs for employee compensation. Further, a healthy organization can provide a workplace where employees feel valued and where learning is the focus for the organization's success (Diamante, Natale & London, 2006). According to Dale and Burrell (2013), a critical notion of OW is that this theory is naive as it is too focused on profit and not on the wellness of the employees.

According to Bennett, Cook, and Pelletier (2010), there are several ways of promoting and building OW by managing the level of health in correlation with productivity. One way is by promoting the culture, since the organizational culture reinforces the level of wellness by creating social norms

within the company that either promotes a healthy workplace or the opposite. There is also a ripple effect regarding managers' health as their behaviors affect the wellness of employees, which affects the overall OW (Bennett, Cook & Pelletier, 2010).

The concept of OW contains several factors such as, performance, health and safety (Diamante, Natale & London, 2006). Diamante, Natale & London (2006) has defined wellness in an organizational setting as "[t]he strategic integration of business, interpersonal and individual needs to optimize overall human and organizational well-being" (Diamante, Natale & London, 2006, p. 460). The authors are also highlighting the National Institute for Occupational Safety and Health definition of an healthy organization "[o]ne whose culture, climate and practices create an environment that promotes employee health and safety as well as organizational effectiveness." (Diamante, Natale & London, 2006, p. 461). Furthermore, Diamante, Natale and London (2006) states that a healthy organization needs to provide tools for the employees that are aligned with business strategies and stakeholder demands. This to be able to maturely solve conflicts, provide a healthy culture that does not consist of harmful psychosocial elements, and managers that nurture the quality of work (Diamante, Natale & London, 2006).

3.2.2 Our definition of organizational wellness

In order to explore the potential of utilizing AI when measuring OW, we believe that it is important to explore if there exists any specific factors that are easier to measure compared with other factors. However, based on the definitions and concepts of OW outlined in the previous section, we find no definite definition. Therefore, we consider it highly relevant for this study to create our own definition of the concept.

Our definition of OW;

> Several dimensions of employee wellness within the organization such as psychological, social, and physical at several levels, both organizational, interpersonal and individual. This by focusing on business strategies and stakeholders demands while fostering a healthy culture and climate which promotes; wellness and empowerment of employees, performance, safety, and managers managing with a mindset focusing on wellness of themselves and their employees.

We have decided to apply a broad definition to not limit the research and to reconnect and discuss the interviewees' definitions of the concept. We also consider it vital to present a broad definition as it is a composition of several factors that affect the potential for utilizing AI when measuring OW.

3.2.3 Measuring factors of organizational wellness

Bennett, Cook, and Pelletier's (2010) integral framework for OW and its core technology present several themes of employee wellness. Themes of employee wellness are defined as multiple dimensions such as social, emotional, physical, and spiritual. These dimensions of employee wellness consist of soft factors, for instance, mental illness, work related stress, work-life balance, motivation, etcetera (Bennett, Cook & Pelletier, 2010). However, measuring employee wellness may be considered complicated, as there exist challenges related to measuring and identifying soft factors (Prevent, 2020). Especially since soft factors can change rapidly as they contain individuals' opinions and feelings (Prokopenko, 1987; Soft data, n.d.). On the other hand, there exists technologies for recruiters to measure potential candidates personality traits, such as how they solve problems, interact with others and organize themselves (Softfactors, 2016).

Today, there exist several ways of measuring OW, however, the most common approaches are questionnaires and surveys (Lehikoinen & Leinson, 2017). These questionnaires present, through an index report, answers concerning workability, where one can then identify signs of mental illness for a specific employee (Lehikoinen & Leinson, 2017). Another measurement is interviews, where the main focus is to collect information regarding the psychosocial and physical work environment and how this affects the employee when executing work tasks (Lehikoinen & Leinson, 2017).

In 1998, WHO defined safety as two dimensions, subjective and objective safety (Nilsen, Hudson, Kullberg, Timpka, Ekman & Lindqvist, 2004). Nilsen et al. (2004) state that subjective safety is an individual's internal perception of feeling safe and objective safety is behavioral and environmental factors for safety measured to external criterias. Lajksjö (2005) has analyzed the definition of safety climate and defined it as similar to subjective safety. Traditionally these individual perceptions of safety have been measured with quantitative measures such as surveys (Cheyne, Cox, Oliver & Tomás, 1998). Objective safety is often measured with key performance indicators (KPI), which update organization's about their safety conditions (Schmidt & Antonsson, 2002). According to Schmidt and Antonsson (2002), these KPIs are often customized to each organization and their needs and strategies.

Ax, Johansson, and Kullvén (2009) define performance as an action that someone has successfully accomplished or will accomplish in the future. Performance is possible to measure with financial terms as these factors are easy to compare and interpret (Gröjer, Catasús, Högber & Johrén, 2008). However, Ax, Johansson and Kullvén. (2009) state that organizations measure performance differently, and these methods align with their goals and strategies. Measuring performance is essential for OW since it may increase employee motivation and empower them in their work (Ax, Johansson, and Kullvén, 2009). It gives them meaning for why they should perform and strive towards organizational goals (Ax, Johansson & Kullvén, 2009).

Organizations can self-assess their level of OW with the help of risk assessment tools that collect data and identify needs (Bennett, Cook & Pelletier, 2010). Based on these data, the organization needs to adapt and make ongoing efforts, such as creating policies or programs which promote OW (Bennett, Cook & Pelletier, 2010). Further, organizations need to measure if the organization's level of wellness is regressing or evolving and take action based on these data (Bennett, Cook & Pelletier, 2010).

3.3 The emerging potential of AI

AI consists of different levels of technology, and we consider it essential for the reader to get an overview of these different levels to gain knowledge of the concept as a whole. We provide a superficial definition of AI in section 1.1 Background and therefore we will present a more profound definition of AI in the following sections.

3.3.1 Description of AI

The European Parliament (2020) defines AI as a machine's capability of showing human-like features, such as creativity, planning, and learning. They mean that AI-centered systems can adapt their behavior by analyzing the consequences of previous actions and events, and through that, work independently. AI enables systems to perceive their surroundings, manage what they perceive and find solutions to achieve a specific objective (European Parliament, 2020). Vast amounts of data drive AI, and the European Parliament (2020) states that the computer collects information through specific sensors and then processes the information and provides answers. Their final argument is that AI is essential for today's societies and the current digital transformation.

AI is an umbrella concept including several elements describing ways of utilizing AI (Eubanks, 2019). According to Eubanks (2019), the different ways of utilizing AI are machine learning, which is when the computer is self-learning, as there is no programming required to develop. He also mentions natural language processing, where the AI develops by learning from human interpersonal interactions, both orally or in writing. The third way is Deep learning, which is when the computer gains knowledge by looking at previous decisions and analyzing how organizations can make future decisions (Eubanks, 2019). The fourth way is neural networks, which is an up-scaling of deep learning that tries to imitate the human brain's neural networks. Neural networks make decisions based on several different deep learning applications where guesses based on previous decisions go through the delta rule (Eubanks, 2019). In the delta rule the algorithm gets more precise and answers more accurately, and continues to learn and develop (Eubanks, 2019).

3.3.2 History of AI

The development of the AI field can be explained through different stages. During the first stage, from the mid-1940s to the 1970s, AI researchers focused on game playing. However, the

developed frameworks were only task-specific, which means that they were only capable of handling one specific task (Zhuang, Wu, Chen, 2017). The progress was promising and in the late 1950s, the General Problem solver was created (Dennis, 2021). By applying heuristics and after each step verifying if it was close to the desired solution, this program was able to provide mathematical solutions and generate theorems that mathematicians could not (Dennis, 2021). Together with other promising inventions, the expectations of what AI could provide in the near future were high.

An important and well-known event was when IBM's computer Deep Blue in May 1997 became the first computer to defeat Garry Kasparov, the current world chess champion (IBM, n.d.). Even if this was a big step for AI development, many scientists were not willing to define Deep Blue as intelligent (McDermott, 1997). One reason for why Deep Blue was not considered intelligent was that playing chess was the only attribute it was capable of performing, and nothing else (McDermott, 1997). However, the next breakthrough was reached in 2016. AI-company Deepmind, a Google-owned business, created the program Alphago which defeated the world champion in the board game Go (SVT, 2016). A game that is considered far more complicated than chess and has been seen as an obstacle for machine learning (SVT, 2016). Aplhago's victory is seen as a major breakthrough for a new form of "intuitive" AI (SVT, 2016).

3.3.3 Challenges with AI

The increased need and utilization of AI is characterized by potential risks and challenges. One of the main challenges for businesses whose desire is to implement AI within their organization is the lack of knowledge (Stancombe et al., 2018). Therefore, it could be highly beneficial for organizations to invest in already existing personnel through education and training, in order to improve their skills and traits to build a powerful AI-savvy workforce (Ross, 2018).

There also exists a question regarding when AI is appropriate to apply. The European Parliament (2020) means that an underuse of AI can lead to loss of competitive advantages and fewer opportunities for innovation. However, they argue that an overuse of AI can be problematic as well, for instance applying AI in complex social issues. There also exists questions regarding who will stay responsible for incidents caused by AI-controlled services and tools, such as accidents where self-driving cars are involved (European Parliament, 2020). If the producer can stay completely impeccable from consequences occurring in situations like this, there may be a lack of incentives from the producer to create a safe product or service which can affect customer's confidence in the technology (European Parliament, 2020).

3.3.4 AI in Organizations

According to Cohen (n.d. cited in Nicastro, 2020), the application of AI will connect the entire employee workforce and attain a cohesive overview of their needs. Fountaine, McCarthy and Saleh (2019) argues that while building an AI-powered organization, there are certain aspects to take

into account. AI tools will have the biggest impact if they are developed by diverse teams consisting of different perspectives and skills. Therefore, having both technical, operational and business people will ensure opportunities and that the initiative addresses entire organizational priorities (Fountaine, McCarthy & Saleh, 2019). For instance, AI is currently frequently used within industries (industrial AI) where it brings new opportunities in manufacturing (Lee, 2020). By using vast amounts of data, tacit problems in systems can become transparent. Thus, it is possible to keep processes more stable, efficiency can be optimized, and the current health status of diverse equipment can be managed (Lee, 2020). Therefore, he argues that from an overall perspective, AI can enhance the performance of entire organizations and enterprises.

Implementation of AI within organizations and HR is frequently called the future of work (CognitionX, 2018). This means that AI implementation will change the way we are used to work as it will automate administrative tasks and will free up more time for strategic work tasks (CognitionX, 2018). Even if this is the case, many organizations are struggling to implement AI solutions and are still relying on paper forms and other processes (CognitionX, 2018). According to CognitionX (2018), the reason for this is that organizations lack the capacity to utilize the existing technology.

3.3.5 AI in HR

One issue concerning implementation of AI within HR is if AI will reduce the value of HR or not (Adolfsson & Johansson, 2018). Adolfsson and Johansson (2018) states that there are arguments for both sides of this issue. There are incentives that organizations prioritize implementation of AI within other parts of the organization before HR (Adolfsson & Johansson, 2018; PWC, 2017). This since HR often is considered a support function that does not directly provide profit for the organization (Adolfsson & Johansson, 2018; PWC, 2017). Furthermore, it is complicated and expensive to implement AI within HR as human skills are hard to replicate for this technology (Adolfsson & Johansson, 2018). However, the aim of implementing AI within HR is to cut costs and make processes more efficient, as it can facilitate and potentially eliminate repetitive tasks (PWC, 2017).

Eubanks (2019) states that HR practitioners have never been required to have these kinds of technological skill sets that are needed for this new way of working. As HR practitioners lack these technology skill sets, Eubanks (2019) argues that they are not able to collect and analyze data in order to predict potential outcomes that may affect their human capital. By implementing AI, HR practitioners can tell the current state of the organization by utilizing the collected and analysed data from the AI system (Eubanks, 2019). Furthermore, by analyzing patterns in collected data, they can forecast changes and suggest potential solutions for the organization (Eubanks, 2019).

3.3.6 Todays' AI solutions for HR

Today there are several AI tools for measuring and promoting OW (CognitionX, 2018). However, there exists limited research if these tools are providing improvements when measuring OW or not.

Employee nudging is a system that uses machine learning and behavioral science to nudge employees in a direction that enforces OW by increasing happiness and productivity (CognitionX, 2018). For instance, by sending messages to remind employees to check their colleagues' wellness and to give praise (CognitionX, 2018). Sen (2020) states that by tracking these interactions, the AI system can measure how well employees are interacting and supporting each other when working. He argues that this is important for organizations, as teambuilding and good relationships are factors for increased OW.

By utilizing AI to collect and analyze transactional workforce data, organizations can foresee fatigue amongst employees, as well as employee engagement (Nicastro, 2020). By leveraging transactional workforce data, the AI system enables individualized schedules that helps the employees become more efficient (Nicastro, 2020). Based on this data, Nicastro (2020) states that employers can review when there is a need for employees to take time off or shift-swap. He argues that this creates more time "on the floor", reducing administrative tasks and increasing work-life balance for each employee. Transactional workforce data can also be used to empower managers when making decisions and solving problems (Nicastro, 2020). Moreover, AI can facilitate real-time management by providing managers with information regarding potential challenges (Nicastro, 2020). This by collecting and analyzing key performance indicators and providing the managers with grounded data (Nicastro, 2020).

Furthermore, there exist different engagement survey tools that utilize AI to measure real-time people data and create feedback loops (CognitionX, 2018). These data can give incentives on how to increase employee engagement, people development, and performance within the organization (CognitionX, 2018). Some solutions in today's market are Glint and Winningtemp which are not fully AI-based but apply some of these technologies (CognitionX, 2018).

3.3.7 Opportunities utilizing AI within HR

The most significant opportunity for utilizing AI within HR is AI systems' potential to collect and analyze vast amounts of data, which could increase the value and quality of HR work (Adolfsson & Johansson, 2018). Adolfsson and Johansson (2018) states that implementing AI in HR can also reduce costs for processes. As the role of HR is changing at the same pace as the technology improves, HR practitioners seem to be optimistic about the use of AI (Adolfsson & Johansson, 2018).

Lal (2015) states that if HR utilizes AI, they may become a strong player for the organizational competitive advantage. Further, by implementing AI solutions within already existing HRM systems, it can ease the tracking of employee productivity, performance, and return on investments (Lal, 2015). However, Eubanks (2019) emphasizes the importance for HR to view AI as something that can add value for the people within the organization, not replacing its human capital.

As technology is developing and performs tasks that require hard skills, HR practitioners need to develop their soft skills (Eubanks, 2019). Since Eubanks (2019) argue that soft skills are hard for AI to replicate, it can be considered that AI will not replace humans, but create a beneficial relationship. As AI can automate administrative tasks, HR departments can relocate time for complex decision-making and people management (Eubanks, 2019), which brings more value to the organization (Adolfsson & Johansson, 2018).

IBM (2018) argues that implementing AI within HR may generate strengthened business incentive. Thus, data and analysis from AI applied in HR metrics are essential as HR metrics need to be connected to financial metrics (IBM, 2018). Connecting HR metrics to financial metrics enables the potential of creating a business case and measure if the investments pays off (IBM, 2018). According to IBM (2018), when implementing a new application, it is crucial to measure what benefits this made, and in the business case of IBM, their savings made by applying AI in HRM systems was $107 million.

3.3.8 Challenges utilizing AI within HR

In Adolfsson and Johanssons' research (2018), the challenges perceived by implementing AI within HR processes was to keep the value of HR functions within the organization and remembering the value of employees. Other perceived challenges were lack of competence about new technologies and the hardship of working ethically with AI within HR and the organization (Adolfsson & Johansson, 2018).

Furthermore, According to Eubanks (2019), a challenge implementing AI within HR is that practitioners need to simultaneously develop new technology skills and maintain their soft skills. He means that there is a risk that AI disables individuals ability to think which makes creativity and the need for learning and development lesser as it is not nurtured. This means that by adopting AI to ease HR processes, individuals' abilities can become dull as they do not have to practice them (Eubanks, 2019). Based on this, a potential scenario is that HR practitioners may not know when to take back control and, the implementation of AI that was supposed to help out, does the opposite (Eubanks, 2019).

Another challenge for implementing AI within HR is the lack of system integration (Eubanks, 2019). Eubanks (2019) says that even if the organization has several systems, they don't interact. Thus, even if an organization has a lot of data, the data are not used together between different

systems (Eubanks, 2019). The consequence could be the risk of not utilizing the data collected which in the long term can make the business lose opportunities for development and not add value to the organization (Eubanks, 2019).

Tambe and Cappelli (2019) state that most AI-based algorithms thrive in design recognition based on associations rather than causation. However they argue that regular AI tasks such as image recognition are not as complicated in relation to identifying and measuring more soft values, such as the characteristics of a good employer. Furthermore, the authors argue that the scope of possible indicators is very broad but difficult to precisely observe and measure. In order to generate and analyze human behavior in a digital environment within the organization, it will most likely be faced with several issues regarding ethics and privacy (Tambe & Cappelli, 2019). Furthermore, there is no guarantee that any valuable data will be provided.

Most researchers argue that there is no organizational change without resistance, both individual resistance to change and/or organizational resistance to change (Coetzee & Stanz, 2007; Kreitner & Kinicke, 2004; Lawrence, 1969; Oreg, 2003; Oreg, 2006; Wolvén, 2000). The resistance to change is not necessarily something bad as it means that the organization is stable and the board of directors can predict behaviors of employees when implementing new technology or other changes of work processes (Wolvén, 2000). However, it is important to acknowledge that resistance to change may create hardship for implementing new technology. In regards to the implementation of new technical solutions, Weiland and Motwani (1992) mention that knowledge is the key to avoid resistance to change. Today there is a lack of knowledge of what AI is and what it can do for the organization's success, which contributes to a resistance to use this technology (Weiland & Motwani, 1992). Therefore, a challenge for the implementation of AI within HR is that it can be very costly (Adolfsson & Johansson, 2018). This since it takes time to create a clear reason why AI is useful for employees and for them to learn how to use this new technology (Adolfsson & Johansson, 2018).

3.4 Legal and Ethical frames for measuring personal data

Since personal data is often considered when measuring OW, legal frameworks for how these data should be measured are of great importance. This section presents legal and ethical aspects that may impact utilizing AI when measuring OW.

In 2019, the European Union published a directive that concerns the development and utilization of AI within the union (Kimblad & Radosavljevic 2019). Thus, to ensure an ethical sustainable framework for AI implementation and create guidelines for trustworthy AI implementations (Kimblad & Radosavljevic 2019). The aim with this directive is to prepare for the social-economic changes AI will have, ensure an ethical and legal framework for AI, and encourage the implementation of AI within public and private sectors (Kimblad & Radosavljevic 2019).

3.4.1 AI and personal data

Personal data is used in several contexts within today's organizations and businesses (Integritetsskyddsmyndigheten, n.d.). However, certain types of collection and use of personal data are considered sensitive in relation to privacy. For instance detailed information about an individual's health (Integritetsskyddsmyndigheten, n.d.). Therefore, it can be argued that it is important to find a balance between an organization's need to collect and use personal data and the individual's right to privacy and integrity (Integritetsskyddsmyndigheten, n.d.). According to Eubanks (2019), this balance of personal data clearly requires protection. He states that it is highly relevant for organizations and managers to answer questions regarding this data, such as why and how it is collected, how it is used and for what purpose.

Comprehensive amounts of data sources are essential in order to utilize AI to its fullest potential (Eubanks, 2019). Thus, it is important for HR managers to make clear what type of value they give back to their employees and how this is communicated, in order to make them feel more comfortable and understand why the data is needed (Eubanks, 2019). This issue of data privacy will therefore force employers to be transparent regarding what data that they collect, how it will be used, and explain how it will benefit the employees (Eubanks, 2019).

3.4.2 GDPR

One regulation that has completely changed the data regulation landscape is GDPR, enacted in the European Union in 2018 (Eubanks, 2019). Today, HR managers are working extensively in terms of information sharing and training employers regarding what GDPR means for the employers and the data they store and use (Eubanks, 2019). According to Eubanks (2019), one example is the requirement of providing the right of an explanation for employees. Thus, users/consumers hold the right to get an explanation of what the algorithms are and how they are affecting their work lives (Eubanks, 2019).

GDPR is considered a vital step towards strengthening people's fundamental rights in our new digital epoch (European Union, 2021). Furthermore, through distinct and transparent rules, the law facilitates how organizations are allowed to work in the internal digital environment (European Union, 2021). According to the Union (2021), GDPR provides detailed obligations for organizations regarding how they collect, store, and use personal data. Information that is considered personal data is information that could be used to identify an individual (European Union, 2021).

There exists a tension between the regulations of personal data and the full utilization of AI (Sartor & Lagioia, 2020). However there are ways to apply and interpret the GDPR law in order to keep it consistent and aligned with the benefits of AI (Sartor & Lagioia, 2020). Sartor and Lagioia (2020) argues that the data protection principles, such as purpose limitation, should not be interpreted in a way that excludes the use of personal data for AI purposes. Therefore, they mean

that the requirement of purpose limitation can be compatible with AI. Hence, through a flexible application of the concept of compatibility then will allow reuse of already collected personal data for other purposes (Sartor & Lagioia, 2020).

3.4.3 Ethical challenges utilizing AI

Working with the implementation of AI, organizations need to be aware of the ethical challenges to minimize the risks of costly mistakes (Floridi, Cowls, Beltrametti, Chatila, Chazerand, Dignum, Lütge, Madelin, Pagallo, Rossi, Schafer, Valcke, Vayena, 2018). Floridi et al. (2018) means that due to the risk of AI systems developing unethical behaviours, organizations are sometimes afraid to implement this technology which can lead to loss of opportunities when not utilizing AI. Therefore, organizations need to be aware of both the opportunities with AI and how to avoid the risks of mistrust from society and employees (Powers & Ganascia, 2020).

Floridi et al (2018) have developed an ethical framework when utilizing AI. The framework focuses on how AI can enable human self-realization, cultivation of social cohesion, and enhance human agency, without diminishing human self-determination, discount human responsibility, and depreciate human ability (Floridi et. al., 2018). In regard to this, the European commission High-level expert group on Artificial Intelligence has created a foundation for ethical principles utilizing AI based on human rights (Sartor & Lagioia, 2020). These ethical principles for AI use within and outside the EU are; respect for human autonomy, fairness, explicability, and prevention of harm. Based on these four principles, organizations have to meet seven requirements: Human agency and oversight, technical robustness and safety, privacy and data governance, transparency and traceability, diversity, non-discrimination and fairness, societal and environmental wellbeing and accountability, and audibility (Floridi et. al., 2018).

When AI is implemented within HR processes, the objective is that the AI system should act as an agent, taking actions without human interactions (Dignum, 2019). According to Dignum (2019), it can be considered complicated to hold AI responsible for its actions as it is not an individual with freedom and intentions. Based on this notion, the system needs to be programmed in such a way that it knows what an ethical action is, thereby reducing the risk of making unethical decisions (Powers, Pasquale & Das, 2020). Still, it can be difficult to develop an AI system based on ethical frameworks, but Dignum (2019) and Powers, Parsquale, and Das (2020) argue for the importance of trying.

3.5 Reflection of literature background

Since there is a knowledge gap regarding the theoretical framework for AI connected to measuring OW, we consider it relevant to provide our view of the theory included and underlying arguments.

Based on the previous sections in this chapter, it is clear that there exists no final definition of the concept of OW. Since many researchers and studies provide their take and approach when defining the concept and since many define it differently, we found it relevant to create our own definition. We did this in order not to limit the research since we were unaware of what the empirical data would generate. For instance, in terms of what data AI is capable of measuring in the context of OW. However, if we were applying one of the already existing definitions of the concept, there may have been a risk that the aspects are not relevant concerning AI tools performance. Furthermore, since our definition includes several factors from different definitions, we argue that ours is more comprehensive from an organizational perspective.

Regarding implementations that may change how an organization works, there is a need to highlight change management theory. We chose not to incorporate this area as our research question focuses on the potential for measuring organization wellness, not the implementation of these potential ways of doing this.

We focused on the perceived need from an HR perspective and not from a C-level perspective. We based this choice on previous experience, where OW is measured by HR in a regular context. Our choice of not describing more about HR and how they work is because this does not add value for our research questions per se.

We considered it relevant for the study to provide an overview of how AI is generally used in today's industries and organizations. Hence, we first present a perspective of what AI is and the background, which clarifies how fast it has developed and how it most likely will affect us in the near future. Furthermore, by providing an overview regarding how AI is used today within organizations and industries, we believe this knowledge can help us review the potential for AI measuring OW by comparing with other areas implementing AI. As there is a lack of theory on our subject, we believed this could be relevant for our discussion.

In terms of the ethical perspectives on AI, we mention the importance of what ethical frameworks are affecting organizations today regarding AI, especially for the people developing AI systems. We excluded fundamental theories of ethics, such as morals and rule ethics. However the EU commission's ethical framework is founded on these ethical principles.

4. Findings

In the following chapter, we will present our findings from the conducted interviews. We are, through a thematic analysis, identifying themes from the empirical data, and each theme is outlined more profoundly under each section.

Note: We are conducting the interviews in Swedish; thus, all citations from the interviewees are translated from Swedish to English.

4.1 Identified themes

In the table below we are presenting identified themes which are considered the foundation for the following analysis and discussion.

Identified themes	Description of the identified theme
Importance of measuring organizational wellness	Measuring OW is considered highly important among all the interviewees. The interviewees' definitions of the concept were also very similar.
Opportunities and challenges with AI	The opportunities by utilizing AI when measuring OW are many. However, there also exist challenges.
Awareness	The awareness of AI and thus its benefits within today's organizations seem very low as well. Both on management and employee level.
GDPR	All interviewees mentioned GDPR. GDPR was considered both as a hindrance to utilizing AI and a quality certification to protect the integrity of the employee
Transparency	There exists a need for transparency and clear and consistent communication when collecting personal data. Consequently, what data the employer is collecting, how they are collecting it, and their purpose.

Table of interviewees:

Interviewees	A	B	C	D	E	F	G	H	I	J	K	L
Role	HR-manager	HR-manager	HR-manager	HR-manager	HR-manager	HR-manager	HR-manager	HR-manager	AI-expert	AI-expert	Legal-expert	Legal-expert
Industry	Medicine	Publishing	Energy	Transportation	Academical	Manufacturing	IT & Communication	Retail	Consultancy	Manufacturing	Layer	Layer

4.2 Importance of measuring organizational wellness

All HR managers agree that it is vital to measure OW, and many of them state the importance of measuring over time and receiving data that is more up to date. Consequently, to clarify what certain factors they want to measure and how. Interviewee C states that OW is about working with the organization's internal safety culture and the wellness of all employees. Regarding safety culture, where they formerly have focused on physical aspects, they have recently started to focus on the importance of the psychosocial aspects, where psychological safety vastly represents these aspects. Furthermore, s/he also declares the importance of including the performance perspective and how this is related to employees who feel well and are comfortable performing.

> "... it is vital to measure this since it is an essential part of the work, making the employees feel well and are able to perform." (Interviewee C)

Thus, combining these, according to the interviewee, could be described as a sustainable performance.

Another HR manager, interviewee A, describes OW as a concept constituting several different factors that all measure the organization's wellness. S/he says that employee turnover is one of these factors because if an organization has a high employee turnover number, it can be a sign, or a symptom, of an unwell organization. S/he also stated, similar to the other HR managers, that an organization that is feeling well can assume that they have employees who are feeling well too. Furthermore, together with all HR managers, s/he argued for the importance of measuring OW. According to her/him, once data is there, the opportunity to conduct dialogue with the management board can be done on an entirely different level, where the employer can create additional value for the organization as a whole. Moreover, if the employer does not measure, they can only guess.

> "I think this is very important to measure. The same second that you have data, you can then go to a boardroom, you can have a dialogue on a completely different level and where you also create added value for the organization, but also, you lift yourself in function and

your entire profession to a completely different level when you can have this discussion with other managers." (Interviewee A)

4.3 Opportunities and challenges with AI

Among the interviewed HR managers, everyone except one considers their current approach of measuring OW as unsuccessful. Many of the other HR managers express a concern that their employees may quickly get tired of filling out surveys, so the managers do not want to have too many of them.

> "... this is why I do not give out more surveys because I do not want them to get tired of them." (Interviewee H)

All of the HR managers also discussed the irrelevance of the current yearly applied questionnaires and surveys since employees' feelings and opinions change from day to day. Despite this fact, there are indications that managers rely on this data several months after, even if it is no longer relevant. However, it is not only the number of occasions for measuring OW that the HR managers want to increase but also the range of what they measure, both regarding individual factors and specific organizational departments. In this section, we present empirical findings on how organizations may think they can use AI for measuring OW in regards to todays' perceived lack of successful measurement processes.

4.3.1 Opportunities utilizing AI when measuring organizational wellness

The lack of more frequent measurement was generally dominant among the HR interviewees; however, the two HR managers who already measure recurrently have other desired areas for improvement. For instance, one desired area for improvement was a way of measuring different factors based on specific KPIs that may indicate changes and by that work more preventively in different parts of the organization. Thus, the responsible manager can provide the organization with comprehensive information and take action before something goes too far.

> "Once there is a breakdown or when a department is not feeling well and there are deficiencies in the system, then it has gone too far." (Interviewee C)

From a technical point of view, both of the interviewed AI experts, interviewee I and J, describe the potential and opportunities of utilizing AI when measuring OW as very high. According to interviewee J, the opportunities made possible when utilizing data correctly are huge, and in today's society, data is created everywhere. For example, interviewee J describes a what-if scenario where employers collect data from digital meetings and scan email as their employees are working remotely during the pandemic and collecting data about when they express themselves and in what words and tone. Then, based on these data, the employer could use an algorithm that can measure OW as they have up-to-date information from their employees. S/he means that if employers were able to execute this scenario, it would be an excellent opportunity for improving the organizations' wellness.

"I assume that an organization is never better than the individual within it, there has to be a correlation. There, we need data." (Interviewee J)

As mentioned previously, there already exist AI-based questionnaires and surveys, such as Winningtemp. However, according to one of the AI experts, interviewee I, the next step in collecting data is to create predictive analytics models that can present potential actions and predict outcomes based on these actions.

"... to make sure that each employee, based on their current situation, can act and perform on their highest possible level." (Interviewee I)

Interviewee J states something similar;

"When creating digital experiences based on a collection of data, then the tools will become sharp enough to suggest a correct and suitable activity, at the right time with the right conditions." (Interviewee J)

Furthermore, Interviewee J states that by becoming better at taking advantage of the total data flow that exists from an employee within any organization employers can, by utilizing AI see who, for instance, will shortly go on sick leave or resign. S/he also denotes the importance of understanding how the individual lives and learns and how s/he has lived and learned. Thus, it is changing in the behavior that is essential to understand to create precision in the prediction. However, this type of AI solution is already happening according to one HR manager, interviewee G, who explains that her/his organization is currently conducting a test utilizing AI in one of its global departments. Consequently, by using AI measuring and identifying employees who have started to lack engagement and therefore need an extra boost. Hence, it also works as an indicator if someone is about to resign.

4.3.2 Challenges utilizing AI measuring Organizational Wellness

According to the AI experts, interviewees I and J, one challenge is that organizations lack focus on the importance of OW. One AI expert, Interviewee J, states that if HR managers can present the importance of measuring OW as a business case, they could gain investments, and the measurement systems will improve as a result.

"I think that we have that data, but we do not think that we potentially could use that data. I believe that our HR department does not think that we could define this (organizational wellness) as a problem and use data for this. Because if we have a problem, we also have potential." (Interviewee J)

"I think that the possibilities are huge, and the challenge is the humans, not the technology." (Interviewee J)

Interviewee I mentions that organizations are at the beginning of an AI revolution but are not good at applying this technology or investing it in HR. Furthermore, a challenge of utilizing AI for

measuring OW is that soft factors are complicated to measure. Interviewee I says that soft factors often are not well defined, and without a well-defined definition, it is hard to code a system to measure these factors.

> "There has to be a coherent definition of these factors, but there is not. You could read any scientific report and see that the definitions are not the same for the same concept." (Interviewee I)

Hence, s/he expresses the need for knowledge regarding how to measure diffuse things such as soft factors. However, even if soft factors may be described as indefinable, these are possible to measure. S/he states that soft factors are often measured indirectly by measuring other factors that indirectly could be connected to, for instance, mental health issues.

> "Yes it is possible to measure, it is definitely possible to measure, but you need to be very careful how to ask questions and how to collect data." (Interviewee I)

S/he further highlights that except for clear and coherent definitions of soft factors, calibrating the system used for measuring OW is crucial. Not all data is of high quality, and working with AI, gathering a large amount of data without a calibrated tool, it is impossible to find the data that can bring value to this kind of measurement. Another challenge is that these systems need to have a feedback loop where new data can connect to past data and acknowledge behavioral patterns.

> "We can draw a conclusion about your actual mood, your actual personality and your actual opinions. There are ways to do that and it is extremely modern analysis methods that we use, but they presuppose that we collect data in a very competent way, that we ask questions in a competent way. Otherwise it is useless." (Interviewee I)

Two HR managers mention that a challenge utilizing AI for measuring OW in their organizations is that they are small organizations. Both in matters of fundings for investments in these new systems or AI tools and the acceptance of the new systems by employees. Also, it can be hard to collect data when there is lesser data in a smaller company. However, two HR managers work in middle-sized companies and still see a huge potential in utilizing AI within their organization, even though they do not have data from more than 200-700 people. Interviewee D also mentions a challenge working in a large corporation with over 45 000 employees. It can be hard to connect data between different departments and get the whole picture of the organization's level of wellness, especially as different departments measure OW in several different ways.

> "We do a lot of measurements on an individual level but of course, it would be great if we could see how the organization is doing as well." (Interviewee D)

4.4 Awareness

Even if the HR managers expressed their interest in utilizing AI, they also admit their lack of knowledge regarding AI. Interviewee C expresses her/his organization's need to decrease the competence gap within the organization when more tasks are getting automated. S/he also states that they need to change and develop their employees' competence to use these new tools.

Interviewee F highlights this as an issue, as developing competence and buying and creating new systems are very costly, especially for small organizations like her/his own.

> "... thus, it is very very expensive, and not only what the systems cost when you buy them but foremost what they cost to implement as in identify needs [of competence] and adapt the system to different parts of the organization." (Interviewee F)

The AI experts, interviewee I and J, express that the awareness is low both among managers and employees. Furthermore, they state the importance of creating awareness regarding the benefits of AI and all the possible opportunities it may generate for society and organizations. Interviewee J states that there needs to be curiosity within organizations, especially within today's HR departments, where employers challenge themselves to develop and do work processes differently. Interviewee I states that people need education, not only about AI in general but also regarding data collection, data management, and statistics.

> "A statistics class should be mandatory within every god damn education." (Interviewee I)

> "When I meet customers, I can barely mention AI without people getting suspicious." (Interviewee I)

Interviewee I further states that people generally think that AI is evil, like a blind robot without feelings. Therefore, s/he expresses the importance of playing down and neutralizing the concept of AI by talking about it in terms of assistance, tools, and analysis. Furthermore, a vast majority of the HR managers state that the internal organizational awareness regarding AI and its benefits is relatively low, both on manager and employee level. Therefore, they need to work more on creating awareness before implementing AI tools within their organizations.

However, one HR manager, Interviewee C, states that there is an optimistic view regarding AI within her/his organization, as s/he and her/his colleagues do not see any disadvantages, rather potential for it. For instance, when it comes to ease and even replacing administrative and monotonous work.

> "We have not used AI in such a way that we want to reduce the number of employees. Instead, we are trying to educate and find other tasks they can do. We want to develop and make sure that things turn out the right way." (Interviewee C)

S/he means that it is essential to explain and be transparent that AI will not replace humans but make their work easier.

A final notion for awareness is interviewee G's statement that her/his and her/his employees' view on AI differ even if they act in a very technology-positive environment. S/he mentions that s/he has several employees telling her/him almost every week that they want to automate their processes but not too much to keep the human aspect within the processes. S/he thought this was interesting as s/he could see that AI could help the organization be more human-oriented by

utilizing AI to measure OW. S/he thinks utilizing AI can give a more up-to-date insight into how employees are feeling and how they can improve the level of OW, but the employees themselves do not always see the potential of AI in the same way as her/him.

4.5 GDPR

All interviewees mentioned GDPR as the principal legal framework that affects how they can collect data from their employees. Interviewee C mentions that when implementing GDPR, they had to delete all data that did not have a solid and apparent reason for saving. Interviewee E said that they only collect and handle the data they are allowed to handle regarding GDPR. In other words, GDPR has a strong influence when it comes to collecting personal data for all the interviewed HR managers, which also affects how much data can be collected and what type of data organizations can collect in order to measure OW.

A distinct discussion was evident during the interviews that they view GDPR as hindering the work of collecting data, but it is also crucial for maintaining the integrity of employees. A majority of the HR managers saw GDPR as a hindrance and an opportunity for the organization to do the right thing. Interviewee H mentioned it as a business opportunity as it shows customers that they are a reliable company. Interviewee E described GDPR as a qualification certificate similar to an ISO standard and similar certifications. Two interviewees acknowledge the importance of GDPR as it protects their employees' integrity; however, they also consider it a hindrance for the organization.

> "GDPR is, of course, the obvious answer. But it is about relating to GDPR in the right way, only if I can prove that I collect the data I need to improve work for my employees. As well as showing how long I save this data and are transparent about this and we have a policy that I act in order of. We work a lot with this, to let employees give their acceptance before collecting data for this kind of measurement. " (Interviewee A)

> "GDPR, thank god! Even if organizations may not be as pleased about it due to they do not understand what it means. But it is really important." (Interviewee I)

> "I understand that it hinders measuring personal data more, but I think that this is good. As it gives us guidelines so we can collect this data ethically and correctly. It is a good and sensible restriction and that we ask for permission before we collect data." (Interviewee I)

Another view on GDPR is that it hinders the development of AI and its use in organizations. One of the AI experts, interviewee J, explains that it is not good if we are afraid of GDPR because it can make us unwilling to develop how we work with AI in our organizations. S/he states that

organizations do not need more regulative policies and forfeit for collecting data and that it should instead be about facilitation and acceleration.

> "We do not have support from society, no curiosity from politicians and stakeholders and no money to facilitate this, it is more "you can not do this". Tell me instead what it is I can do! It is the same with OW, nobody has told me what it is and what to do about it, it is more about "better to not do anything because then we have done nothing wrong at least." (Interviewee J)

As GDPR reinforces the importance of data transparency and that the employer needs to have consent from employees when collecting data, legal expert interviewee K means that it can be a problem that AI is self-developing. S/he mentions that if employers tell employees that they collect data for one purpose, they can not use the same data for another purpose and need to ask for new consent. The matter of consent makes it complicated if the AI starts developing itself, and no one has a clear picture of what data the AI system is measuring, which can potentially violate GDPR.

> "You begin with telling employees that you are doing one thing, then the program is set on self-improvement and then suddenly it is not transparent anymore, but something is happening in secret." (Interviewee K)

> "If you have not programmed the AI to improve itself, then you have total control over it. But if you let the program develop it can be dangerous." (Interviewee K)

In connection to keeping the process transparent when the AI develops, interviewee D, one of the HR managers, mentions the importance of constant remeasure and system calibration to keep the level of transparency high and not to lose control of what the system is doing.

4.6 Transparency

All the interviewees express the importance of transparency to create trust when measuring OW and collecting personal data. Interviewee A expresses her/his thoughts that employees in her/his organization are not comfortable measuring in general, especially regarding anonymity. Therefore, s/he thinks it is vital to constantly work with trust, even if it is not always easy. Thus, s/he states the importance of communicating why they are measuring and how they are doing it, and what they are doing with this data.

> "Therefore, it is important to communicate WHY we are measuring and HOW we are doing it,…, Communication is everything" (Interviewee A)

Both interviewee L and I mention an ethical aspect of utilizing AI when measuring OW, that just because we can measure, should we do this. AI-expert interviewee J is also asking that even if utilizing AI to measure OW is or may be justified by law, do we want to do it? Interviewee L and I mean that the employer does not need to know everything about their employees to protect their integrity, and it may depend on what industry the organization is a part of if some data is essential to collect or not from an ethical perspective. They mean that if the data do not have a vital purpose

and do not help with decision-making, maybe the ethical aspect is to not collect this data even if it is possible to do it. Interviewee L says that it is essential to balance which data exists and what data the organization should collect. S/he means that this balance needs to be considered both in terms of ethical and integrity aspects and that employers must be transparent about why they collect data and how they use this data. Thus, interviewee L says that organizations could secure a transparent decision-making model based on ethical considerations. This model can tell which sensitive data needs a human to decide if the data should be used or not.

> "... if you can secure a decision-making model about which factors are not sensitive, then you can put more time on the complicated factors, which demands a human to balance the decision." (Interviewee L)

Furthermore, interviewee B mentions that employees build up expectations when the employer starts collecting data because they believe that the employer also will take action based on this data. S/he describes it as a catalysator for employees as they believe that things will change for the better, and if nothing happens, it can create mistrust amongst employees. S/he also mentions that even if they start measuring OW more frequently in her/his organization, they have to think before acting on them. S/he argues that the numbers should be measured over time to see if it is a trend before taking action, as a faulty action can lead to losing employee engagement.

One of the legal experts, interviewee L, expresses the importance of creating legitimacy for the system that measures OW. S/he states that if there is no legitimacy for the system, employees may start to mistrust the organization. S/he also argues the need for a human touch when measuring these soft factors.

> "The next question is, does this fictitious surveillance really replace the human gaze? That we do not see each other with the same curiosity due to the charts looks good. And then a colleague sits in the next room, crying. No, I think that measuring everything with a system could make us as leaders lose the presence needed for being a wise and human leader, which in the long run leads to (better) results." (Interviewee L)

S/he states that to have a well-functioning working life, employees need to trust their employer. Further, S/he argues that organizations need to create an environment that empathizes dynamics and energies, to have a high level of productivity, curiosity, and entrepreneurship. S/he means they are not accomplishing this by micromanaging and surveillance of the employees.

5. Analysis & Discussion

The following chapter presents an analysis and a discussion where we compare previous research from chapter three, literature background, and empirical findings in chapter four. Consequently, in order to analyze and formulate profound conclusions. The chapter follows the same structure as chapter four and ends with a presentation of analyzed and discussed material concerning the research questions.

5.1 Importance of measuring organizational wellness

According to Bennet, Cook and Pelletier (2010), it is crucial to measure OW as it correlates with the profit and productivity levels of an organization. Furthermore, they state that organizations need to measure the level of OW to see if it is regressing or evolving, and based on these data, introduce needed actions. The HR managers express a need for measuring OW to track negative trends. Thus, they can take preventive measures to avoid, for instance, high employee turnover. We argue that a high level of OW is an essential factor for organizational success, which is why it is crucial to measure.

As mentioned in the previous chapter, all interviewees express the importance of measuring OW. However, one of the AI experts, interviewee J, believes that not all HR managers today understand the importance of measuring OW. Interviewee J's statement is related to Bennett, Cook, and Pelletier (2010), who states that organizations do not always see the need to promote wellness at the workplace since these actions can be too costly in relation to what they may generate. However, interviewee A states that once HR managers possess data regarding the organization's wellness, they can have a conversation with the management board on a different level and create changes that bring value to the organization. We believe this indicates that HR managers are aware of the importance of measuring OW and are promoting it. On the other hand, based on these findings and previous research, organizations may differ regarding how important they consider measuring OW is. Nevertheless, we believe that the statement from interviewee A describes the importance of having reliable data in order to promote organizational value and potentially generate competitive advantage.

Furthermore, all HR managers except one, said they are not pleased with their current measurement approach. Thus, if they are aware of the importance of measuring OW but think their current approach is lacking, why are few changes introduced? For instance, all HR managers express several desired areas for improvements of their measurement approach, so it may be relevant to question why organizations are not establishing these suggestions. Concerning this, interviewee J expresses her/his thoughts regarding the importance of creating a business case and creating a problem statement in order to present what a more profound and ongoing measurement approach

would give in return. Interviewee J's statement connects to IBM (2018), which argues the importance of presenting the benefits of implementing a new application. This is also empathized by Bennett, Cook, and Pelletier (2010), who states that there may exist a perceived need from the organization to improve OW if practitioners present these improvements as something that can increase, for instance, effectiveness. However, one reason for lacking AI investments in HR may be that, as stated by Adolfsson and Johansson (2018), that HR is considered a support function within an organization that is not firsthand providing profit for the organization. Regarding these notions and in order to gain investments, we argue that HR managers need to present profound information about what the new measurement approaches may generate for the organization.

5.2 Opportunities and challenges utilizing AI measuring organizational wellness

All except one HR manager are dissatisfied with how they measure OW today. Further, all of the HR managers use yearly based employee wellness surveys which is according to Lehikoinen and Leinson (2017), also the most common approach for measuring OW. The HR managers presented these surveys as lacking since they are not up to date, are based on employees' feelings and emotions that are inconsistent, and that HR managers can not provide surveys too often since employees may get tired of filling them out. There is no existing research on how organizations utilize AI today when measuring OW. However, there exist AI solutions in terms of employee nudging (CognitionX, 2018), leveraging transactional workforce data (Nicastro, 2020), and engagement survey tools that utilize AI to measure real-time people data and create feedback loops (CognitionX, 2018). Two of the interviewed HR managers use Winningtemp, which is an AI-based engagement survey tool. Hence, there are indications that these organizations are at the beginning of utilizing AI but not fully satisfied with these solutions.

5.2.1 Opportunities utilizing AI when measuring organizational wellness

All HR managers see potential and express their interest in utilizing AI when measuring OW. This can be related to Adolfsson and Johansson's (2018) research, who states that HR practitioners are optimistic about implementing AI to their processes. The HR managers ask for a system or a tool that will keep them up to date and ease time or replace tedious data collection processes, which according to the AI experts, AI can contribute with. This potential of utilizing AI for HR correlates to Eubanks (2019), who states that AI can help HR managers collect data, summarize the organization's current state, predict changes within the organization and suggest solutions. Nicastro (2020) also states that AI can be helpful as managers can make well-informed decisions based on key performance indicators to avoid arising issues before they become a problem for the organization. Furthermore, by increasing the quality when measuring OW, there can be a gain for the entire organization since healthy employees are more productive. (Bennett, Cook & Pelletier, 2010). Based on findings and theory, we believe the utilization of AI when measuring OW can

accomplish more accurate and fast-paced measurement approaches. It can also save time for HR managers as the AI system eliminates these redundant tasks.

Based on the previous paragraph, the utilization of AI when measuring OW may generate a competitive advantage for organizations. According to PWC (2017), implementing AI within HR can cut costs and make processes more efficient for HR as it eliminates repetitive tasks. Lal (2015) mentions that if HR can keep up with the technological progression, they could become a vital player for the organization's competitive advantage. This, since utilizing AI within HR could ease management control, track progress in performance and free up time for HR managers (Eubanks, 2019). Adolfsson and Johansson (2018) states that by utilizing AI, HR can instead change focus and work with tasks that add value. As the HR managers express that they would like to free up time for complex challenges instead of working with autonomous tasks, we argue that AI potentially can generate a competitive advantage. Since AI could create time for HR managers to work with complex, value adding tasks instead of measuring OW as this could be automated.

According to Lee (2020), data assists organizations to enhance functionality and optimize efficiency. Vast amounts of data drive AI, as the system collects and processes the information (European Parliament, 2020). Furthermore, both HR manager interviewee D and AI expert interviewee J states that there exist vast amounts of untapped data (not utilized data) within today's organizations. They also state that organizations need to become better at taking advantage of this. This statement can be aligned with Eubanks (2019) argument regarding potential organizational consequences of not utilizing all data available. Based on the fact that the total data flow within organizations is in general large, and data is also what drives AI, we consider this a vast opportunity to utilize AI when measuring OW. Yet, organizations need to be proficient in utilizing this data.

5.2.2 Challenges utilizing AI measuring Organizational Wellness

The need to utilize AI exists, however, many HR managers and their organizations still rely on obsolete approaches. This is also in line with CognitionX (2018), which states that even though AI implementation within HR is considered highly relevant, many companies are still struggling to implement AI solutions since they cannot utilize the technology. For instance, interviewee C states that her/his organization needs to develop and educate its employees in order to be able to handle new technology.

Furthermore, Eubanks (2019) highlights the importance of HR practitioners adapting to these new technologies when implementing AI tools. Further, s/he states that there is a risk that AI can disable people's ability to think and analyze, in other words, people may rely too much on the system. A legal expert, interviewee L, emphasizes the importance of human touch. Even if there exists a potential for utilizing AI when measuring OW, employers can not only look at charts. Instead, s/he means that they need to be present, checking in on their employees regularly, and consider the AI

system only as a compliment. The human touch is something that we consider highly interesting; thus, even though the technology and AI, in this case, may benefit and ease processes and work, it is still vital to value human interaction and not only to rely on the system.

Interviewee D express an interest in connecting different departments' data to estimate how the entire organization is functioning. This interest could potentially be a challenge as Eubanks (2019) states that organizations today may lack system integrations. If the organizations' information systems are not integrated, there is a risk that collected data is not utilized (Eubanks, 2019). According to Eubanks (2019) AI can be utilized and developed as a neural network, where several deep-learning algorithms interact. Therefore, we argue that AI could be utilized to connect several different systems to estimate the level of OW.

The concept of OW consists of several soft factors (Bennett, Cook & pelletier, 2010), and does not have a coherent definition (Diamante, Natale & London, 2006). There are several issues regarding this, for instance, Eubanks (2019) mentions that it is hard for AI to replicate soft factors. PWC (2017) states similarly that it is costly and complex to replicate human factors for AI. However, there exist solutions for recruitment that measure soft factors to identify soft skills such as problem solving (Softfactors, 2016). One AI expert, Interviewee I, states that soft factors are complicated to measure as they often do not have a coherent definition, and without this, it is hard to code algorithms.

5.2.3 Measuring factors of organizational wellness

In order to explore the potential for utilizing AI when measuring OW, we consider it necessary to divide this broad definition and acknowledge if some factors are more optimal to measure with AI than others. Presented is our definition of OW;

> Several dimensions of employee wellness within the organization such as psychological, social, and physical at several levels, both organizational, interpersonal and individual. This by focusing on business strategies and stakeholders demands while fostering a healthy culture and climate which promotes; wellness and empowerment of employees, performance, safety, and managers managing with a mindset focusing on wellness of themselves and their employees.

Our interviewees define OW similar to our definition. They highlight performance, safety and employee wellness as vital factors in order to gain a high level of OW. Furthermore, interviewee I argue that there are two requirements for utilizing AI when measuring OW. These requirements are coherent definitions of factors measured and the availability of vast amounts of high quality data. Based on these requirements for successfully utilizing AI, we will analyze and discuss which of the factors performance, safety and employee wellness that may be optimal to measure.

Performance has a coherent definition according to previous research (Ax, Johansson & Kullvén, 2009). Furthermore, Gröjer et al. (2008) state that organizations can measure performance with financial measures and simultaneously empower employees. Yet, depending on the organization, performance may be measured differently (Ax, Johansson & Kullvén, 2009). As the HR managers work for profit-making organizations, the perspective from non-profit organizations and how they measure performance is not applicable here. However, performance is not necessarily related to profit, as the definition of performance does not include profit-making. We argue that it should be optimal to measure performance by utilizing AI, even if the organization does not measure financial KPIs.

Nilsen et al. (2004) define safety into two categories, objective and subjective safety. Objective safety can be considered optimal to measure as organizations can collect and analyze safety KPIs (Schmidt & Antonsson, 2002). However, subjective safety consists of soft factors (Nilsen et al., 2004), which according to previous research, are difficult to measure (Prevent, 2020). On the other hand, according to Lajksjö (2005), organizations can measure subjective safety with surveys. Arguably, it is optimal to measure objective safety with AI, however, it may be complicated to measure subjective safety as it consists of soft factors.

Previous research defines employee wellness as dimensions of social, emotional, physical, and spiritual employee wellness (Bennet, Cook & Pelletier, 2010). These dimensions can be considered soft factors, which may complicate measurement processes as these factors consist of employees' feelings and opinions (Prokopenko, 1987; Soft data, n.d.). Still, Interviewee I states that it is possible to measure soft factors with a well-calibrated AI tool that excludes irrelevant data. Further, s/he says that soft factors may be indefinable, but are feasible to measure by collecting and analyzing vast amounts of indirectly correlating data.

5.3 Awareness

Interviewee I and J states that awareness regarding AI is low both among managers and employees. Therefore, they believe it is crucial to create awareness regarding the benefits and possible opportunities generated by AI. Stancombe et al. (2018) argue that several issues exist for organizations who want to implement AI, and one is the lack of knowledge. Many HR managers highlight that even if they are interested in utilizing AI, they also admit their own and the overall organization's lack of knowledge and awareness regarding AI. For instance, one of the HR managers, interviewee C, says that her/his organization needs to close the knowledge gap within the organization since automated and technology-driven work processes are getting more common. Thus they need to educate and develop the internal workforce to handle these new tools. Ross (2018) argues that to build an AI-savvy workforce, the workforce needs training and education in this technology. According to Eubanks (2019), HR practitioners have never been required to maintain a technology skill set. Therefore, he argues, as their work becomes more reliant on technology, it will be crucial for the people within HR to gain a technology skillset. By reducing

this knowledge gap, we believe HR managers can gain awareness of AI and its benefits. However, before introducing education and training, employers need to create awareness about the possibilities of AI, both on manager and employee level. Based on our own experience, training employees in specific areas may be useless if the employees do not understand why they should learn and therefore do not see the need for it. By explaining why and creating awareness of what AI is and what it can do for the organization, we think this can ease the training process.

Eubanks (2019) states that employers have to present AI as something that compliments HR, not replacing its' human capital. Within interviewee C's organization, there exists a positive view of AI. S/he explains the importance of constant communication, especially in regards to AI and personal data. For instance, s/he says it is more important to express that AI is not implemented for replacing people, instead making their work more efficient and manageable. Since six of the HR managers express their organizations' view on AI as cautious also lack awareness about the concept of AI, we believe that there may exist a correlation between constant and transparent communication regarding AI and the positive organizational view on AI.

By utilizing AI within HR, interviewee G believes that AI could create a more human-oriented organization by measuring real-time data more efficiently. Her/his employees do not have the same opinion since they believe that too much technology would shift focus from their human-oriented culture and work processes. According to Eubanks (2019), HR managers need to champion the utilization of AI as something that adds value to the organization. Since interviewee G works in a technology-savvy environment, we believe that even if the employees are open to technology, they still want to make sure that this technology does not change how they are working. Thus not losing the human aspect of HR work. Measuring OW with AI could also be met by this reasoning. Therefore, we think it is important as an employer to create awareness that this utilization of AI is supposed to improve employees' work, not the opposite.

Interviewee I states that customers have become suspicious as soon as s/he has mentioned AI. Therefore, s/he argues for the importance of neutralizing the concept of AI by creating awareness. This statement connects to Wieland and Motwani (1992), who states that knowledge is the key to avoiding resistance to change, and that the reason for resistance for AI technology is due to lack of awareness regarding what AI can generate. We find it interesting that even if this statement by Weiland and Motwani (1992) is almost 30 years old, the situation is still similar. We think a reason for this may be that, as described in section 3.3.1 History of AI, the development of the AI technology has proceeded at a high pace and therefore has the general knowledge and awareness regarding AI not been able to keep up with this progression.

5.4 GDPR

As mentioned in chapter five, GDPR was highlighted and discussed by all interviewees as the principal legal framework that governs the collection of personal data. Some interviewees, both AI experts and HR managers, also describe GDPR as vital legislation to protect the employees' rights. Similar to the European Union's (2021), which describes GDPR as a vital step to strengthening individuals' rights in the current digital epoch. AI expert, interviewee I, states that even if GDPR may hinder measuring personal data in a broader range, s/he still considers the legislation convenient since it provides clear guidelines regarding how to collect data ethically. Therefore, GDPR is arguably something that could impact the potential of utilizing AI when measuring OW.

Even if the views on GDPR are overall positive, there are also indications that GDPR may hinder AI development. For instance, legal expert interviewee K states that if an employer collects data for one purpose, they can not use it for another purpose without violating GDPR regulations. Furthermore, Interviewee J highlights the importance of the ethical aspect and GDPR regulations when collecting personal data. Still, s/he states that organizations do not need more regulation policies and forfeit for collecting personal data since it may hinder how organizations work with AI. S/he believes that the focus should rather be on what we actually can do instead of what we are not allowed to do. In connection to this, Sartor and Lagoia (2020) argues that aiming for a flexible application of the concept of compatibility will allow organizations to reuse collected data when it may no longer be compatible with the original purpose. We believe, according to our empirical findings and previous research, that it seems that AI concerning GDPR is somehow contradictory. It protects employees data, but it also hinders development of AI within organizations. Hence, we believe a more clear distinction of when consent is needed from employees should ease the usage of AI in this context.

According to the European Parliament (2020), AI is a technology equivalent to human-like features and can develop behavior that reflects human behavior. They mean that AI can work independently and develop itself by analyzing the consequences of past behaviors of humans. According to legal expert interviewee K, the self-developing part of the AI technology can be problematic regarding the GDPR requirements, as all data collection needs to have consent from the user. S/he highlights that by approving the AI to self-develop, employers may lose control, and it becomes a "secret" what data the employer collects from their employees. Dignum (2019) and Powers, Pasquale, and Das (2020) mean that developers steer how the AI is self-developing when coding algorithms. They mean that by having a clear framework for ethical guidelines, creating an AI system that follows these guidelines is possible even when developing new features. We believe that the connection between GDPR guidelines and the self-developing aspect of AI could potentially be problematic utilizing AI when measuring OW. Still, we think that if it is possible to develop an AI system that follows ethical guidelines, it should be possible for GDPR

guidelines as well. By coding algorithms based on the GDPR regulation, developers can create an AI system that, even when self-developing, is still following these concrete guidelines for collecting personal data. If employers can do this, they can potentially still follow the GDPR guidelines even if they do not possess total control over how the AI system is developing. We also think that employers must revisit their AI systems to control if it follows the GDPR guidelines during its development.

5.5 Transparency

All the interviewees highlight the importance of transparency to create trust when collecting personal data and measuring OW. Interviewee A, whose employees are not comfortable with the measurement process in general, expresses how vital it is to be transparent while communicating regarding measuring OW. Thus, how they are measuring, why they are measuring, and how they use this data. Eubanks (2019) states the importance of managers being ready to answer questions regarding why and how the data is collected and for what purpose. Furthermore, Eubanks (2019) argues that HR managers need to communicate what type of value they will give back to their employees to make the employees understand why the data is needed. We consider this interesting since interviewee A states that s/he works extensively with communicating transparency. However, it still seems that her/his employees are not comfortable with measuring. Based on this, we can not see the same correlation for communication about measurement processes as in section 6.3, where clear and transparent communication about AI increases the employee's optimistic view on AI. The increased optimism may be because measuring and collecting personal data is a more sensitive matter than creating awareness of AI, and that some employees do not want to be measured at all. We believe that transparency can help organizations ease employees' doubtfulness about being measured, but it is complicated and may depend on the situation and context of the organization.

Two interviewees point out that even if we can measure everything, should we do it? Tambe and Cappelli (2019) argue that it can be problematic to measure the behaviors of employees concerning ethical and privacy aspects, as the employer may not be able to guarantee that the data they collect brings value to the organization. Thus, interviewee L suggests that organizations should develop transparent decision-making models that help organizations to know which data should be collected. S/he describes this as a tool for reaching a balance regarding the data collection. Integritetsskyddsmyndigheten (n.d.) also emphasizes the importance of obtaining a balance between the number of data the organization can collect and use and protecting individuals' rights regarding privacy and integrity. We think obtaining this balance between collecting data and protecting employees' integrity is crucial for organizations. This balance is essential as the technological abilities will increase over time, and organizations need to protect their employees' privacy and not collect data that is too personal or does not bring value for the organization.

5.6 Discussion in relation to research questions

Based on the analysis and discussion in previous sections, we will connect our five overarching themes to a cohesive discussion answering the research question of this thesis. Thus, in order to explore the potential of utilizing AI when measuring OW.

Our research question is the following:

Is there a potential to utilize AI in order to measure organizational wellness?
To determine the potential for utilizing AI when measuring OW, we ask the following questions:

- How is OW measured today?

- When measuring OW, are there any challenges for HR managers today?

- What is the perceived need among HR managers to utilize AI when measuring OW?

- What are the technical possibilities and challenges of applying AI in this context?

- What is the legal/ethical perspective utilizing AI measuring OW?

OW is a concept not coherently defined by researchers. However, the interviewees have similar notions regarding how they define the concept, which is also in line with our definition of OW. Today, all interviewed HR managers measure OW through surveys and questionnaires. Two HR managers are already using Winningtemp, an AI-based survey tool for measuring. Still, all HR managers express a need for a measurement approach done more frequently and that brings actual value for the organization. Except for not gaining up-to-date data with their current approach, the HR managers also mention that their current measurement processes are too monotonous and time-consuming. Yet, facilitating this by utilizing AI can be in vain if the organization does not demonstrate transparency. Therefore, HR managers must demonstrate why they are collecting data and when they are collecting it, even if the AI system can entirely measure OW without human interaction.

Our findings and previous research indicate that the technical opportunities for utilization of AI when measuring OW are tremendous, even though the concept of OW consists of soft factors. According to both literature and interviewees, soft factors may be difficult to define and complicate the AI system's development process. There exist other challenges regarding the utilization of AI when measuring OW, such as a lack of knowledge within organizations on how they can implement this technology and awareness about AI in general. We argue that one primary reason organizations invest little or nothing in AI for HR is the lack of knowledge about AI amongst HR practitioners. However, even if there exists a knowledge gap and the awareness can be considered as low, there is still a perceived need from HR to utilize AI when measuring OW.

Even though the technical abilities make it possible to utilize AI when measuring OW, our interviewees and previous research argue that this potential is affected by legislation such as GDPR and ethical frameworks. One interviewee said that s/he is not overly excited over a test run of an AI system in her/his organization, which measures personal data regarding acknowledging employees that intend to leave the company. Yet, s/he thinks measuring these factors is exciting but that it would be more suited to gather this data for another purpose from an ethical point of view. Therefore, does this indicate that ethical frameworks limit how organizations measure their level of OW? HR managers want to develop how they measure, simultaneously, they think it is on the verge of unethical practices. Thus, maybe ethical frameworks are the biggest hindrance to utilizing AI to measure OW.

In order to explore the potential of utilizing AI when measuring OW, we decided to motivate the potential by assessing the possibility of improving the quality when measuring OW. Based on previous analysis and discussion, we consider the potential for utilizing AI when measuring OW as prominent. However, as discussed, organizations need to consider several aspects before utilizing AI when measuring OW.

Since this is an unexplored topic with limited research, there may exist arguments regarding that the potential can not be examined based on findings from 12 interviewees. We considered our sample size accurate as we gained saturation in several areas, such as the importance of measuring, the need for improvements, and potential challenges. We also consider it possible to generalize these findings as we decided to include a diverse sample of interviewees representing various organizations of different sizes and industries, which generated a broad range of perspectives. Thus, even if we only included the perspectives of eight HR managers, we do not believe that the findings would have been different if we included twice as many. The same argument applies to the interviewed AI and legal experts, whos insights could be related to one another and already existing theory, like Lee (2020), Eubanks (2019) and Flordi et al. (2018). On the other hand, in regards to the legal aspect, we have identified contradictions regarding the application of GDPR when utilizing already collected data for other purposes. In order to clarify this, it may have been interesting to include additional perspectives. Nevertheless, we do not consider this affect our assessment of the potential. Another argument for why the potential may not be possible to examine is the lack of knowledge about AI amongst HR managers and their organizations. However, we motivate the potential by assessing the possibility of improving the quality when measuring OW. Therefore, given our findings, the HR managers contributed with relevant insights to examine this, even if their knowledge regarding AI was in general limited.

6. Conclusion

In this chapter, we present our conclusion and a reflection of the overall process. This by including practical implications and contributions, research limitations, and suggestions regarding future research.

This study aimed to contribute to the level of quality when measuring OW by exploring the potential of utilizing AI. In order to explore the potential, we interviewed HR managers who work for different-sized companies within various industries, AI experts, and legal professionals.

In an early stage, it became evident that there was a research gap regarding how organizations measure OW successfully. Also, there was no previous research on how HR practitioners are experiencing their current approach for measuring. Furthermore, it became obvious that the concept of OW is not coherently defined in previous research. Based on the existing definitions, we decided to create our definition of the concept to avoid limiting the scope of the study. Our definition was in line with how the interviewees define the concept of OW. This also made it possible, based on the insights from the AI experts, to divide the definition and analyze if any factors were more optimal to measure than others.

The empirical data emphasized that even if HR managers considered the measurement process highly important, they were not satisfied with their current approach when measuring OW. They expressed a need for an approach that would generate more consistent and up-to-date data. Since their current approach was considered both time-consuming and ineffective, there was an explicit need for improvement. However, we discovered that there exists a lack of knowledge and awareness about AI among the HR managers. According to the AI experts and HR managers, this knowledge gap needs to decrease if organizations want to utilize AI successfully.

From a technical point of view, measuring OW by utilizing AI is possible by collecting and analyzing vast amounts of data. All HR managers expressed their interest in using AI for this purpose. Still, there are both legal and ethical aspects to consider in this context, which all the interviewees highlighted. Further, a technical challenge is that there needs to exist coherent definitions of the factors measured. As OW consists of several soft factors, the measurement process may be complicated since these are potentially indefinable. According to our findings, however, measuring soft factors is feasible as indirectly correlating data can compile an accurate picture of a factor, such as mental illness. Hence, our overall estimation is that performance and objective safety is optimal to measure, as they are coherently defined and do not consist of soft factors. Employee wellness and subjective safety are possible to measure, but could be argued complicated as they contain soft factors.

Findings revealed that three organizations are already testing, through different approaches, utilizing AI to measure OW. As organizations are already applying AI, it could indicate that the utilization of AI in this context will increase and may be the future for how organizations measure OW. Therefore, based on our findings, we conclude that the potential of utilizing AI when measuring OW is prominent.

6.1 Practical implications and contributions

This study contributes to new insights regarding dissatisfaction among HR managers and their current measurement approach. All the interviewees expressed that they found the purpose of this study as very interesting and something they believe holds room for improvement. Therefore, it can be argued that we, through this research, are contributing with new insights to an unexplored area that will be relevant for a broad range of stakeholders. This research also offers a practical implication for organizations on how to utilize AI to increase the quality when measuring OW. Furthermore, utilization of AI can accomplish accurate, fast-paced measurement approaches and liberate time as it automates repetitive tasks. Thus, HR managers can focus on complex and challenging issues, creating competitive advantage for the organization.

6.2 Research limitations

Even though we sent out interview guides in advance, the concept of AI was slightly problematic since some interviewees lacked knowledge. This affected the interviewees as some expressed that they felt uncertain in defining the concept. We consider these feelings of uncertainty relevant, as it may have affected how the HR managers answered questions.

Moreover, due to the ongoing pandemic, we could not physically observe the interviewees how they measure OW today. Several HR managers told us that they measure these factors by, for instance, interacting with their employees. Therefore, observations like these may have provided a complementary perspective to our data collection.

6.3 Recommendations for future research

We consider this research as a foundation for future research regarding the utilization of AI when measuring OW. As this research topic is uncharted, there are incentives for further research. First, an interesting research project can aim for technical aspects of creating an AI-system and integrating it with already existing HRM systems. Thus, both students, teachers, and software companies may find this appealing.

Another recommendation, from an organizational perspective, is studying the importance of measuring OW for businesses. Furthermore, this study does not include the view of the employee.

Such an aspect could have been of great interest as the issues regarding privacy and integrity are highly relevant when measuring personal data.

As business students, it could be interesting researching leadership in connection to AI, especially when measuring OW. We believe that leaders today often rely on their soft skills regarding how they interact with their employees. However, if the data generated by the AI system shows the opposite of what the leader thought regarding employees' feelings and performance, maybe leaders start questioning their abilities.

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Appendix

Appendix A - Consent form

Thanks for participating in this interview. Your participation is entirely voluntary, and you have the right to cancel your participation at any time before, during, or after the interview.

We will only use the collected data for this study. Furthermore, the data collected will only be information relevant to the research. We will delete any relevant data after we finish the thesis.

You will be confidential, which means that no one will be able to identify you based on the data presented in the study. We will not mention your name in the interview to prevent you or the information you provide from being linked in any way by an outsider.

Any transcripts made will not be shown to anyone other than us conducting the study, and we will not include any of the transcriptions in the final report.

Appendix B - Interview Guide AI-experts

Questions:

- **Presentation, how long have you worked at xx? What is your current and previous position? How long have you been working with AI?**

- **How do you define AI?**
    - **How do you define AI in an organizational context? What does it imply based on your current position?**

- **Do you work with AI within your organization? How long have you been doing it?**
    - **Do you work with this based on a specific model or strategy?**

- **How do you define organizational wellness?**

- **How do you consider the potential of utilizing AI when measuring organizational wellness?**
    - **How could this look more in detail?**
    - **What would the outcome be?**
    - **If "no", what is it that is not possible?**

- **Do you consider any challenges regarding the utilization of AI when measuring organizational wellness?**

- **Do you consider any possibilities regarding the utilization of AI when measuring organizational wellness?**
    - **What do you think it may generate in terms of an HR and organizational perspective?**

- **What kind of AI systems and tools do you know that already exist and could be used for measuring organizational wellness?**

- **How would you describe the importance of utilizing AI?**

- **What is your organization's view on AI?**

- **Are there any specific legal frameworks you consider as important when working with AI?**

- **Based on the already asked questions, is there anything you would like to add?**

Appendix C - Interview Guide legal-experts

Questions:

- **Presentation, how long have you worked at xx? What is your current and previous position?**

- **How would you define the concept of organizational wellness?**

- **Which legal frameworks do you consider as prominent when measuring personal data?**

- **What is your view on AI? Do you know how it works and can be used?**

- **Are there any ethical aspects you associate with the use of AI?**

- **What challenges and opportunities do you consider, from a legal perspective, in regards to the utilization of AI when measuring organizational wellness?**
    - **What does your colleague think?**

- **Based on the questions asked, is there anything you would like to add?**

Appendix D - Interview Guide HR managers

Questions:

- **Presentation, how long have you worked at xx? What is your current and previous position?**

- **How would you define the concept of organizational wellness?**

- **How do you measure organizational wellness today?**
  - **Do you think it important to measure organizational wellness?**
  - **How do you consider your current approach and process for measuring organizational wellness?**

- **Are there any legal frameworks you think affect the work of measuring personal data within your organization?**

- **What is your view on AI? Do you know how it works and can be used?**

- **Vad är din uppfattning om AI, vet du vad det innebär och hur det används?**
  - **Do you know if AI is used within HR?**

- **Does your organization utilize AI within any work processes?**
  - **If "yes", how are you using it and what is your colleagues' view?**
  - **If "no", how do you think your organization would perceive an AI implementation?**

- **Would it be of interest to use AI when measuring organizational wellness?**
  - **If "no", why not?**
  - **If "yes", why?**