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Emilia Palmu

Human Resource Management with Artificial Intelligence

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This thesis looks at the current state of human resource management (HRM) and how artificial intelligence (AI) has influenced it in the last few years. The current literature provides examples how the effects of this show and how it has changed the way business is conducted. The material used in this paper includes articles and research papers conducted by people working in the field of HRM or AI. These articles include examples that support both pros and cons of this subject. Based on the research it becomes clear that the usage of AI in HRM is not yet that common. Especially among smaller firms that might not benefit from this technology, same way as larger organisations. Those companies that are using this type of technology are reporting positive results and the AI business is growing fast and the research suggests that in the future most technology will include AI features. In HRM, AI can be used in every step of the HRM process. This paper focuses on the primary areas of HRM: recruitment and selection, corporate training, performance management and employee motivation. By improving the working conditions, AI improves satisfaction towards the work as well. It becomes important for businesses and individuals to educate themselves and others on this subject as this will help the technology to evolve faster and help the transition from traditional HRM.

Keywords	Human resource management, HRM, Artificial intelligence, AI, Technology.

Contents

1 Introduction

This thesis paper talks about artificial intelligence (AI) and how it is used in the human resource management (HRM). The topic is relevant today because the usage is growing and will continue to grow in the next years leading to the point when most HR workers use AI in some form in their everyday job. This is proven by the current state of literature, published by people specialised in HR and AI.

Many companies providing AI solutions share their intel on the subject and information which companies are using their AI powered technology. Some large companies that are focused on various areas of business are also developing their own AI solutions. AI has been around for decades and it has recently become easier to use and maintain due to the advanced technology. The area of this topic is exceptionally large and has many areas of interest, but this paper focuses on HR.

Considering the total number of companies with HR, the usage of AI technology is still relatively small. AI is mostly used in larger companies, which is sensible due to the cost and benefit factors. It does not change the fact that the usage is growing and someday even the smaller firms will be taking advantage of AI. The research shows it brings on many benefits to the company, saves them money and makes them more efficient. This paper will discuss more about the advantages and disadvantages of the subject.

At first this paper will briefly go through the subject of traditional HRM and share few details about the subject of AI. After these, the focus moves to the main topic of AI used in HRM. The primary areas of HRM, recruitment, selection, training, performance management and employee motivating are separated into their own chapters to divide the subject clearly. This is followed by a discussion chapter of the topic and consists areas of issues and concerns as well as recommendations for both companies and individuals.

2 Traditional Human Resource Management

In this chapter the focus is on traditional human resource management and discusses different areas of HR in more detail. HRM is an important part of business in any organisation. Smaller companies, like start-up businesses, might not have an HRM department, but every organisation has someone or some people in charge of the areas of HR. The HRM process (Figure 1.) begins with recruitment process and selecting suitable candidates for the job. Corporate training continues throughout an employment, and it starts at the beginning and continues whenever necessary. Important part of HRM is to assess the performance of the employees and make sure the company can help the employees, and able to endorse the employees for their accomplishments. Motivating the employees is an important part of HRM and these actions help keep the employees satisfied with their workplace.

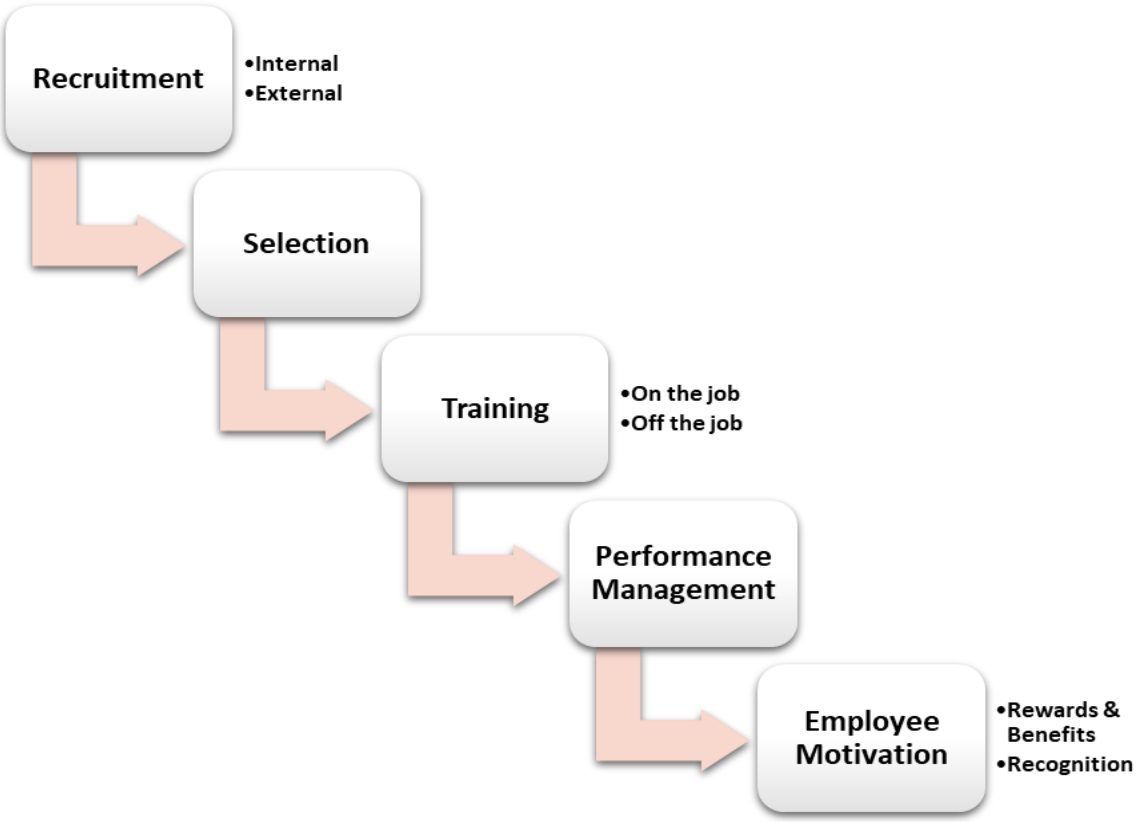

Figure 1. The HRM Process

2.1 Recruitment and Selection

At the beginning of the recruitment process, the recruiter must know what type of position is in question and what kind of activities it holds in. For a detailed job description needs to be conducted a job analysis. For this analysis, the recruiter looks back to the earlier employee recordings on that job. For the details, the person can interview the people most familiar with the position. These would be the earlier employees in that position, or the managers overseeing these employees. An earlier description of that job would also serve as a useful source since it should have most of the current requirement as well. Employee loggings or such can hold useful information about the job details.

The job description has information on what the position is, and it summarises the job in question. The main responsibilities are listed, and the usual daily duties are mentioned in the job description as well. It should mention what qualifications the candidate should have, like educational level or previous work experience. Depending on what the job is, it can also have information on what type of working environment is in question, for example, if the job takes place outdoors. These pieces of information should tell the job seekers whether they could be qualified for the position and have a chance to be called further in the recruitment process.

Most often the job is advertised inside the company before it is shared in public platforms. Internal recruitment is less time consuming since it does not result in as many applications and the employee records share most valuable information about the candidate. If a suitable candidate cannot be found from inside the organisation, the advertisement is shared outside the company on the company's careers website which is visible to everyone, common job advertisement platforms, for example LinkedIn or university recruitment sites.

Sometimes, when the job requires a specific talent, it becomes harder for the recruiter to find a suitable candidate. When this happens, they can use the assistance of a head-hunter. This refers to a company or an individual hired by a company and they work to find the needed talent required by the job. They can use more aggressive methods to find these candidates than the firms might themselves use (Kenton, 2018).

Most often, recruiters set a date after which they will not accept any more candidates. After receiving all the resumes by the date, the recruiter will go through them and select those candidates that seem suitable for the next stage of the process, the interview. The interview can happen face to face, via Skype or a similar video chat platform, or a phone call. Sometimes to get the job, candidates must go through multiple interviews, and not always is HR representative present on those.

How the interview goes is not always in the hands of the job applicant. There are errors the interviewer can fall into, for example, halo and horn effects (Kennon, 2011). Halo effect means the interviewer sees the candidate to be better than they are. For example, if the candidate went to the same school as the interviewer, their negative qualities can be overlooked. The opposite, horn effect, can make the interviewer see the candidate in a negative light. These effects are subconscious, and it is almost impossible to affect them. The interviewer should, however, be professional enough to recognise that those feelings are irrelevant to the recruiting decision.

Before the job is given to the candidate, they might have to provide background information. Usually this is just recommendation from their previous employer, but some companies might insist the candidate to go through some additional testing, like drug testing, lie detecting, and depending on the job, testing the candidate's physical abilities. Sometimes companies can run a background check to see if the candidate has, for example, criminal history. The final hiring decision is rarely done by the HR worker, but the manager who is supervising the position.

2.2 Training

When the candidate starts their job, they will first have to go through an introductory training. This is when the new employee gets to know the new workplace and how the company operates and what rules they have. They will also be shared with the information what the company does for its clients or customers, depending on the workplace in question. After the basic training, the employee will receive more detailed training focused on their own role in the company.

During this specified training, the employee is taught how to use the equipment they need for their job. In an office this can mean sharing the safety measures needed for logging in to the company computer. They learn how to use the possible platform for internal communication and which other sites are necessary to use on the job. New employees are also informed about how they can inform their supervisors if they are unable to come to work. Whilst this training the employee should develop an idea of how the job is supposed to be done correctly and effectively.

Training does not end to the introductory training, because jobs are changing, and companies are adopting new habits. After some time, the workers might need to refresh their memory or skills related to the job. This type of training can be organised for some workers who need to retake the training because the company believes they are underperforming and could benefit from refreshing their on-the-job skills. This type of training can also be mandatory for everyone in the company in case the training includes latest information for everyone. Managers can go through refresher training as well to keep up with modern managerial styles and issues that should be avoided in the workplace. Sometimes these trainings are not job-related but so-called social exercises to help make the workplace a better one.

To employees who are performing well and who show potential to move forward in their career, the company can organise managerial training courses. There the workers with potential learn how to be good leaders and how to manage a team of their own. This type of training should be provided at the latest to those who have already received a promotion.

“The Kirkpatrick model” (Figure 2) was created by Dr Donald Kirkpatrick in the late 1950s. He wrote four articles to the Association for Talent Development (ATD) about the evaluation of training. The articles were entitled “Reaction”, “Learning”, “Behaviour”, and “Results”. Later these articles were referred to as levels and someone other than Dr Kirkpatrick named the levels as “The Kirkpatrick Model” and it has become a standard model for training evaluation. The first lever, “reaction”, refers to the situation when it has become clear training is necessary for the participants and it is seen as a positive step regarding their career. The second lever refers to the learning stage of the participants when they start to obtain the required skills based on their training.

At level three these skills are applied to their work which leads to the final level, “results”, when the outcomes of the training occur, and it becomes possible to evaluate the effects of the training (Kirkpatrick Partners, n.d.).

Figure 2. The Kirkpatrick Model (Kirkpatrick Partners)

“The Kirkpatrick Model” has been updated afterwards and the updated version is called “The New World Kirkpatrick Model” (Kirkpatrick Partners, n.d.). This model is based on the original model but has some new additions in it. On level one, which originally measured just participant satisfaction toward the training, now includes “engagement” and “relevance”. These refer to the participant being active about the learning experience and engaging in the exercises and they can use what they have learned during training. Level two has in addition to original learning outcomes such as knowledge and skills also “confidence” and “commitment” to the job or task. Level three in the new model also includes “required drivers” referring to the factors which help the individual to perform better.

2.3 Performance Management

Every job includes minimum standards which should be reached all the time. These requirements are set during the job analysis phase and the goal for the employee is to perform better. They include quantitative and qualitative measures. If the job is to sell something, the employee should be able to make certain amount of sales and build and maintain good customer relationships and people skills.

These standards of performance are informed to the employee. Some of them can be listed in the job description used in the recruitment process, but the latest these should be communicated to the worker during training. Usually, a new employee can have time to get familiar with the job and during this period underperforming can be overlooked. When the actual work begins, the employee should be able to perform under these set standards.

The working performance is always recorded somehow, and the manager will review these records every certain period, for example annually. The information on the worker's performance can be collected in many ways. The employee can keep track of their daily performance or someone else can keep the log for them. A team working closely together can provide feedback on each other's performance or the workers can do self-evaluations. The performance data can be collected from various digital sources, like sales records. When working within a team, it is effective and particularly important to give feedback on the other team members. This provides a possibility to tackle issues inside the team in case those have a negative impact on their performance.

After the data has been collected, the manager compares the performance of the employee during the period to the standard of performance and their performance during the earlier periods. Based on this information the manager defines whether there are gaps in the employee's performance and which areas of performance need more attention.

After analysing the performance of the employees, the manager makes decisions on what action they should take. Those who are performing well and whose work has improved could receive rewards for their work and those who are underperforming and have not improved need to take actions to correct their possible misbehaviour and to improve their performance and productivity.

2.4 Employee Motivating

Employee motivation is an important part of the HRM. Keeping the workers motivated and satisfied, makes them work productively and, hopefully, stay longer in the company.

If the workers are not satisfied, they might not be willing to stay in the company for a long time. This, eventually, will cost money and resources to the company which will have to go through the whole recruitment process and employee training more times than necessary. Money does offer motivation towards the job but only in the short term. To keep employees satisfied it is more effective to offer them other motivators as well.

Most importantly, the workplace must be safe, and workers must feel comfortable working there. Poorly managed working conditions that compromise the employees' safety, health or general welfare demotivate the employees and decrease their willingness to work in the job and do their work productively. These areas are usually well taken care of in most companies. For the company to practice their business, the working conditions must be up to standards. These standards vary in different parts of the world.

Another important part to keep employees motivated is to have a team that works well together. Therefore, it is important while hiring new employees to be sure they can work with others and are good collaborators. If any type of workplace bullying or harassment occurs, it should be fixed at once, so the ill behaviour does not continue increasing the negative atmosphere in the working environment.

Paying the employees' salaries is the most basic reward the workers expect from their job. The salaries should be paid on time since any delays with the payments can cause dissatisfaction among the workers. This is rarely an issue in larger firms that have money to pay for their employees, even when their profits go down. However, in smaller firms, like start-ups with only a few workers, payments depend highly on how much the firm makes, and in the beginning, regular payments might not always be possible. In these cases, something else must motivate the workers to stay in the job.

One motivator in these cases is recognition. Recognising the employee's potential and the work they have done can motivate anyone to work harder, even without pay. Simply acknowledging someone in the workforce for their hard work and accomplishments can make the employee feel valued and an important member of the working community. Acknowledged workers can feel motivated to work harder to receive further appraisal from the employer.

In smaller companies these individual achievements are easily recognised and can make a significant difference for the business. Therefore, some can settle for simple recognition over salary when they feel they are making a difference.

Sometimes companies can offer several types of benefits for their employees. This can be free health insurance, dental plan, paid sick leaves, the possibility to get a discount on lunch or receive free meal from work, possibility to have breaks during work and good working hours. It is also popular for companies to offer different possibilities for their employees to enjoy time outside work, for example, movie tickets, discounts on some cultural events or access to the gym.

Especially in smaller companies, it is popular also to give employees the possibility to include their family life to their work. Some companies offer childcare for their employees' children and do not mind if they bring them to their workplace with them sometimes. Once a year, many companies in Finland take part to "Bring your child to work"- day, when the children are invited to see what their parents do for a living.

Also, different rewards and bonuses are ways to motivate the employees in addition to the standard salary. A bonus is traditionally a monetary reward received at the end of the year. Other rewards could be better office facilities or parking spaces for those who have performed exceptionally.

3 Artificial Intelligence

This chapter deals with the topic of artificial intelligence to give a general idea of how it is used in business. Artificial intelligence has been around already for decades and companies have been figuring out ways to implement AI into their businesses. According to a digital article, "The business of artificial intelligence", John McCarthy was the first one to use the term "artificial intelligence" in 1955. Couple years later, in 1957, Herbert Simon made a prediction saying that within ten years, computers would be able to beat humans in chess. This prediction took a while longer to become reality, around 40 years (Brynjolfsson and McAfee, 2017).

Now that technology has evolved, and the computers are more powerful and capable of storing much more data, it has become possible to create algorithms that are more advanced and develop AI further than a few decades ago (SAS, 2019). Today, AI is used in many business areas, and when the outcome is predictable it is possible to implement AI technology to the procedure. The outcome can be predicted when actions leading to the goal are recorded and the information dated back is revealing a pattern the AI can detect. For example, sales systems investigate purchase history while HR looks into employment records (Yano, 2017).

Zielinski mentions in his article, “Get intelligent in AI” that by the time it was published, analysts had predicted that by 2020 almost every software product and service will have AI technologies (Zielinski, 2017). Now, that statement is close to the truth, since AI-powered technology is not only used in business but also everyday objects and gadgets, like smartphones. For example, Google Assistant, which differentiates itself from Google’s earlier virtual assistant, Google Now, by being able to have conversations with the other party. Both Google products include AI-driven technology.

According to the article, “Ten HR Trends In the age of artificial intelligence”, AI combines work done by a human to automated technology and requires a deep understanding by the leaders as well as their teams (Meister, 2019). AI learns from the data that is fed to it, and if the data includes errors and misses some information, it will be missing from the algorithm as well. For example, if the information of a certain demographic group would not be included in the data, it would be impossible for the algorithm to detect this group either (Zielinski, 2017).

Dave Blanchard explains in his article, “A smarter way to run a supply chain”, how by learning the same skills that experts in a certain field possess, AI is able to help business. The machine is taught the skills by the professionals in that field and when it learns them, it can give similar advice as the professionals would. An example he mentions is how Toyota has been using this type of AI-based solution to fork truck maintenance. The machine knows fork trucks and how to maintain them, and when something goes wrong, it can instantly provide a solution to the issue. This way anyone of the workers can fix it, without the help of more experienced worker (Blanchard, 2016). This saves time and effort in the workplace.

The same article by Blanchard brings up the subject of augmented reality (AR). Compared to virtual reality (VR), instead of changing the whole scenery, it only changes part of the reality. With AR classes, companies can, for example, see how the product will have to end up looking. In the example provided by the article, Airbus technicians have used these classes when installing the cabin interior to A330 aircraft. With the classes, they can see how the seats and other elements of the cabin will be affixed (Blanchard, 2016). VR and AR technologies combined with AI create huge opportunities for companies.

In marketing AI is, for example, recommending customers the right content or products based on their earlier buying behaviour. By using cookies, companies can track their client's virtual footsteps and recommend a certain product, or comparable products, on other online platforms, like on social media site Facebook. AI has helped marketers to personalise their customers. A good example is how people's search histories on online platforms can be saved and used in marketing targeted to that customer. Dave Blanchard says in his article "What's the status of your status quo?" the voice recognition capabilities and search engines based on AI, have improved already good products making them better, referring to more traditional search methods (Blanchard, 2017).

Chatbots are a great example of how companies have found use for AI. They are little message boards that pop up when a customer opens the company's website. Chatbots are what companies use to communicate to the customers directly online. Usually the customer has a conversation with a machine, instead of a human being. Article "The state of omnichannel content", discusses how chatbots are also used by companies who aim to build an omnichannel system and the technology advancements have been very useful for businesses using this approach with their customers (Cramer, 2019). The main difference between multichannel and omnichannel is how regardless of which touchpoint the customer chooses to use to connect with the business, the experience should be similar for them (Moffat, n.d.). Katrine Joly mentions chatbots in her article, "Digital marketing trends for 2019", and predicts that the use of them will increase in 2019 as institutions will aim for better customer service (Joly, 2019). This is easily noticeable since no matter which company's website one visits, that website has a chatbot which pops up when site is opened.

Harriet Rodney, Katarina Valaskova and Pavol Durana have conducted a study about the effects of AI by using resources from the Boston Consulting Group, MIT Sloan Management group, CV library and others. For their study they also conducted a survey that gathered responses from 3,700 people in business (Rodney, Valaskova and Durana 2019). The results were presented in an article written by the three, and in the article, they share the results of how highly does AI affect in different industries and how it is assumed to change in five years (Table 1). The results show a modest impact for now, the consumer industry having the highest, 22 per cent, and industrial lowest, 11 per cent. However, within the next five years the impact is assumed to grow in every industry to above 50 per cent, and for example, in the consumer industry close to 70 per cent.

Table 1. Expectations for artificial intelligence adoption across industries: Impact on processes (%) (MIT Sloan Management Review; The Boston Consulting Group, cited in Durana, Rodney and Valaskova, 2018; 2019)

Industry	Large effect today	Large effect in 5 years
Technology, media, telecom	19	64
Consumer	22	67
Financial services	14	63
Professional services	15	61
Health care	17	59
Industrial	11	57
Energy	13	55
Public sector	16	51

Sources: *MIT Sloan Management Review*; The Boston Consulting Group; our survey among 3,700 individuals conducted November 2018.

The same study shows how the respondents feel AI affects the workforce on an organisational level and personal level (Table 2). The results show that AI will force workers to change their skill sets and their current skills are augmented. Also, the productivity of the organisation should improve. About half of the respondents say due to AI the workforce of the organisation will be reduced. On the personal level most of the respondents hope AI will take over some of their current duties but still 41 per cent are afraid of the same effect.

Table 2. The effect of artificial intelligence on the workforce (%) (MIT Sloan Management Review; The Boston Consulting Group, cited in Durana, Rodney and Valaskova, 2018; 2019)

Organizational level	Existing workers will need to change their skill sets	86
Organizational level	Our organization's productivity will improve	81
Organizational level	Workers' current skill sets will be augmented	78
Organizational level	Our organization's workforce will be reduced	52
Personal level	I hope that artificial intelligence will do some of the current tasks in my job	76
Personal level	I fear that artificial intelligence will do some of the current tasks in my job	41

Sources: *MIT Sloan Management Review*; The Boston Consulting Group; our survey among 3,700 individuals conducted November 2018.

4 Human Resource Management Enhanced with Artificial Intelligence

This chapter focuses on modern HRM processes that differ from traditional HRM by including AI technology. Now that the working environment is changing all the time and technology is evolving, HR functions need to evolve simultaneously. Traditional and previously used HR methods by themselves, which were discussed earlier, might not be as efficient today and they might serve better the older generations compared to millennials. Including AI technologies to the traditional methods improve them significantly. Article, "How artificial intelligence will change HR", discusses how the goal of AI-powered systems is to help HR to make decisions based on predictions done by the machine (Yano, 2017). All the data used in HR, for example, employee information, hiring records and salaries, are fed to the AI machine and it uses the information to make managing HR functions easier.

AI is used in HR for example in recruiting and selection processes, training current and new employees, evaluating their performance and, in some cases, satisfaction towards their jobs and the organisation. The usage of AI will help HR to cut person-hours in tasks that can now be completed by the machine. The gained time can be used to complete other important tasks, for example, interacting with job applicants, organising proper interviews, and answering their questions personally. AI has made their jobs run more smoothly and effectively. Considering how fast the area of AI in HR is growing, it must provide a significant advantage to companies. The article, "Get intelligent in AI" suggests

that some companies even might try to attract customers by overselling their usage of AI (Zielinski, 2017).

Especially when the talks of AI being taught to act human and have discussions, some people make the common mistake believing that AI will replace our jobs and do our work instead of us. This is not the case, AI cannot work without human input, meaning the data it needs for learning. Many jobs, like HR work, still need to be personal. According to an article published in Forbes, and written by Jeanne Meister (2019), it has been predicted that AI will create more jobs than it will eliminate. AI technology will be eliminating some areas of work entirely. Technology has caused this to happen for centuries, but entirely new areas of work will be created simultaneously (Walch, 2019). The World Economic Forum says AI will take over 75 million out of current jobs, but it will help to create 133 million new jobs, and the intelligence of people skills will remain important alongside evolving technology (Meister, 2019).

Ben Eubanks mentions in his article for Workhuman five human qualities no machine can copy, and which should be valued even more in the future: Compassion, creativity, curiosity, collaboration, and critical thinking. These are qualities a machine could never learn, and which are and will remain valued in working life. Compassion and collaboration need emotions and the ability to interact with others on an emotional level, which a machine is unable to do because everything it knows comes from data that is fed to it by humans. Because the machine knows only the data, it cannot be curious and ask questions about things it is unaware of. Machine is incapable of critical thinking which most often needs emotional abilities, like thinking ethically, weighing different options, and recognising right from wrong. Therefore, it is also impossible for it to be creative when it lacks the mind of its own (Eubanks, 2019).

A company called Ideal, which supplies AI-based HR solutions for companies, has listed benefits AI has brought to the organisations that are using their AI-powered product (Figure 3). The companies have reported that their turnover has decreased by 35 per cent and that their business is performing better. They have also seen an increase in their revenue per employee (Ideal, 2019). Revenue per employee can be calculated by dividing the total revenue of the company by the number of its employees.

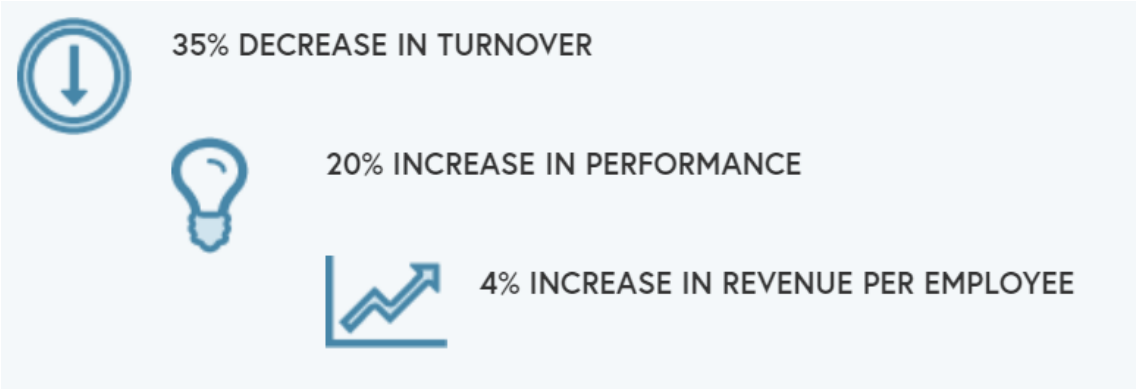

Figure 3. Benefits caused by AI to an organisation (Ideal, 2019)

In Finland, according to a research done by Talent Adore, the usage of AI in Finnish companies is still modest. Talent Adore is a Finnish company that has created among other start-ups an AI-based HR tool. They held a meet and greet session where they invited several company representatives in Finland to discuss AI and how the guests might be taking advantage of it. According to the survey conducted among the guests, 73 per cent of the respondents said they have not used this technology in their businesses. Out of those who are using AI technology, 66 per cent consider their usage is fair and 34 say they use it well (Leinonen, 2018). This gives the general idea how many companies are still trying to figure out how to take the best advantage of the technology, and how many are still hesitant to include it into their business at all. Even though these results were based on just some Finnish companies, the results are also applicable all over and apply especially to smaller firms.

4.1 Recruitment and Selection

The largest area of HR where AI technology is currently being used is recruitment. In the recruitment and selection procedures, technology can help recruiters to find suitable candidates among possible thousands of applicants in a fraction of the time it has taken until now. The research study mentioned earlier in this paper (Rodney et al., 2019) shares the results on what the respondents of their survey feel are the most important recruitment duties (Table 3). Well above 50 per cent feel it is important to invest in technologies that will improve the hiring process. The most important part with 72 per cent is candidate sourcing, so it is only natural to invest in technologies that will help make this process easier and more accurate.

Table 3. Top recruitment priorities for organisations (%) (CV Library, cited in Rodney, Valaskova and Durana, 2018; 2019)

Sourcing candidates directly	72
Building talent pools for the future	66
Investing in tools to speed up the hiring process	59
Establishing a strong employer brand	53
Succession planning	41

Sources: CV Library; our survey among 3,700 individuals conducted November 2018.

The candidate screening process has so far been the most time-consuming task of HR. AI-powered computers can find the suitable candidates using the data it has been fed describing the perfect candidate for that particular job. According to an article on ideal.com, Ideal's own website, 52 per cent of recruiters have said that finding the right person among all of the candidates is the hardest part of recruiting (Ideal, 2019).

The data that is collected for the AI usually consists of information about earlier workers in some position and their qualifications. One could describe this data to hold the same information the HR person would traditionally collect for the job analysis. Sometimes this data can be dated decades back and in the modern culture this usually means people in that job have been a particular gender of a certain age group having similar educational backgrounds. This has, of course, caused problems in some companies where the machine has provided results leaving out minor demographics and favoured only particular types of candidates.

Peter Hogg (2019) mentions in his article wisely that recruiters should consider the potential of the candidates over their experience. Because the environment of work is changing, hiring methods should change as well to build diverse and innovative businesses (Hogg, 2019). This leaves room for AI to be improved, and stresses the importance of actual HR workers, who are capable to spot potential better than a machine.

According to the article "Impact of AI on recruitment" Ethan Lee writes how according to today's standards, applicant tracking system (ATS) is considered modest technology. By ATS he refers to the technology able to scan CVs and searching keywords (Lee, 2019). He mentions as a more advanced way to use AI technology in recruitment is via chatbots.

There are many start-up companies concentrating to developing these bots that companies can use in their recruitment process. For example, a company called Gloat connects people searching for jobs with job opportunities using natural language when communicating with the possible candidates. Meaning, this chatbot will contact these people in their suitable platforms, chats with them and helps them find these open job opportunities which might have been hard to find or maybe otherwise been missed by the job seeker (Schroer, 2018). Using natural language means this bot is capable to interact with the person using spoken language, instead of code, and is capable to understand what the person communicates to it.

A start-up company named Paradox has created a chatbot powered by AI called “Olivia”. Olivia helps candidates further in their application process, beyond learning about their skills and talent, and presents the job seekers next steps of the process, schedules interviews with them and answers any job-related questions the person might have. This service is used by some major companies like Delta, CVS Health and Staples (Schroer, 2018). The reason this is useful and good for the company, as well as the job seeker, is because the answers the machine provides to the questions related to the position, come from the company’s data, which means they are useful to learn if the candidate should land an interview.

An article in Financial Times talks about how a business services company, Pitney Bowes, uses AI in their recruiting. Their AI-powered chatbot appears on their career’s website, greets the possible candidates, and introduces their open positions to them in the area where the candidate is located. The chatbots walk them through the pre-selection process that includes questions related to the position. How the candidate will answer to those questions will determine whether he or she could be suitable for the open position (Jacobs, 2019).

The article on ideal.com also talks about the technology used in video interviews. The AI technology detects candidate’s facial expressions, choice of words and how they speak during the interview and use this type of information to assess whether the candidate is suitable for the position (Ideal, 2019). Even though these expressions are visible to humans as well, sometimes they can be missed. It is possible that by detecting these micro-expressions, the computer with AI technology can help make better hiring decisions.

Using AI-powered job matching reduces the number of “hire lies”, meaning hired candidates who have lied in order to get the job, or candidates who, even though having shown great interest, do not accept the position when offered or they leave the company soon after starting (Ideal, 2019). Recruiters and hiring managers seem to be keener to let the machine do the data-driven hiring decisions and listen to it rather than giving more weight to how they feel about the candidate and their suitability to the position (Lee, 2019).

Textio is a start-up that has produced an algorithm that recruiters can use to make the job descriptions less biased. In languages that use masculine and feminine words and pronouns, the job description can come across targeting the other gender. Sometimes the choice of words can cause the candidate back down from applying if the job post seems to be seeking one or the other gender, when it is not supposed to (Lee, 2019).

Finnish language uses the same pronouns when describing a male or female (hän). It is possible that if a job description is translated from Finnish to English the tone of the job post can change and here AI can detect if some sentences have become bias due to the translating. A few years ago, there was an issue with Google Translate and how it translated “hän” into male or female form based on the occupation, for example, nurse would translate to female and doctor male (Nurmilaakso, 2017). Related to this issue, in Sweden people are adding a third gender pronoun to use. In addition, “han” and “hon”, which represent male and female pronouns, a gender neutral “hen” can be used in order to avoid situations where using either one of the originals could be seen as discriminating.

DBS Bank is one company that has created its own AI system which they use in their recruiting process. The system is called JIM, which is short for Job Intelligence Maestro, and JIM’s task is to “hire 40 per cent more wealth managers while saving up to 40-man hours in a month”. JIM will review candidates’ resumes, provide pre-screening questions for them, collect their responses, and evaluate candidates’ psychometric profiles by conducting assessments for them on this subject. According to the article published by DBS Bank, 20 per cent of their time recruiters spent collecting the previously mentioned information and emailing back and forth before having the possibility to meet the candidates. With the help of JIM more time can be spent on the interviews and they have a better chance to get to know the candidates better before the hiring. Therefore, also

the candidates benefit from this faster selection process. In fact, by the time the article was written, nearly 100 applicants had provided feedback out of which 90 per cent has been positive (DBS, 2019).

Another interesting example of AI being used in recruiting comes from Unilever, an international company that recruits over 30,000 people and receives nearly 2 million applications over a year. Barnard Marr (2018) shares in his article a statement from Leena Nair, chief of HR at Unilever, which tells that around 70,000 person-hours have been cut due to the usage of AI. The company is collaborating with an AI recruitment specialist, Pymetrics. Together, these companies have created an online platform that the candidates can use on their mobile phones and computers (Marr, 2018).

The algorithm compares these candidates to previous employees via a selection of games which are designed to test their suitability for the job, logical thinking, and reasoning, and how they face risky situations. Next the candidates who move to the following stage are going to send a video interview which will be evaluated by a machine. Analysing the candidate's body language and processing natural language, the machine determines which candidates are most suitable for the position (Marr, 2018).

The vice president of Global Recruiting at Hilton, Sarah Smart, has told that their hiring speed has increased by 85 per cent after they have started using AI in their sourcing, screening, and interviewing processes. The time saved has therefore been huge and extremely valuable since recruiters can use more of their time on other important duties (Meister, 2019).

The article on Ideal's website mentions benefits that companies have experienced using the AI systems. As figure 4 shows, companies have been able to save up to 23 hours per hire and they have been able to reduce their "cost per screen" by 75 per cent (Figure 4). Cost per screen refers to the cost it takes to hire someone. This covers mostly the cost of personnel and since the AI has helped to reduce the needed workforce and working hours, it makes sense cost per screen has decreased. It also shows the HR employees have been able to work without unnecessary disruptions since the AI technology has been included into their jobs.

Figure 4. Benefits caused by AI to HR employee (Ideal, 2019)

AI has improved recruiting in many ways and in order to use AI and its benefits, it is clear that the candidates must enter their applications online in a certain format, so it is possible for the machine to evaluate it. In this case, applications which are done in paper form or face-to-face in person fall out of the AI's radar. Whether to see this as a positive or negative thing is to be decided by the recruiter.

4.2 Training

When we consider corporate training, it is one area of HR where everyone is in a way treated equally. Everyone entering a new position receives similar training depending on which position they are starting. When a company decides to make changes in some policies everyone gets informed the same way. Only if someone is underperforming, they might have to go through more training relating to their responsibilities. But everyone is different and might have different learning tactics. HR workers need to understand how the workers learn most effectively, and which areas of improvement are important for the business.

This is where AI helps to make the decisions. Using the employee data, the machine can detect the areas the employee needs help with. AI algorithms can help to create learning programs customised to different people, who come from different cultures and different generations, have different education and working backgrounds and all in all different personalities and interests. This way the training and the learning experience can feel quite different when it is modified to suit the specific worker (Bathia, 2018).

This is useful since it is a fact that not all training methods suit everyone, and some might need to focus in some areas more than others. Customising trainings for different people will save HR's time since they do not have to organise multiple trainings for many people. Unnecessary trainings would be a waste of time of employees who could be working on other project during that time.

When the worker receives personalised training, they are unlikely to fall behind and are more able to avoid misunderstandings. After receiving the training, AI technology can follow the effects of it and determine whether the experience was useful. The programme can also offer the employees tests and quizzes to recap and measure how the training has worked. AI-based training makes it possible for the worker to stay connected to the work environment better than traditional training which might happen somewhere else. Staying in a familiar space, the trainee is more likely to focus on learning and can gather more information. AI is simultaneously teaching itself, improving the teaching material, and providing better material for learning. According to an article called "Future of AI in Corporate Training and Development" companies that use AI feel they are performing better and are more successful than their competitors that are not using AI (Pribanic, 2018).

In 2018, Docebo deputed their first learning platform that uses AI, machine learning, deep learning, and natural language. It is called Docebo 7.5. According to the company's CEO, Claudio Erba, they plan to automate the learning process entirely. He also estimated that within a year they will be using virtual coaches as well (Oesch, 2018). IBM is another one of the companies which has created an AI platform, Watson, which can identify the areas that need improvement and link which learning metrics to use to get the desired outcomes (Duindam, 2018).

Watson analyses a large amount of data in many different formats. This means it does not have to be fed data in a particular form and it is able to analyse different databases, files, and documents, like CVs, questionnaires, and emails. Based on this data the platform's dashboard will show important metrics describing current and probable future skill gaps, the satisfaction rate of the employees as well as return on investment (ROI). Based on these results it is possible to better understand what the employees need to succeed better or what kind of actions management should do (Duindam, 2018).

Virtual and augmented reality are also useful tools for companies to implement into their training programmes. When these technologies are combined with AI technology, it is possible to create scenarios suited just for a particular company and particular employee. This technology can be used when training people into their jobs. It is possible to create situations that are unlikely to happen in real life but are an important part of the training. The trainee can have exercises on situations that could happen in reality but avoid the pressure the real situation might bring. Other training situations might be when the current employees are introduced with some new procedures, for example, and they are this way able to practice these new habits in a secure way. With VR and AR technology it is therefore possible to include more areas into the training and let employees experience the training situations in what one might call a “risk-free” environment.

An article “Ten HR trends in the age of artificial intelligence” (Meister, 2019) mentions three company examples who have implemented AR/VR technologies into their training methods: Verizon, MasterCard, and Walmart. Verizon uses this technology to train their store managers on how they manage store protocol in cases like, for example, store robbery. They use the technology also on training new employees, educating them on new working ways and enhancing their communication skills and on how they can enhance their customer service skills (Lawson, 2018). This way, Verizon employees get to practise communicating with virtual customers and experiencing their replies without harming their real customers’ experiences.

Walmart uses the technology to test their employees to see whom out of them has the potential to be promoted to manager. The test includes such steps as facing an angry shopper and calming them down, giving out tours in the store, etc. Like Verizon, this way Walmart employees learn how they should behave in these situations.

Walmart is also training its associates to manage the massive crowds they face during, for example, on Black Friday, when massive discounts occur. In case the workers have managed to avoid working during Black Friday in the past, they must be prepared for the possible chaos the day brings up. According to an article in the USA today the VR technology they use is provided to them by STRIVR (Tuchscherer, 2019). According to their website and where they list their customers STRIVR is collaborating also with other major companies, for example, BMW, JetBlue, Pepsi, already mentioned Verizon, and many more (STRIVR, 2019).

MasterCard uses VR technology on a wide range of trainings. Their employees receive this type of training in order for them to improve their soft skills and also prepare them to manage extreme crisis situations, like facing an active shooter in their workplace or how to get out of a building that is on fire (Meister, 2019). Every company should have fire training, no matter if it is done using VR or not but using this technology will help the workers to better understand how it might happen and how people in the building might react. This type of training can hopefully reduce any panic that might occur in a real-life situation.

Another way the AI can be used in corporate training is chatbots. As mentioned earlier in this paper, chatbots are used in the recruitment process and they are connecting job seekers with recruiters and open jobs. For example, “Rise of the Machines” talks about how they can also be used inside organisations, connecting employees to the company by giving them the opportunity to ask the chatbot questions related to the work and the company (Alonso, 2018). These chatbots are taught to answer possible questions employees might have, and therefore help to save the time of the trainers who do not have time to answer some of these enquiries personally and it leaves time for them to focus on other areas of their work. Also, when the employees can receive answers instantly, they feel more satisfied by being able to continue working without having to wait for the response for a long time. The machine can also gather these questions from the employees and the information can be used to improve the teaching materials. Reducing the amount of additional questions in the future, by including them into the training material in the first place.

Workers can help their employers to make the workplace better by evaluating their own experiences and giving feedback to those monitoring them. Feedback received straight from the employees can be used in management training, for the managers to better understand how their employees feel about their jobs and the management style of the company. By understanding how some managerial actions affect the employees, they can figure out if there are any better ways to manage a situation. The chatbots can also gather information on possible concerns from the employees which again can be used to educate the managers on how the employees are feeling and how to possibly improve themselves or the workplace (Eubanks, 2019).

Marr (2018) shares the example of Unilever in his article and explains how the company has implemented chatbots into their corporate training. Their bot is called “Unabot” and it is built on the framework of Microsoft’s Bot. Moving on from just answering to HR questions, the bot is starting to answer to any employee questions. The interactions with the employees have taught the machine to answer day to day questions about the parking availability, shuttle bus schedules and enquiries about the annual salary (Marr, 2018).

4.3 Performance Management

When evaluating the company’s workers, managers have been forced to use just little information about the workers. Not because the information was not there, but because going through all that information might take too long, especially in larger firms with dozens, even hundreds of workers. This means some contributions of the employees might be left out of the count and therefore performance reviews remain inaccurate. This can cause employees to become demotivated and affect their productivity (Pawar, 2019).

According to the article “The Future of Performance Management” some research has shown only some organisations believe in their performance management process or how accurate and useful it is (Marr, 2017). According to a study conducted by Mercer only 2 per cent of companies consider their performance management to deliver “exceptional value”. The same study states how 70 per cent say they must improve their way of managing performance (Mercer, 2019).

With AI it is possible and easier to gather information from multiple sources and have a better picture of the workers’ performances. Since reviews can be done more easily, they are done more frequently and it is therefore possible for the assessments to be done in real time and it is easy to react with possible interactions with the workers, like in the form of trainings (Pawar, 2019). The previously mentioned Watson by IBM provides this type of information (Duindam, 2018).

When the performance reviews are done with the help of a machine, managers’ personal feelings toward employees are left out, and therefore the common biases are eliminated from the review process. For example, biases related to race or gender (Pawar, 2019).

However, Bernard Marr mentions in his article how managers easily ignore performance review results if they do not match with their personal feelings about the worker. The machine cannot make a fair judgement since it lacks human emotions (Marr, 2017).

An article “Get intelligent with AI” mentions how AI technology can be used in organisations in order to spot workers with high potential talent and help them by suggesting appropriate learning courses (Zielinski, 2017). AI systems can provide actions to be done based on the performance reviews. It can mean more learning, larger compensation, promotion to another position or management training. Possibly there are workers fit for management training, possibly some workers show potential for other duties and might be good candidates for rotation. Rotation means when an employee moves from their department to work on other duties and therefore gains experience. This makes them a valuable worker for the company since they have the knowledge from different areas in the organisation.

Even though the company might use AI to evaluate the performance of their employees, workers must remember to keep a professional relationship with their managers as well. The machine simply suggests how to act according to the reviews, but in the end the managers decide will they act accordingly or use their gut feeling on whether the employee actually deserves to be promoted or even employed. Also, since the machine does not take into account the employee’s personality or willingness to learn, workers need to show these qualities to their managers in order for them to get to know the employee better and use that information as well when they are making decisions about them, according to Diane Gherson, quoted in “An Algorithm May Decide Your Next pay Raise” (Fisher, 2019).

4.4 Employee Motivating

All the above-mentioned ways AI improve HR practices and help to motivate the employees as well. When things run smoothly inside the organisation, the workers are more pleased with the company and satisfied with their jobs. AI naturally does not offer monetary motivators itself, but intangible benefits.

As AI helps to reduce HR managers' workload, it does the same for other business areas as well. By including AI into the company's systems, all the employees benefit from it one way or the other, but mostly because AI makes the work a little bit easier and less time consuming on certain areas.

As mentioned in the earlier chapters, AI can customise operations in the workplace. It can early on detect potential candidates for promotions or other rewards. When the potential of an employee is noticed and they are offered a chance to move ahead in their career inside the company, the employees' motivation towards their job must increase. This is beneficial for the company since satisfied employees are more likely to stay there. Same as with clients, it is more beneficial to have long term employees, so the company does not have to use resources so often on recruiting mew employees to replace the old ones.

Similarly, the technology can point out those needing more attention or help. These employees might be underperforming, or they might be feeling disconnected from their current job. When these workers get support and extra training their motivation working for that company can also increase. Rather than terminating employee's contracts or letting them underperform a long time, it is more beneficial to offer them support early on, this way the employee feels themselves appreciated even without pay raise or promotions.

At Hitachi, managers have conducted surveys among workers to figure out what motivates them and what makes them more productive and find out how satisfied are the workers in their current roles. Hitachi employees from different divisions of the company took part in the monitoring process and wore label sensors throughout the testing period. 2,063 people outside Hitachi took part in this survey during September 2017 and next month an in-house trial took place including 2,335 Hitachi staff. Next year also 252 workers from HR staff took part in this survey. The goal was to monitor which activities increased employees' happiness and therefore satisfaction.
With this information, the AI powered machine was able to detect when some employees' satisfaction was decreasing and suggested them activities that could increase their happiness via their smart phones. (Hitachi, 2019)

5 Discussion

The first part of this chapter focuses more on the negative aspects of AI. On this area, the current literature offers a lot to think about and raise thoughts that are observed further in the discussion. The second part of this chapter continues the discussion and shares recommendations for individuals and organisations facing AI now or in the future.

5.1 Issues and Concerns Related to AI

Even though AI brings many positive aspects to our everyday lives and doing business, there has been a lot of discussion about the issues related to it. Modern technology always causes scepticism among some people in the beginning and that is what is happening now with AI (Ideal, 2019). Usage of AI requires a lot of data and managing a lot of information can be risky. Especially, if the data holds in any mistakes or errors, or the technology is not used correctly, results can cause problems inside the company and fixing the problems can cost a lot of money.

Since this technology is still fairly new and not everyone can use it properly, acquiring these types of systems to the workplace must be expensive and this factor alone excludes small businesses and start-ups from using this kind of technology properly. Surely, in the future it becomes easier and less expensive, but for now, large companies are the only ones able to quickly include this technology to their business from another party. The exception being those smaller firms using AI technology developed by themselves, like the start-up firms providing AI solutions to others.

In the field of recruitment and selection, AI has and probably will cause issues. The article on the Ideal (2019) website mentions a survey that has shown that the use of AI causes hiring volume to increase by 56 per cent but the hiring teams will either stay the same size or loose members. This means that recruiters are meant to do more work with fewer people in the team (Ideal, 2019). Another issue arises when it needs to be decided whether the candidate is dependable and truthful. Since it is possible for the AI to detect and evaluate the job seekers' movements and body language, it is also possible it could misunderstand movements made when nervous for being signs of lying (Lee, 2019).

AI used in recruiting can affect negatively on job seekers as well. When a job applicant is unaware that his or her resume is overseen by a machine, they are unaware of what the machine is looking for in their resume. Their resumes might be overlooked for not including certain phrases or keywords. Although, if everyone uses the same phrases and words in their resume, they will lose their value. Especially, if candidates include this type of information into their application without them being true. These cases will waist time of the recruiter as well as the candidate (Jacobs, 2019). Ethan Lee discusses in his article how the job applicants do not appreciate being evaluated by a machine. They believe not enough time is spent looking at the CVs when the decisions are made based on some keywords and phrases (Lee, 2019). This can refer again to the common issue some people have with machines.

One of the biggest issues which comes to mind when talk turns to machine learning and AI is privacy. Is it safe to share that much data and information to a machine, especially when it is the personal information of employers and employees? This is one of the primary areas the engineers and those developing machine learning and AI are concerned and are working to make the machines secure. The article by Marc Coleman (2019) talks about this and brings up the recent General Data Protection Regulation, GDPR, set by the EU. The point of the regulation is to protect the privacy of the citizens and employees in Europe. This can become a challenge for organisations, when it prohibits the usage of some personal data which could be essential for HR workers. In order to keep technology evolving and using its advantages, companies must have HR and IT teams working together to secure HR systems, since they are reliable of keeping the employee data safe (Coleman, 2019)

Because AI systems can gather information from almost anywhere and understand talking and tone of voices, as mentioned earlier in this paper (Ideal, 2019), it could be possible for it to collect information by spying employees while they are talking or using their private emails.

Even if this would not be intended by the company, it could be possible that some outside party that has hacked the system might use it this way. This could cause a lot of problems for the employees if the information would be mishandled, and the managers and IT workers who are supposed to keep the data safe. Microsoft has spoken about the facial recognition technology and how it should be regulated by the congress (Singer, 2018).

This shows that even the tech giants developing AI technology are concerned about it being misused (Walch, 2019).

In addition to those who mistrust modern technology, there are people who refuse to use any technology. Living without technology and not leaving any trace of themselves online is nearly impossible these days, when the many modern devices, like mobile phones, require online access and sharing one's personal information. Even many websites require logging in using one's bank details or billing address. It is possible that people who do not want to share this type of information online, when it is unclear how the information will be handled, will not receive the same level of customer service as others. It would be a breach of these people's right to privacy to demand this information (Krasadakis, 2018). Companies must be able to provide same service to these individuals, if they desire to accomplish omnichannel model (Moffat, n.d.) for their business.

Younger generations are usually more comfortable with modern technology than more mature people. Those people who are not that familiar with technology and are not capable of using it well, could be in trouble when it comes to working among AI-powered machines. As work develops to more be technological, these people, not even close to retirement, can fall behind in the job market and finding work and learning to work differently can become difficult. Sara Bean's article (2018) discusses about the differences between generations when it comes to using technology. According to Bean, younger people would rather work with AI if it reduced the interaction with others, whereas people over the 55 of age feels no machine could replace their working effort and would prefer to work face to face with colleagues and customers (Bean, 2018). Neither of these opinions is desirable, since even though interacting with others stays important, it is also unwise to dismiss the evolution of technology and refuse to use it.

Another issue that has come up especially among recruiting is how the machines can develop a bias against some demographic groups and therefore not give equal consideration to all job applicants. One large international company to find this out and cutting AI from their recruitment for the time is Amazon. They figured out their AI recruitment algorithm had developed a bias against women and even after they tried fixing it and modifying the algorithm, the results always came back rejecting perfectly fine female candidates (Meyer, 2018).

In some cases, when AI has been used to show racism from pictures, it has not succeeded. Or, when supposed to predict criminal activity, it has shown bias towards people of colour (Bossmann, 2016). In addition to Microsoft, Amazon has raised their concerns about the sale of facial recognition services to police departments, because of their biased abilities, and has along with Microsoft called for the regulations in this area (Metz, 2019). Beside these actions, there are companies voting against the government regulations, like Clarifai, which employees released an open letter stating their side, and justifying it by saying the regulations would slow down their progress (Metz, 2019)

Inequality is an issue in general when it comes to AI. Since many businesses and organisations are using AI developed by a third party, a large amount of their revenue goes to these third-party businesses. Before, the revenues were divided by larger scale of the company's own workforce. Now, with smaller workforce, thanks to AI, the revenues are distributed between fewer people. This causes a wealth gap, and in a time when this gap is supposed to be narrowed, the opposite is happening (Bossmann, 2016).

As mentioned earlier in this paper, and what is and has been for a long time in common knowledge, many jobs will be terminated in the future due to AI and machine learning. This is a current and common concern about this type of technology. Even though new jobs are created, it is likely to cause unemployment in some areas of work and it might take time for some people to find new work without having to re-educate themselves entirely. According to a press release from Training Industry (2018) stating a research from IBM, within the upcoming years millions of workers will need to be retrained. Julia Bossmann (2016) brings up this subject in her article which deals with common ethical issues related to AI. The same way technology has eliminated jobs in some fields, it will continue doing so in the future. She uses an example relating to truck driving, and how self-driving cars and trucks are being developed and one day this business needs no human drivers (Bossmann, 2016).

5.2 Recommendations

This chapter continues the discussion on this paper based on the literature and research and shares recommendations for organisations and individuals who will be working with AI at some point in their careers. Even though AI has been around for a while, it has

become clear that fairly many are still not familiar with AI or how to use it or implement it into business. Since AI has been proven to have some very important issues and areas that cause concerns, it is crucial for businesses developing AI and using it to keep these in mind and try their best to avoid them.

As more and more companies are starting to implement AI into their systems, proper education about the subject would be necessary for both those wanting to use AI in their HRM and everyone facing AI in their job search. Because AI is going to be growing fast in nearly every industry, it will not take long before every working adult must deal with these systems.

Students who will be facing job searching in their near future, or them who already have experience on it, should receive tips and education about candidate screenings that include AI. As the current state of literature shows, many companies are already using AI in their recruitment and selection processes and many are adding this technology into their business. The growing business of AI should be addressed to future job seekers early on, during their studies in their respective fields. Education about this technology will raise awareness about it and make the growth faster and smoother.

It will become important for businesses to realise the benefits of AI and how it can affect their position in relation to their competition. Many companies have noticed how the usage of AI can attract more customers and some might be based on this, even exaggerate their usage of the technology (Zielinski, 2017). Therefore, education about AI is recommended for companies as well. Those companies that are used to doing their business in a certain way might notice someday that they are performing poorly compared to their competitors or that their clients are demanding them to perform in a certain way which is not possible under present circumstances. Therefore, everyone must be aware of how AI is affecting the way we do business and how it changes it. Companies need to think ahead and prepare themselves to add the usage of AI into their business to keep up with the development.

Common way this technology is used is to use it in ATS (Lee, 2019). This means the machine is scanning the candidates' resumes and applications to find a suitable fit. As a job seeker it will be beneficial to understand how this works and how it affects to job applications. Since the resumes are not scanned by humans, this can cause a fear of

malfunction in the machine or getting discarded for not using particular words (Lee, 2019). Knowing what type of language to use and how to build a modern, “AI-acceptable” resume, universities and earlier education levels should start discussing and helping their students on this matter. As a job seeker, it would be best to try and reflect the language on the job ad, which usually reflects the language preferred in the resume and cover letter. In addition, pay attention to the wording, on the job description, highlighting the preferred skills and background.

Learning about AI early on can help people with doubts about technology to ease their minds and help them understand this technology better. As mentioned earlier, there are areas of intelligence that a machine cannot copy (Eubanks, 2019). As people are learning about this modern technology, it is equally important to highlight the areas that will remain important regardless of AI adaptation to business.

Working with AI powered technology has improved working in many areas as, for example, DBS (2019) surveys prove. Technology has made it possible for recruiters to work less time on applications (Ideal, 2019), use interesting methods in corporate trainings (Meister, 2019) and thanks to improved performance management techniques, employees can feel more appreciated in their workplace. However, it is important that employees or managers do not only rely on AI to make the decisions.

As Lee (2019) states, some recruiters tend to rely too much on the machine in the hiring decisions, and this is a problem. In recruitment, managers must remember how the machine could make false assumptions based on facial expressions or language the candidate uses (Ideal, 2019). As it has been mentioned in this paper as well, machines cannot replace humans in every case, and when deciding whether someone is a good fit for the job, humans are still the best judges of character. It is important all recruiters are aware how AI recruiting tools can have errors and might not give desired results. Using AI to evaluate resumes can be cost effective, but in some cases, it is impossible to use this technology. If a firm is looking for someone based on their creative skills or something similar, those applicants are best to be evaluated by a human, not a machine.

Similar issue was mentioned by Fisher (2019) as how employees and managers can rely too much on the machine when making decisions about performance reviews. When it comes to performance monitoring and managing a department, employees and

managers must keep in mind the AI cannot make final decisions and in these cases personality and people skills are still important. Managers cannot rely their decisions to be done by the machine, because the choices might not be beneficial for the company.

Employees must remain mindful of their behaviour in the workplace as well. Even though the machine would only evaluate their performance based on numbers, managers can still make differentiating decisions based on the worker's behaviour, like communication skills or team working skills. Therefore, workers must perform well in their fields and maintain their social skills to ensure their place in the company.

Julia Bossmann (2016) uses a term "artificial stupidity" in her article, when describing the situation when a person does not understand that the machine can make mistakes, in some cases, easier than humans. After all, the machines rely on their algorithm, developed by humans (Bossmann, 2016). As stated earlier, the algorithm can hold mistakes that can affect the results (Zielinski, 2017).

Addressing the issue Amazon faced, they were quick to discard their AI from their recruitment once they noticed it was not performing as it should. They were also transparent about this issue and came forward with it, simultaneously giving noticeable warning to others (Meyer, 2018). Failing AI technology can be harmful to the company's current workers, job applicants as well as clients and customers.

As companies are learning about AI and its benefits, they must also consider whether it could bring benefits to their business. Adding innovative technology to the operations is never cheap and sometimes the cost is not worth it. Smaller businesses might not benefit from adding a recruitment tool if they do not receive too many applications in the first place. At this time, when the technology is still fairly unknown and expensive, companies that are larger and recruit in higher volumes and therefore handle more applications than smaller firms, can benefit highly of AI, which can cut back person-hours significantly during the recruitment period (Ideal, 2019).

Also, training only a few employees with high tech equipment would not be necessary and using AI technology to evaluate these workers would be a waste of resources. Companies must therefore consider whether adding AI to their operations is financially beneficial and which areas might benefit most, if not all. At this time, smaller companies

might want to invest that money elsewhere to improve their business. Companies that are financially capable to invest in their workers should invest in AI technology to improve the company's operations. Best case scenario they can improve their performance as well as employee satisfaction.

The chapter 5.1 of this paper focused on the common issues and concerns there are about AI. For example, discrimination is a serious issue companies using AI have faced in their AI's algorithm, discussed by Meyer (2018), Bossmann (2016) and Metz (2019), among many others. Since AI is supposed to bring businesses forward and avoid common issues people can make, for example discrimination, these type of problems in the algorithm need to be avoided. One way to avoid AI making these biased decisions is to have a diverse team creating the algorithm (Eubanks, 2019). Having a diverse team can help find discrimination issues early on and the algorithm can learn to avoid them. The company is also responsible for how the AI is performing. If there should be any issues with it, the company must be ready to react early on and be prepared for these situations.

The companies that gathering information for AI purposes must be transparent, so it is possible to see what information it is collecting and for what use. Companies must also be clear to their employees on what information of theirs are they collecting and for what. They have to ensure the data is kept safe and if the employees do not give permission, they cannot use it in case the information is leaked out to outside parties (Krasadakis, 2018). Ernst & Young also discuss in their article how companies should avoid risks related to information security and employee privacy. Employees should be explained why their data is useful and how it will be used to make AI work. They should also be aware of which data is not permissible for the company to have. Personal identifiable information, PII, or any confidential information should not be stored in the company's common databases, like platforms used for chatting. Any communication including PII and confidential information must be processed in a secure platform (EY, 2018).

As it has been discussed in this paper, despite the new working opportunities and fields of work, many people will lose their jobs, and still be in the working age and not even close to retirement. These people should be considered in the job market, and companies could offer them support in re-educating themselves, rather than shutting

them out completely. These workers could prove to be even more valuable with the gained latest information added to the previous working experience.

Julia Bossmann (2016) discussed in her article about people left unemployed and shared the example of truck drivers losing their jobs to self-driving trucks. Even though this is a horrible effect of the evolving technology, it has positive side effects, as there has been whenever technology has jumped forward. In her truck driving example, she mentions the other side which could mean less accidents happening on the road (Bossmann, 2016). Same applies to every industry. Where there are negative effects, positive effects should always triumph them, for this world to move forward.

6 Conclusion

Educating companies and individuals about AI can help the transition from traditional HRM to a more modern version where the usage of AI is included. Knowing the common mistakes and issues related to the subject will help companies to succeed and improve their business with modern technology. Artificial Intelligence has been evolving for many decades and is today being used every day and more businesses are adding this technology into their operations. AI is used also in HRM and it has improved the recruitment process by cutting the person-hours needed and helps the recruiters making the hiring decisions. In corporate training the AI technology has made it possible for workers to rehearse in extreme situations and without the possibility to harm customer relationships. It has also made it possible to offer different types of training to employees who all respond different ways of learning. AI technology is also helping managers in evaluating their employees' performance by monitoring the employees in multiple different digital platforms at once. AI powered technology must be used correctly for it to function properly. The usage of AI technology can improve the work of an individual and the performance of an organisation.

References

Alonso, A., 2018. RISE OF THE MACHINES Artificial intelligence is changing the way HR works—for the better. *HR Magazine.* [e-journal] February 2018. Available through: EBSCOhost http://web.b.ebscohost.com.ezproxy.metropolia.fi/ehost/pdfviewer/pdfviewer?vid=7&sid=bcb89e30-3620-44fe-8b28-3c32bec05e6b%40pdc-v-sessmgr03 [Accessed 29 September 2019]

Bean, S., 2018. *Generations divide on the role of Artificial Intelligence in the workplace.* [online] Available at https://workplaceinsight.net/generations-divide-on-the-role-of-artificial-intelligence-in-the-workplace/ [Accessed 26 April 2020]

Bhatia, T. 2018, Artificial Intelligence In HR. *HR Strategy and Planning Excellence Essentials* [e-journal] Available through: ProQuest https://search-proquest-com.ezproxy.metropolia.fi/docview/2158022576?accountid=11363 [Accessed 30 September 2019]

Blanchard, D., 2016. A Smarter Way to Run a Supply Chain. *Industryweek.com.* [e-journal] June/ July 2016 (26-29). Available through EBSCOhost http://web.b.ebscohost.com.ezproxy.metropolia.fi/ehost/pdfviewer/pdfviewer?vid=17&sid=bcb89e30-3620-44fe-8b28-3c32bec05e6b%40pdc-v-sessmgr03 [Accessed 13 April 2019]

Blanchard, D., 2017. What's the Status of Your Status Quo? *Material Handling & Logistics*. [e-journal] September 2017. Available through EBSCOhost http://web.b.ebscohost.com.ezproxy.metropolia.fi/ehost/pdfviewer/pdfviewer?vid=21&sid=bcb89e30-3620-44fe-8b28-3c32bec05e6b%40pdc-v-sessmgr03 [Accessed 13 April 2019]

Bossmann, J., 2016. Top 9 ethical issues in artificial intelligence. *World Economic Forum.* [e-journal] October 2016. Available through https://www.weforum.org/agenda/2016/10/top-10-ethical-issues-in-artificial-intelligence/ [Accessed 21 April 2020]

Brynjolfsson, E., MacAfee, A., 2017. The Business of Artificial Intelligence. *Harvard Business Review.* [e-journal] September 2017. Available through https://hbr.org/cover-story/2017/07/the-business-of-artificial-intelligence [Accessed 21 April 2020]

Coleman, M., 2019. *Keeping Data Safe: The Next Wave of HR Tech Innovation*. [Online] Available at https://www.workforce.com/uk/news/keeping-data-safe-the-next-wave-of-hr-tech-innovation [Accessed 26 April 2020]

Cramer, T., The State of Omnichannel Content. *EContent*. [e-journal] Winter 2019. Available through EBSCOhost http://web.b.ebscohost.com.ezproxy.metropolia.fi/ehost/pdfviewer/pdfviewer?vid=24&sid=bcb89e30-3620-44fe-8b28-3c32bec05e6b%40pdc-v-sessmgr03 [Accessed 13 April 2019]

DBS, 2019. *DBS introduces Jim, Southeast Asia's first virtual bank recruiter.* [online] Available at: https://www.dbs.com/newsroom/DBS_introduces_Jim_Southeast_asias_first_virtual_bank_recruiter [Accessed 30 September 2019]

Duindam, E., 2018.The Role of Artificial Intelligence in the Evolution of Learning & Development [pdf] Everwise Available at: https://www.geteverwise.com/whitepapers/Everwise_white_paper_AI_in_Learning_and_Development.pdf [Accessed 22 October 2019]

Eubanks, B., 2019. *How AI Can Influence Diversity and Inclusion (for Better or Worse).* [online] Available at: https://www.workhuman.com/resources/globoforce-blog/how-ai-can-influence-diversity-and-inclusion-for-better-or-worse# [Accessed 30 September 2019]

EY, Ernst & Young LLP, 2018. *The new age: artificial intelligence for human resource opportunities and functions.* [pdf] Ernst & Young LLP. Available at: https://www.ey.com/Publication/vwLUAssets/EY-the-new-age-artificial-intelligence-for-human-resource-opportunities-and-functions/$FILE/EY-the-new-age-artificial-intelligence-for-human-resource-opportunities-and-functions.pdf [Accessed 30 September 2019]

Fisher, A., 2019. An Algorithm May Decide Your Next Pay Raise [online] Available at: https://fortune.com/2019/07/14/artificial-intelligence-workplace-ibm-annual-review/ [Accessed 22 October 2019]

Hitachi, 2019. *COVER STORY : ACTIVITIES1 HR-tech that Boosts Productivity and Makes People Shine New Value Creation in HR Achieved through Data Analysis.* [online] Available at: https://www.hitachi.com/rev/archive/2018/r2018_06/activities1/index.html [Accessed 30 September 2019]

Hogg, P 2019, 'Artificial intelligence: HR friend or foe?', *Strategic HR Review*, [e-journal] 18(2), pp. 47–51 https://www-emerald-com.ezproxy.metropolia.fi/insight/content/doi/10.1108/SHR-11-2018-0094/full/html

Ideal, 2019. AI For Recruiting: A Definite Guide for HR Professionals [online]Available at: https://ideal.com/ai-recruiting [Accessed 22 October 2019]

Jacobs, E., 2019. How artificial intelligence helps companies recruit talented staff. [online] Financial Times. Available at: https://www.ft.com/content/2731709c-3043-11e9-8744-e7016697f225 [Accessed 22 October 2019]

Joly, K., Digital marketing trends for 2019. *University Business*. [e-journal] January/February. Available at: https://universitybusiness.com/article/2019-digital-marketing-trends/ [Accessed 13 April 2019]

Kennon, J., 2011. Mental Model: Horns Effect and Halo Effect. *Joshua Kennon, Thoughts about business, politics, and life,* [blog] November 12. Available at https://www.joshuakennon.com/mental-model-horns-effect-and-halo-effect/ [Accessed 27 April 2020]

Kenton, W., 2018. *Headhunters Defined.* Investopedia [online] Available at https://www.investopedia.com/terms/h/headhunter.asp [Accessed 27 April 2020]

Krasadakis, G., 2018. *Is Artificial Intelligence a Threat to Humanity?* [online] Available at: https://medium.com/ideachain/artificial-intelligence-risks-concerns-2a19ba21cfd9 [Accessed 22 October 2019]

Lawson, A., 2018. *Verizon using Augmented Reality and Virtual Reality apps to train employees.* [online] Available at: https://www.verizon.com/about/news/verizon-using-augmented-reality-and-virtual-reality-apps-train-employees [Accessed 30 September 2019]

Lee, E., 2019. *The impact of AI recruitment* [online] AIHR Digital. Available at: https://www.digitalhrtech.com/impact-ai-recruitment/ [Accessed 22 October 2019]

Leinonen, M., 2018. *Tekoäly Rekrytoinnissa* [Online] Talent Adore. Available at https://talentadore.com/fi/tekoaly-rekrytoinnissa/ [Accessed 22 October 2019]

Marr, B., 2017. *The Future Of Performance Management: How AI And Big Data Combat Workplace Bias* [online] Available at: https://www.forbes.com/sites/bernardmarr/2017/01/17/the-future-of-performance-management-how-ai-and-big-data-combat-workplace-bias/#387dbbd24a0d [Accessed 22 October 2019]

Marr, B., 2018. The Amazing Ways How Unilever Uses Artificial Intelligence To Recruit & Train Thousands Of Employees [online] Available at https://www.forbes.com/sites/bernardmarr/2018/12/14/the-amazing-ways-how-unilever-uses-artificial-intelligence-to-recruit-train-thousands-of-employees/#5ecce5b66274 [Accessed 22 April 2020]

Meister, J., 2019. Ten HR Trends in The Age of Artificial intelligence. Forbes [online] 8 January. Available at: https://www.forbes.com/sites/jeannemeister/2019/01/08/ten-hr-trends-in-the-age-of-artificial-intelligence/#578cfeea3219 [Accessed 30 September 2019]

Mercer. 2019. *Performance Transformation in the Future of Work: Insights from Mercer's 2019 Global Performance Management Study.* [Online] Mercer. Available at https://www.mercer.com/our-thinking/career/performance-transformation-in-the-future-of-work.html?zd_source=hrt&zd_campaign=4784&zd_term=chiradeepbasumallick [Accessed 21 April 2020]

Meyer, D., 2018. *Amazon Reportedly Killed an AI Recruitment System Because It Couldn't Stop the Tool from Discriminating Against Women.* [online] Available at: https://fortune.com/2018/10/10/amazon-ai-recruitment-bias-women-sexist/. [Accessed 30 September 2019]

Moffat, B., n.d. *Omnichannel vs. multichannel: What's the difference and who is doing it?* [online] Available at: https://www.the-future-of-commerce.com/2017/09/13/omnichannel-vs-multichannel/ [Accessed 22 October 2019]

Nurmilaakso, T., 2017. *Tekoäly valitsee jo Suomessakin parhaat työnhakijat – Tutkijat: "Lisää syrjintää, seksismiä ja rasismia"* [Online] YLE. Available at: https://yle.fi/aihe/artikkeli/2017/10/07/tekoaly-valitsee-jo-suomessakin-parhaat-tyonhakijat-tutkijat-lisaa-syrjintaa [Accessed 22 October 2019]

Oesch, T., 2018. *Corporate Training: Myths and Predictions.* [Online] Training Industry. Available at https://trainingindustry.com/articles/learning-technologies/artificial-intelligence-in-corporate-training-myths-and-predictions/ [Accessed 21 April 2020]

Pawar, Y., 2019. Impact of Artificial Intelligence in performance management [online] Available at: https://upraise.io/blog/artificial-intelligence-performance-management/ [Accessed 22 October 2019]

Pribanic, E., 2018. *Future of AI in Corporate Training and Development* [online] Available at: https://www.techfunnel.com/hr-tech/future-of-ai-in-corporate-training-and-development/ [Accessed 22 October 2019]

Rodney, H., Valaskova, K., Durana, P., 2019. The Artificial Intelligence Recruitment Process: How Technological Advancements Have Reshaped Job Application and Selection Practices. *Psychosociological Issues in Human Resource Management* 7(1): 42-47

SAS, 2019. Artificial Intelligence, what it is and why it matters. [online] Available at: https://www.sas.com/en_us/insights/analytics/what-is-artificial-intelligence.html [Accessed 13 April 2019]

Schroer, A., 2019. *HOW AI IN HR AND RECRUITING IS BECOMING 'THE FUTURE OF TALENT ACQUISITION'.* [online] Available at: https://builtin.com/artificial-intelligence/ai-in-hr-recruiting. [Accessed 30 September 2019]

Singer, N., 2019. *Microsoft Urges, Congress to Regulate Use of Facial Recognition.* [online] Available at https://www.nytimes.com/2018/07/13/technology/microsoft-facial-recognition.html [Accessed 21 April 2020]

STRIVR, 2019. *Customers*. [online] Available at: https://www.strivr.com/resources/customers/ [Accessed 22 October 2019]

Training Industry, 2018. *IBM Talent Business Uses AI to Rethink the Modern Workforce.* [press release] November 28, 2018. Available at https://trainingindustry.com/press-release/it-and-technical-training/ibm-talent-business-uses-ai-to-rethink-the-modern-workforce/ [Accessed 21 April 2020]

Tuchscherer, R., 2019. *Walmart uses virtual reality to test new store managers.* [online] Available at: https://eu.usatoday.com/story/tech/2019/07/08/walmart-uses-virtual-reality-hire-new-managers/1635311001/ [Accessed 30 September 2019]

Walch, K., 2019. *Ethical concerns of AI.* [Online] Available at https://www.forbes.com/sites/cognitiveworld/2020/12/29/ethical-concerns-of-ai/#65b25b0b23a8 [Accessed 21 April 2020]

Yano, K., 2017. How artificial intelligence will change HR. *People & strategy*. [e-journal] 40(3/43). Available through: EBSCOhost http://web.b.ebscohost.com.ezproxy.metropolia.fi/ehost/pdfviewer/pdfviewer?vid=3&sid=bcb89e30-3620-44fe-8b28-3c32bec05e6b%40pdc-v-sessmgr03 [Accessed 29 September 2019]

Zielinski, D., 2017. Get Intelligent on AI: Artificial intelligence can boost HR analytics but know what you're buying. *HR Magazine.* [e-journal] November 2017. Available through EBSCOhost http://web.b.ebscohost.com.ezproxy.metropolia.fi/ehost/pdfviewer/pdfviewer?vid=11&si

d=bcb89e30-3620-44fe-8b28-3c32bec05e6b%40pdc-v-sessmgr03 [Accessed 29 September 2019

Figure References

Figure 2: The Kirkpatrick Model, n.d., Kirkpatrick Partners [Image online], 26 February 2020, https://www.kirkpatrickpartners.com/Our-Philosophy/The-Kirkpatrick-Model

Figure 3: Benefits caused by AI to organisation, 2019, Ideal [Image online], 26 February 2020, https://ideal.com/ai-recruiting/

Figure 4: Benefits caused by AI to HR employee, 2019, Ideal [Image online], 26 February 2020, https://ideal.com/ai-recruiting/