



Unlocking the power of AI in HR: how Artificial Intelligence can elevate the HR strategy in knowledge-based organizations

Ita Petrika-Lindroos

Haaga-Helia University of Applied Sciences
Degree programme in Leading Business Transformation
Leadership and Human Resource Management
Master's Thesis
2022

Abstract

Author(s) Ita Petrika-Lindroos
Degree Master of Business Administration
Report/thesis title Unlocking the power of AI in HR: how Artificial Intelligence can elevate the HR strategy in knowledge-based organizations
Number of pages and appendix pages 78 + 5
<p>Artificial Intelligence technologies are increasingly having an impact on organizations as well as individuals. AI technologies can support streamlining business processes and support employees move away from manual work towards a more fulfilling, value-adding tasks. To prepare for the AI disruption, organizations must understand the AI landscape to understand how these technologies can be utilized in their business processes and how can it support organizations in achieving their strategic objectives.</p> <p>Human Resources has evolved over the years from an administrative, day-to-day task function to a strategic business partner that can bring valuable and strategic insights to support the business. AI technologies can be used to strengthen the HR function's position in the organization and they can help HR to achieve strategic objectives.</p> <p>The conceptual framework for this study covers the subjects of AI technologies, knowledge-based organizations, and Strategic Human Resource Management. These topics have not been overly researched through one lens before, so this research aims to do that to find connections between these and discover how AI capabilities can support the HR function and strengthen its role as a strategic partner specifically in knowledge-based organizations. During the research, a framework is developed as a supporting tool for HR professionals and the HR function overall. The framework can be used to evaluate the AI technology applicability when aiming to achieve HR function's strategic objectives.</p> <p>The research is conducted as a case study, and development method is constructive research. The data was gathered with the help of semi-structured interviews and a feedback session with the case organization. The research sample for the interviews is 5 and covers a representative from the case organization as well as AI experts. The research sample for the group session is also 5 and all the participants are representing the case organization's HR team.</p> <p>The research concludes that AI disruption requires intensive upskilling and reskilling of people, for organizations to be truly ready to utilize AI technologies and for employees to be open to the possibilities it brings. Data is the backbone of AI, so data structure needs to be in place when organizations want to utilize AI technologies. The framework, developed by the author of the thesis, can be used as an effective tool to start the discussion on utilizing AI solutions to achieve the HR function's strategic objectives.</p> <p>This study can inspire future research in the areas of data and its importance in achieving strategic objectives, analyzing the developed framework's applicability to different teams and industries as well as researching the cultural aspect of implementing AI technologies and capabilities in organizations.</p>
Keywords Artificial Intelligence, Strategic Human Resource Management, AI Technologies

Abbreviations

AI Artificial Intelligence

HRM Human Resource Management

SHRM Strategic Human Resource Management

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1 Introduction

Artificial Intelligence (AI) is increasingly becoming a part of our everyday lives. Businesses are utilizing the opportunities that AI solutions offer to improve different business processes and ways of working. To be competitive, both – companies and employees – of all industries are starting to investigate AI solutions to understand how AI can be leveraged to benefit them. As Iansiti & Lakhani (2020) explain, understanding AI has become essential for all of us.

AI will transform our ways of working, and so organizations need to adapt to the inevitable change. To prepare for it and make use of AI solutions in the future, it is important for organizations to approach it in a strategic manner that will bring long-term benefits. To do that, organizations need to understand what AI is and what are the main areas of AI, and what type of AI can be utilized to solve specific challenges in an organization.

HRM (Human Resource Management) is concerned with all aspects of how people are employed, managed, and developed in an organization (Armstrong 2021, 7). Over time, the HR function has developed from an administrative function to a function that has a strategic role in the organization's success, evolving into a Strategic Human Resource Management (SHRM). SHRM is a process of ensuring that key issues of human resource management are dealt with strategically to support the achievement of organizational goals (Armstrong 2021, 34).

Considering the increasing importance of AI in organizations and the strategic role of the Human Resource function, it is important for organizations to utilize the opportunities that lie ahead to achieve the competitive edge in the market. However, the HR function is not yet fully utilizing the power of AI to streamline its processes and redesign work. According to Deloitte (2020, 55), 59% of organizations say the redesign of jobs to integrate AI technology is important or very important for their success over the next 12 to 18 months, but only 7% say they are ready to address this trend. Considering how unprepared organizations are and how strategically important the HR function is for the success of businesses, the HR function has an enormous opportunity to be the front-runner in utilizing AI technologies, that way emphasizing its value in the organization. Within time, the HR function can become a valuable ambassador for the rest of the organization in implementing AI technologies in a strategic way and driving the technological change across other functions as well.

Currently, HR functions in some organizations have started utilizing different AI solutions to create value for organizations – with using advanced data analytics and using AI solutions in recruitment, onboarding, training, and other aspects of employee lifecycle. However, the activities yet are

lacking the strategic and systematic approach it needs to fully utilize the opportunities that AI technologies can offer.

With a concrete and practical framework, the HR function could evaluate its current state of AI-readiness, evaluate what strategic challenges it needs to solve within the function and what AI approach could be the best to solve it. That would give the HR function the tools to develop its own processes and work overall to become a strategic AI implementation ambassador in the rest of the organization.

1.1 Purpose of the thesis

Looking at these important aspects and the upcoming technological transformation, the purpose of this thesis is to research the AI technologies and capabilities that are available for organizations and have been utilized in different industries currently. Looking deeper into this area sets the background and understanding of what the possibilities for AI utilization in knowledge-based organizations and the case company are.

This research also discusses the evolution of the HR function and its journey from a supportive, administrative function to a strategically important function that plays an important role in the success of the organization.

Based on the current available literature, there is not overly a lot of research where the two above-mentioned topics would be combined into one research. Therefore, this thesis aims to look at AI technology and strategic HR work through one lens – to see how it can work together and how the function can elevate its value and role in the organization by utilizing the AI technologies available.

To create a strategic value for the organization, the HR function needs to take a strategic approach in everything it does, also when utilizing AI technologies. This research looks at the possibilities how to approach this challenge practically by creating a framework for the HR function. The framework can help understand the current strategic challenges in the organization, evaluate the AI technologies and capabilities at the organization's disposal to solve the strategic challenges and achieve the strategic goals.

The purpose of this thesis is to give an insight to HR leaders on how AI technologies could be utilized and inspire the HR community to see the possibilities that AI technologies can bring and encourage the HR community to learn more about this subject. It has been noticed by the author in different HR-related events that have been organized in Finland and when speaking about HR and AI solutions, the attitude is still careful and HR professionals express that the topic of AI is not familiar at all, and that people still need to learn about this. This thesis author's hypothesis is that the

HR community (as many other people) feel intimidated by the term and what it entails, and maybe even have the feeling that they are not able to grasp such complex topic or that this subject is not their area of expertise. With this thesis research, the author encourages everyone to surpass the initial intimidation, and jump into this topic with an open mind. It is a fascinating world with the possibilities to find something useful and current for any HR professional, regardless of their area of expertise.

This research is targeted to inspire and educate mainly the HR community. However, the insights and results as well as the practical solution can be possibly utilized by other functions in the organization that wants to be the frontrunner in utilizing AI solutions to elevate their strategic value.

1.2 Relevance of the thesis topic

Artificial Intelligence is a subject that organizations are starting to investigate and consider using to streamline their processes and boost productivity. Upon researching this subject more in detail, it is noted that there is not too much research available that would specifically tackle the issue of utilizing AI tools and technologies in the HR function.

Also, during the thesis author's work since 2017 as an HR specialist, it has been noticed that there is a pattern when speaking to HR colleagues – a pattern of assuming that Artificial Intelligence is not a subject that HR professionals know too much about, it is considered to be a very technical subject that only professionals with technical background can understand. However, a hint of curiosity can be felt in the organizations and among HR professionals. When researching different solutions for the business challenges, organizations and HR professionals are expressing curiosity in the AI-based solutions and technologies that are available in the market. That causes HR professionals to re-evaluate their knowledge about data analytics and AI, which is visible in different professional outlets such as Harvard Business Review and others that increasingly talk about data analytics, AI technologies and how can they be used in an HR setting, to solve HR-related challenges.

Another indication of the growing importance of the topic is the presence of business literature that explains AI technologies and its possibilities in a simple language that does not require programming knowledge or experience. It is increasingly emphasized how important it is to understand what AI can do to elevate the success of the business, without needing to understand the deep-end programming of it.

This thesis addresses what the opportunities for utilizing AI technologies in the HR function are and how by utilizing these technologies, the HR function can solidify its role as a valuable strategic

partner in an organization. The research provides an overview on what the level of knowledge is and understanding that the HR function should have regarding AI and hopefully sparks interest and curiosity in understanding and eventually utilizing the opportunities that the AI technologies can bring. It is the hope that this research encourages HR professionals to explore the world of AI, data analytics and machine learning to grow professionally and expand the abilities that AI can bring to organizational development.

1.2.1 Objectives

The first objective of this research is to evaluate the AI technological capabilities that are available for organizations, focusing on the knowledge-based organizations and map how the technologies are and can be used for different purposes.

The second objective is to research the journey that the HR function has taken from being a support function to an important strategic player in the success of the organization. The research will look more in detail how HR as a function can reach its own strategic targets with the support of AI technologies, that way supporting the overall organization in achieving its strategic objectives.

The third objective is to create a practical solution – an AI framework – to address the challenge of AI technology disruption in the industry, the strategic role of HR in organizations. The practical framework can be used as a tool to prepare the HR function for the AI disruption and give the HR function the tools to tackle it in a strategic and proactive manner.

Combined all together, the research gives a holistic overview of the topic and provides a practical solution and guide for the case organization in evaluating own readiness for the AI disruption and practical framework that can be used in addressing the AI disruption.

1.2.2 Outcomes

With this research, the author aims to contribute to the theoretical research by looking into the topics of AI, HR, and the combination of the two as well as practical contribution by creating a framework. The framework can be used by the case company and possibly other organizations to evaluate their AI readiness and help them in evaluating the next steps in utilizing AI technologies when achieving the HR function's strategic objectives.

The first outcome of the thesis is a framework for analysing AI technology applicability when executing HR strategic objectives. The framework addresses the following aspects:

- Analysis of the HR strategic objective
- Locating the business activity that is affected by the HR strategic objective

- Evaluating which AI technological capability could be used to address this strategic objective

The framework could be utilized during the strategic objective setting or execution process, or even during the creation of a new strategy for the HR function.

Another outcome of the thesis work is an analysis on how the framework can be used in other parts of the business where a focus on AI tools might be relevant.

The framework and the analysis are shared with the case company. As part of the thesis work the case company's comments and feedback will be gathered and included in the summary of the thesis research.

1.3 Research questions

The research questions of the thesis are the following:

RQ1: Which are the impact areas of HR that can be improved with AI solutions effectively?

RQ2: How should the developed framework be utilized in the case organization's HR function?

RQ3: How can the developed framework be utilized in other parts of the business or the organization overall?

The research questions aim to understand on a deeper level how AI technologies and HR function can come together to benefit the HR function and organization overall. The questions are designed so that when answered, they would illustrate the wide spectrum where AI capabilities can be used in HR and would allow the author to deep dive into providing a practical solution to a real-life challenge that the case organization is facing.

The research questions are acting as a guiding star when deciding on which topics to focus on and what direction to take the research to. The literature analysis and interviews with the AI and HR specialists help in finding the answer to the RQ1. However, the developed framework, its analysis and feedback from the case organization's HR team is used to find answers to the RQ2 and RQ3.

The research questions are set in the thesis topic development phase and reviewed throughout the research work to make sure the questions are still relevant and serve the purpose of the research work.

1.4 Scope

The scope of the thesis is to research how AI solutions can support actioning HR strategic objectives in knowledge-based organizations. The scope includes the overall HR function's strategy. The knowledge-based organizations angle was chosen since the utilization of AI technologies could contribute to the success of an organization's overall success and different types of organizations might have different types of strategic objectives.

As a representative of the knowledge-based organization, a Finnish cyber security and privacy company F-Secure is selected, which is included in the practical part of the research. An HR representative is interviewed on AI and HR related matters. Also, the F-Secure's HR team is introduced with the results of the research and their comments and feedback are gathered and added to the thesis.

The scope of the thesis work is not to research different AI-based tools and solutions as such, but to provide a framework for the HR function for evaluating the options that could be utilized when actioning the strategic objectives.

Within the research, a framework is developed, and it is presented to the HR function of the case organization. After presenting the findings, the organization is asked to evaluate and give their comments on the research findings, which is included in the final thesis report.

After the research on the HR function and the framework is complete, the framework is analyzed to determine how this framework can be applied in other functions and areas of the business as well. The analysis is included in the final thesis report.

2 Theoretical framework

The objectives of the theoretical framework are threefold. The first objective is to research the importance of AI in knowledge-based organizations in general and how AI have been and can be used to enable general business efficiency and HR processes more specifically. Special attention is paid to exploring the role and importance of data and data quality in organizations as it is an important building block when implementing AI technologies or solutions. Since the scope of the research is to investigate how AI technologies can elevate SHRM in knowledge-based organizations (and the case organization for this research is a knowledge-based organization), a chapter is dedicated to exploring knowledge-based organizations.

The second objective is to map the journey of the HR function from an administrative function to a strategic partner in an organization. The chapters explore the changing nature of work and therefore the changing role of the HR function. It investigates what the HR function and HR professionals can do to also adapt to the changes to come.

Thirdly, the objective is to combine these two areas – AI and HR – and explore the possibilities how AI technologies can support the HR function and expand its role in the organization. Since the role of HR is growing to be a strategic one in organizations, it is important to understand how AI technologies can nurture the strategic HR role and elevate the importance of the HR function in organizations.

All areas explored together give a holistic overview on each of the topics separately, and together builds a picture on how these elements relate to each other and can be used to build a strategic HR partner in an organization, where data analytics is an important aspect of everyday business, and the HR function helps the organization to achieve strategic, long-term objectives.

2.1 AI impact on organizations

Still for many people, AI as a concept and AI technology is wrapped in mystery. Many of us have associations or a preconceived idea of what it is, and a lot of the associations are gathered from science fiction movies and literature.

AI as an idea was first presented 1955 by John McCarthy, a math professor at Dartmouth who organized a seminar on the topic the following year (Brynjolfsson & McAfee 2017). Even though AI has been established as an academic discipline since the 1950s (Haenlein & Kaplan 2019), people and businesses are now starting to investigate this area more and only now organizations are considering and evaluating how to actively leverage the AI technologies in the business.

To understand how AI can support organizations and how organizations can leverage the opportunities that AI technologies offer, it is important to understand what AI is. Haenlein and Kaplan (2019) define AI as systems that shows behaviour indistinguishable from humans in all aspects and that have cognitive, emotional, and social intelligence. The authors describe further that the characteristics that describe AI is being able to interpret external data correctly, learn from such data, and use those learnings to achieve specific goals and tasks through flexible adaptation. PWC (2019) in their report have explained AI as collective term for computer systems that can sense their environment, think, learn, and act in response to what they're sensing and their objectives. In these descriptions, the authors emphasize the ability to learn independently, make decisions and through these actions achieve their goal. Another important aspect is AI being able to analyze large quantities of data in a short amount of time, which makes AI technology particularly valuable in different industries and areas of businesses where data analysis capabilities are needed.

We must recognize that AI is a part of our lives already in the form of e.g., different mobile phone and computer applications, and that is only the beginning. AI will be increasingly augmented into our everyday work and lives, and we can start adapting to the change today.

It is important to note that in the future, the impact of AI is going to be enormous with AI contributing up to \$15.7 trillion to the global economy in 2030, more than the current output of China and India combined (PWC 2019, 3). This indicates that organizations from all industries will be impacted by AI technologies and to be competitive, organizations should understand and utilize AI in their processes and ways of working.

Considering how impactful change AI will bring to our everyday lives, it will have an enormous effect on how organizations operate, make decisions, and communicate with their customers and employees. As Haenlein and Kaplan (2019) provide an important point that the issue is not whether AI will play a role in these elements but more which role it will play and how AI systems and humans can (peacefully) coexist next to each other. PWC report adds to that by emphasizing the importance for organizations to be ready for the disruption ahead and that doing nothing to prepare is not a feasible option. Their analysis (PWC 2019) suggests that without a decisive action, many well-established enterprises and even whole business models are at risk of being rendered obsolete. McKinsey research team (2013) in their report emphasize the importance of leaders keeping their organizational strategies up to date when technologies are continually evolving, and they should ensure that organizations are utilizing technologies to improve internal performance. The authors also emphasize that technologies such as advanced robotics and knowledge work automation tools move organizations towards a leaner and more productive operations, and it allows also to develop more advanced operations. This will create the need to educate employees on all

levels – both employees on the assembly line in a factory as well as knowledge workers in different fields of work, their skills and experience.

Digital skills in organizations are an important element of understanding and nurturing the disruption AI will bring. Companies with stronger digital skills anticipate stronger AI-induced business impacts compared with firms with weaker digital skills (Brock & Wangenheim 2019, 7). The authors emphasize the importance of digital education of employees, which subsequently relates to investing in developing employees' digital skills and knowledge of the AI technology. That way employees can have a positive impact of the organizational capabilities and be a part of developing the organization to fit the business needs of today and the future. The authors further explain that AI requires specific organizational capabilities such as IT skills which both AI-specific skills (machine learning skills) and generic skills (understanding of modern programming languages like Python), application development techniques like agile software development, modern IT architecture skills like edge computing, and data management and analytical skills.

When evaluating the readiness for the AI disruption in organizations, an important aspect is to understand the quality of data that is available within the organization. AI requires data, digital data, and in high quality (Brock & Wangenheim 2019, 14), and as Tarafdar, Beath and Ross explain (2019, 40), for an AI algorithm to learn from data, a company must make available massive amounts of high-quality data that is cleaned and tagged; and that this challenge is the least anticipated obstacle in the development of AI algorithms in organizations. The authors rightfully point out that the quality of data is at the core of successfully implementing AI solutions, and organization still struggle with gathering good-quality data.

However, there are some barriers in implementing AI solutions that need to be considered when implementing AI solutions in organizations. Cubric (2020) explains the common barriers for AI adoption are economic, technical, and social. The author further describes those economic and technical barriers include costs of AI implementation and maintenance, need for support infrastructure, lack of useable data, non-reusability of models, and limited applicability of some class of problems. Equally important are also social barriers such as increased dependence on non-humans, job security fears, lack of knowledge and understanding of potential benefits, safety issues, lack of trust and difficulty in obtaining multiple stakeholder perspectives. Cubric raises a valid point that there are different barriers and obstacles that need to be addressed in organizations. By not addressing these matters, organizations risk at hindering the adoption of AI and therefore hindering their own development.

Another important aspect that organizations must consider when using AI technologies to their advantage, is the ethical aspect of AI technologies and using sometimes even personal employee or

customer data in their attempts to benefit from the AI technologies available to them. Ethics allows us to look concretely at how the world changes, it helps to clean the lens through which we can see the world so that we can be more attentive to its transformation, which AI contributes to a lot (Rességuier & Rodrigues 2020, 3). What the authors emphasize is the importance of ethics regarding the transforming world and how the ethical guidelines can help to steer us as a society towards responsible and ethical use of the opportunities that AI technologies can provide us. There are many ongoing initiatives and discussions surrounding the ethics of AI, and policy makers particularly have raised concerns about getting things right when it comes to developing and utilizing AI technologies in an ethical manner (Rességuier & Rodrigues 2020, 1).

The European Union (EU) has funded a project called SIENNA (Stakeholder-informed ethics for new technologies with high socio-economic and human rights impact). The aim of the project is to develop ethical frameworks, operational guidelines for research ethics committees, codes of responsible conduct and policy recommendations for new technologies with high socio-economic and human rights impacts (Jansen & Brey 2019, 6). The research emphasizes different AI technologies and the ethical issues and challenges these technologies face. The research revealed that the main ethical challenges include replacing human workers with AI technology, therefore raising the issue of human obsolescence, AI technologies causing limited social interaction among humans, the risk of inequality regarding specific people receiving access to cognitive enhancements and technologies (Jansen & Brey 2019, 11-12), and that is just to name a few of the examples portrayed in the research.

Considering the positive direction that governments are taking towards implementing ethical AI guidelines on country and international levels, also organizations will have the opportunity and obligation to make sure that AI technologies and approaches to data analytics and processing follow the ethical guidelines. To successfully achieve AI implementation and for organizations to benefit from the technology to its fullest, it is important to have an open dialogue with its employees regarding these matters. It is important to build trust among the employees and senior leadership of the organization because that is the path to employees embracing the change towards AI technology implementation and seeing AI not as a threat, but opportunity to improve the ways the organization operates and improve their overall employee experience as well. By having open communication and an open culture regarding this topic, organizations can also encourage their employees to develop their AI understanding and skills. That way individuals can prepare themselves better for the technological disruption ahead as well as organizations gain high-skilled employees that are aware of the benefits that AI technologies can bring to the organization.

When embarking on AI projects in an organization, Brock and Wangenheim (2019, 16) emphasize the importance of taking a grounded approach. The research done by the authors suggest that initial AI projects should be relatively smaller in size and targeted to improving the existing offering, increasing revenue, or enhancing operational efficiency. Authors make a valid point about starting the AI transformation journey with a relatively low-impact project to get familiar with the process and have a chance to learn and develop the approach before transforming a process or area of the business that has high impact on the organization. And as authors point out, only when enough experience has been gathered, organizations can move on to more complex projects that influence organization's innovation and new business models.

When implementing AI technologies in organizations, there are some challenges organizations face with. Davenport (2018, 35) explains that for most AI applications, after a model is developed, it needs to be deployed – embedded in, or called by, an existing system and that it is often easier to develop a mode, than to deploy it. It means that before deploying an AI solution, the infrastructure of the organization or specific function should be adjusted for the new deployed technology to serve the organization best. As said by Seth Earley, the CEO of Earley Information Sciences, “there’s no AI (Artificial Intelligence) without IA (Information Architecture)” (Earley 2017). Earley also explains that implementing AI requires foundational structures that can be reused across many different processes, departments, and applications. These structures are generally first developed in silos and standalone tools; however, the true power will be realized when considered in a holistic framework of machine-intelligence-enabled infrastructure (Earley 2017). What Earley is emphasizing, is the need for the basics to be in place – the data quality and structure, a clear strategy for what a certain technology can be utilized as well as a grounded approach to make sure that the project in question is implemented in a careful and thoughtful manner.

2.1.1 Knowledge-based organizations and AI

Information and data are constantly around us; technology is simply a tool that has made it possible to harness the information and for people to take it to their advantage. Knowledge has always been considered as a strength, and people who possess knowledge possess power to some extent. As pointed out by Alvesson (1993, 1008), formal or theoretical knowledge has considerable prestige and symbolic value in Western society. As for organizations, people's knowledge, experience, and creativity forms the backbone of the company's success, and it is important to manage knowledge to achieve the organization's aims and objectives (Millar, Lockett & Mahon 2016, 847).

Knowledge workers, knowledge management and knowledge-based or knowledge-intensive organizations are terms that are increasingly discussed in different sources of literature.

Knowledge and skills are becoming an increasingly important part of our working lives. Even in the academic world, different authors see these terms and what they mean slightly differently, depending on the context and circumstances, and the message the author is trying to convey.

Hedberg presented a paper at the 10th Annual International Conference of the Strategic Management Society in Stockholm in 1990, where he defined knowledge-intensive workers as workers with the capacity to solve complex problems through creative and innovative solutions (Salas-Vallina, Alegre & Guerrero 2018, 149). The definition raises several questions though – what is meant by “complex problems”, is that even something that can be objectively defined? Is there a clear definition of what is considered as “creative and innovative” solutions? When a worker who performs manual labour invents a solution to how a work process be improved or made more efficient (which their employer might consider as “complex problem”), is the person becoming a knowledge-intensive worker? Was the person not a knowledge-intensive worker before? These questions would need to be investigated with more detail to have a clear understanding of what is meant by certain terms and definitions. This is echoed by Thite (2004, 30) who says that it can be argued whether there is such a thing as non-knowledge worker.

Alvesson (1993, 1008) defines knowledge-workers being often “language workers”. Alvesson emphasizes the importance of elaborate language use as an important aspect of knowledge-workers everyday work. Though at the same time the author argues that there are types of work, for example, service work which includes a lot of verbal interactions, but the task itself does not call for more elaborate language codes. Considering the role language has in knowledge work, it is at the same time important to define what exact impact language has – is it a tool to transfer knowledge to one’s peers, or is it a tool to convince internal and external partners in an argument, or is it a way to create completely new knowledge that will benefit the individuals as well as the organization?

Knowledge management is being defined by Thite (2004, 28) as creating, validating, and utilizing of both explicit and tacit forms of knowledge at the individual, group, organisational and community level through harnessing of people, process, and technology for the benefit of those involved and affected by it. Subsequently it can be defined that knowledge-intensive organization is an organization that creates, validates, and utilized both explicit and tacit knowledge in an organization. Hagel & Brown III (2017) explicitly suggest that nowadays the most valuable form of learning is to create knowledge, and that leaders and organizations should nurture that.

At the same time Alvesson (1993, 1004) points out that it is an idealized and biased way of thinking that knowledge workers' work primarily is to develop and/or apply advanced knowledge, and that surprisingly few studies have carefully investigated what knowledge workers do at work. Alvesson (1993, 1008) also makes a valid point that knowledge does not exist in a vacuum as something fixed and packaged, ready to be sold and distributed. It is an important argument to make, considering that knowledge is always evolving and should be adjusted to the needs of each individual and adjusted to each situation. That emphasizes the importance of the skill of knowledge-workers to analyze the knowledge available, critically evaluate it and apply in the necessary way.

Artificial Intelligence can play an important role in knowledge management. As per Amigoni, Schiaffonati & Somalvico, AI systems are the most prominent new knowledge management tools and they can be designed to facilitate company processes that are replicating mechanisms to carry out company tasks immediately and efficiently, which usually has been carried out by people (Manuti & Monachino 2020, 180-181). For AI systems and technologies to be truly embraced and implemented in organizations, it is important to address the fear and doubt that people have regarding their own position in the organization. As noted by Manuti & Monachino (2020, 179), the benefit of digital transformation is not always clear to people, and the uncertainty surrounding the future can result in fear in those that are impacted by the change. What can organizations do to minimize the fear and help people to embrace the change that is inevitably coming? Open communication and involving people in building the future together, to give them the information they need and encourage them to take ownership of their work.

Implementing AI solutions and technologies when addressing knowledge management, the role of human is not lost, and human workers do have an important role in maintaining good knowledge management practices. Employees must be able to acquire knowledge and share it with their colleagues at the knowledge level, while leaving the details and technical implementation to the technologies (Vouros 2003, 124).

As noted earlier, "knowledge-based organizations" and "knowledge-intensive organizations" often seem to be used interchangeably in different sources of literature and by different authors. In the context of this study the term "*knowledge-based organization*" is used.

Zack (2003, 67) states that the most common misunderstanding regarding knowledge-based organizations is that the more a company's products or services have knowledge at their core, the more the organization is, by definition, knowledge-based. The author illustrates their point with an example that a research or consulting organization would be more of a knowledge-based organization than a company making and selling physical products like cement.

Research conducted by Rory L. Chase revealed an interesting detail which supports Zack's statement above. Chase (1997, 40) describes a study where organization representatives express their organization state regarding knowledge management, and, although over 90% of respondents stated that they worked in knowledge-intensive organizations, only 6% of the organizations were described as effective in leveraging knowledge in the organization to improve business performance and results. AI can greatly support organizations in leveraging the knowledge it has at its disposal. Technology is proven to be a great ally to the organizations that want to transform into knowledge systems to manage better their data, information, and knowledge (Manuti & Monachino 2020, 182). This emphasizes the notion that to be truly a knowledge-based organization, the way an organization leverages knowledge and learns from it is as important as the knowledge and expertise it can provide to its customers. One might argue that without skills to effectively learn and share knowledge internally, it is difficult or even impossible to provide high-quality services to external customers.

In the research, Zach emphasizes that a knowledge-based organization is being defined more by the way it harnesses and shares data within the organization. According to the author, knowledge-based organizations have specific characteristics that are summarized as follows:

- A knowledge-based organization attends to two related process that underlie knowledge sharing and creation in organizations: the effective application of existing knowledge and the creation of new knowledge.
- A knowledge-based organization is a collection of people and supporting resources that create and apply knowledge via continued interaction; the organization seeks knowledge wherever it exists and allies with whomever can help it to learn what it needs.
- A knowledge-based organization recognizes that knowledge is a key strategic resource and ask relevant questions such as *What do we know? What our competitors know? What do we need to know to execute our strategy?*
- A knowledge-based organization takes knowledge into account in every aspect of its operations and treats every activity as a possibility to learn.

(Zack 2003, 68-69).

Davis & Botkin has a different view on the elements and priorities of a knowledge-based organization through the lens of customer-centricity. Davis & Botkin (1994) emphasize the importance of creating "smart" products that are interactive, they become smarter upon being used, and they can be customized. The authors emphasize the big shift in customer behaviour as well, with customers becoming learners as the smart products oblige and help them to learn. And a knowledge-based organization leverages on the process by utilizing the data that is being gathered

to create increasingly smarter products. As authors express an interesting question: How can business extract the knowledge value from a pair of socks, a home mortgage, or a foreign exchange credit? (Davis & Botkin 1994). This is an interesting approach to think about this matter, and the author of this thesis would argue that to leverage the smart products and create the learning experience for its customers, the internal processes, approaches, and strategies need to be in place.

The term “knowledge-intensive” has been defined by Pietersen (2014) as being dependent on tacit-based (intangible) knowledge base that is owned by highly skilled individuals. The specific type of knowledge is not defined, and that illustrates the broad spectrum of knowledge that different types of professionals in can possess in different industries.

An interesting note from Chase (1997, 38) is that while organizations recognize the importance of creating, managing, and transferring knowledge, so far, they have been unable to translate this competitive need into organizational strategies. This is still a matter that organizations are struggling with, and AI solutions can provide just the right solution to this challenge. As Consoft Sistemi points out, AI technologies such as text mining and semantics research, self-learning technologies, cognitive computing, process-based methodologies for managing data flows, increasingly intuitive and social user interfaces are the aspects of modern knowledge management platforms, at the basis of the digital workplace (Manuti & Monachino 2020, 182). When combining the technological advancements with the strategic approach to knowledge management, knowledge-intensive organizations could manage the skills of their employees on a new, more advanced level and thus create a strong competitive edge.

A wide-spread issue that organizations are facing, is being siloed and for the knowledge not to flow for the benefit of all functions and employees. However, as Kuusisto (2017, 348) points out, organizational changes driven by digitalization are bringing down the silos and it directly contributes to knowledge being distributed more and more efficiently. Kuusisto also adds that contemporary organizations believe information sharing is the key to success. With these statements, the author emphasizes the importance of embracing digitalization and in that way becoming a stronger knowledge-based organization.

As Davis & Botkin (1994) point out, data is the basic building block of a knowledge-based business and as Stanciu et al. (2021) remind us, data and analytics are becoming the vertical knowledge in organizations and companies that are sharing data and developing strategies together increase their market share and thrive. The authors also remind that in the future of organizations will be a landscape of mixed human and artificial intelligence, the initiatives and business strategy will be co-created and co-executed, and the success of that will rely on the technology’s flexibility and

agility. That is the reason why organizations must move towards digitalization – to enable learning and use technologies for their own benefit to grow their market share and to gain truly valuable, deep-dive insights into their business processes. For that to happen, data has a crucial role.

2.2 The importance of data

The shift in organizations towards becoming more data-driven is more visible especially in the latest years. According to Bean (2021), mainstream companies have heavily invested in Big Data and AI initiatives to become more data driven with 91.9% of organizations reporting that the pace in these investment project are accelerating, and 62% of organizations reporting investments of at least \$50 million. The author continues that at the same time, organizations are struggling to deliver value from their Big Data and AI investments to become a truly data-driven organisation.

Data analysis is the science of analysing data sets to find trends, answer questions, and draw conclusions (FutureLearn 2021). Big data analytics aim to improve organizational decision making and resolution operation executions (Balica 2019, 62).

Just as oil fuelled the economic growth of the 20th century, data will be the catalyst for growth in the 21st century and the data, including Big Data, Internet of Things (IoT) data coupled with advanced analytics like Artificial Intelligence, Machine Learning, and Deep Learning, will be the force that drives businesses towards success and digital transformation (Schmarzo & Borne, 2020). Authors make a valid point about data and technology working together to achieve true value for the organization, and that only can lead to successful digital transformation. The authors also continue that the only sustainable differentiator is an organization's ability to exploit the economic value of its data and analytic assets to deliver analytics-infused customer, product, service and operational insights (Schmarzo & Borne, 2020).

As noted previously in this study, data is at the core of implementing AI solutions in an organization successfully. Therefore, organizations need to understand in detail what type of data is available, what the state of it is, and what should the state of the data be when being used for AI technologies. Fortunately, increasingly, CEOs realize that organizations have entered an era in which data's full potential can be realized (Berman, Marshall, Ikeda 2020, 39). But what does it mean to be a data-driven organization?

Berman, Marshall and Ikeda also continue on to explain that during their research, they identified four distinct kinds of enterprises, listed below.

- *Aspirational*s are organizations that only begin to integrate their business and data strategies, but they don't have a data culture in place.

- *Builders* are organizations that are aligning their business and data strategies and start to create a data culture, but they still can't properly capitalize on data.
- *Explorers* are organizations that are capitalizing on their data, have aligned the business and data strategy, OR are creating a considerable value from the data they collect, but have not managed both.
- *Torchbearers* are organizations that have attained the ideal – fused their data strategy with their business strategy, operate in a data-rich culture, have high expectations of the value that data can offer and typically exceeds their targets.

(Berman, Marshall, Ikeda 2020, 40).

The research has revealed an important aspect of utilizing data in organizations and therefore utilizing AI solutions in the future. Each organization has their own journey in utilizing their data, and each organization is at a different stage. By analyzing own organizations and understanding what stage the organization is at, leaders can evaluate what are the matters that need to be addressed first before tackling more complex issues such as implementing an AI solution or technology.

Interestingly (though not surprisingly) that the type of enterprise correlates with other aspects of business agility. The research also revealed that 84% of torchbearer enterprises expect to automate many of the decision-making processes over the next few years compared to 63% of aspirational enterprises (Berman, Marshall, Ikeda 2020, 40-41). This illustrates the thinking that organizational leaders have – the ones who are willing to take risks and look forward into the future regarding data strategy are also the ones who are willing to question and change their ways of working and are more agile towards industry and organizational disruptions.

How to make sure that organizations on all levels reap the benefits that data can provide? The top-performing CEOs, rather than keeping data closely confined either within a specific business unit or within the organization overall, encourage the sharing of the data freely across their organizations (Berman, Marshall, Ikeda 2020, 44). This is supported also by Waller (2020), who emphasizes that for organizations the far most common complaint is that people in different parts of business do not get access to basic data and that one solution to this issue is to give universal access to key measures at a time.

Giving data access to everyone in an uncontrolled manner can possess a challenge however, as noted by O'Toole (2020) that if the C-level directs that data analytics should be adopted throughout the organization, but the practical use is being left to each business unit leader or function head. One solution by Waller (2020) is that in companies where data is being managed and used by data

scientists it is important to draw closer the business and the data scientists, so that they understand each other and their needs. That way the different units can learn from each other and utilize the data equally. Another solution suggested by the author of this thesis research is to implement an organization-wide practices or guidelines on how data is being utilized in the organization, so that business unit and function leaders do not have to “reinvent the wheel” when it comes to utilizing data, which can be a time-consuming and costly process.

But as Waller (2020) points out, the biggest obstacles to creating data-based businesses is not technical; they are cultural. Author continues to explain that it is relatively simple to determine how data should be included in the business processes but making it normal or automatic for employees is the real challenge. That is why it is important to create a data culture in organizations.

To create a successful data-driven culture, embracing it starts from the top leadership, who can act as ambassadors and show example on how to utilize data in a strategic way in their everyday work. Organizations who have a strong data-driven culture have top leaders who require for any decision to be backed-up by data (Waller, 2020). O’Toole (2020) also points out that leaders need to be conversant in data science, which does not mean that they must have an in-depth expertise in data science, but basic, working understanding is required.

These aspects are important to consider even when analyzing and mapping the organization’s readiness and maturity towards a data-driven culture. At any stage, it is worth considering – are our leaders ready for leading our data-driven culture, are they ready to be the ambassadors and at the forefront of the data-driven culture? Reflecting upon these matters can spark an idea whether there needs to be a training program in place that educates leaders about what it means to be a leader in a data-driven organization.

Another important aspect of nurturing a data-driven culture is automating the data analytics processes. Sher (2021) explain that by doing so, it drives innovation and more growth, and paves the way to implementing AI, which can make the process even more efficient and cost-effective. But as author notes, only when the data is thoroughly prepared, only then an organization can start thinking about implementing AI solutions as AI and machine learning technologies need large datasets to be trained. Sher illustrates just how important the data and the quality of data is when it comes to implementing AI solutions – it is at the very core of successful AI implementation.

What is positive, is that also leaders are starting to recognize the importance and power of data. As said by a CEO of a media company in Poland:” The winner will be the company that gets the data, analyzes it quickly and makes the right decisions” (Berman, Marshall, Ikeda 2020, 49). However,

when working with data and trying to develop valuable analytics, organizations must avoid building one-off analytics that address the immediate business needs but lack the effort to build composable, reusable, continuously learning analytic modules that will make the analytics solutions appreciate instead of depreciating in value (Schmarzo & Borne, 2020). Once companies recognize the value in investing in such analytics that will bring long-term fruits, they can fully and truly be on the path of digital transformation.

The HR function has an important role when preparing the organization to implement a data-focused culture and nurturing it once it has been implemented. HR has access to organization's leaders and can directly address these matters with them. By working together, HR can support the organization to face the digital transformation with the support of training programs for the employees and leaders as well as make sure that employees also feel like a part of the change process. That can be achieved by including conversations and reflections regarding data throughout the whole employee journey. However, it is important to note that HR cannot tackle this matter in a silo and whole organization's as well as the senior leadership's involvement is crucial for the success of the culture change.

2.3 How AI can enable business efficiency

For this research, it is important to look at the opportunities AI solutions present in the market today. When implementing AI, organizations need to understand the overall capabilities of AI solutions and how certain technologies can help achieve organizational aspirations and goals.

As explained by Berman, Marshall, and Ikeda (2020, 39), with the advantages that AI, the Internet of Things (IoT), and cloud computing provide, companies finally have the means how to generate insights and generate contextualized, predictive knowledge. What is interesting that even though the possibilities are available, not nearly all the organizations and organizational leaders are utilizing the opportunities offered. What exactly are the reasons for it? Are the obstacles related to budgeting, the skills in the organization or maybe lack of time? Leaders in organizations are encouraged to investigate the reasons why their organizations are not at the state they would want to be and address these issues before addressing the implementation of AI technologies.

When thinking about digitalization and AI solutions, organizations often focus on improving specific internal processes or improving certain aspects of the business. Schmarzo & Borne (2020) remind that digital transformation is not just about optimizing existing business processes, but it is about reinventing and innovating business models. This is an important reminder that analytics and AI technologies, only when utilized strategically and holistically can bring real value, and bring short-term, but especially long-term results. So therefore, when implementing AI technologies and

solutions also within the HR function, the focus should be on addressing the operating model overall instead of addressing a very specific challenge at hand.

When considering different AI solutions, it is important to have a broad overview on the possibilities that are at organization's hands. Understanding the overall picture is important to be able to holistically evaluate what are the challenges that an organization is facing and what is the best approach how to address these challenges. Another important question organizations must ask themselves is what capabilities the organization wants to and needs to develop? By asking honest questions and answering to them honestly, organizations and professionals within it can find the right approach how to address the matters that are of importance in the organization, which will help them in discovering the best AI approach in addressing it.

2.3.1 How AI can contribute to the organization's business capabilities

An approach how AI can be looked at, is through the lens of business capabilities rather than technologies (Davenport 2018, 41). Author provides an overview of the three important business activities that AI can support:

- Automating structured and repetitive work processes, often via robotics or robotic process automation
- Gaining insight through extensive analysis of structured data, most often using machine learning
- Engaging with customers and employees, using natural language processing chatbots, intelligent agents, and machine learning

(Davenport 2018, 41).

The overarching view of the capabilities AI can offer to the business is giving a clear and understandable view on the opportunities that organizations have. With such lens, it helps organizations to look at their business processes and map first what processes and capabilities needs addressing and can be improved. Once that is clear, organizations can research and map what specific technology suits them and their needs best.

Process automation or robotic process automation (RPA) is the automation of digital and physical tasks, which is most often back-office administrative and financial activities (Davenport 2018, 41) and which involves repetitive, non-subjective, high-volume manual tasks (Accenture 2016). A study by Mckinsey team (Manyika et al. 2017, 5) estimate that 50 per cent of the activities that people are paid to do in the global economy have the potential to be automated by adapting currently demonstrated technology. Manyika et al. from McKinsey (2013, 4) explain more in detail automating knowledge work; the team predicts automation of knowledge work to be potentially

economically disruptive technology. According to the authors, the trend for automating both physical and knowledge work will be inevitable. What organizations can do to prepare is educating themselves of the technologies and opportunities and be the frontrunners in their industries to implement RPAs in their processes and therefore gain competitive edge.

As for the knowledge-based organizations – considering that it will be possible to allocate a considerable portion of the knowledge work to technologies, organizations should start utilizing these opportunities. That can also have a positive effect on employee wellbeing when employees can focus their time and energy on work that is meaningful and require skills and competences that AI is not (yet) capable of.

Robotic process automation is the least expensive and easiest to implement of automation technologies, and usually brings rapid results and return on investment (Davenport 2018, 42). The main benefits for implementing a robotic process automation are improvements to operational efficiency, quality of service or work produced, easier and faster implementation and integration with other systems, and improved risk management and compliance (Syed et al. 2020, 3).

However, there is critique regarding the robotic process automation approach or at least challenges to consider upon implementation. It cannot be taken for granted that adopting robotic process automation will lead to achieving benefits as the success rate depends on other factors such as organizational readiness for such technology, capabilities of the technology, and implementation and delivery of the robotic process automation solution (Syed et al. 2020, 4). That possesses a challenge for organizations to look at the overall picture and evaluate all the elements that contribute to the success of the robotic process automation solution. Also, employees need to recognize that there are these different elements at play, to avoid disengagement and a sense of disappointment when the solution does not work as a “silver bullet” for the issue the robotic process automation technology was introduced to solve to begin with.

Another challenge to implementing such technology is the resistance of employees due to fear of automation costing employees their jobs. That is why it is important to educate employees on the capabilities of RPA and invest in training employees regularly as the evolving nature of jobs will require them to acquire new skills and work side-by-side with the technology (CiGen, 2020). This can be a particularly complicated subject to address in organizations because this aspect touches people on a personal level. When addressing this matter, organizations should be very attentive to the angle of the discussion to inspire employees and give them the confidence that AI technology can benefit employees as well and can give lots of opportunities. Educating employees on basic AI technologies to give them the tools to utilize AI solutions can also be a powerful approach to convince employees of the benefits AI solutions can bring.

Since automation is an important aspect of future of work, it is important for organizations to look at it closely to understand the elements of automation and how it will affect the organizations and their way of working in the future. It is suggested to include employees in this journey, because giving employees the autonomy to decide and be able to influence their work contributes greatly to their wellbeing and increases motivation and engagement.

Extensive data analysis or cognitive insight is another area that organizations can use to elevate their business processes and strategy. As already mentioned in this research, data is the backbone of implementing AI solutions. That makes different data analysis approaches especially valuable for organizations and this is an area that should be developed in businesses. As Davenport (2018, 44) explains, cognitive insight is being provided by applications that use algorithms to detect patterns in vast volumes of structured data and interpret its meaning. This is the oldest category of AI. As mentioned earlier in this research, data plays a crucial role in ensuring that AI technologies are being utilized to their fullest.

As suggested, for the data analysis to be effective, organizations need to understand what objectives and strategic goals it has, and how data analysis can improve on the business processes and strategy overall. The next step is to understand what type of the data the organization has already and what the quality of the data is; finally, mapping what data is needed to achieve the strategic objectives or improve business processes and whether this data can be gathered.

Data analytics can support organizations in various ways such as predicting what a particular customer is likely to buy, identifying frauds in real time, analyzing and identifying safety or quality problems, gathering and analyzing data on when certain machinery will malfunction, and automate personalized targeting e.g., advertisement (Davenport 2018, 44).

Understanding how these capabilities can be leveraged can benefit organizations greatly. Once that is investigated and a clear picture has been formed, the HR function can and should be a part of the discussion on what should be the next steps for the organization in implementing AI technologies.

2.3.2 How AI technology can be applied to practical tasks

AI technologies can provide a wide range of possibilities for organizations to be utilized to improve on their business processes and add value. Once organizations get a full picture on what the opportunities are and are familiar with the basic technologies available, it can start evaluating the readiness of the business to implement different solutions for different purposes.

Davenport (2018, 11) provides a table with detailed overview of the AI technologies, brief description of each technology and provides examples on the application of each technology. The goal of the table is to give a wider overview of the different technologies, their brief descriptions and mentions examples where the specific AI technology could be applied. Before diving in implementing the technologies, it is suggested for organizations to take a strategic approach and evaluate what is the goal that needs to be achieved, which AI technology could be the most appropriate to achieve it and how the organization can approach it in a strategic manner to ensure that the actions provide the highest possible value.

Table 1. Overview of AI technologies and their application (Davenport, 2018).

Technology	Brief Description	Example Applications
Statistical machine learning	Automates process of training and fitting models to data	Highly granular marketing analysis on big data
Neural networks	Uses artificial “neurons” to weight inputs and relate them to outputs	Identifying credit fraud, weather predictions
Deep learning	Neural networks with many layers of variables and features	Image and voice recognition, extracting meaning from text
Natural language processing	Analyzes and “understands” human speech and text	Speech recognition, chatbots, intelligent agents
Rule-based expert systems	A set of logical rules derived from human experts	Insurance underwriting, credit approval
Physical robots	Automates a physical activity	Factory and warehouse tasks
Robotic process automation	Automates structured digital tasks and interfaces with systems	Credit card replacement, validating online credentials

Machine learning is a technique for automatically fitting models to data and to “learn” by training models with data (Davenport 2018, 11). Author continues to explain that machine learning is one of

the most common forms of AI and its technique is at the core of many approaches of AI, and it has many versions of it. Brynjolfsson & McAfee (2017) note that machine learning is the most important general-purpose technology of our era. Machine learning can be at the basis for developing other technologies that can have huge impact on businesses and people's lives. Machine learning technique learns from data, so the more data it is given, the more it learns and the more accurate it becomes (Armstrong and Taylor 2020, 152).

Machine learning can be widely used in organizations to understand large quantities of data which can help in the decision-making process. In the HR function the technology can be widely used in retention management to identify potential leavers so that action can be taken to retain them (Armstrong and Taylor 2020, 154), recruitment process to match the job candidates located in a database to job/person specifications (Armstrong and Taylor 2020, 153), and training to apply content based on the progress of the student (McKinnon 2020) just to name a few.

There are certain risks that can be associated with utilizing machine learning technologies. Machine learning systems often have low "interpretability", which means that the "thought patterns" of the systems are not clear, which makes it nearly impossible for humans to understand how the system came to the certain conclusion (Brynjolfsson & McAfee 2017). That creates room for the systems to have undiscovered hidden biases which can be difficult to remedy, since it is unclear where exactly the bias arises. When considering recruitment, these biases can already emerge even before candidates send in their job applications for a position. Predictive AI technologies are used to advertise job openings to the most "relevant" candidates to achieve better reach and improve the chance of a candidate applying for the position in question. In a recent study it was discovered that broadly targeted ads on Facebook for supermarket cashier positions were shown to an audience of 85% women, while jobs with taxi companies went to an audience that was around 75% black (Bogen 2019). In 2018, Amazon had to discontinue using an AI-based recruitment tool after it was found out that the algorithm was biased against women (Parikh 2021). These cases emphasize the importance to evaluate own processes A-Z and recognize own biases carefully, to ensure biases are not being introduced in any part of recruitment or any other process.

Neural network is a more complex form of machine learning and it has been used for categorization application (Davenport 2018, 11). It processes information in a similar way to the human brain; networks are composed of a large number of interconnected processing elements (neurons) working in parallel to solve a specific problem and they learn by example and cannot be programmed to perform a specific task (Armstrong and Taylor 2020, 153).

Though artificial neural networks have shown many promising applications in other parts of business like engineering and management, they are still new to the HR function (Huang et al.

2001, 208). However, there are some opportunities for neural networks to be used in the HR function; one example being recruitment where you can provide the neural network with some successful and unsuccessful recruiting data, it would set up a talent selection system (Huang et al. 2001, 209). Also when utilizing the neural network capabilities, it is crucial to make sure that the data being used is high quality and not biased. Only that can ensure that the technology is being used as intended and helps the organization to achieve their goals.

Deep learning involve one of the most complex forms of machine learning (Davenport 2018, 12). It is also known as neural networks that can predict different outcomes. Davenport continues to explaining that deep learning models are good at specific tasks like image and voice recognition, which are better than earlier automated approaches to these tasks, and they are also approaching or even exceeding human capabilities in some areas.

An aspect to take into account when implementing deep learning technologies is that deep learning require intensive training on large datasets (Kudlacek). So, when planning on implementing such technology, it is especially important to evaluate the available datasets in the organization.

In HR, such technology can be utilized in facial recognition technologies to read the emotions of candidates in interviews or employees in different situations. It can also be used to ensure office safety – allowing people with specific access to enter specific locations in the office building. HR can also utilize the voice recognition capabilities to introduce voice-activating apps to support employees in their daily work or specific tasks. Though the author wants to point out the sensitive nature of such data, so ethical AI practical should be the utmost priority when utilizing these technologies.

Natural language processing includes applications such as speech recognition, text analysis translation, generation, and other goals related to that language (Davenport 2018, 14). Natural language processing technologies can support the HR function in analyzing text data for trends and other insights, analyzing text to spot e.g., the overall mood or sentiment of employees, and support the recruitment process by crafting job advertisements that would have the most impact on candidates (Armstrong and Taylor 2020, 153-154).

Natural language processing products like personal assistants and chatbots can also be utilized to support HR function work. Especially because of the simplicity and usefulness, chatbots are quickly becoming one of the most accessible and popular ways for companies to utilize AI technologies (Rouhiainen 2020, 32). HR functions can use chatbots for assisting employees in everyday matters that require repetitive action like inquiries about salary payments, vacations and sickleaves.

Rule-based expert systems require human experts and knowledge engineers to construct a series of rules in a particular knowledge domain (Davenport 2018, 15). The rule-based systems have not been developed much since their invention, and they are not considered today to be the most used approach. Rule-based expert systems could be used in performance evaluations of employees due to its ability to imitate human thinking and ability to identify the facts that are of importance regarding decision-making (Mikulic, Lisjak & Stefanic 2021, 14). The authors add that the shortcomings of the particular system is it being based on the knowledge and experience of an individual expert. Expert systems can also be used in recruitment, where the system “reads” the applications, enters relevant data into a knowledge base, and offers the placement advice to the recruiter or employer (Ciprian-Octavian & Barnoschi 2014, 1).

Physical robots perform different physical tasks like lifting, repositioning, welding, or assembling objects. As per Davenport (2018, 16), more than 200 000 industrial robots are installed each year around the world. The author continues that historically, robots have been programmed to perform particular tasks, but more recently robots have become more collaborative with humans and are becoming more intelligent and more easily trained. That provides an opportunity to utilize physical robots in wide range of tasks, which can give organizations the opportunity to tackle wider range of challenges.

Also employees can and should be trained to work with the robotic technologies, which provides the opportunities to create “superteams”, which according to Deloitte (2020, 58) can be defined as combinations of people and machines leveraging their complementary capabilities to solve problems, gain insights, and create value. Once employees know how to utilize robots in their work and they are encouraged to utilize robots in their work, it can give employees the sense of autonomy over their work, which positively impacts the employee engagement and motivation.

Robotic process automation performs structured digital tasks – involving information systems – as if they were a human following a script or rules (Davenport 2018, 16). Robotic process automation technologies, compared to other forms of AI, are inexpensive, easy to program, and transparent in their actions. Davenport (2018, 17) continues that some robotic process automation systems already can “observe” human colleagues doing their work, for example, answer frequent customer questions, and then emulate their actions.

2.4 AI impact on the HR function

When unlocking and utilizing the possibilities that AI technologies could provide, the HR function could completely change its role and strategic importance in the organization. AI technologies can

completely transform how the HR function is supporting the organization and its employees in all aspects of the employee lifecycle.

As mentioned in the previous chapter, AI and the technologies it offers can support organizations and HR in automating certain tasks, perform deep analysis faster and more efficiently, help make well-informed decisions based on data, and even make predictions of future events. Automation of knowledge work has been in the spotlight in the latest years especially. The disruption that technologies and AI more specifically has created in knowledge-based organizations is forcing organizations and their employees to adapt and find new ways to improve their processes and ways of working. As Mahidhar and Schatsky (2013) from Deloitte explain, the way how knowledge work gets done in organizations is changing due to the automation of knowledge work by means of artificial intelligence and other technologies.

Upon this journey towards AI technology disruption, the HR function has a crucial role in making sure that it is ready to support the organization in the process. The interesting paradox is that for the HR function to be able to support the organization in this transition, it itself needs to be knowledgeable about the AI technologies and be ready to deep-dive and utilize the technologies in their work and processes. And that requires both knowledge of the subject, preferably even practical experience and ultimately, a genuine interest to question own ways of working and being ready to change own processes and ways of working. Using recruitment as an example, Fernandez (2019, 22) raises an interesting question: “Armed in the past with little more than an applicant tracking system, are recruiters ready for the leap from being data-deprived to being artificially intelligent?” This is a question that each HR professional can ask themselves regarding their own expertise and skills.

Technological disruption and introducing AI technologies in an organization requires employee reskilling. HR can have an important role in this aspect, and with the help of its learning and development activities, it can prepare the organization and upskill the employees. The HR function can address this matter even without having an AI implementation plan in place. By assessing what future skills are needed and working on developing them within the organization, the HR function can be the strategic partner in making sure that employees are more skilled and more prepared to utilize AI technologies. That will help organizations acquire competitive edge in the market and stay ahead of its competitors.

But what are the first steps the HR function can take to move towards the change? The answer is simple and difficult at the same time. As mentioned earlier, for the HR function to be the strategic support for the business, it needs to be knowledgeable itself regarding the AI technologies and capabilities. Also, it requires HR to be bold in their decisions and willingness to take chances and

sometimes even risks. On a practical level what HR professionals can do is to educate themselves and dive into the world of AI and research the opportunities it offers. When looking at this topic through the lens of HR strategy and long-term goals, HR professionals can create tangible value and ensure that AI technologies are utilized in a strategic and coordinated manner that will benefit the organization most.

Different external forces are affecting the role of the HR function and its strategy, and technology as well as analytics and big data have been recognized by Phillips & Phillips (2016, 6-7). As the authors point out, technology can have a positive effect by enhanced communication, increased productivity, and making a business profitable, but it also can have negative effects such as employee distraction, cyberattacks and lack of focus. Also, during the last decade, there have been improvements to how the HR function utilizes and analyzes data to make improvements (Phillips & Phillips 2016, 7). It would be expected that as digitalization and the role of technology disrupts businesses and whole industries, these forces will become stronger and will affect increasingly more how the HR function is planning and executing its strategy.

HR has a notable opportunity to use data analytics to help employees, not only customers. Employees can be taught new skills and can be trained on how to use data analytics available to them to make their work easier, that way contributing to their happiness as well (Waller, 2020). This is an important moment for the HR function to contribute to the development of employees and at the same time becoming an important ambassador to utilizing AI solutions to one's own benefit.

Fernandez (2019, 25) points out that HR functions are becoming increasingly reliant on advanced technologies and the data they produce, it will also experience the need for new skillset required to use and deploy these technologies. And being an HR function where the emphasis is put on "human", it is also important to not forget about the human aspect as well- to consider, how can we retain the human aspect in the HR function and how we can leverage the technologies to serve our people better. It is also important to consider how we can be ethical when utilizing the personal data of people, to make observations and decisions that would serve and help the organization as well as the employees. When the strong HR analytics data can be combined with the AI technologies, and supported by strong HR professionals who have interpersonal, coaching, and leadership skills and who have empathy and can support employees at time of need – that is the secret to the success of the HR function and therefore the success of the organization altogether.

2.5 The evolution of HR from an administrative to a strategic partner

The HR function has experienced a big transition especially in the last years. A function that was a simply administrative role with mundane and repetitive responsibilities like employment issues, payroll and other matters has evolved into being an important strategic partner that has an important role in the success of the business. As noted by Paauwe & Boselie (2003, 60), nowadays there is a strong emphasis on the need for HR to be business-oriented and to contribute to the process of adding value, whereas in the 1970s Human Resource Management (HRM) was all about supporting organizational democracy. The claim is supported by Roehling et al. (2005, 207) that HR is an organizational resource that can, and should, contribute to creating competitive advantage in organizations and create value.

The evolution of the HR function's work is seen also regarding technological capabilities. As noted by Ignatius (2018), for corporations to survive in the rapid change, forward-thinking HR functions are transforming themselves to meet the demand for evolving skills and working models. For example, a lot of the activities such as calculating employee costs, generate employee statistics, conduct performance appraisals, make merit-pay decisions and process training requests that were previously performed by the HR function, can be done by managers themselves with the help of different tools and technological solutions (Roehling et al. 2005, 209-210).

The technological advancements have changed the role of the HR function considerably, and due to that the HR function must also reinvent themselves to be able to add the value to the organization it supports. Authors raise an interesting point that the managers' ability to perform much of the administrative work themselves lead to managers and the HR function communicating less, and therefore losing the opportunity to exchange information and learn from each other (Roehling et al. 2005, 210). That brings an interesting question – what can both HR professionals and the leadership of an organization do to keep the information and knowledge flowing between them? Only by keeping the communication open, the HR function can effectively support leaders and the whole organization in a proactive way.

To keep up with the technological advancements and utilize them fully, it is important for the HR function to cooperate closely with the IT team, as both teams can leverage each other's knowledge, learn from each other, and together create a great experience for employees throughout their whole employee lifecycle. HR and IT have a growing priority to work together to ensure that new technologies not only address complex business issues, but also meet the expectation of people who use these technologies (Servicenow, 2019). With that in mind, organizations need to pay attention to how IT and HR functions are cooperating and evaluate whether improvements can be made to leverage the technological landscape effectively.

HR professionals are also affected by the changing nature of work. As mentioned previously in this study, there will be a need for employees and professionals to reinvent and reskill themselves, and HR professionals will be no different. So, developing skills and competences like empathy, active learning, analytical skills, leadership, and social skills (just to name a few) will be crucial for HR professionals to be able to create value for the organization and reinvent the ways how the HR function is supporting organizations. This aspect creates the need for considering how to train and develop HR professionals for them to learn the skills necessary for the work of tomorrow.

How to ensure that HR professionals have the skills needed for the changing nature of work? Especially in knowledge-based organizations, where valuable knowledge-sharing practices might be in place and where a lot of knowledge and data is available, implementing different formal and informal practices for developing HR professionals could bring value for the whole organization. Interestingly though, as noted by Roehling et al. (2005, 213), some HR executives consider broad HR-related certification programs providing little substantive value to the investment required. That raises a question on whether these HR certification programs are tailored to specifically meet the needs of the organization? Or are the certification programs created, keeping in mind the changing nature of organizations, the HR function, work, and needed skills and competences to serve the actual needs?

Interestingly, it seems that the HR function, despite the evolution it has experienced is still sometimes seen as the administrative task executor in some organizations, and it seems that at times the HR function itself does not recognize the value it brings to the organization. Also, the technological advancement shapes the HR function, and it needs to proactively shape its role in the organization as well. What is the additional value the function brings? What capabilities it brings to the table? How can it support the organization in a way that no other function can? These are the questions that the HR function needs to find answers to and communicate it clearly to the rest of the organization as well, especially considering that the HR function is always under pressure to be more analytic (Cappelli, 2017).

2.6 The strategic human resources management approach

Strategic human resource management (SHRM) is defined by Armstrong (2021, 34) as the process of ensuring that key issues of human resource management are dealt with strategically to support the achievement of organizational goals. Armstrong continues that dealing with HR issues strategically means deciding what needs to be done now and in the longer term through the integration of HR strategies with business strategy, and through that ensuring that what needs to be done is done. Strategic HR approach will always be long-term, and the results will not necessarily be seen and felt immediately, and senior leadership must be patient and ready to not

see long-term results after a short time. This thought is echoed by Thite (2004, 33) who says that an organization with a short-term focus will see HR as a cost or a profit centre and will demand quick return on investment, but an organization with a long-term focus regards HR as an investment to be reaped over time.

The fundamental purpose of strategic HRM is to generate strategic capability by ensuring that the organization has the skilled, committed, and well-motivated employees it needs to achieve sustained competitive advantage (Armstrong 2021, 38). It is important to note how Armstrong emphasizes the long-term impact of strategic HRM and how it intertwines with the business strategy. In today's changing business environment, the HR function has an important role in ensuring the continuity and success of the organization by ensuring that people-related issues are addressed in a strategic manner. However, an interesting point made by Thite (2004, 32) that no HR strategy can succeed unless the organization has an overarching philosophy that assures its employees that they are working for a caring, nurturing, and trustworthy organization. The author continues that nowadays people consider employment more as a social relationship instead of a contract. This is the new reality organizations must consider when employing people and creating an HR strategy for the organization.

Zack (2003, 71) emphasizes how knowledge-based organizations take HR activities seriously and recruits and develops their careers based on knowledge it needs to complete and execute its strategy, and it rewards creativity, risk taking, experimentation, imagination and even failure when they generate important lessons learned. When the HR function of a knowledge-based organization wants to implement AI technologies, it needs to create a strategy that supports constant learning, transparency of data, and use AI technologies as a tool to get there. The positive aspect is that AI technologies in of its own can provide enormous possibilities for learning, therefore supporting the HR strategy cycle and the employee experience in it. Thite (2004, 40) rightfully points out that HR has a critical role in the knowledge economy in creating people-centric partnerships that are ultimately focused on creating and sharing knowledge. With the help of AI, it can be done effectively and bring long-term strategic value.

A crucial part in the technology era is for the HR function to decide together with the chief information officer on how the HR strategy addresses the use of technology in terms of the systems, processes, tools, and platforms along with ways to ensure that they are used properly and protected (Phillips & Phillips 2016, 10). That is a crucial element in ensuring that the technology is being used in a strategic way and serves the organization and its employees best. Since nowadays, thanks to the knowledge economy the HR function is seen as a key competitive advantage by the senior management and taken seriously in strategic decision making (Thite

2004, 40), HR is supported to build valuable relationships within the company, where it can build its strategic importance and elevate its role as a valuable strategic partner.

2.7 AI as a support tool for SHRM

As Armstrong and Taylor (2020, 152) explain, HR is a highly administrative function and potentially, AI can significantly reduce the amount of this type of work. Authors continue that AI can even generate data that informs decision-making on people management issues.

The HR function is transforming its focus from the management of human resources to the development and maintenance of organizational effectiveness (Roehling et al. 2005, 208), and AI technologies can strongly support the HR in achieving its objectives. That is why it is important for the HR function to explore, understand, and create a strategic approach to utilizing the tools available to benefit the organization and its strategic objectives.

Recruitment process is an area where HR analytics and machine learning can support greatly. It is not anymore a far-fetched idea that organizations could be using technology that is based on machine learning in their recruitment processes (Fernandez 2019, 21). Fernandez continues that it is important to recognize that the human judgment used in recruitment is flawed and even the best human recruiters have biases and are drawn to certain qualities. Machine learning technologies can provide HR professionals with large quantities of data and information, which can support HR professionals to make data-based recruitment decisions. The biggest challenge in utilizing machine learning solutions in recruitment is the possible transfer of biases from human to the technology. How do we ensure that the biases that people have do not get taught to the machine? How do we ensure that the data we are obtaining are serving us and not create a whole different set of challenges? It is important to think of these matters before taking data-based and machine learning-based tools into use.

Due to AI's ability to manage and analyze large data sets, the HR function can utilize it in personnel management and the analytics can be used in predicting employee behaviour, for example, employee retention. Currently still, organizations are relying on employee exit interviews to determine the reasons for leaving an employer, but Fernandez (2019, 23) is raising a valid point that how valuable it would be if organizations, using AI technologies and predicting abilities, would be able to predict in advance who is going to leave and maybe even provide a solution on what could be done in advance to retain them.

Organizations, also the case organization for this thesis study, attempt to receive some insight in advance with the help of employee engagement surveys. By asking different questions from different angles and then analysing the results, organizations are trying to be able to predict

employee behaviour and see some warning signs for employee dissatisfaction and possible reasons for leaving the organization. Though the traditional survey either once or twice a year or even Pulse surveys quarterly is a good start, organizations should move towards continuous listening to employees, and using advanced data analytics that machine learning offers, follow the trends, and predict in advance where the issues are. That way the HR function can proactively address issues and that way create value for the organization in being a business partner that proactively tackles the issues most pressing to the organization.

When considering the positive impact AI technologies can have on the HR function, there should be a couple of important aspects that should be considered. Firstly, how can HR professionals in an organization be trained so that the HR function have the understanding and curiosity to consider different AI technologies. Secondly, the cultural change and attitudes within the HR function regarding understanding and being comfortable with AI should be addressed by educating the HR function on how the AI technologies can directly affect their work.

The newness of having and using data to inform and predict HR outcomes is powerful and has already created a compelling call for action from HR professionals (Fernandez 2019, 24). HR specialists can seize this opportunity to raise these topics in their organizations and educate themselves on the opportunities that AI solutions and data analytics can bring. At the same time, HR professionals need to be aware of the data sets and amount of data that will be required in the organization to utilize the AI solutions that will become more and more available (Fernandez 2019, 24). As already mentioned in this thesis research, data is at the core of effectively utilizing AI technologies, and that should always be kept in mind. The author continues that if an HR function has the knowledge and inner workings of all the best data sources in the organization, tech-focused HR function is the ideal place then to focus resources on workforce analytics to drive business insights and recommendations (Fernandez 2019, 25).

However, there are concerns with gathering large amounts of HR-related data, where a lot of data is private and/or sensitive. New concerns are questioning whether it will be even possible to access HR data that are stored and used for analytic purposes - how do data privacy concerns impact the use of personally identifiable information (PII) with recruiting or other HR tools that use machine learning (Fernandez 2019, 24)? General Data Protection Regulation (GDPR) addresses these matters, and organizations need to become familiar with it before processing any personal or sensitive information or employees and candidates without their explicit consent.

3 Analysis of the case organization

The analysis of the case organization is conducted to have a holistic understanding of the organization's current status and to set the baseline in the following areas:

- What is the organization's recent history and how it is affecting the organization's need for "thinking outside of the box"?
- How is the case company a knowledge-based organization?
- What is the case company's HR function's current status and what is the function's strategy?

Based on the analysis of the case company, combined with the insights gained from the conducted interviews and final insights and feedback from the case company's HR team, tailored suggestions and feedback can be given to the case organization. For example, what needs to be considered if the organization sees the potential in AI technologies and want to implement it into their future work or take it into account when planning the next strategic objectives.

3.1 Case organization F-Secure and it's background in times of change

F-Secure Corporation is selected as the case organization. The author has worked for F-Secure since November 2021, in the organization's HR team.

Before July 2022, F-Secure was a cyber security organization with over 1700 employees and with nearly 30 offices around the globe (F-Secure 2021). Founded in 1988, it had grown into a cyber security leader for both private consumers and corporate customers. F-Secure sees knowledge as a crucial part of its success and aims to be a thought-leader in the cyber security industry with more than 300 publications and research released annually (F-Secure 2021).

During the first half of 2022 and during this research project, F-Secure experienced substantial changes in the organization. In February 2022, F-Secure released a statement informing that F-Secure Corporation's Board of Directors has decided to pursue towards the separation of the company's Consumer Security business into a new listed company and has approved a demerger plan (F-Secure 2022a). In March, the company's corporate security business of F-Secure relaunched as a new brand called WithSecure™, which is aligned with the new company name (F-Secure 2022b). After the launch of the new WithSecure™ brand was completed, the whole company rebranded as WithSecure™. On 1 July 2022, a new company F-Secure, which focuses on B2C (Business to Consumer) business in the cyber security market, was launched and currently operates as a separate organization, listed in the Helsinki stock exchange market.

So the case company for this research is F-Secure, a B2C company with around 400 employees with the expectation to also grow in the future. It is recognized that the demerger and the subsequent changes offer a valuable opportunity for this research. The “newly founded” F-Secure is an independent company, and company’s leadership and employees can adjust their internal processes and ways of working in general. This is an opportunity to take a fresh look on issues and challenges and try new approaches to solve them. This is the time for reinvention and rebranding of F-Secure as a service provider for its customers as well as an employer to its employees.

3.2 How is the case organization a knowledge-based organization?

F-Secure is an organization that relies on making cyber space safer. An important part of it is spreading information regarding cyber security, threats and how people and businesses can protect themselves.

The demerger conducted in 2022 caused big changes in the organization and for the employees as well. Employees were split between the two organizations, based on their responsibilities and job profiles. As of August 2022, the company is still establishing its own internal and external activities, though some activities are continuing as they took place before the demerger took place.

Thought leaders of F-Secure releases whitepapers, different research papers, have podcasts, have performed TED talks, and produced different informative videos. These materials are available for anyone to access if needed, and that way F-Secure is very effectively sharing knowledge with larger audiences outside of the organization. A list of mapped public information and knowledge sharing channels can be seen below:

- F-Secure Corporation’s official website contains official information such as annual reports, stock exchange releases, and interim reports
- F-Secure’s official Twitter channel where F-Secure shares the latest updates in the industry and any current news regarding the organization
- F-Secure’s official LinkedIn channel, where F-Secure shares its latest reports on industry-related subjects and other industry-related news
- On F-Secure’s own official public website anyone can find whitepapers and reports released by F-Secure
- Mikko Hypponen, Chief Research Officer at WithSecure™ and Principal Research Advisor at F-Secure has been an outspoken advocate for cyber security and has participated in different events such as TED talks that can be found on Youtube and have been watched hundreds of thousands of times. In addition, Mikko Hypponen together with Tomi Tuominen, an advisor to F-Secure, host a podcast called “Herrasmieshakkerit” that can be

found on audio streaming and media services provider Spotify; the podcast discusses different cyber security related topics by interviewing different industry experts

To improve external sharing and being more of a thought-leader in the industry, F-Secure has a good legacy that was built for over 30 years before the demerger in 2022. It could inspire more employees to share knowledge through different channels, provide the skills for employees to do so. That way both employees and the organization can benefit – employees can strengthen their own image as a competitive and knowledgeable professional in their field of knowledge, and F-Secure can strengthen its position in the market as a trustworthy company that has the best people working for them.

But how about sharing knowledge internally within F-Secure? F-Secure is still working on developing different initiatives that would improve the knowledge sharing within the organization. The organization has experienced a lot of changes during the past years. During 2016 onwards, F-Secure has experienced a critical period of transition, during which F-Secure did several acquisitions and to grow from a pure endpoint protection vendor to a company with a comprehensive cyber security solution and services portfolio (F-Secure 2020). A list of mapped activities since 2019 is seen below:

- Implementing and utilizing Office365 products such as OneDrive and especially SharePoint in storing and sharing information and knowledge among team members, different teams within the organization and within different projects
- Before the company demerger, a job rotation program is being created where employees have the opportunity for three months to either swap roles with a colleague from another team, or just join a team. The objective of this program to enhance learning and knowledge sharing among teams in the organization. The program is planned to be continued in the newly founded company as well
- An Internal training program for employees are being planned, coordinated by the HR function (At F-Secure HR function is known by the name People & Culture, or P&C, team)
- As of H2 2022 and after the demerger process is completed, a process to renew e-learning quality and delivery is under development. The objective is to create a virtual learning environment where employees can have more freedom to create their own virtual and interactive learning materials that can be shared with the whole organization

The one aspect that F-Secure as an organization needs put effort in developing and nurturing, is a culture of informal knowledge-sharing as well as supporting employees in their formal learning. It is important to give employees the time and tools for knowledge sharing and encourage employees to think holistically about knowledge and information sharing – what information can bring most

value to others, what information I can provide to my colleagues for them to be successful in their roles, and what information I need to have to be successful in my role and how can I acquire this information. Important to note that active learning and learning strategies will be one of the TOP 10 skills desired in 2025 (Whiting, 2020).

3.3 F-Secure's HR strategy analysis

The substantial changes at F-Secure started already in 2021, when F-Secure's senior leadership evaluated the strategic options to enable strategic growth in all the businesses it operates in – corporate security, cyber security consulting, and consumer security (F-Secure 2021). That prompted for the organization to evaluate its culture and ways of working.

In late 2021, a culture work was launched, with the aim to recognize the values and behaviours that drive the organization's culture forward. Within this project, the organization designed leadership principles that were aligned with the organizational values and culture.

The work already done is being used as a backbone also after the de-merger of the organizations, to further develop and strengthen the culture that the organization aims to nurture. The de-merger process and becoming an independent company, gives F-Secure the opportunity to re-evaluate different aspects of work and employee well-being and engagement. The P&C team is aware of this opportunity and works towards finding its own identity and focus as a support function.

Especially during the last years and in the light of the COVID-19 pandemic and strategic changes, also the organization's human resourcing approach had been adjusted to address the possible challenges F-Secure could face. In their interim reports, F-Secure lists the main risks and uncertainties that the organization could face, and the risk of failing to attract and retain talent has been addresses consecutively since 2016 (F-Secure 2021a). That sends an important message that people and their interest towards F-Secure as a company and current employees' development opportunities and their wellbeing has been a priority for F-Secure to address. That gives a solid ground for the global HR team to plan their strategic goals and objectives accordingly as well as give them the support from the F-Secure's senior leadership team to focus on these matters.

F-Secure's HR team, internally called People & Culture (P&C) team, has experienced changes in the last years as well, with staff changing for various reasons. The most substantial change took place on July 1, 2022, when upon de-merging, a new P&C team was formed in the new F-Secure organization.

The function's current head of People and Culture team and Chief People Officer of F-Secure – Kitta Virtavuo – joined the team in spring 2022. With the changes, also the team's focus and strategy are developed to support the organization's new direction and ambitions. The function employs 6 P&C professionals globally with various skills and backgrounds. The responsibility areas of each team members are in learning & development, office services, and local operational P&C representatives. External payroll services are being used in the company as well as external HR consultants are being utilized to address the administrative tasks that need to be completed on daily basis and to balance workload peaks.

To implement the strategic objectives, F-Secure is using the OKRs (objectives and key results) methodology. The methodology can help teams set and track measurable goals – the framework pairs the objectives that a team wants to achieve with the key results that will be used to measure progress (Martins 2020). The OKRs are being set for the whole organization, and the P&C team has developed their own objectives and have set key results to track the progress of the results. The P&C's OKRs have been aligned with the overall organization's strategy and OKRs to ensure that the whole organization is moving in the same direction.

4 Research methodology

For this research, a case study is chosen as the research strategy, and development method is constructive research.

The constructive research approach is a research procedure for producing innovative constructions, intended to solve problems faced in the real world and, by that means, to contribute to the theory of the discipline in which it is applied (Luukka 2003, 83).

The constructive research method was selected due to the nature of the thesis work. During the research process, a new construction in the form of an AI solutions application framework is developed. As Luukka (2003) emphasizes, it is important that the constructions are invented and developed, not discovered. In the case of this research, a tailored framework is developed specifically for the case company that is presented to the case company's HR team. The goal for the framework however is to be applicable to different functions and even organizations.

The result of this research is trying to solve a practical, real-life problem for the case company. As Luukka (2003) specifies, the ideal result of a constructive research project is that a real-world problem is solved by an implemented new construction, which has both great practical and theoretical contribution. With the developed framework, the case organization's HR function can evaluate own readiness for achieving its strategic objectives by utilizing the opportunities that AI technologies offer.

Of course, there are also risks that must be taken into account with the chosen development method. Luukka (2003) points out that one of the most typical problems of constructive researchers is that the commitment of the target organization cannot be maintained. To ensure the commitment of the case organization and therefore the success of the research, the case organization is involved in the scoping of the research to ensure the case company recognizes the direct benefit of the research. Also, case company is involved in the research process to make sure the interest remains on a high level.

For collecting and analysing the data, the qualitative approach is used. In-depth interviews with the case company's HR function representatives are conducted to hear their thoughts on the status of the HR strategy and their evaluation of the research results and suggested framework. In addition, interviews are conducted with different AI and business experts to get a deeper insight about the AI strategy importance and the best implementation practices.

In addition to the in-depth interviews, a feedback session is organized with the case company's HR team to present the developed AI framework and hear feedback on it and hear suggestions for

improvements as well as suggestions for further research. The presentation material used in the section is added to the research as Appendix.

4.1 Research strategy and methods

One aim of this research is to obtain a deeper understanding of the latest trends in AI in the HR world to build a solid knowledge base that can be used for authors own professional advancements. To make sure that the base is being developed thoroughly, more time is dedicated to literature review and analysis. Also, the strategy for the conducted interviews is to understand the industry deeper as such as well as use it as a base for developing the framework that the case organization can afterwards utilize for their own benefit.

The topic of AI, even within HR can cover many aspects and thus can become very wide. The aim for this research is also to spark interest in the HR community and hopefully inspire other HR colleagues to explore more about the wide possibilities that AI can bring to their work. Thus, the strategy is to review the different options and possibilities of AI capabilities during the literature review process and present it in a way that would be easily understandable and would encourage further independent study for the reader of this thesis.

4.1.1 Theoretical framework

The initial literature review and analysis are conducted during October 2021 until April 2022. However, constant reviews of new literature are conducted to amend and add valuable information also in the later stages of the research. Both scientific, peer-reviewed research papers are reviewed as well as other literature. The aim is to gain insights on the topics both from the academic point of view as well as a very practical, business point of view.

The literature review strategy for this research is two-fold. Firstly, the objective is to research the topic of Artificial Intelligence and the impacts it brings to businesses and organizations. This includes researching the importance of data and data quality as well as understanding how AI technologies can enable business efficiency.

Secondly, the objective is to research the correlations between the HR function and the opportunities that AI technologies can bring to the table. This includes researching what has been the HR function's journey from an administrative support function to being a valuable strategic partner in an organization, understanding what the AI impact on this journey has been, and understanding how AI technologies can support the strategic Human Resource Management (SHRM) approach today and in the future.

The literature is selected, and the list of sources are built gradually, letting the research process point to new authors and research articles that would be beneficial to be included in this research. Considering the topic, the literature and research materials are relatively new, written mostly in the last decade. To understand deeper the origins of knowledge-based organizations, authors such as Rory L. Chase, Mats Alvesson, Stan Davis and Jim Botkin and their work from the 1990's are researched and used in this thesis. As mentioned in this research already, the first mention of AI was done by John McCarthy in 1955, so also AI as a topic has been around for decades. However, older literature on this topic is not included in this research due to this topic evolving and changing perspectives over the years, and not being relevant for the scope of the thesis work.

Both scientific and non-scientific literature is used in the research. Both AI and HR are very practical topics with practical implications on the business and working life, so non-scientific literature such as Harvard Business Review and other sources are used to gain practical and hands-on insights on the topics from today's business leaders and thinkers.

4.1.2 Data collection methods

In this research, the data collection method is two-fold. Firstly, it consists of in depth-interviews with AI experts and a representative of the case company to gain a multi-dimensional view on the topics of AI and HR. Secondly, it consists of feedback and insights from the case company's HR team after presenting them with the developed framework and introducing them with the research and its main conclusions. The comments and insights of this session are included in this research.

The interviews are conducted as in-depth, semi-structured qualitative interviews. The reason for this selection is the ability to have a thorough discussion with the AI experts and case company representative. Semi-structured interview is chosen to be able to deter from the pre-selected questions if needed and let the conversation flow more naturally and for the discussion to flow to a direction that would encourage new insights.

After the in-depth interviews are conducted and the data has been analyzed as well as the theoretical framework has been finalized, the gathered information and data is used to develop an AI framework, which is later presented to the case company's HR team. The objective for the presentation is to gather first impressions and feedback on the findings and the developed framework from the case company. The feedback and comments are included in the research and can be used as a base for possible future research projects.

When combining the interviews and feedback session as well as adding the theoretical literature to the analysis, the data provides a multi-dimensional view on the topic, with multiple angles from the

scientific community, AI experts and HR team who are solving day-to-day and longer-term challenges constantly.

4.1.3 Interview framework

The semi-structured qualitative interviews are conducted during February 2022 and September 2022. To gain a multi-dimensional view on the topic of AI and HR, different industry experts are interviewed about the subject of AI and HR.

Out of the five interviews, four of them are conducted remotely with the help of Microsoft Teams, and English is used as the conversation language. One interview is conducted face-to-face in Finnish. All the interviews are recorded and transcribed into a written format for more effective analysis.

Altogether 5 experts are interviewed. The experts represent the areas of AI and HR, out of which one respondent combines both areas of expertise. The experts, their expertise as well as the date of interview are shown in the table below.

Interviewee	Background and expertise at the time of the interview	Time of the interview
Interviewee 1: Meeri Haataja	CEO, co-founder of Saidot. Expertise in AI governance, ethical AI.	16.2.2022
Interviewee 2: Pauli Dahlbom	Head of Workforce analytics and business development. Expertise in People analytics.	23.2.2022
Interviewee 3: Antti Merilehto	Awarded keynote speaker. Expertise in AI and how it impacts different industries, how technology impact the way we work, and how humans and machines work together.	1.9.2022
Interviewee 4: Kitta Virtavuo	Chief People Officer at F-Secure. Expertise in different HR roles in numerous international organizations with experience and interest in data analytics and AI technologies.	9.9.2022

Interviewee 5: Dima Syrotkin	CEO and PhD researcher. Expertise in AI-based scalable coaching technology development to help organizations with employee coaching and support change management activities.	19.9.2022
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The research work has exposed more clearly that there are not overly a lot of AI experts who have experience in strategic HR and AI technologies can be used to elevate it. So the objective for selecting the interviewees is to get an insight on the AI technologies and how it can support organizations in general, have a chance to discuss HR as a function and how the AI technologies can be adjusted to meet the HR function's needs as well as gather insights from the case organization on what are the needs and challenges that need to be addressed. Gathering all the information together, the end result is an insight on how the HR function can utilize AI technologies in their strategy execution activities.

The main areas that are explored in the interviews are the following:

1. AI technologies in business in general
2. AI technologies in the HR function
3. Risks related to AI that need to be taken into account
4. AI and ethics

With each interviewee, the discussion is focused on their expertise area to get a more holistic view on the themes and gain deeper insights. Allowing for the conversations to flow naturally while using the prepared questions as a guide and framework, it is possible to explore the themes and dig deeper into the areas where the interviewee feels most comfortable and knowledgeable about.

5 Interview analysis

The goal for conducting the interviews is to gather deeper insights into the AI technology landscape in the context of HR as well as gain insights from the case organization's HR team and Chief People & Culture Officer which supports the development of the AI framework and possible tailoring for the case organization's needs.

The interview analysis strategy is to divide the conversations and the interviewee responses into the pre-set themes. Once the themes are analyzed, the conclusions are made and gathered and the summary and the main takeaways are being presented to the case organization's HR team to gather comments and further insights.

The strategy for analysing the conducted interviews is to divide the questions and discussion into 4 categories:

- AI technologies in business
- AI technologies in the HR function
- AI and potential risks
- AI and ethics

The division into the different categories allows to discuss each of the theme more in depth and focus on each theme separately. Each interviewee had their own domain of expertise, and this approach allows each expert to discuss their area of domain and provide valuable insights on these themes.

5.1 AI technologies in business

When asked **what companies and professionals can do to prepare for the technological disruption AI will bring**, interviewee 5 responds that according to their observation, the **biggest challenge for organizations when trying to implement changes, is the people capital and the existing culture that is there as well as people's mindset and behaviours**. Essentially, the interviewee emphasizes the importance of considering people and their feelings, attitudes and needs when implementing any changes, in this case AI-related. The interviewee mentions a couple of examples related to company culture and people's mindset – the car manufacturer Volvo aims to become "the new Tesla in 10 years", but their employees are still focusing and working essentially on combustion engines and old technology and people who know that physical exercise is good for them, yet do not work out.

This sentiment is supported also by interviewee 1 who says that based on their experience, the **biggest barriers for AI adaptation is not technological, but it depends on the maturity of the**

organization. In addition, it depends on the ability to make the whole business and the business owners see opportunities for using AI and them starting to think how AI technologies can be used in the business, be part of the innovation process and taking this forward. The point made by the interviewee is that again, people are at the centre of the change and that should be considered.

Interestingly, this sentiment about maturity is expressed also by interviewee 3 who says that the **data maturity varies in organizations**, which is supported by interviewee 2 who says that it is important to use good-quality data to teach the AI algorithm on what good looks like. Interviewee 3 adds that **organizations need to understand how well their people understand data and create training opportunities on data.** Interviewee 2 says that data that is required to build dashboards or KPIs are not enough to build up AI-based solutions as AI technologies need data on a more granular level. Interviewee 2 illustrates the importance of needing to have a basics understanding of AI technologies and data – when reaching out to internal or external AI experts for a solution to a problem or challenge, the organization should have an idea what is the root of the problem and what data do we have regarding these matters. Interviewee 2 says that often business leaders feel disappointed when AI technology does not solve a particular problem, which is often due to leaders simply not understanding of what AI can do and what it requires to perform the tasks that are given.

Interviewee 2 adds organizations often see challenges in implementing AI technologies because their data is not in a perfect shape, but it never will be. At some point the decision needs to be made that the data is good enough and the organization is ready to move forward with the options is has at hand and be prepared to develop and work on the AI software for years or even decades and it should be seen as a learning journey.

Since people and their readiness is of utmost importance during the change and AI disruption process, interviewee 1 emphasizes the **importance of upskilling and educating as well as wide-scale onboarding of people to support them in thinking of the opportunities AI can provide** for their business area and their processes. It is important to look at this from the perspective of working together with the technology – robots and automated systems – and how the world looks like when that happens. This sentiment is also expressed by interviewee 3 who advocates for educating people on these subjects and interviewee 2 who says that employers can support employees in understanding AI better by **providing learning opportunities** – provide courses, internal training programs, or workshops. Interviewee 5 suggests organizations to **do the research of what types of AI technologies are out there**, what is available, and what technologies are already working. This notion is supported by interviewee 2 who suggests professionals and employees to be curious and open-minded towards the technologies and learn

the basics of what AI is, what are the different types of AI, what they mean and how they work on a conceptual level. Interviewee 5 emphasizes the importance **of discovery and exploration** when preparing for the disruption, this is also a suggestion to the HR function.

When talking about what individuals can do to prepare for the AI disruption, Interviewee 3 emphasizes **the importance of data**. Interviewee 3 says that every professional should know the **top five use cases for AI technologies in the industry, and then evaluate what is their own data knowledge** – are they able to talk about data? Interviewee 3 emphasizes that it is an important pre-requisite to talk about analytics and artificial intelligence. To understand that, **educating oneself is crucial**, which does not mean studying programming, but having a general understanding is important. Interviewee 3 mentions the Finnish podcast “Tekoäly Nyt” where companies have been interviewed regarding their own courses on training on AI. Understanding the use cases is also emphasized by interviewee 5, who says that the market yet does not have clear use cases on how to use data, **and organizations still need to understand the value that data brings**.

Interviewee 1 says it is important for people to think from the perspective of **not trying to compete with the technology but shifting the focus on work that is meaningful in the new world**. That is an interesting notion and emphasizes the importance of meaningful work and meaning for individuals.

Interviewee 1 mentions that from their point of view, **there will not be any process in a large organization that is not going to be disrupted by AI**.

When asked what their **message to the organizations that is do not plan on implementing AI solutions in their processes or work in general**, interviewee 1 says that organizations must understand that the **AI transformation is coming whether an organization likes it or not**. Interviewee 1 adds that it is important to be in constant development and see the necessity for development as well as recognise that our own area of expertise is in constant change.

Interviewee 1 adds business leaders need to see and predict the change years ahead, and it is important to recognize that **leaders are not leading only people anymore, but automated systems as well**. This needs to be lead with even more responsibility, because the scale of impact is very wide. To the same question, interviewee 2 responds that **not all organizations necessarily need AI** and not everyone can even have it. If an organization is a small, local player in the market without the ambition to “become the next Google”, then an organization can be successful without advanced AI technologies. Big organizations need to be ready for the change, **because organizations must be able to improve business processes** and automation level.

Also, when promoting yourself as an attractive employer it is important to be at the forefront because it might be difficult to catch-up on the competition later. Interviewee 2 adds that at the same time, it is **dangerous to blindly apply AI to everything**; it needs to be a carefully considered decision with considered implications.

An interesting aspect brought up by interviewee 5 is that **not all AI-based technologies are data-dependent**. For example, the AI-based coaching chatbot that the interviewee has developed is trained on other market data and not the company internal data. Whether an AI tool needs the internal company data or whether it can be built on e.g., market or industry data, depends on the use case. An example is mentioned that if a tool is doing analysis on certain company's employees and the analysis must be done based on the organization's KPIs, then internal data is necessary. But if a tool just does simple analysis based on external data that is given to it, internal data is not necessarily needed. Interviewee 5 suggests that sometimes it can be beneficial to use such AI technologies which are not company data-dependent, because very often the data organizations have is messy and not uniform along the whole company. But **for data to be usable in a product, it must be standardized and uniform**, and very few things are across companies.

When asked about **AI technologies being able to replicate human emotions** such as sympathy and empathy, interviewee 3 explains that these technologies are already used in some areas such as chatbot psychologists. This solution might not be for everybody, but in some cases, it can be very effective – in situations where the patient feels more comfortable with written communication or when the patient might have gender biases that make it difficult to talk openly about issues.

When asked about a message to the organizations that feel apprehensive about introducing AI technologies into their business, interviewee 5 suggests doing the research on what are the up-and-coming AI products that can be purchased and introduced in the company. The interviewee 5 adds that it is important to know what kind of data you could collect and what could be the use cases for it, and consider the ethics in everything that is being done – what are the things that can backfire and what are the things that are value-producing.

When **asked about the possibility to build workplaces where people and AI technologies are working together and complement each other**, interviewee 5 says that it is beautiful and noble narrative and it is true to some extent, but the notion has changed some years ago. The reason for the change is people realizing that also **lots of intellectual jobs can be automated** which can pose a “danger” to people of being made redundant. Interviewee 5 brings up an interesting point that people like to believe in this picture because it brings safety to them that they are not competing with the technology by complementing it. However, when asked whether knowledge workers should be concerned for their workplaces, interviewee 5 responds that this is a **gradual**

process and people will have time to adapt and adjust to the changing environment. The author of this research emphasizes that this is an important note to make not only to HR professionals, but other professionals who want to be relevant in the job market in the future – prepare yourself for the change to be a valuable player in the market also in the future.

To summarize, the interviewees discuss in length the importance for organizations to understand own capabilities and evaluate own skills regarding knowledge on AI. Organizations must support own employees in their personal and professional development regarding AI to develop the competencies in the organization as well as to support employees in their development. Also, professionals must take ownership of their own development, so gaining at least basic skills about AI. The importance of data is emphasized, and companies must understand their data maturity and readiness to improve their data maturity if such need is recognized. The AI disruption will be and already is visible for organizations; organizations just need to make sure that they are ready for it.

5.2 AI technologies in the HR function

Due to the topic of the thesis research, the discussions regarding HR and AI are thorough with all of the interviewees involved and lots of insights are gathered.

When asked **what the first steps are that the HR function can do to drive the AI culture in the organization**, interviewee 1 mentions the importance of **involving the whole organization** in the process instead of having a small, homogeneous group working and developing AI technologies and approaches for the whole organization in isolation.

Interviewee 1 emphasizes the **important role the HR function has in deploying good AI practices**. HR can support people in moving away from the thinking that things **happen to them**, but that they are the ones who define what kind of future they are **creating with the technologies**.

Interviewee 1 has noticed that HR teams have not been the most active when it comes to working with AI technologies, because the AI area is not familiar. Interviewee 1 brings up an interesting point that **the volumes of HR work in Finland is not necessarily large enough** for AI technology implementation to be worth the investment. For example, recruiting volumes in Finnish companies are not that high, whereas in a company that recruits much larger volumes of new employees across the world the business case of automating the process might be more visible.

HR is one of the sensitive, high-risk areas when using AI. European Union has created The Artificial Intelligence Act (AI Act), which proposes that **AI solutions related to HR are high risk applications** – meaning that any tool intended for recruitment or selection of persons, advertising vacancies, creating, or filtering applications, evaluating candidates, and making decisions,

promotions, terminations of contract – are considered as high-risk AI technologies. This is an interesting point that the interviewee 1 makes, and although the AI ethics is not exactly in the scope of this research, this is a crucial detail to consider when working with AI technologies in recruitment.

When asked what their **suggestion to organizations and HR regarding the ethical personal data handling** would be when taking AI-based technologies into use, interviewee 1 emphasizes the **importance of education**. It is hard to see the importance of the topic **unless people understand the impact on a wider scale**. That can only be addressed by educating people, sharing what is happening in the world, and how AI is impacting and changing. The HR function should provide these learning opportunities for people to understand why we are even talking about this matter and why does this apply to all of us. Before that, the organization overall and the HR function must understand these aspects themselves.

When asked about **how organization can make sure that the AI transformation is being embraced by employees**, interviewee 2 states that it is important to **speak about AI concretely** – what are the outcomes we want out of this, what are the processes we need to excel at, what does growth strategy means for HR, what do we need to do well? The **challenge for the HR function is that very often the topics related to it are vague and not concrete**. So, for HR professionals the thinking should shift to understanding what piece of information could help them in achieving what specific goal – to start building the landscape from the big picture to the granular level. Interviewee 2 adds that very often people want to jump straight to the solution and conclusions, but **there needs to be thought process in place**.

Interviewee 4 emphasizes how for a long **time HR work is considered “people-focused” work**, but when looking at the HR work more deeply, it has lots of aspects that could be done more efficiently and on a more scalable level with the help of technologies. At the same time interviewee 4 reminds that HR professionals not necessarily have such mindset that would encourage them to research AI technologies. Also, it is recognized by interviewee 4 that the business often does not invest enough in HR.

When asked about the **first steps HR can take towards implementing AI technologies**, interviewee 2 responds that it is important to think about things on a concrete level – what processes we want to improve, what questions or challenges we want to solve, what needs to be taken into consideration, how can we define what good looks like for us. During this process, it is important to evaluate whether our data is of good quality or whether it is biased.

When asked about data and **how HR can ensure to gather valuable data**, interviewee 2 responds that a requirement for AI is to have various data points from various sources. Even if the HR function wants to do analytics regarding HR, **most likely data also from outside HR is needed**. It is also important that the data can be synchronized together and not be put in silos. It is important to **share data across the organization** to be able to make more holistic analysis from different aspects. Interviewee 2 adds that it is important to gather all the data also on a granular level to be able to capture information continuously, because AI cannot capture information if the data points are not aggregated.

When asked about **using external data sources** when implementing AI technologies, interviewee 2 responds that there are external data sources that could be used, but when it comes to thinking what good looks like for your organization specifically, it is not necessarily the best approach. Companies can use the contextual data available publicly that can be acquired free of charge or with a small payment, Finland having such databases available, for example Ruututietokanta, which has specific datasets on the education, population, demographics, and other data.

When asked about **the AI potential in the HR function**, interviewee 2 points out that **very often HR focuses on the operational tasks first**, which are the high-volume processes and day-to-day decision-making needs such as employee attrition, retaining employees, workforce planning and scheduling processes, or general employee experience-related aspects. These are the areas that interviewee 2 sees **as the best opportunity for AI to be implemented**, because these processes have lots of data and have good operational processes. Advanced analytics, prediction, forecast and optimization technologies can save valuable time from the experts that spend time on these processes manually, **increasing their ability to work on more strategic initiatives**. That allows the HR function and business decision-makers have a valuable conversation about the business needs and how HR can support in that.

When asked the same question, interviewee 3 responds that the potential is very high because **HR has lots of data available**. Interviewee states that AI can change the positioning of HR from a support function to an actual strategic function. HR has the potential not only to bring the data to the table, but actual recommendations. For example, AI technologies can be used not only to track the e-learning completions for mandatory training, but also to understand on what the learner learned and what is the impact the training delivers. Another matter that interviewee 3 raises is the unexplained pay inequality, which is a pay inequality that cannot be explained based on seniority, position, performance, or bonuses. It is very difficult to analyze this phenomenon manually but can be done with the help of AI technologies, because they have the analytical power.

Interviewee 4 has been involved in HR work for more than 20 years and has worked in companies such as Nokia and Fiskars Group and is currently working as a Chief People & Culture Officer at F-Secure. Being in industries where technology plays an important role, interviewee 4 has had discussions surrounding AI technologies throughout their career.

Interviewee 4 explains that for HR professionals it is important to know how to use and appreciate data. Data available to organizations is in such large quantities that one person cannot possibly process all of that, but computers and technology can help us organize it in a certain form. HR professionals need to know how to translate the data and cross-check it and analyze what it tells us.

When interviewee 4 joined the case organization, they looked through the mission and vision statements of the company, and one of the statements say that “our purpose is to deliver brilliantly simple security experiences”, and interviewee 4 states that it can be translated also to the HR work – **delivering brilliantly simple HR services**. Interviewee recognizes that it is important to focus on the simplicity of things – **what can be done more efficiently, more modern, and easier**.

Interviewee 4 also recognizes the **importance to move towards a self-service HR model** – by developing for example internal chatbots where people can ask the questions important to them. With the help of analytics, the HR function for example can predict the turnover of their staff and flight risk of key talents, and then focused actions can be done to mitigate those.

Interestingly, interviewee 5 mentions that **for L&D activities in organizations, AI technologies might be too soon to implement**. Interviewee mentions that there is value in bringing people together on the same room and let them learn together and that should be utilized in organizations.

To have an in-depth conversation about AI-based tools that can be used to support HR processes, interviewee 5 is selected to be interviewed. Interviewee 5 has developed an **AI-based coaching tool** which is used by employees in organizations of different sizes and industries. Interviewee 5 mentions that coaching is a goal-oriented tool which helps people set concrete action points and follow up on the progress. It is also a reflection tool, and that is something that is needed when changing people’s mindset and helping people see more possibilities and the advantages of those possibilities.

With such AI-based coaching tool the organization can gather data and gain valuable insights, because with the help of such tool the organization can start seeing systemic challenges for their employees. Such **tool can help the HR function and the company management to support their employees**, and at the same time see the big picture of what’s happening in the company.

Interviewee 5 talks about **automating HR administrative, repetitive work** and how that is becoming more apparent. There is the need for someone to supervise the work, but much of the tasks can be done by an automated tool. Interviewee sees that as a positive thing because that can free up HR professionals' time to do more creative, value-adding work.

When asked what the **first steps are the HR function can do towards introducing AI in their processes or own work in general**, interviewee 3 responds shortly: "Knowing data, knowing data, and understanding business".

When asked to send a **message to those HR professionals who are having doubts and feeling intimidated by AI technologies** and not being sure this is a topic, they should know anything about, interviewee 3 responds that it is important for experts to understand data and what value it brings. Interviewee 3 emphasizes that it is not about knowing how to code, **but knowing how to utilize data to their advantage**, working together with the IT team and analytics team to create tools that would help make better business predictions in hiring, talent attraction, staffing – areas that create business value. Interviewee 3 summarizes that in 5-7 years there will be two kinds of people in HR – people who are utilizing data and AI tools without coding a single line of code, and then we have people who are not working for HR, and HR professionals can choose already today which side they will belong to.

Interviewee 5 emphasizes that it is important to keep in mind that **automation of work will take place**, so HR professionals need to be prepared to work on more creative and value-adding work. Interviewee 5 says that in their opinion, **the HR function has not been able to prove their value to the management of the organization**, and that AI technologies can help in doing that.

When asked about the case company's HR data quality, interviewee 4 recognizes that case company's HR system is the master data storage and all the data the case company has is there. Other data cannot be considered, because the data is in physical format in archives and cannot be traced. Interviewee 4 says that currently the **case organization is not utilizing the HR system on a sufficient level**. Interviewee 4 also recognizes that the data and reporting capabilities in the system is not on a level that could be used for sufficient analysis. When having a world-class HR system in place, **every HR team member should use the data for analytics**, because that will bring the added value to the organization and will help the HR team to see the bigger picture better. With the help of good-quality data, the team can have a much better understanding of their countries and employees from different cultures and they can have the opportunity to utilize the predictive analytics features that the HR system offers. Interviewee 4 emphasizes the importance of understanding data, **because without data it is impossible to build a fact-based view of a large organization and make decisions based on facts**.

Upon joining the case organization, interviewee 4 noticed that employees in the organization are not using the system, therefore the data is not fully there, and no proper analytics can be done. Interviewee 4 explains that especially now that **HR systems have moved to the cloud, the data should be always up to date**. Interviewee 4 mentions however, that when the HR system is updated and the data is relevant and can be used, people will probably be excited about the possibilities and analytics it brings.

When asked about the **case company's HR team and their readiness for the transformation data analytics bring**, interviewee 4 says that it is relatively easy to show what additional value data brings. Interviewee 4 recognizes that in the case company the priorities have been on the administrative side of HR. It is great however, that the case organization has invested in a **sophisticated HR system, but the implementation has not been done fully**.

Interviewee 4 talks about HR finding the added value for organizations as **admin services are often outsourced so that the organization itself can focus on the core business**. Even 20-30 years ago it was not even imaginable that for example payroll could be outsourced, but it happens today. Interviewee 4 reminds that the HR function should change the thinking from *"we are doing HR"* to *"we are doing business"*, that is why it is crucial to bring the added value to the organization with the help of predictive analytics, insights, value-adding services and business acumen and partnerships.

When asked about the strategic HR role in the organization, interviewee 4 stresses that **not all HR roles can be strategic**, but every HR professional must be aware of why they are in the organization and what is their role in the overall success of the business. Interviewee 4 also reminds that **the case organization's HR team must think globally** – to understand what cultures, countries, business, functions they have in their organization, what do their people do here and how they do their work.

When asked about their message to the **fellow HR colleagues on how to prepare for the AI disruption**, interviewee 4 reminds that **nobody can count on their skills and competences being still relevant 10 years from now**. Interviewee 4 at the same time stresses that this is the opportunity for everyone to think what each of us as individuals want to do – does an HR professional want to work with the latest technologies, or do they want to work with an outdated technology. Interviewee 4 mentions a real-life example in business of such thinking and how it can lead to failure, Kodak. No professional wants to be the human version of Kodak, so it is crucial to think of their own development strategy. This is what the **HR function is responsible for – giving people the opportunities for growth and reminding people to think about the long-term implications** which is part of the strategic thinking. Interviewee 4 talks about **how staying in the**

comfort zone can make people avoid development, but this is the time to talk about these matters not to scare people, but to present them with the opportunities the AI technologies can provide and can help them become a valuable player in the job market.

To summarize, interviewees emphasize the opportunities that AI and data can bring to elevate the role of HR in organizations and to change its role from an administrative function to a highly strategic player in the success of the business. It is noticed that HR professionals are not overly eager and comfortable to discuss AI technologies, mainly due to being unfamiliar with the subject. Since the HR function has an important role in changing people's mindsets towards AI technologies, it is important for HR professionals to understand themselves what value AI technologies and data analytics can bring them. The HR function has lots of administrative work that can be automated, and HR professionals should welcome the technologies that can free their day for doing strategic, value-adding work.

5.3 AI and potential risks

When asked about **people's reluctancy and fear towards AI technologies**, interviewee 1 says that people's concerns towards AI flourishes in situations **where people have too little knowledge about it, so it feels distant and not familiar**. That is why the information is key to addressing these concerns because a significant part of the discussion is fear which is not necessarily even rooted in the maturity of AI or the change it brings. Interviewee 1 emphasizes that it is crucial to **provide these opportunities for people to engage and address these possible concerns**, because through that the organization can make sure that people feel like being a part of the actual change process. It is important to build an atmosphere where employees don't feel that AI transformation is something that happens TO them, but instead employees become active actors in the process and in the transformation. The interviewee stresses the importance of HR and its role in making sure to build a culture **where employees feel free to address any concerns towards AI** and encourage people to take active part in the transformation process.

When asked about **the biggest pitfalls or mistakes companies are doing when implementing AI technologies**, interviewee 2 responds that the big misconception is that AI is very much a software-centric development and that everything starts and ends with the technology. Today the biggest **bottleneck is transitioning from the software-driven AI development to more data-driven development**.

Companies should be more aware how to manage and design their own datasets so that they are able to apply data to the business problems that are relevant to them. Interviewee 2 adds that there are some generic problems or challenges that can be solved with a generic AI-based

software that has generic data in it. However, when speaking about HR, **it is difficult to use generic data** as companies and employees vary. When solving specific organization-related matters, it is important for organizations to really start thinking about building a relevant database that can be used 2-3 years from now. So, the technology itself is the generic component, but the data is everyone's own and unique. Interviewee adds that this is one aspect that organizations often don't think about – when the systems have been implemented from the data perspective, **they tend to only answer to the basic reporting needs and KPIs to monitor the process effectively**, but they have not put that much effort to build AI-powered intelligence itself.

When asked the same question about the biggest pitfalls for organizations, interviewee 3 responds that they hope this biggest pitfall will soon be of the past – companies wanting to have AI solutions in their organizations, but **not having a clear idea or strategy** on how to get there. It is important to remember that data and analytics is teamwork instead of having one person working on it in a silo. Interviewee 3 adds that technology as such is not interesting, but the interesting thing is what can be done with technology, how it can be used to help people in the frontline, help people who are in the business and who have no interest of the technology itself. **Organizations need to communicate the value AI technologies can bring**, but before they can communicate the value, they need to understand what are the problems that need to be solved with what tools.

Interviewee 2 says that another pitfall for organizations is that the AI implementation and the changes that come with it takes time, and the **soft side of the change needs to be addressed as well – the people, the culture, the organization itself, the change management**. Often, when an AI implementation project takes place, the organization involves people from IT to help manage the technological part of the implementation, but the “soft side” of the implementation is left unattended. That can lead to organizations having a brilliant algorithm and the technology, but if organizations fail to implement these into the operational processes and ultimately make the behaviour of people change, **nothing will happen**. The biggest challenge for legacy organizations is changing people's attitude and thinking towards modern AI technologies.

When asked about the **biggest risks companies are facing when implementing AI technologies**, interviewee 2 says that it is the likelihood that the AI implementation project in an organization might fail. Out of all the projects in organizations, **only 20% move to implementation phase** and the rest 80% fail. When or if that happens, it is important to learn from it. This sentiment is shared by interviewee 5 as well, who says that **a big risk for organizations is to invest in something that does not yet work**, when experimentation fails.

The **risk for the HR function is that matters in HR are complex and difficult to quantify**. That creates the risk that if not enough consideration is made during the starting point, **there is a risk**

that certain types of bias will be ingested into the AI. Interviewee 2 adds that if organizations are not aware of what potential historic data is fed into the system, organizations cannot fully comprehend **what types of bias might be embedded into certain data points.** When asked how organizations can recognize that their data might be biased, interviewee 2 responds that there are several ways to do that, it is just important to note that **the HR function should not be afraid of their data being proven to be biased,** because that is the opportunity to learn and start correcting it for future purposes. Recognizing biases can be done by doing analytics on the existing datasets to find inconsistencies and where possible gender, age or any other bias might play a role. Then organizations can go back to the drawing board, evaluate their data, and see whether they can be used in AI software.

When asked about the **fears employees have towards AI technologies,** interviewee 4 recognizes that **people don't have the full understanding about AI technologies** and that a lot of the understanding comes from sci-fi movies. That creates the fear that "robots will come and take our jobs", without understanding it on a deeper level. Still a couple of decades ago, people did not know yet what to expect, so **there was a lot of excitement in the air about what technologies could do for organizations** and how it could help employees to free their time from routine work.

When discussing the importance of data, interviewee 4 recognizes that data brings enormous value to their work. **Data tells them things that superficially are not visible.** On a surface level it might seem that things in the organization are well, and people are satisfied, but **with the data in place it is possible to run a report and discover** that there are issues to be looked at and addressed. Data can help discover things that seem to not be visible before, data can help confirm or overturn a suspicion. Interviewee 4 mentions an example regarding employee salaries – when an organization is being challenged for paying too low salaries, with the help of data and benchmarks it is possible to confirm or overturn this claim. Data helps put information in perspective and helps determining whether a person or people have subjective feeling on some matters which are not backed up by data. **With the help of AI, it is possible to produce data proactively and with the help of that to make better analysis and conclusions.**

To summarize, people in organizations have too little knowledge about AI and what it can bring, and that can hinder people's acceptance of AI technology implementation. When implementing changes related to AI technologies, it is important to make sure that employees feel that they are part of the change management process instead of changes happening TO them. HR processes are complex and difficult to quantify which must be considered when implementing AI technologies.

Also, when implementing AI technologies, it is important to make sure that the implementation is thoroughly considered from all aspects to avoid potential project failures.

5.4 AI and ethics

During the interview, interviewee 1 concludes that in their work with AI governance and ethics, **HR is not a key factor in the AI governance and ethics discussion in organizations**, and that it might be the time to reconsider that. When discussing AI governance and ethics questions in organizations, the **typical stakeholders involved are the AI team itself, technical development teams, legal and compliance teams. Some organizations also involve AI ethics experts, the business owners, and the sustainability team.** Interviewee 1 explains that AI ethics is becoming a part of the ESG (*Environmental, Social, and Governance*) criteria. Organizations are being rated on this aspect, and this sustainability factor is also reported externally. That makes sustainability leaders to have an increasingly important role when driving AI governance and responsible AI in organizations.

When asked **how companies can ensure that AI technologies that are being used, are being used ethically**, interviewee 1 responds that the most important part is making sure that the **AI governance is in place**, which is making sure that organizations systematically ensure that their AI is applied responsibly. That will ensure that **the AI technologies impact all relevant stakeholders in a responsible way**. It is crucial to make sure that the AI is developed and used in a responsible manner. The next step is to discuss **what AI government is** – what does it mean and what needs to be done when an organization governs AI. Interviewee 1 emphasizes that it is a continuous process, and **it needs to be repeated to make sure that AI is developed and taken into use according to the needed process**, which defines what are all the aspects that need to be considered. This is the **reason why AI policies need to be in place** – which gathers the best practices and regulations and explain what good AI governance looks like. It can define who should be the accountable persons related to the system, it can state that all involved third parties must be identified, it can state what are the requirements for contracts, it can guide you how to catalogue your datasets to avoid potential unfair or harmful biases.

Risk and impact assessment is a crucial part of this process, so there is always an exercise on identifying what are the relevant risks in a specific context or application. Risk and impact assessment is one of the key areas where organizations need to look for interdisciplinary group of people who do the risk and impact assessments – **identify what are the direct and indirect impacts of this AI system, and how do we test and mitigate against those**. It is important to engage the stakeholders in this process within the organization and make sure all stakeholders understand the impact of this process and how it works on a detailed level.

This sentiment is voiced also by interviewee 5 who says that **organizations need to make sure that there are safeguards in place** – who owns the tool and the data, make sure the AI technologies are GDPR compliant, it is important to build the products with “*safety first*” thought in mind. Interviewee also emphasizes that it is **important to set clear expectations towards the technology users as well** – what data is shared and when it is shared. Interviewee 5 also says that **organizations overall have usually bad-quality data**, so organizations also need to make sure that data which is being inserted into internal systems are of good quality.

When asked about AI governance and ethics for AI solutions that are purchased from a third party or developed in-house, interviewee 1 says that it is a critical aspect of the conversation. When purchasing AI-based solutions from third parties, it is **crucial to make sure that any third-party technologies are in alignment with the policies and values that the organization has**. That is why it is important to put in place requirements in the procurement and contracts. The requirements typically discuss transparency from the system provider on how the system works, how it is governed, what are the related risks, and what are the responsibilities of the user organization. Interviewee 1 explains that currently the transparency of the flow and the process of third-party solutions does not work well yet. Interviewee 1 emphasizes that only now **organizations are starting to recognize that they don’t understand well the third-party systems** that have been already purchased. This has created a situation where AI product companies must be credible in front of their customers and the discussions on ethics, transparency, and governance must be had.

To summarize, the HR function must be involved in the discussions regarding AI ethics and governance. Companies must ensure that AI technologies are being used and utilized in a responsible manner and all stakeholders understand the implications of that. It is important to perform risks assessments for the technologies that are purchased and have been purchased already. When using third-party AI-based technologies, it is crucial to understand what the responsibilities of all involved parties are, both internally and externally.

6 AI utilization framework

One objective of this research is to create a framework that would help the case organization to evaluate what AI technologies can be possibly used to achieve the set strategic objectives the HR function have.

The objective for the developed framework is to support the case organization's HR team to evaluate which AI capabilities can be utilized to achieve their strategic objectives.

The developed framework is shown below:

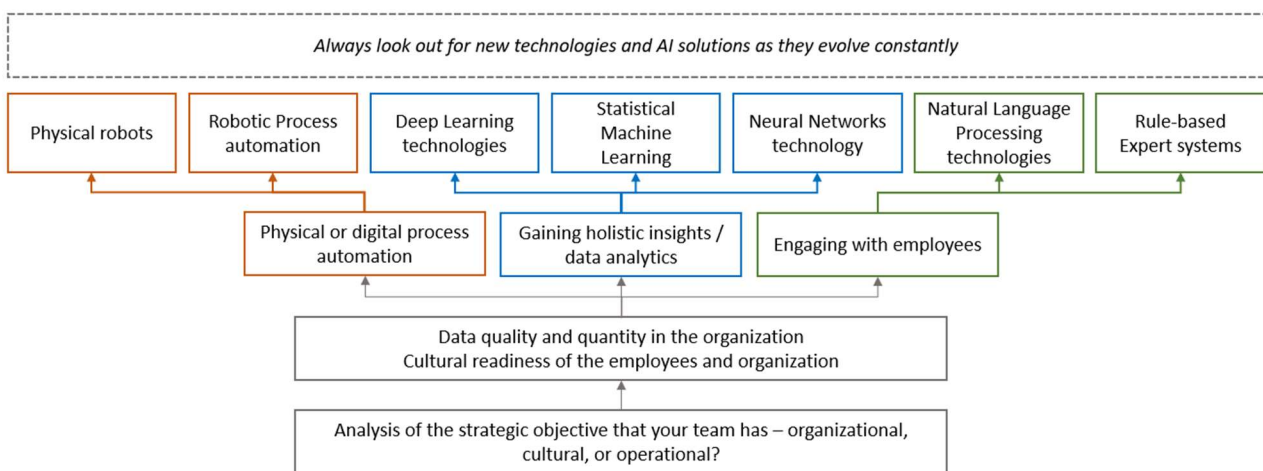


Figure 1. The AI Utilization Framework, developed by the author of the thesis

The framework is developed by the author of this thesis, based on the different elements of the research. Firstly, insights are gained from the literature review regarding the topics of HR strategy and HR being a valuable strategic partner in organizations, and AI technologies. Secondly, the interviews with the AI and HR experts who can give their own take on how HR as a function can benefit from the AI technologies and the opportunities it brings. Thirdly, case organization's HR (People & Culture team) is introduced to the framework and based on their comments and feedback, the framework is updated and improved.

Another outcome of this thesis work is an analysis on how the framework can be used in other parts of the business or an organization in general where a focus on AI tools might be relevant. The more in-depth analysis is introduced in the following subchapter.

As mentioned throughout this research, the framework is created initially for the case organization's HR team, but the initial results of the analysis indicate that the framework could be applicable for other departments or organizations as well. Before doing that though, it is important

to evaluate the applicability and suitability for different teams. That could be a valuable extension to this research, thus developing the AI framework further.

The framework considers that the team/person using it might not have a deep knowledge and background in AI. Therefore, the framework uses as simple language as possible, and this research can be used to read more about the AI technologies and capabilities that the framework discusses.

6.1 Framework analysis

The framework covers the different phases of the process of analyzing the readiness for achieving the strategic objectives with the help of AI technologies. It can be used as a guide through the overall process or parts of the framework can be used.

The base and starting point of the framework is **to analyze the strategic objective** in question that the function has:

- Is the strategic objective clearly defined, does it have a clear purpose, and does it support the company overall strategy and objectives?
- Is the strategic objective addressing an organizational (e.g., ways of working, cooperation within the function or organization, learning and development), cultural (e.g., feedback culture, leadership work), or operational (admin work in e.g., recruitment, everyday HR work) need in the function?
- What are the KPIs for this strategic objective / how are we going to measure success?

The next step is **analyzing own data quality and quantity** regarding the particular strategic objective in question. That includes considering the following aspects:

- What type of data do we already have in our function that can be used to achieve the strategic objective? In what state is it, can it be used right away, or does it have to be organized first?
- What type of data we do not have currently, but we could obtain and gather if needed to achieve our strategic objective?
- What type of data we do not have right now and cannot obtain immediately to achieve the strategic objective, but could be acquired later to reach the strategic objective later in the future?

The following step is to **evaluate which business activity is affected by the strategic objective**.

The business activity classification is based on Davenport's classification which he explains in his book *The AI Advantage: How to Put the Artificial Intelligence Revolution to Work* and which is used

also in this research. When evaluating the business activity affected, it is important to consider the following:

- Is the strategic objective attempting to automate a digital or physical business process?
- Is the objective to gain more insights with the help of more advanced data analytics?
- Is the objective to improve communication with the employees and therefore improve the employee experience in the organization?

Based on the analysis, the framework suggests what possible AI capabilities can be used to address the strategic objective in question. The capabilities are analyzed thoroughly in this research, and it is suggested that when utilizing this framework to look at the different capabilities and to do also own research to understand which AI capability to utilize.

There are a few important points to consider when using the framework. Firstly, the mentioned AI capabilities used in the framework is a recommendation only to help the HR team to get started in researching the AI capability that is the most suitable for them. Experimentation and “thinking outside of the box” for different and non-traditional solutions are encouraged by the author of this research.

Secondly, it is important to note that the AI capabilities are constantly evolving. While the core purpose and usability of the AI capability in question might not change, the different applications and tools in the market can change and take new forms as the market and demands change. It is also worth mentioning that new AI capabilities might appear in the future and that might require updates in the framework itself as well.

Thirdly, the author encourages to keep in mind that not all strategic objectives could and should be addressed with AI technologies – it is encouraged to keep an open mind and evaluate each strategic objective from the lens of AI and evaluate whether using AI capabilities will bring the desired outcome.

The author of this research hopes that this framework helps HR professionals and professionals from other areas of business to gain a first glance and insight on the possibilities that AI technologies can bring to the table. The author hopes it can spark a discussion within teams and open possibilities and provide out-of-the-box ideas on how different strategic objectives can be achieved.

6.2 Framework applicability to other functions and organization overall

During the ideation phase of this research and during the actual research process, it was considered whether the developed framework approach can be utilized in other parts of the business or an organization overall.

During the literature overview phase, it was noticed that most of the literature discusses AI technologies and capabilities and how they can support businesses in optimizing their internal processes. So, it was concluded that the research until now indicates that AI technologies can be utilized in most parts of the business, the HR function being one of them.

Since the developed framework is meant as a first step into the AI world for people without a technical or AI background, the framework discusses AI technologies as well as the affected business areas on a more general level. There are two sides of the coin for this approach – from a positive aspect, it allows the framework to be utilized on a broader sense, in different teams for example. On the other side, with this tool it might not be easy to address very specific HR-only-specific challenges. Further analysis and case study would be needed to evaluate this further.

The framework, if used in a different business area or in an organization overall, might need some adjustments to fit the purpose. For example, the business activity classification “Engaging with employees” might be more relevant to an HR function whose task is to develop employee engagement, internal employee communication and Employer Branding.

Overall, considering the somewhat general approach of the framework, it is concluded that the framework can be utilized in other parts of the business as well, considering that some adjustments might be relevant, depending on the business area or organization the framework is used for. If such activity is done and the framework is used, the author would be curious to see the results of this experiment and the conclusions that have arisen from it.

7 Presenting the thesis topic and framework to the case company

After the research has been completed, interviews conducted and main conclusions made, the research and its main results as well as the author's developed AI framework are presented to the case organization's HR team. The objective of this session is to gain insights and feedback about the topic and its importance in general and gather comments regarding the applicability of the framework as well as gather suggestions for possible further study recommendations.

The session is conducted on the 30 September 2022, and all case organization's HR team is invited. Out of the invitees, 5 team members joins the feedback session. The session is conducted virtually via MS Teams and lasts for 45 minutes.

The session is opened with a description about the importance of the thesis topic, the thesis research objectives, and outcomes. The team members are also presented with the main AI technologies that are currently available and examples are mentioned where these technologies can be used in the HR function – what tasks AI technologies could perform or what areas of HR could be streamlined or addressed with the help of AI capabilities.

The team is introduced to the AI framework which is developed by the author while conducting the research. During this part of the session, the author explains in the background of the AI framework- what was the design process of the framework, how did the author come up with the different elements of the framework. It is explained to the team members in what cases the framework can be utilized as well as all the elements of the framework is explained thoroughly.

After the framework was presented and explained, the author dives into the main findings and conclusions of the research.

To close off the session, each person is invited to give general feedback and ask any questions regarding the research work in general, about the developed AI framework or the main findings.

The session presentation is added to this research, added in the Appendix section.

7.1 Conclusions from the session

Upon opening the session, the HR team members were asked whether the topic of AI in general is familiar to them and how much they have been working with AI technologies until now. Two team members shared that they have been working with some AI technologies and that in their specialization, the topic of AI has somewhat been discussed in terms of addressing specific needs that AI technologies could solve in recruitment or managing the everyday, administrative HR tasks. To the HR team, the AI technologies being used in recruitment and to automate HR tasks were

among the familiar ones. However, the topic of AI in general and AI in HR is revealed to be not overly familiar, so team members are not able to comment too deeply on this subject or share experiences. This should have been considered and different approach should have been taken when preparing for this session. One approach that would have been useful – to give a “homework” to the meeting participants, for example, to provide an article on AI or AI in HR for the team members to read before the session. That way team members can familiarize themselves with the topic before the session and they would have time and space to think about this topic beforehand and form opinions, that way making the session more fruitful.

This conclusion is backed-up by a written comment that was left by a team member: “I think it’s [the presentation – author’s addition] looking good, a lot of information for people who are not familiar with this topic”.

Also, due to time scheduling and workload, the session is 45 minutes long, which is not an overly a lot of time to go through all the elements of the presentation as well as gather lots of insights and comments from the team members. The session could have been scheduled for 1 hour or preferably even longer, for example, 1,5 hours, to have time to thoroughly go through the results and main insights as well as have an in-depth discussion with the team members and gather ideas and suggestions. The thesis author had time to go through all the elements of the thesis work and gain quick comments on the subject, but the time ran out rather quickly.

Another topic that due to time limitations was not covered – data importance in the HR function. During the research, it was recognized that data is the backbone for AI implementation and that the HR function has lots of valuable data available, though sometimes that data is not organized or gathered properly. Considering that one added value that the HR function can bring to the organization is predictive analytics and insights, the topic of data importance and data strategy in the HR function would have been important to cover. However, due to lack of time, it was decided not to cover this topic during the session.

Overall comments of the session and thesis subject were good. Each team member took a moment to give their insights on the subject and good feedback was given on the importance of the subject. In the beginning of the session, participants were asked to rate or give an assessment of their knowledge (which was rather largely defined as “I know something about it, but not overly a lot”). At the end of the session participants were asked whether the team members see themselves being interested in this topic more and whether they feel that after this session, they would be interested in looking more into AI and the possibilities it offers. The general feedback was that HR professionals are indeed more aware of this topic now and it might pave a road for future exploration and interest towards this topic. This is one of the aims of this research as well – to

inspire the HR community to be interested in AI technologies and capabilities more – so the author is pleased to notice that by talking about AI technologies and capabilities, it is possible to spread the awareness and interest towards this very important subject.

8 Summary and conclusions

This research work served a specific purpose for the author – to start building the competencies in AI and HR and start building a portfolio with a strong understanding of AI and how it can be utilized in HR processes and strategic objectives.

AI is becoming an increasingly important player in the business world. Organizations are looking into opportunities to streamline their business processes and boost productivity, and AI and its capabilities can support organizations in doing so. AI technologies and capabilities have been developing especially in the past years, with the market having wide offering of AI-based technologies.

The Human Resource function has evolved over the years as well. It has grown from a very administrative, repetitive, everyday-work function to a highly valuable key player in an organization that contributes to the success of the company. One aspect of this transformation has been the AI technologies and the added value it gives to the HR function. However, the AI technologies and capabilities are not used on a strategic level, which can affect HR's role as the valuable strategic partner it aims to be.

Knowledge-based organizations have an important role in utilizing existing knowledge and create new knowledge as well. Knowledge has always been considered to a strength and is very appreciated in the Western world. Companies need to learn how to harness knowledge, and AI technologies and capabilities can support organizations in doing that. This research work is conducted for a case company – a cyber security company F-Secure which has been identified as a knowledge-based company.

Upon conducting the research, the main conclusions are summarized below:

- People have a crucial role in the success of AI implementation, therefore it is important to educate employees of the possibilities that AI brings, so that AI is seen as an opportunity and not a threat.
- The AI disruption requires intensive upskilling and reskilling of people, which companies need to address, and individuals need to consider in order to be competitive in the job market also in the future.
- Data is the backbone on which AI technologies operate. Organizations need to have a data structure in place and must be aware of the data that is available and the data that could be gathered. However, based on the research and conducted, often organization's data structures are not on a sufficient level.

- Ethical data handling and ethical AI practices must be developed and considered when working with data-based AI technologies.
- The HR function has plenty of AI technologies available at its disposal; HR professionals just need to become more confident in their AI skills, educate themselves if necessary and start seeing the different opportunities that AI provides.
- Implementing AI technologies requires changing whole business models if necessary, in order to achieve the best result.
- AI projects and initiatives in organizations should be implemented gradually, starting with a low-impact project to assess the organization's readiness.

The research work covered different topics holistically and made connections between topics that are not very often discussed through the same lens. That has provided inspiration and ideas for further development topics which are covered in the section "Further Study Recommendations".

8.1 Answering the research questions

Upon conducting the research, the research questions were the guiding force for the whole research that were guiding the flow and the direction of the research. During the research work, the research questions are constantly considered to make sure that the questions are being addressed and answered.

The first research question of this thesis is **Which are the impact areas of HR that can be improved with AI solutions effectively?** The answer to this question is found in the literature review, where the different AI technologies are discussed and reviewed as well as different applications to the HR function are investigated and presented. This topic is also discussed with some of the interviewees to gain a deeper understanding of where the AI capabilities at hand today and where the HR function should utilize these capabilities. The findings of this question are also summarized and presented to the HR team in the thesis presentation session that was held on 30 September 2022. The presentation can be found attached to this research work, in the Appendix section.

The second research question **How should the developed framework be utilized in the case organization's HR function?** is attempted to be answered during the thesis presentation session to the HR team, but due to the factors described in chapter 7.1 *Conclusions from the Session*, the answer to this research question lacks depth and still should be explored more to be answered fully, specifically for the case organization. However, the literature research as well as interviews conducted with the interviewees and the analysis of AI framework, done by the author provides indications where and in what aspects the author's developed AI framework could be utilized. The

testing of this AI framework could be done as a continuation of this research work for the author of this research or could be conducted as separate research by another author with the objective to validate the framework and give suggestions for its improvement.

The third research question **How can the developed framework be utilized in other parts of the business or the organization overall?** is addressed in the chapter *6.2 Framework Applicability to Other Functions and Organization Overall*. To answer this research question, the author analyzes the developed framework from a general perspective and evaluates whether the mentioned elements – analysis of the strategic objective, evaluating the readiness of the data that is needed to address the strategic objective, the business areas that are potentially affected by the strategic objective, and the AI technologies that can be utilized in achieving the strategic objective – can be utilized when addressing the strategic objectives in different functions or can it be used to address strategic objectives of a whole organization. Also this topic could be a subject of deeper research to validate the findings of this research, and this topic could be the subject of further research.

8.2 Further study recommendations

This research on the subject has sparked lots of new questions and the author recommends a few possible topics and themes to be investigated further.

Firstly, the importance and the role of data should be investigated more in detail, both on an HR function level and in organizations overall. It would be noteworthy to research the importance of a data strategy in an organization and how a successful data strategy and management can contribute to the overall success of the company. Another aspect worth researching is investigating how data readiness, quality and structure prepares organizations for AI technology implementation in organizations.

Secondly, it would be noteworthy to research whether the framework can be used in different types of organizations and whether it is applicable to different industries. If not, how can the framework be adjusted to fit the needs of organizations of different size, different industry, or different line of work.

And lastly, the author sees value in researching the cultural aspect of implementing AI technologies and capabilities in organizations – what does it mean in terms of reskilling employees, how does that affect their overall employee experience in the company. What would it mean to implement AI technologies in terms of cultural and mindset change of employees. A relevant topic is also AI disruption and personal brand – what does it mean to work on your competences and personal brand to be competitive in the job market? How does AI skills and soft skills such as

ability to learn, empathy, teamwork skills complement each other in lifting the value of the future employee.

The AI world is endless and always evolving and changing, so the author is convinced that more interesting and relevant topics can arise with time, when new technologies appear, new workplace models appear and people are finding new ways how to adapt to the new working life and trying to find their place within it.

8.3 Own evaluation

The author's interest towards AI technologies started in spring of 2020, when Haaga-Helia UAS offered a course called *Artificial Intelligence in Modern Business* by Lasse Rouhiainen. The course touched upon the possibilities AI technologies can bring and how businesses can utilize AI technologies to streamline their business processes, increase efficiency and improve customer service. During this course, the author realized for the first time that knowing AI does not require a programming degree and technical background is not needed to understand what AI can do for businesses. Also, from a personal development point of view it became apparent that since AI will disrupt workplaces tremendously, a professional in any industry and from any line of work should be aware of AI technologies and should have at least an idea on how to utilize these technologies in own work. This was the first moment the idea of writing the master's thesis about AI technologies appeared.

Having a background in HR and having worked in HR for the past 3 years as well as having the newfound interest in AI technologies, the author looked deeper into these topics and realized that there are not overly a lot of information about AI from the lens of HR. Upon deciding on the thesis topic, it was apparent that this master's thesis journey will be full of learning and discoveries.

Deciding on the thesis topic and keeping it in scope was a challenge, because the topic of AI is so wide, and the different areas intertwine with each other so closely. During the process of conducting the research, both the scope and themes were slightly adjusted. That allows the author to let the research guide the direction of the work, which can lead to discoveries. However, this has caused the research to take some interesting and valuable paths, yet that have not been completely in scope of the thesis work. For example, ethical AI practices is a topic looked at in this research and discussed with the interviewees, but it seems to be slightly detached from the overall research. This can be an interesting starting point for other research projects in the future.

The journey of writing the master's thesis was challenging yet rewarding. The master's studies as well as the thesis work was completed while working full-time. During the studies, the author had changed employers which affected the master's thesis topic, scope, and the case organization.

Also, starting a new, more demanding position with a new employer requires a lot of effort and energy, which to some extent impacts the quality of the research. Despite the challenges and the need to manage the hectic work/study/personal life balance, the author has reached the aims of the research.

Also, the most important aim of the whole study journey has been achieved – to become more knowledgeable in the area of AI and what possibilities it offers to the HR function and business overall as well as lay the groundwork for further self-development in the area of AI and HR. Now, the work will continue and the next step for the author is to create a personal development plan and pave the way to building a stronger “AI in HR” competence, to become more competitive in the future job market.

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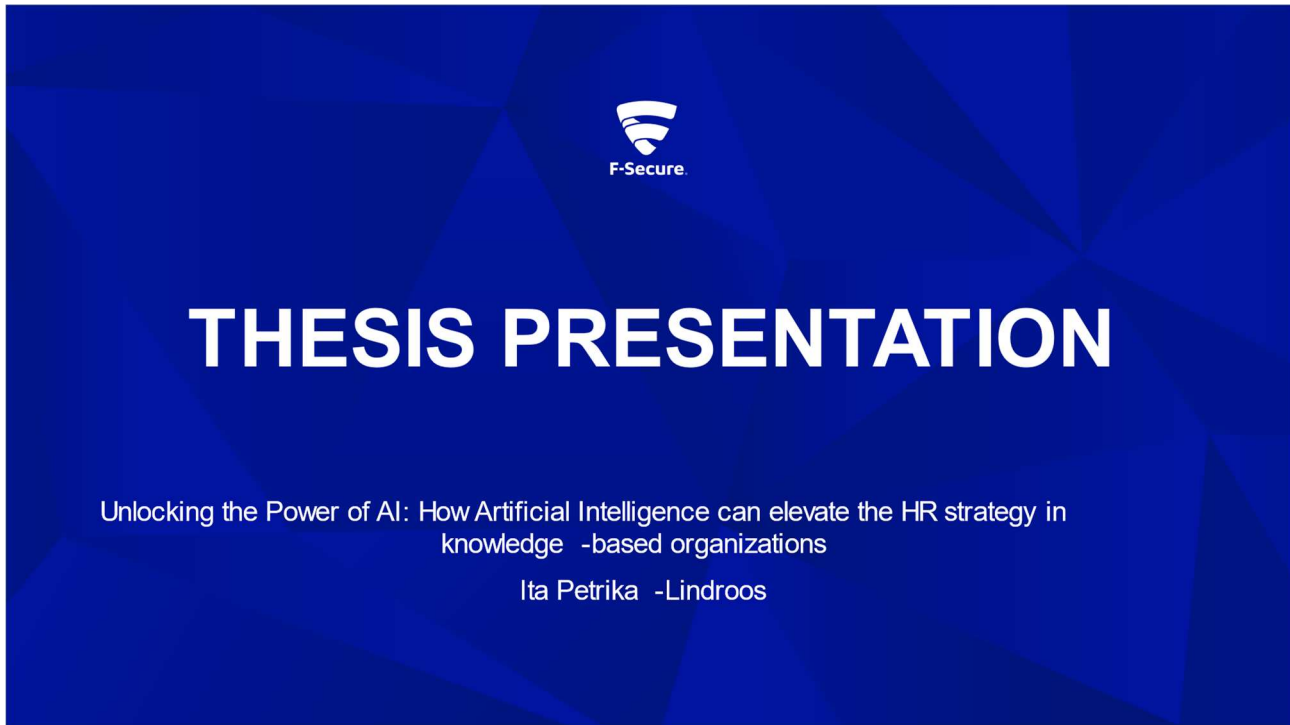
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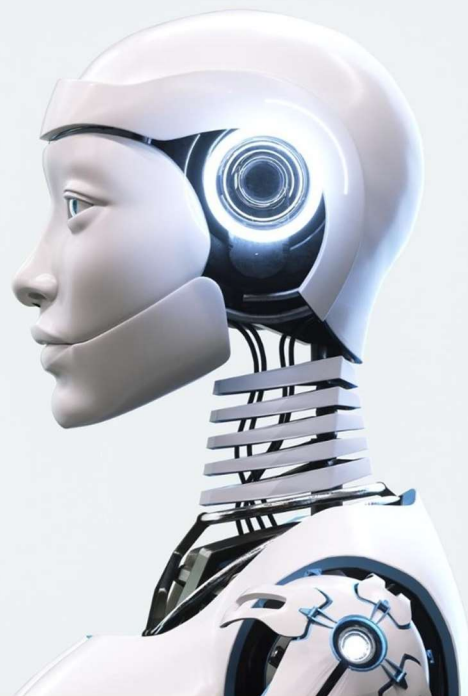
Appendices

Appendix 1. Thesis and AI framework presentation to the case company



AGENDA FOR THIS SESSION

- 1 Thesis background
- 2 Thesis objectives and goals
- 3 Main findings from the research
- 4 AI framework and feedback on it
- 5 Your feedback and closing the session





QUICK CHECK-IN QUESTIONS

- How confident and knowledgeable do you feel regarding the topic of Artificial Intelligence? (on a scale 1-5)
- How probable you see the chance of working with AI technologies in the future?
- What are the topics or areas of AI that are the least clear and understood?

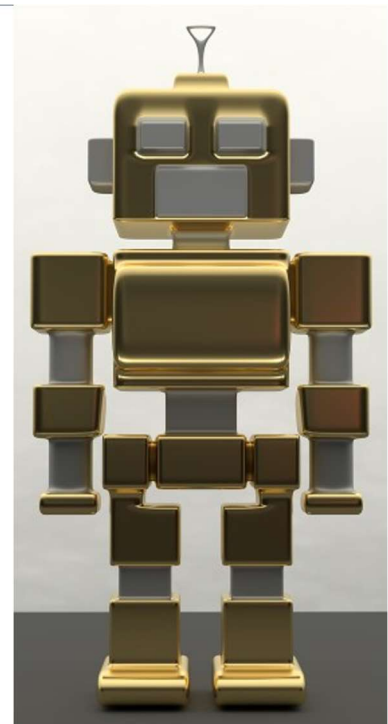
3



THESIS BACKGROUND

- Artificial Intelligence (AI) is becoming increasingly used in different business processes
- AI will transform our ways of working, so both organizations and professionals need to adapt to the inevitable change. It is important to look into AI solutions to understand how AI can be leveraged to benefit both organizations and individuals
- At the same time, HR has developed from an administrative function to a strategic business partner which can bring added value with the help of predictive analytics and other AI technologies
- However, HR until now has not been utilizing the opportunities that AI brings, and it has not been deeply researched how these two themes merge together
- The need to understand how AI can support the HR function had led to the development of this research topic

4



THESIS OBJECTIVES AND OUTCOMES

Objective 1

Research and evaluate the AI capabilities that are available and map how the technologies can be used for different purposes.

Objective 2

Research the journey of HR from an administrative support function to an important strategic player in the success of the organization.

Objective 3

Create a practical solution – an AI Framework – which can be used as a tool to prepare the HR function for the disruption AI will bring and to leverage it in achieving HR function’s strategic objectives .

Outcome 1

Contribution to the theoretical research by looking into the topics of AI, HR, and the combination of the two .

Outcome 2

Practical contribution to F-Secure’s P&C team in the form of a practical AI Framework+ an analysis whether the can be used in other parts of the business as well

5



HOW CAN WE UTILIZE AI IN HR?



Machine learning

Technique for automatically fitting models to data and to "learn" by training models with data, the most common forms of AI.

In HR, can be used in retention management to identify potential leavers, in recruitment process to match the job candidates, in training to apply content based on the progress of the student.



Neural Network

More complex form of machine learning, it processes information in a similar way that a human brain does.

Not used too much in HR yet, but there is potential– e.g. In recruitment, providing the neural networks with successful / unsuccessful recruitment data to set up a talent selection system.



Deep learning

Most complex form of machine learning

In HR, voice-activating applications used for HR services, facial recognition used in making sure a person’s individual face matches up to their ID, ensuring a higher quality of security. Facial expression detection is often incorporated alongside facial recognition to give information about the emotion a candidate is showing.



Natural language processing

Includes speech recognition, text analysis, translation and text generation

In HR can be used to analyze text data for trends and other insights, analyzing the sentiment and emotions of employees support the recruitment process by crafting job advertisements that would have the most impact on candidates can be also used as chatbots (e.g. virtual coaches or other employee chatbots).



Rule-based expert systems

Require human experts and knowledge engineers to construct a series of rules in a particular knowledge domain.

In HR, could be used in performance evaluation of employees due to its ability to imitate human thinking and ability to identify the facts that are of importance regarding decision making



Robotic process automation

Performs structured digital tasks.

In HR, it can "observe" humans in work and imitate answering for example employee questions on a chat.

6



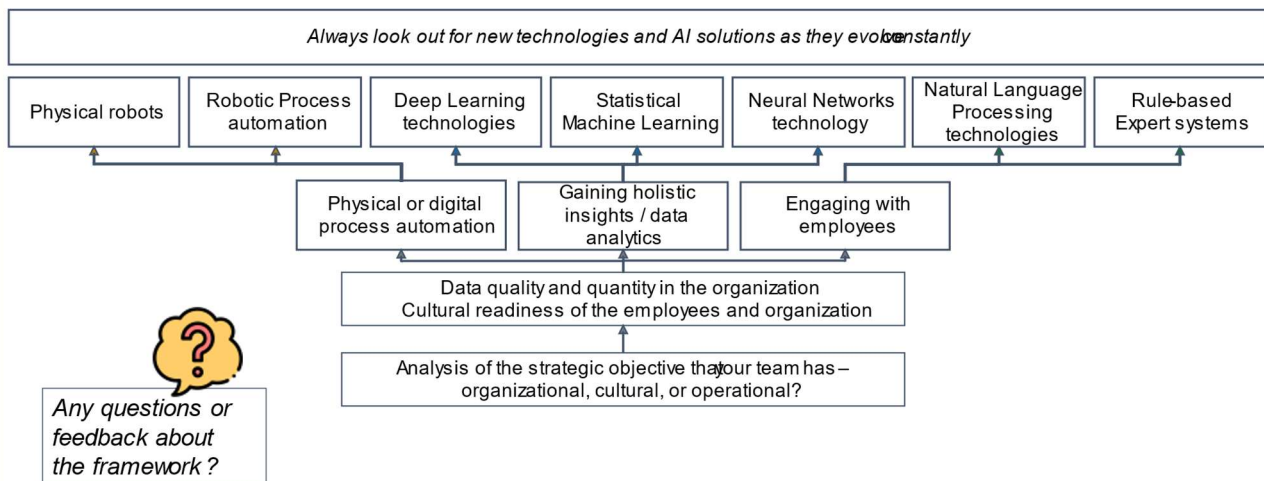
MAIN FINDINGS FROM THE RESEARCH

- The business world is **utilizing AI technologies increasingly** to address business challenges
- HR and AI are topics that are discussed together to some extent , **but not overly a lot of research has been done** with a strategic perspective
- For organizations to take AI technologies into use, a couple of factors are important:
 - **Mindset of people** – AI should be seen as an opportunity and not as a threat
 - **Reskilling and upskilling** of people is crucial and the key to successfully implement AI
 - Taking a **grounded approach** when implementing AI technologies , start small
 - **Data structure** needs to be in place!
- AI has an important role in elevating and emphasizing HR's **role as a strategic partner**
- AI experts' message to HR professionals – it is crucial to start educating yourself now **to be competitive** in the job market in the near future

7



AI FRAMEWORK



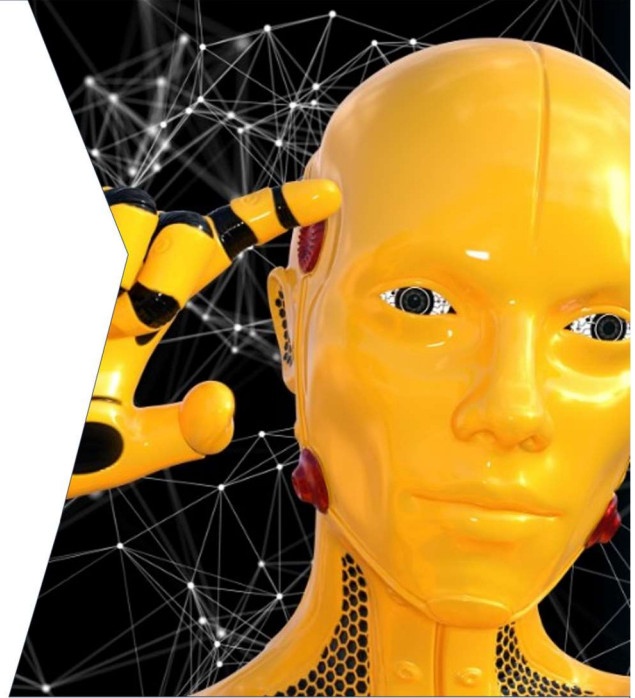
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YOUR FEEDBACK IS WELCOME!

- How confident do you feel about the subjects of AI and HR?
- Do you feel inspired about learning more about AI technologies and the possibilities it brings?
- Is there something that is still unclear regarding the topic or the framework?
- Do you have any general comments on the topic and the importance of it?

9



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