**Cyborging HRM theory: From evolution to revolution – the challenges and trajectories of AI for the future role of HRM**

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**Abstract**

**Purpose**

Human Resource Management (HRM) is a critical organizational function, which has continued to evolve. We explore how different HRM will be in the workplace of the future and why, from both strategic and practical perspectives. We present and discuss core HRM practices such as recruitment, selection and training, as well as peripheral activities such as monitoring health and safety, and diversity management, reflecting on how they may transform in the workplace of the future.

**Design, Methodology and Approach**

This is a conceptual thought piece, building on the Following the SAMR model, to offer a futuristic view of HRM in the era of AI.

**Findings**

Discussing the contemporary challenges of Artificial Intelligence, which we predict will lead to what we term Cyborging HRM.

Practical Implication: This study can help HR managers and practitioners to be prepared for AI embedded HRM systems in the future. For academics it offers an innovative framework to establish future writing on HRM in the AI era.

**Originality and Value**

AI is pushing HRM and the profession will have to undergo a revolutionary, rather than evolutionary transformation in order to remain necessary and valuable function for organizations. Our elaboration of the SAMR model and suggested implications for the future transformation of HRM should be worthwhile to organizations, to management, and to wider society.

Keywords: Future workplace, HRM, Artificial Intelligence, ChatGPT, SAMR model

**Introduction**

Our purpose is to offer theoretical and practical perspectives on the role of Human Resource Management (HRM) in the workplace of the future. By workplace of the future, we refer to the expectations about the way workplaces will operate and manage their resources, in particular human resources, in the coming years. We discuss the changing nature of HRM, and how different it will be at both strategic and practice levels. We manifest challenges like the impact of the fourth industrial revolution (Schwab, 2017), in particular the introduction of Artificial Intelligence (AI) including ChatGpt, on the HR function by addressing expectations, capabilities, and present possible scenarios for this impact (Budhwar et al., 2022; Coron, 2022; Meijerink et al., 2021).

The impact of AI on HRM is expected to be significant and meaningful (Budhwar et al., 2022; Chowdhury et al., 2022; Prikshat et al., 2023), as its capacity expands continuously (Jia et al, 2023). From the very use of AI as a distinct algorithmic form in HRM, Meijerink and colleagues (2021, p. 2549) defined AI in the realm of HRM as:

“…a broad class of software algorithms by which a computer executes HRM activities that would normally require human cognition and intervention. While most software algorithms in HRM are likely to be static, meaning that computer-programmed steps remain the same irrespective of the data inputted (e.g. use of an Excel spreadsheet to rank job applicants or use of SPSS to predict turnover intentions), in the case of AI these evolve with the data they process based on, for example, machine learning (Strohmeier & Piazza, [2015](https://www.tandfonline.com/doi/full/10.1080/09585192.2021.1925326); Vrontis et al., [2022](https://www.tandfonline.com/doi/full/10.1080/09585192.2021.1925326))”.

Also, we differentiate HRM in developed vs. developing countries (OECD vs. ‘third world’), and discuss the impact for individuals, organizations and for the wider society.

In recent years, HRM has faced a number of challenges that required it to change its function. We witness a fundamental shift at the level of revolution in sections of HRM practice, beyond merely evolution. This revolution is so strong that it reverberates throughout industry today, so much so that within a couple of decades since the introduction of web-based systems we still don't understand its full impacts. More recently, to these we add the more recent outbreak of the COVID-19 pandemic (e.g., Georgiadou and Antonacopoulou, 2021) and most recently the entry of the ChatGPT (Dwivedi et al., 2023) developed by open AI. Some of the changes are evolutionary developments of processes that started in the past and some are more revolutionary. As these developments constitute a revolution, there needs to be a shift of magnitude that challenges the current paradigms and core values in the world of work (Rabenu, 2021). The use of computerized forms to on-board employees into a new workplace instead of the use of hard-copy forms that need to be filled out manually is evolutionary, as while hiring employees without any direct contact with a human being in the HR function, based on AI decision is more revolutionary in essence. We examine the ways that certain HRM functions and practices will undergo change. Living in time of volatility, uncertainty, complexity, and ambiguity (VUCA) makes planning a necessity. Though it is more complex that in stable times, it is relevant, perhaps even more important to plan and be prepared in dynamic environment. Thus, the motivation to write this paper is about preparedness for prospect future events, in line with Krumboltz (2009) call for management to be prepared for uncertain future. Moreover, we argue that sometimes that change would be revolutionary, due to the powerful and disruptive nature of AI. We then demonstrate it via a systematic presentation of anticipated impact of AI on the major HRM practices. Following the presentation of these practices, we theorize how the future of HRM may look like with AI as a major player in the labour market. A recent work suggests that future studies should offer alternative, possibly imaginary scenarios (Dries et al., 2024) to HRM field.

The contributions we offer are: First, pointing out that HRM is at a crossroads, due to technology developments, especially the introduction of AI to the HRM realm. Second, helping scholars and practitioners to envisage how people HR management may look like in the future and plan their steps accordingly. Formal planning is usually worthwhile as it is generally linked to positive financial outcomes (such as higher profits), however, external factors (such as AI development and regulation) are often to blame when formal planning does not lead to better performance. For example, environmental forces can limit management's options, reducing the impact of planning. Additionally, unexpected environmental shocks, can disrupt even the best-laid plans (Robbins and Coulter, 2021, p. 234). We believe that people should be ready to what the future may bring, and be prepared, as suggested by the happenstance learning theory (Krumboltz, 2009).

With regard to the incorporation of AI into the field of HRM, there is a gap between what is happening in the field at a dizzying pace and current research. Our goal is to bridge this gap, to check, based on literature and examples from the field whether the change that HR practices are undergoing is evolutionary or revolutionary, to discuss that changes and offer practical recommendations for planning based on this.

We theorize the stages of AI introduction to HRM, as the profession needs to prepare for such revolutionary changes. Theorizing AI-HRM intersection is critical at this juncture of technological progress. Our model is a stage model, representing the transition expected from HRM when considering the application of AI.

Indeed, investigating the intersection between AI and HRM is relatively new although related scholarship work is emerging. In a recent review Malik and colleagues (2023) delved into the realm of AI's impact on HRM through an examination of 67 peer reviewed papers. The review sheds light on areas where AI is extensively employed, such as recruitment and selection, learning and development, and performance management. However, it also points out knowledge gaps, notably in compensation management and ethical considerations. They emphasize the importance of high-quality and context-specific HR data to effectively train the AI models. They also stress the need to address ethical, legal, and moral concerns related to AI's integration into HRM, underscoring the importance of a balanced approach to adopting HRM related AI applications, one that aligns technology, organization, environment, and human factors to achieve optimal outcomes.

Our third contribution follows from examining the magnitude of the change in the main HR practices (is it a revolution or an evolution). Following this review, we present various HRM practices and activities, and suggest how they may be changed, even transformed, in the future based on the AI integration in HR. For each HRM function or activity we point out what may be the nature of the changes it will go through, why, and how. We identify the positives and possible challenges in the ways those functions will experience change, sometimes revolutionary change.

Lastly, we advance the theory in the field of AI in HRM – we define the concept of Cyborging for HRM, expand the SAMR model on which it is based on, link this to the transition of the HRM field from evolution to revolution and indicate moderating variables in the process.

Building on the theoretical underpinning of the SAMR (Substitution, Augmentation, Modification, and Redefinition) model (Hamilton et al., 2016; Puentedura, 2006). We extend the framework, suggesting moderation mechanisms that can block or enhance the transformation, with AI trust and AI fear as moderating factors. The model applies to organizations, to governmental and other agencies, and to the wider society.

We suggest the term Cyborging HRM to manifest the magnitude of change. Base on the Chat GPT definition for Cyborging HRM (see Box 1) and the SAMR model, we define "Cyborging HRM" as the integration of advanced technologies (e.g., AI and machine learning) into HRM processes and practices, in a way that not only substitute the processes to digital but also augment, modify and redefine HRM tasks.

***Insert Box 1 About Here***

We offer theoretical contribution to the HRM field by considering HRM under fast advancing technology, according to the Bioecological Model of Human Development (Bronfenbrenner, 2005; Bronfenbrenner & Morris, 2006). Bronfenbrenner originally proposed his theory to account for the process of human development in childhood. However, his parsimonious and robust theory was later broadened since it is applicable to many areas of research (McGuckin & Minton, 2014). Specifically, we suggest applying Bronfenbrenner’s Process-Person-Context-Time (PPCT) model of human development (Bronfenbrenner, 2005; Bronfenbrenner & Morris, 2006) to Cyborging in HRM.

As such, Cyborging reflects diverse technological impact under significant situations (**C**ontext), in the proximal and distal future and additional terms of temporality (**T**ime), leading to changes in HRM processes, procedures and tasks (**P**rocess), while emphasizing the active role of the HR managers and professionals (**P**erson). This enables overcoming the challenges of the emerging new era of revolutionary technology (e.g. AI and machine learning). This model may be used as a basis for studying the effects of Cyborging in HRM for the future world of work.

In the following section we present and discuss, first, the fourth industrial revolution, the future of work, and AI regarding their relevance to people management. We then cover a representative cover of HRM practices – some are considered core activities, others are more peripheral – and reflect on how they may be transformed in the workplace of the future. HRM practices are critical for the functionality of the organization (Armstrong and Taylor, 2020), and are derived from the strategic HRM, which follows from the overall strategy of the organization. This applies to all sectors, not merely to the for-profit sector (Roumpi et al., 2020). It should be emphasized that not all HRM practices can or should be transformed – some important practices are effective in the way they are conducted at present. Yet, advanced technology and ongoing socio-economic and political processes mean that people management can be conducted differently.

**Literature review**

The literature review focuses on factors which are especially pertinent to HR-related issues. in This section we cover both theory and practice.

***The fourth industrial revolution, the future of work, and AI***

*The fourth industrial revolution and people management*

The fourth industrial revolution or Industry 4.0 (Schwab, 2017) is the result of introduction of advanced and disruptive technologies. AI technology change, sometime revolutionize people's lives and organizational operations. It influences work following the emergence of Industry 4.0 (Kim et al., 2021; Wang et al., 2023). The internet, automation and particularly AI are changing life and work environments, and as a result, the way people behave, thus the way they are managed. For management, there are significant advantages in shifting work from humans to robots and AI. For a comprehensive related literature review see da Silva and colleagues (2022). Robots do not argue, are not absent from work, not influence by most external condition and are not distracted due to personal issues, to name a few advantages. AI can be highly effective, though it can make traditional competitive capabilities of people to become obsolete (Krakowski et al, 2022). In this paper we focus on AI in HRM.

*AI and its possible impact*

In 1931 Erich Kastner published a children’s adventure book about a ride to the south sea, where, on their way, the travelers visited the *Electropolice* – the city of the future. There, a new world and society order was presented as an almost utopian vision. In *Electropolice*, most people did not need to work; those who did work mostly did it because they enjoyed work. In this world, machines, robotics and AI dealt with producing all the needed food and consumer products. He envisaged autonomous cars, mobile phones, and moving pavements, etc. (Kastner, 1931). According to Kastner, a few people will still need to work, but the majority will fill their time with other activities. A more realistic expectation for the near future is that the majority of people will still need to work, but many may find themselves in a permanent out-of-employment status rather than unemployed. This is because all needs for food, products and services will be delivered by a combination of effective AI and some human inputs, which ChatGPT a clear example of the way AI can influence current professions (Eloundou et al., 2023). These people will form a new ‘social class’, will find different ways to fill in their time, and find aspiring or otherwise fulfilling things to do (Baruch, 2022).

In contrast to Kastner’s positive vision, others describe the future workplace from a much darker perspective. While AI can improve productivity and augment creativity (Jia et al., 2023), there is substantial level of AI fears in society, because it poses a threat to an increasing range of jobs (Brougham and Haar, 2017; Frey and Osborne, 2017). Also, while technology has so far replaced first and foremost non-professional workers, recent developments in AI endanger the careers of professional and educated workers with high wages, because their occupations entail more tasks with a greater degree of exposure to large language models (LLMs) such as Chat GPT (Dwivedi et al., 2023; Eloundou et al, 2023).

***HRM function for the future***

HRM in organizations oversee a wide range of activities and functions, all concerned with attaining and retaining the right people for the organization, Pereira et al. (2023) covers six HRM functions that will be influenced by the application of AI, but HRM covers a much larger number of activities. In this section we will discuss how these activities may be influenced by the introduction of AI (including ChatGpt). We do not claim to offer an all-encompassing cover of all possible practices – this will require much longer piece of writing, but identified what we believe are important for illustrating the case of AI impact. The order in which we present these activities is along the life-cycle of employment, as follows: Inflow (HR planning, recruitment and selection); Development (training and career planning and management, Employees’ well-being/welfare); Monitoring and control (performance appraisals, compensation and benefit, health and safety, diversity, industrial relations), and Outflow (‘exit’). Following this, we indicate what HRM practices and functions may not be affected, at least for now, by the introduction of AI.

***Inflow***

*HR planning*

Like any managerial activity, the role of management starts with planning, and people management is no exception. Employers need to identify the type and number of people they need to meet their current and future strategic targets. Like any commodity, role of demand and supply is critical factor, and HRM should be well aware of the local and global availability of talent. HR planning can be divided into supply flow from outside the organization, and internal planning for those employed by the organization, including plans for releasing people. HR planning should count workers in general (and talents in particular) in traditional work arrangement like employees and in non-traditional work arrangements such as freelancers and contract agency workers, and even non-human “workers” such as AI (Rabenu, 2021). In the current report of open AI (OpenAI, 2023), they introduced GPT-4 capabilities. Although GPT-4 falls short of human proficiency in numerous real-world situations, it has demonstrated human-like competency across several academic and professional evaluation metrics. For example, GPT-4 has achieved a score in the top 10% of test takers in a simulated bar exam for lawyers. Therefore, the day will not be far when in the human resources planning of professionals like lawyers, HR will take into account the GPT as a possible replacement for a significant share of future otherwise employees. Moreover, AI does not burnout, is not subject to labor and other regulatory laws such as working hours, does not complain and does not unionize, making it a convenient (non-human) "worker" to employ.

The needs for people will change as AI becomes a major player in the labor market (Baruch, 2022). The type of people to be hired, and the type of contracts they should be offered will change when more tasks and jobs are carried out by AI (mostly for services) and robots (mostly for production). In the future, when the technology forecast points out that people may be replaced by technology, this would mean reduced hiring, and in some cases, an increase in redundancy programs (FT, 2023a; b). Also, AI, as a specific form of algorithmic based HR, can provide descriptive statistic information about the workforce but more than that, it can augment HR planning by offering predictions for forthcoming outcomes. The utilization of predictive AI algorithms could entail the application of machine learning and data mining methods to explore data patterns that may have eluded from human observation (Raisch and Krakowski, 2021).

Yet, for internal planning, such as succession planning for top echelons, individual judgment will prevail due to the sensitivity, the level of operational complexity, and the human capital requirements (Naveen, 2006). These are strategically oriented functions, where AI is less capable of decision making that will take into account human factors and will be accepted by the various stakeholders.

*Recruitment*

Contemporary recruitment involved entering social media networks to reach and attract candidates. This is important for both hiring and retaining workers, because a “friend brings a friend” can mean that a “friend takes a friend” (Rabenu, 2021, p.168). For example, employees who have left or are about to leave the organization may influence colleagues to follow them (Felps et al., 2009; Wang et al., 2017).

In order to understand the social fabric that will enable to attract and hire the right candidates, the recruiter should ideally become part of the social networks’ ‘being’. Actually, sourcing talents required the recruiter to be proactive by engaging in active outreach on social media to connect with potential candidates, most of whom are not looking for a new job, at least formally. This active screening, searching, and mining of social media networks for potential talented candidates incurs minimum cost to the recruiter (Sinha and Thaly, 2013) and reflects on the organizational brand (Keppeler and Papenfuß, 2021). ‘Employer branding’ is about the perception of the employer as high-quality (e.g., Biswas and Suar, 2016; Theurer et al., 2018). Also, through mining employees’ posts on social media, organizations finding words such as “upset” or “frustrated” can identify the employee concerned as a “potential flight risk” (Ployhart and Kauts, 2017, p.86).

AI can be instrumental in managing the recruitment process. At the immediate level, recruiters have already start using ChatGPT to formulate job ads or to suggest Boolean search to perform an effective search of candidates. However, in the next generation of recruitment assistance, AI will do the sourcing work itself and not human resource. The AI will learn the behaviors of successful employees in the specific job or in a specific organization (for example, those with excellent performance appraisals) as they are reflected in the social networks like LinkedIn, Facebook, Instagram, Twitter (aka X), etc. Based on these data, AI will characterize profiles for worthy candidates. Afterwards, the AI itself searches in the social networks for candidates with a similar profile and apply to them.

*Selection*

The selection practice has also become heavily dependent on technologies, and these systems, at present, are possibly subject to biases (Van Esch et al., 2019). Technology enabled selection tests to use diversified inputs (e.g., text, audio, video)( Van Iddekinge et al., 2023) include greater realism and delivery efficiencies, and lower costs (Ployhart and Kauts, 2017). Yet, there is a lag of about 10 years between the introduction of technology and corresponding research on this technology (Ployhart et al., 2017).

An example of a selection tool that is accelerating in use of AI is selection games (usually virtual) that were built specifically for the purpose of selection processes within a specific organization (Ellison et al, 2020) They fit the needs of the young generations (Y and Z) that look for fast, comfortable, and ‘cool’ processes, otherwise they might simply do not show up for the selection process. These candidates look for positive engagement and experience at work, starting from the recruitment processes, before they enter the organization. Some of them might be non-solicited candidates who send their resumes because they were attracted by high employer branding of the organization and expected a high quality of the recruitment with good experience.

However, despite the convenience for and adaptation to the younger generation, HR still has challenges, some of which might even be exacerbated by AI. For example, there is still discrimination in recruitment and selection processes (subtle and overt) based on employee characteristics that include race, ethnicity, age, gender, sexual orientation, religion, disability, and weight (Hebl et al., 2020; Nydegger and Enides, 2017). Games offer a certain answer against discrimination because the decisions rely more on the results of the game rather than being biased by physical attractive appearance (e.g., Wade and Kinicki, 1997) or ethnic cues such as hairstyle (Opie and Phillips, 2015; Purkiss et al., 2006).

However, using AI might, in some cases, may lead to discrimination. For example, algorithms employed to find correlation patterns using Big Data might be problematic, thus legally challengeable, for selection issues since the data that feed the machine might be biased, for example against women and minorities (Buolamwini, 2019; Dastin, 2018). For example, Amazon was experimenting a selection tool that exhibited gender bias, since it was based on AI system that was trained using data provided by candidates spanning a decade, with a substantial portion of this data originating from male applicants. Therefore, this tool had to be abandoned (e.g., <https://www.bbc.com/news/technology-45809919>). Therefore, HR interpretation of the data patterns is still critical (Larson and DeChurch, 2020). In extreme cases, candidates may experience a full selection process without a single ‘in-person’ session. Selection decision that is made only based on an AI tool, can be an example for prescriptive algorithms, which automate HRM tasks and implement a specific course of action with minimal human intervention (in is more than providing information or giving predictions (i.e., augmentation) (Meijerink et al., 2021).

The role of AI in HR puts the later role in the organization at a crossroads (Rabenu, 2021, p.302) HR's professional role of being a hands-on recruitment and selection tool is significantly decreasing whereby HR is playing the role of a super coordinator of outsourced HR services based on AI. We thus suggest that HR takes a more strategic position.

***Development***

*Training*

The modern age constantly brings with it new professions that must be trained for while other professions will disappear. Because of this, the training and learning departments in the organization (Dutta and Kannan Poyil, 2023) will play a strategic role in preserving existing knowledge, updating employees’ knowledge (up-skilling), creating new knowledge, and building skills required for new occupations (re-skilling). Such training initiatives are the enablers of organizational success due to the improvement of its employees to achieve competitive advantage. For example, Utilizing AI models expedites the creation of 3D synthetic brain images, helping train neurologists to diagnose and prevent neurological diseases by creating human MRI brain scans based on AI models. In this way, there is no problem of medical confidentiality and there is an ability to bring a large variability range of an excellent quality brain scan (Nvidia Developer, 2023). Another example, ChatGPT can serve as a coach to train new managers in dealing with challenging employees. ChatGPT can describe some situations of challenging employees, and the managers respond to it while the chat evaluate the performance of the trainee manager, according to given criterions.

 Because most, if not all of the training activities will require AI, training units will rely on assistance from the “computer people” in the organizations (such as AI experts). Moreover, machines ‘learn’ to optimize faster than people in routine jobs (and also in complicated ones in the future). Those clever machines do not need a training unit in its current form. These ‘automated employees’ should be ‘trained’ by machine operators (technical experts). As is also reflected in the name of GPT which is an Acronyms of: Generative Pre- trained Transformer.

The most relevant ‘conventional’ training in this regard is to train humans to work alongside or in cooperation with those clever machines. Such machines or systems benefit from the capacity of ‘machine learning’ (Jordan and Mitchell, 2015), reaching level of efficiency and effectiveness beyond human capacity, the same way that chess computers can now beat any human.

*Career planning and management*

HRM operates a number of career practices that shape career systems within organizations (Bagdadli and Gianecchini, 2019; Baruch and Peiperl, 2000). Identifying the best career path for future talent (like high-flyers) is one way where technology can identify top talent and how they may progress. Yet, when talking about mentoring, while matching mentor and protégé can be aided by AI, the actual relationship development takes place between individual human beings. Aspects such as the emotional support, the intuitive advice, or the ability to ‘read’ a person are better handled by personal relationships.

Assessment and development centers can be supported by AI based games activities, while some of the evaluations may be better conducted by individuals. Similarly, career counseling is still typically done by individuals – but those individuals may be able to offer better informed advice if they use the right knowledge that can be provided via AI.

Preparing succession planning can be best done when a clear and stable structure exists. Yet, the continuous challenges of VUCA in the business environment (Mack et al., 2015) and its related HRM concerns (Shet, 2024) means that reliance on AI to generate succession planning will require constant adjustments and may not be realistically viable.

For ‘multiple job holders,’ also known as Moonlighters (e.g., Manyika et al., 2016), Hybrid workers (e.g., Rabenu, 2021) or Slashers (Alboher, 2012), career planning will become much more complex and will require great professionalism, sometimes coordination by different organization. Indeed, there are organizations that already use employment counseling for the benefit of employees. AI can offer a development path based on the employee's data profile and the possibilities of promotion and development in the organization. AI can also reflect the dynamism of career paths. For example, it can detect a trend that economists orient themselves over time to the field of computers (thinking that they are good at mathematics and wish to improve their income by choosing a profession that is in high demand).

*Employees’ well-being/welfare*

Beyond dealing with health and safety, HRM is expected to generate a workplace where people enjoy appropriate well-being; for example, when they can achieve a work-life-balance (WLB) (Kelliher et al., 2019). Working in a digital environment does not mean that management should forget about the human side of work. Socio-technical systems should be developed taking into account the quality of working life for employees (Guest et al., 2022). Expecting employees to be alert and connected 24/7 is one of the reasons for the ‘quiet quitting’, a phenomenon that was reinforced and accelerated following the COVID-19 pandemic. It takes place when employees prioritize their personal quality of life (e.g., achieving WLB) and oppose organizational expectations such as citizenship behaviors when these are not required under the legal obligations of their job description and responsibilities.

Therefore, along with the need to be technologically ‘savvy’ due to the introduction of AI, HR have to direct more resources and take responsibility for keeping human employees safe and healthy throughout the process.

***Monitoring and control***

*Performance appraisals*

Performance appraisal is a formal practice conducted by HRM with a dual purpose: developmental and judgmental. Providing feedback to the employees about their performance and providing the organization with information about the job-related performance of the employees regarding their attributes, behaviors, and outcomes. It indicates how productive (or otherwise) the employees are, and what may be done to improve their performance. Performance appraisals using AI can be easily personalized (precisely adapted to the performer) for all the benefits of that such as personalized feedback (e.g., Rabenu and Tziner, 2016).

As technology advances, the ability to measure employee performance by direct and indirect means improves. However, assessing performance through technology may produce real challenges that must be taken into account (Tziner and Rabenu, 2018).

What is *easy* to measure (due to technology) is not necessarily what is *important* to measure. For example, if we want to evaluate the performance of teachers, we can easily examine the test scores of their pupils but this does not necessarily indicate the important aspects of the teacher’s job which involves educating for values, norms of behavior, and attitudes. Moreover, A recent study (Eloundou et al., 2023) that investigated occupations in O\*NET estimated that:

Among approximately 80% of the US workforce, at least 10% of their work tasks are affected by the introduction of GPTs; Among approximately 19% of the US workforce, at least 50% of their tasks are affected by the introduction of GPTs. What does it mean in terms of performance appraisals? Will human workers working alongside non-human workers be valued as a team?

Also, the entrance of AI will require a dynamic expectation from employees work and the definition of what is regarded as an outstanding employee. For example, if usually a particular employee works a whole day to complete an assignment by herself, but since she uses GPT, she finishes her task in an hour, this can not turn her into an excellent employee.

*Compensation and benefits*

The largest share of organizational budget is typically devoted to labor costs consisting of remuneration, wage, salary, and bonuses – the reward system. HRM applies an explicit or implicit strategy when assigning the reward system, in line with the impact of each job, the availability/scarcity of resources, the qualification and competencies required, and the hierarchical level, to mention some of the most critical factors. These will mostly remain stable in the near future, although technological changes can make some knowledge and skills redundant. The practical calculation and assignment of payment to each employee is already done using advanced technologies and is automated (Votto et al., 2021). Thus, the strategic role of HRM in this respect is not anticipated to change much.

*Monitoring health and safety*

HRM will have to find appropriate ways to implement AI psycho-social risk factors in the organizational routines, monitor them, and carry out organizational interventions (not only focus on a specific employee as it is his/her individual case) in order to tackle core concerns and symptoms of the twenty-first century such as bullying (e.g., Lee and Lim, 2019), burnout (e.g., Piecq, 2018; Weber and Jaekel-Reinhard, 2000) and sedentary jobs (e.g., Knight and Baer, 2014; Sanchez-Villegas et al., 2008).

*Diversity management*

Contemporary society is becoming increasingly diverse (Bell, 2007), with immigration and expatriation trends making a global impact on population distribution. Both social norms and legal systems are opposing discrimination and the role of HRM will continue in this trend. The meaning of diversity can be complex and more grounds for possible discrimination that require attention may continue to emerge. Just as an example, in the past, employees needed to mark on HRM forms whether they are male or female. Today there are several options. The same applies for sexual orientation; until relatively recently, non-conventional sexual orientation was illegal. We expect more development in terms of diversity, like weight and appearance, as new issues for legal considerations. An example for opportunities as well as challenges in the monitoring and management of diversity is the prospect of algorithmic bias. The way AI works can be subjected to biases and over-reliance on AI might lead to discrimination (Lambrecht and Tucker, 2019).

*Industrial relations*

The role of trade unions will be affected when mass work will become mass robotics and AI. Traditionally, trade unions exist to represent and care for employees. Substituting people with intelligent machines brings into question the need for trade unions, or at least the need to revise their strategies, policies, and practices. The traditional power sources of trade unions depend on the membership of masses of paid workers, and their power is ultimately based on their ability to stop production. During the transition from an economy based on paid labor to one based on automated-autonomous production, unions will still need to safeguard workers' rights and interests. Further, they should transform their primary calling from just representing employees to representing the social rights of all citizens (Nissim and Simon, 2021). In response, HRM tasks of dealing and negotiating with the unions will transform accordingly.

***Outflow***

*Exit*

Leaving the organization requires HRM involvement. It can take the traditional exit form of retirement but can also be through redundancies (voluntary or otherwise). AI can be instrumental in indicating which employees may be ‘released’ if redundancies are needed. In addition, AI can assist in the response to questions regarding the exhaustion of rights (using chatbot's) and offers for outplacement in other organizations.

**Caveat:** Not allHRM practices and functions will be strongly affected by AI, at least not in the short term. These are practices and functions that require either innovation/creativity, or specific human touch. For example, strategic HRM is a function that requires innovation, creativity, and deep understanding on human nature. Different example are practices that need emotional understanding and sensitivity to the human nature of people, like mentoring and coaching, or activities that require qualities like compassion and intuition.

To sum up, AI can perform HR work in a fast, professional, and unbiased way, but for that to happen, someone needs to think about what it should do, design it, train it and monitor its results. Therefore, the role of HR professionals, and based on the categorization of the three types of workers identified in Knowledge, Skills, Abilities and Other characteristics (KSAOs) needed in the twenty-first century (Rabenu, 2021), must become more like *pioneers* (i.e. “Weave vision and create new flows of ideas”) and *assimilators* (i.e. “Assimilate processes… and adapt processes to required changes”) rather than *operators* (i.e. “Execute tasks”). It seems that HR will have to initiate the use of AI, decide how the AI will be designed into HRM, such as what are the functions that the selection tool will have and its anticipated outputs. HRM will use AI developers to perform these requirements, either from within or outside the organization, instead of HR managers performing these operations themselves.

Of course, that goes alongside with the strategic role of HR that integrates changes that took place in HR practices, besides the entering of AI, such as transferring a significant part of the responsibility for career management to employees (Grabarski and Shwartz-Asher, 2022), and devolving HR activities to line managers while HR provides professional guidance (Lengnick-Hall et al., 2009).

 ***Theorizing HRM practices for the future***

We offer a stage model to integrating AI into HRM. The model follows the steps from the evolutionary stages that have already taken place, to the revolutionary anticipated changes. It reflects the theory of disruptive innovation (Dan and Chieh, 2008; Si and Chen, 2020), taking the introduction and integration of AI into HRM systems as such a disruptive innovation. Further, we build on and expand the SAMR (Substitution, Augmentation, Modification, and Redefinition) model of Hamilton and colleagues (2016) who adopted Puentedura (2006). We point out at the current stage of progress and add moderation factor that may influence a move to from Augmented AI collaboration to transformation stage when AI may take over. The moderation we offer is the interaction between the positive impact of AI Trust and the negative impact of AI fears.

Applying AI in HRM as a disruptive innovation is a non-linear step, which does not make improvement to existing practices, but use the technology to follow the same principle – like hiring the right person or evaluate their performance. We argue that currently HRM, at least in some of the industries and organizations, is entering the level of modification in terms of the SAMR model- the transformation stage. For example- the establishment of an AI infrastructure that enters the employee files (e.g., resumes, performance appraisals) and accordingly offers them recommendations for personal development and career paths. The system is dynamic and proactive, such that if employee did not win a tender for a certain position, the system is exposed to this information and immediately offers alternatives for learning and career development to prevent turnover. But the future may lead organizations to let AI take over. This depends on whether the moderation of AI trust and AI fear applies. AI fears would put obstacles in adoption (Kong et al, 2021), as opposed to trust in AI (Yin et al., 2023), which is an enabler of the move to the next stage of AI application in HRM. In addition, the depth of AI's application in HRM also depends on the context in which the organization operates, mainly, what are the country's regulations regarding using AI (for example, is it allowed to use Chat GPT?) and what are the organization's resources (for example, are there many talents to support the use of AI or alternatively are there financial resources to buy the talent if lacking in the organization).

***Insert Figure 1 About Here***

*Examples of influenced practices (Figure 1)*

The first use of IT in HR was transferring manual administrative tasks of HRM included monitoring activities to computerized systems. The next step in technology use in HR was HR analytics, using information technology to support HR decision making activities (Marler and Boudreau, 2017). The volution continued with replacing employees with robots, mostly in production. The introduction of AI transformed the current shift, using AI to work alongside employees, augmenting performance through AI-humans collaborations. Empirical study to examine the nature and outcomes of such AI-humans collaboration is in infancy, but early findings suggest that AI-enabled automation and augmentation solutions are not necessarily creating tension and may lead to positive outcomes (Einola and Khoreva, 2023; Yin et al., 2024). What remains to be seen is the next stage of development, where AI may take over more tasks, replacing humans at a large scale, a revolution we term Cyborging HRM.

***Society level***

Moving from the internal organizational HRM function to the society level and HRM, we discuss the implications of future workplace and labor markets on the roles that society place to people management in general. If in reality the introduction of AI and other automation will decimate the need for human workers, there will be significant unemployment. People who would otherwise be part of the workforce will simply not be needed and not required to work (Baruch, 2022). To sustain society in such a novel state, one of the emerging ideas is for a Universal Basic Income (UBI). The UBI is a social safety net, due to its potential impacts on orientations to work (Perkins et al., 2022). If the idea of UBI will materialize, a new type of career path could be offered to employees by HRM – instead of firing people, moving them externally to a new social class of those being paid without the need to work. The implications for HRM will be significant as retaining employees when they have a viable alternative of not working could be challenging. Retention will move from making focused efforts to improve engagement and involvement in the organization, to adding a general motivation to work.

On the other hand, more hours will be worked in professional and managerial jobs. Indeed, the gap between the number of hours worked in professional and managerial jobs and those in non-managerial positions is already increasing where new technologies allow 24/7 work. In contrast, the level of working hours among less-educated, non-professional workers is decreasing (Gerson and Jacobs, 2004) although, to a certain extent, the entrance of the ChatGPT might close the gap between highly educated and less educated employees, as might be inferred from Eloundou and colleagues (2023) (see above). Meanwhile, Shkoler et al. (2020) found that working hours increased during the COVID-19 pandemic since people tended to invest more heavily in their work than before the pandemic outbreak. HR will have to consider whether and how to intervene to maintain the well-being of these employees.

**Discussion**

In this article we contribute to both scholarship and practice by envisaging how people management may look in the future, thereby helping to prepare HRM for anticipated developments and changes. The contribution applies at different levels – individual, organizational, national, and the wider society. We reflected on various HRM activities and how they may be changed, even transformed in the future. For each HRM function or activity we have anticipated the nature of the changes it will go through, the rationale, the process, and the possible implications. Not all HRM functions will change at the same magnitude or pace as, for some, introduction of AI will significantly change the need for and role of people management, whereas the changes will be minor for other functions.

We called this revolution the Cyborging of HRM, as the role of HRM will become more and more revolutionary as there are more robots and AI that will replace a significant segment of the workers. In this situation, human resources will need to make decisions regarding the integration of people and technologies. To tackle this challenge successfully, HR leaders should develop a deep technological savvy alongside high emotional intelligence. The trend we presented regarding the HR role in the future shows that human resources continue to be strategic assets, thus their management needs to be strategically dealt with. At the same time, dealing with the day-to-day HRM issues is delegated to the direct manager (e.g., examining the employee's feelings, approving vacation dates, etc.) whereas other HRM functions might be outsourced.

***Insert Table 1 About Here***

As can be seen from Table 1, HRM is already in the process of revolutionizing some HR practices, that is, according to SAMR model (Hamilton et al., 2016; Puentedura, 2006) in the processes of modification and redefinition of the tasks in the field, while others lag behind, in an analog to digital exchange without significant added value. It is possible that the transition to **Cyborging** of HRM is limited in a certain way by the fact that HR leaders do not have the required proficiency in advanced technology. In addition to this, a combination of AI trust and AI fear, affect individuals, being human, along with environmental effects of lack of required resources and immaturity of the law on the subject which slows down the HRM **Cyborging** process. We believe that innovative and courageous HR managers will be able to change their field to suit the new challenges of the HR world at the same time, even the brave among them can integrate technology to the point that they fear that they themselves will be replaced and that their role will be redundant.

With reference to the SAMR model (Hamilton et al., 2016; Puentedura, 2006), we believe that a fifth additional element should be added, the letter U for the word uncertainty.

**S**ubstitution -There is no change in the tasks, only change into digital,

**A**ugmentation- Technology changes the tasks positively in a certain way

**M**odification- The integration of technology requires a new design of tasks

**R**edefinition- The technology is used to create new tasks

**U**nnecessary- The task is not needed; technology makes the tasks redundant (because AI is taking over).

Table 1 also demonstrates major challenging tasks in operationalization of Cyborging HRM, based on the SAMR model and the distinction between evolution and revolution. The table illustrates challenges that we can currently foresee, based on the integration of AI to HRM. Adding the U element as a proposed upgrading of the SAMR model manifests the challenges that we anticipate to intensify. As indicated in the table, the nature of many aspects of the operationalization of Cyborging HRM in specific HR practices is revolutionary, and the impact on the HRM profession will be profound.

***Theoretical contributions***

The career ecosystem theory (Baruch, 2015; Baruch and Rousseau, 2019) discusses the interrelationships across a number of actors in the labor market. We point out that the management of people in the future workplace will be more complex and complicated. One major change for the future of work, hence the future of HRM, is the introduction of a new player in the workplace – AI – a disruptive force that may change the future of work and management of people (Baruch, 2022). The introduction of AI challenges this theory by posing hard questions about the interactions between AI and other stakeholders. Unlike bilateral relationships between other actors (e.g. employer-employees or nation-employers), AI is a totally new career agency, being able to outperform humans an increasing sets of tasks. Moreover, it can perform HRM tasks, wherein the idea of cyborging HRM means a fundamental change. No longer humans deal with humans via set of policies, practices, and procedures, but instead AI taking over HRM roles.

We expand and challenge SAMR model (Hamilton et al., 2016; Puentedura, 2006) by presenting the stages of progress from AI perspective. A moderation is missing from the model, and we point out how three moderating factors may influence the move to further stages. The first one is the individual emotion of AI fear and AI trust, which form organizational view at the aggregate level. The second is the legal and regulatory factor, which can act as a barrier to the implementation of AI, and the last one is availability of resources – both financial, to acquire the needed AI, and the people, to manage it. These moderators influence the transition from Augmented AI collaboration to transformation stage when AI may take over. Figure 1 manifest the flow of moves across the stages. Moreover, we suggested fifth additional element to this model- **U**nnecessary.

Other theoretical and conceptual contributions emerge from the challenges we pose to the field. As fewer people will be required in current roles such as production and services, where will they be needed? Some new opportunities may arise in the areas of emotional work comprising care and leisure. To resolve the equation of supply vs. demand of future jobs there is a need for national public decision making at the strategic national level.

In the scenario that many people will not be required to work, how will the system motivate or force people to perform the so-called ‘dirty work’? For those whose work will not be needed, what will they do with their time? New challenges for society exist, such as the dangers of obesity, depression, and boredom. Introducing the UBI will solve the financial sustainability concerns of the non-employed (Perkins et al., 2022), but not necessarily the social issues associated with a new social class of people that do not need to work, or for whom work is not available. Theories such as socio-technical need adjustments, for example, about how to integrate AI to the workplace. This integration should consider cognitive, relational, and structural complexities (Makarius et al., 2020; Yu et al., 2023).

Last, regarding the two approaches of HRM success: *Best practices and Best Fit*  (Purcell, 1999) (see for example, Boselie and van der Heijden, 2024, p. 25), we believe that AI is so powerful that it will unite and integrate these to “schools” (i.e., making the argument between them irrelevant): on the one hand, it will create new sets of Best practices (One size fits all) that will be conducted in a universal way because the technology offers and enables uniform revolutionary changes in many of the practices (for example, using Chat GPT for building a bot that selects employees). On the other hand, it will enable Best Fit (Alignment with specific organizational context) because it would be easy to make adjustments (with the click of a button) to the organization's internal and external contexts (For example, adapting the bot to train employees to speak the corporate jargon, or adapting the sorting bot to be sensitive to certain cultural characteristics relevant to the specific organization).

***Managerial implications***

The nature and meaning of HRM as a profession continue to evolve. HR managers need to update and upgrade their knowledge, for example, by using AI for making better informed decision about selection, retention, training, and other issues (Huselid, 2018). It is critical for future operations as digital technology is revolutionizing the ways organizations recruit, support, and manage people, with significant implications for the shape of the workplace of the future (Bondarouk and Ruël, 2009). That said, these requirements should not undermine the need of HR managers to pay attention to the *soft* side of the business; for example, making ethical decisions (where AI can be a supporting factor – see Rodgers et al., 2022), caring for the well-being of the employees, and creating trust-based relationships (Glikson and Woolley, 2020). Furthermore, there is still the need to deal with the well-being of employees under global crises as these have profound impacts on the world of work (Chatrakul Na Ayudhya et al., 2019). Part of the solution lies in the continuation of workplace flexibility, which will become an even more essential feature of the future workplaces (Bal and Izak, 2020), but to realize the value of this requires alignment with worker autonomy and an employment relationship based on trust (Kulik, 2022).

Gelbard and colleagues (2018) suggested a methodology (sentiment analysis) that incorporates six human resource constructs: performance, engagement, leadership, workplace dynamics, organizational developmental support, and learning and knowledge creation. They demonstrate how digital footprints in these HR data (based on data mining techniques) can predict phenomena such as the collapse of Enron (see also Klein and Eckhaus, 2017). This example best illustrates how HR analytics can be invaluable, based on which informed management decisions can be made. Therefore, it would be essential for managers to understand the value of HR as an essential and critical profession for the success of the organization. Furthermore, during the COVID-19 period, HR proved to be a critical function for organizational success in particular and the economy in general. HR functions that were quick to adapt and demonstrated creativity and innovation in the way they were deployed were able to lead their organization to fully functioning under conditions of uncertainty. These HR actions enabled employees to continue working, making a living, and driving the economy.

Legal system implications: Much of the legislation will need to be either adjusted for AI- humans collaboration, whereas some existing legislation will become obsolete. The transition period may be shorter than in the past due to the rapid developments in technology implications. Further, people in their midst career may not be able to respond without support, and as many still have long period of adjustment, if forced to opt for a second career, as would be the case, for example, to drivers, when autonomous vehicles will make their skills redundant. At the secondary impact level, certain professions will become redundant, for example, ChatGPT will make professions like translation and proof-reading superfluous.

**Future research agenda**

While the future is never subjected to accurate forecasting and prediction, we can nevertheless suggest certain avenues for future research direction. As business environment changes, HRM role need to be adjusted. The COVID-19 pandemic demonstrated how this can be done in reality, when HR managers had to change abruptly practices like enabling remote work. Studying AI-humans collaboration is still at an early stage, but it is anticipated that AI will become wide-spread in the service industry, and further empirical work should address how to reach positive collaboration, avoid AI fears, and facilitate effective AI-humans collaboration (Einola and Khoreva, 2023; Kong et al., 2021). It is yet to identify ‘best practice’ for HRM under different scenarios, and future work should examine both practices at the operational level (e.g. AI impact on HRM practices), and strategy development at the broad level in responding to external events and development, proactively anticipating future needs.

**Conclusions**

The future offers a combination of predictable and unforeseen developments and challenges to the management of people at work. The fourth industrial revolution (Schwab, 2017) brought many changes that permeate the ways people can be managed. In particular AI will be a major factor influencing HRM function (Chowdhury et al., 2022), which we term the Cyborging of HRM. As technology advances, HR managers will need to acquire the ability to effectively use it for the benefits of the multiple stakeholders involved – employers, employees, and society. HRM re-design should be part of the overall re-designing the workplace of the future (Caligiuri et al., 2020).

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Box 1: ChatGPT 4o explanation of the term Cyborging HRM (23.7.2024)

The below is an extract from the answer of ChatGPT to the question: *Explain the term “Cyborging HRM”*:



Table 1: Major challenging tasks in operationalization of Cyborging HRM in specific HR practices ('Source: Created by the authors)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **HR practices** | Going through | SAMR | Major challenging task in operationalization of Cyborging HRM |
|  | Evolution | Revolution |
| Inflow | HR planning |  | X | Modification | Carry out HR planning concerning non-human employees (robots, AI), as a routine, in a variety of roles |
| Recruitment |  | X | Modification | AI studies profiles of candidates with the desired KSAO (in an unbiased way), locates them on networks and proactively contacts them.  |
| Selection |  | X | Redefinition | AI use as a selection tool (such as selection bot or selection game) based on non-biased data.Finding a balance between the selection of the AI ​​in the outstanding candidate and the selection of managers based on intuitive emotion and chemistry with the candidate |
| Development | Training |  | X | Redefinition | The machine learns quickly, therefore investing in machine learning and neglecting employee learning to the point of degeneration and de-skilling (among those who will completely rely on machine learning). Changing the mix of experts in learning departments – from mainly HR to Machine Operators |
| Career planning and management |  | X | Modification | Career management challenge will be in career planning for development and research professions and leisure planning for professions that will be replaced by AI. |
| Employees’ well-being/welfare | X |  | Augmentation | HR directs more resources and takes responsibility for maintaining the safety and health of human employees at work, including well-being (e.g., sense of autonomy, competence, relatedness and meaning), with or without their non-human team members. |
| Monitoring and control | Performance appraisals | X |  | Substitution | How to evaluate employee performance? Should the AI ​​output be deducted from the final performance of employees or not? (If the employee knew how to use AI to increase productivity, should HR attribute this to the employee as part of his/her performance)? |
| Compensation and benefits | X |  | Substitution | Humans determine the payment strategy while fully automated (and maybe more transparent) systems that manage payroll and benefits |
| Monitoring health and safety |  | X | Redefinition | Monitoring the behavior of the employees in a way that does not cause them significant pressure due to the constant feeling of being watched. Choice of monitoring methods that allow employees some autonomy to choose whether, how, where and when to be monitored (for example, using wearable monitoring technologies). Also, using monitoring which consider employee well-being rather than compliance-type supervision and violation of rights (such as accessing personal emails from a private computer) |
| Diversity management | X |  | Augmentation | Ensure that HR processes are not tainted by biases related to diversity (e.g., that are not based on and learn from previous biases regarding certain populations).Ensure the use of valid tools for all practices and control the decisions of the machine. |
| Industrial relations |  | X | Modification | Fine-tuning purpose and updated methods of operation for unions. Change in the characteristics of the represented in the future (after a transition period) from employees in specific organizations or professions to one in a social status of workers (for example R&D workers) and citizens (who will not have a job, such as production workers). |
| Outflow | Exit | X |  | Augmentation | Using AI in a way that is programmed to be sensitive towards those who exit. Monitoring biases that may exist at this stage in recommending candidates for exit. Mass of Exit since of AI replacing humans. |

Figure 1: From Evolution to Revolution

Unnecessary

AI taking over?

Redefinition

Modification

Augmentation

Substitution

 Current stage?

 Evolution (enhancement) Revolution (transformation)

Source: Created by the authors