MASTER THESIS

THE CONCEPT OF DIGNITY WITHIN ALGORITHMIC MANAGEMENT LITERATURE: THE EVOLUTION FROM AN ECONOMISTIC TO A HUMANISTIC PERSPECTIVE

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ABSTRACT

Algorithms, artificial intelligence, machine learning, and data infrastructure developments are transforming management research and the way firms manage their workforces. Algorithmic Management (AM) is a control system that assumes managerial activities such as performance evaluation, data processing, and suggestion in order to automate managerial decision-making. This new control method is becoming increasingly significant in the HR field. The entrance of these into the managerial arena may be considered as another evidence of the process of mechanization and quantitative maximization carried on by the dominant economistic perspective. However, the humanistic perspective is growing in the literature and challenges the concept of *Homo Economicus*, presenting an alternative vision of persons based on their social and relational nature as well. As a result, human dignity is seen as a core principle that should be incorporated into every economic and managerial theory.

The purpose of this research is to explore these two perspectives within the AM literature and to understand how the concept of human dignity is approached within them. For this reason, the following research question is stated: What are the different points of view about dignity within algorithmic management literature? This study employs a systematic literature review method to do this. This approach allowed to examine 242 articles from 1996 to 2022 to discover all conceivable traits of all potential points of view on dignity. Trainfield's (2003) framework aided in performing a trustworthy literature review, whilst Pirson's (2019) framework offered a solid foundation for establishing a clear delineation between the various viewpoints encountered.

The results are various. The research confirmed the presence of a relevant humanistic perspective that is arising also within AM literature. This analysis validates Pirson's (2019) approach and adapts it to AM literature. This literature identifies six distinct points of view: Pure Economism, Bounded Economism, Masked/Enlighted Economism, Economic Humanism, Bounded Humanism, and Pure Humanism. These archetypes take different approaches to the notion of human dignity, and this study showed features that distinguish each archetype.

In conclusion, this study helps to guide future research on including the idea of dignity in their studies, as well as provide practical advice to HR practitioners and companies in general on how to design AM tools or practices that include the human dignity factor.

Keywords: Algorithmic Management, systematic literature review, dignity, humanistic perspective, economistic perspective.

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ABBREVATIONS

AI - Artificial Intelligence

AM - Algorithmic Management

OLP - Online Labour Platform

HR - Human Resources

HRM - Human Resources Management

PA - People's Analytics

1. INTRODUCTION

Business strategies and management theories are largely based on the assumption of *Homo Economicus*, an amoral individual who only engages with others through transactions in order to fulfil his or her interests (Pirson & Lawrence, 2010). The concept of *Homo Economicus* and the Utilitarian philosophy helped economics to be legitimized as a social science. The idea of utility as material satisfaction enabled the economy to move from qualitative assessments toward quantitative maximization (Dierksmeier, 2011) removing social embeddedness and reducing ethical concerns for the future to cost-benefit analysis anchored in the present (Walsh et al., 2003). In recent years, there has been a stronger focus on developing quantitative economic models in a rigorous manner. Artificial intelligence (AI), machine learning, and data infrastructure advancements are revolutionizing management research and the way businesses manage their workforces. Data can be considered "*the new oil*" (Tarnoff, 2017) for organizations and the use of algorithms to extract, process and gain a competitive advantage from data is becoming more important every day.

Algorithmic management (hereafter: AM) is a system of control where self-learning algorithms are responsible for making and executing decisions affecting labour, limiting human involvement and oversight of the labour process (Duggan, 2020). Algorithms in an organization can be used for mediating and closely monitoring workers who perform in that company (Gandini, 2018). Meijerink & Bondarouk (2021) highlight that AM, and especially HRM algorithms, can process big data, previously impossible to be processed by humans, in real-time and in an automated manner. At the end of this process, algorithms provide support to the decision-making process or directly solve HR-related problems. As a result, algorithms have been used to carry out typical HR functions such as work assignments and performance appraisal without the need for human interaction.

The implementation of HR practices directly managed by algorithms creates different ethical challenges for workers. Gal et al. (2020) highlighted algorithmic *opacity*, *datafication* of the workplace, and the use of nudging to incentivize certain behaviours as the three main challenges that may inhibit people from developing their virtue. AM accelerates the *dehumanization* trend in management (Haslam, 2006) by controlling workers for capturing value as if they were a mere factor of production and not capturing the uniquely human characteristics like emotions, civility, and moral responsibility.

Recently, the humanistic perspective has arisen within the theory of management. *The Humanistic Management Theory* replaces the *Homo Economicus* model with economics based on the relational nature of the *conditio humana* (Dierksemeir, 2009). This theory embraces an understanding of social welfare creation as well-being creation for all stakeholders rather than wealth creation for shareholders only. The humanistic perspective focuses on dignity promotion and all the attempts to restore human uniqueness in all the aspects of economics. For Kant (1785), dignity is defined by what is above all price and accepts no alternative. For this reason, these aspects cannot be priced because they sidestep the logic of exchange. McCloskey (2010) argued that instead dignity is a fundamental precondition for economic growth. Sen (2001) claimed that dignity is a cornerstone for successful capability development. Therefore, the discussion of dignity should be prioritized in the management literature and, consequently, in the AM one.

According to Pirson (2010), the *mechanization* processes changed the understanding of utility for economics. It shifted the question between well-being and wealth creation even more toward wealth creation. The economistic perspective threats human beings mostly as a resource with which to achieve effectiveness and efficiency (Pirson, 2019). In this perspective social welfare is considered as wealth creation or profit generation at the firm level. Dierksmeier (2010) explained that this perspective, rooted in utilitarian philosophy, translated the question about the optimization of societal utility into the simpler one of *quantitative maximization.* AM is further accelerating this trend, but we actually don't know if exists a humanistic perspective inside AM and to what extent this well-being paradigm is rooted in this literature. It is necessary to deepen into this theory in order to understand better what the options are for developing societal benefits. For this reason, this research aims to respond to the following research question: *What are the different points of view about dignity inside the algorithmic management literature?*

The idea of human dignity as conditional or unconditional, and the concept of social welfare as wealth creation or well-being creation, are the two dimensions under which Pirson (2019) constructed a framework to integrate dignity in the theoretical assumptions of management theory. This literature review will use this overarching framework and offer a suitable version for AM literature. This framework will be necessary not only for answering the research question, but also because it will be a valid tool for future research that is interested also in

ethical aspects of AM. Indeed, this adapted framework will be useful for categorizing articles, find which paradigm or archetype is dominant in AM literature, and it can be used as a benchmark for setting up new research. The choice of a systematic literature review is useful for examining the current literature, and determining which characteristics distinguish an archetype from another one within AM. The aim of this literature review is to provide this applicable version, found specific characteristics and outcomes for each archetype and paradigm, and present examples for recognize them.

This thesis is structured as follows. First, I will provide the theoretical framework by starting with definitions of AM and continuing by highlighting its main features and manifestations. Then I will describe the different perspectives in the literature on AM. I will also define the main characteristics of the two most important perspectives: the economistic and the humanistic perspectives. In the methodology section, I will describe the procedures involved in conducting a systematic review of the literature. The findings section, which includes a list of all the archetypes found in the AM literature, will explain the results of the literature review. The outcomes of the studies will be compared with Pirson's (2019) framework in the discussion section. I'll highlight these differences and offer ideas for adapting this framework for AM. I'll also offer suggestions for further study as well as practical implications. The conclusion will highlight the contributions that this study has provided.

2. THEORETICAL FRAMEWORK

In this section I will provide a general overview of the two main aspects of this research: AM and the confrontation between humanistic and economist perspective within management theory. I will report the definitions of AM, its features, and its manifestations. Then I will explain the importance of considering dignity within management theory and the characteristics of the two perspectives. At the end, I will present Pirson's (2019) framework that I will use during the literature review.

2. Algorithmic Management

On the 14th of January 2016, the German economist K. Schwab published an article defining for the first time the concept of the *Fourth Industrial Revolution*[1]. New technologies such as self-learning algorithms, robotics, AI, nanotechnologies, and biotechnologies are altering the boundaries between the physical, digital, and biological domains (Schwab, 2016). The increase in processing power distinguishes this industrial revolution from the preceding one. This element is going at such a speed that it will be difficult for people to keep up and adapt to the changes (Schafer, 2018). Friedman (2016) highlighted five characteristics that differ this industrial revolution from others: the presence of integrated circuits on microchips, the possibility to store a large amount of information inside memory units, consumers' needs can be provided directly by software applications, the capacity of to analyse data that were previously only possible from humans, and communication improved by networks and social networks. Schafer noted that "*from an economic and societal point of view, the relationship between human beings and machines will become completely new*" (Schafer, 2018, p. 6).

Human Resources Management (hereafter: HRM) is not excluded from this global phenomenon. Meijerink et al. (2021) reported that across different disciplinary boundaries, algorithmic surveillance control and people analytics are attracting more and more attention within HRM research. Furthermore, Meijerink et al. (2021) focused their attention on the relationship between AM and HR practices. From this relation, the definition of *Algorithmic Human Resource Management* (AHRM) has emerged. This term referred to several issues of common concern "*including the growing use of digital data to support HR decision-making, the deployment of software algorithms that process digital data at work, and the partial or full automation of HR decision-making, all of which are profoundly shaping how labour is managed and HR practices are performed.*" (Meijerink et al., 2021, p.2).

2.1 Definitions of Algorithmic Management

The use of algorithms inside Human Resources practices is a field that is gaining more importance every day. An algorithm is a computational formula that is able to use statistical models and decision rules in order to make autonomous decisions, even without the presence of a human mind (Duggan et al., 2020). This new technology allowed companies to use AI that

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[1] *https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/*

can learn and solve problems like providing detailed information or even managing business processes without human presence (Mann & O'Neil, 2016).

Management-by-algorithm is already common within app-work and online labour platforms. Also, there are every day more traditional workplaces that starting to implement algorithms into their decision-making practices, although there are different stages of the digitalization process (Strohmeier, 2020).

In chronological sequence, Lee et al. (2015) were the first authors to define the notion of AM. While researching the impact of algorithms or data-driven technologies on human labour, these authors defined AM. They defined it as "*algorithms that assume managerial functions and surrounding institutional devices that support algorithms*" (Lee et al., 2015, p.1). This definition gave a general overview of AM because they wanted to include a broader set of algorithms' characteristics in their study. In fact, they wanted to empathize with the possibility to use algorithms to "*allocate, optimize and evaluate work*" (Lee et al., 2015, p.1) and the support given to managers in order to oversee many workers in a shorter time. From this view, other authors developed different definitions adding in the other aspects related to AM.

Möhlmann and Zalmanson (2017) conceptualized AM from an information systems management perspective. They defined it as "*oversight, governance and control practices conducted by software algorithms over many remote workers* […] *characterized by continuously tracking and evaluating worker behavior and performance, as well as automatic implementation of algorithmic decisions.*" (Möhlmann & Zalmanson, 2017, p.4). These authors focused their work on remote workers; that's why they included these characteristics in their definition. However, Möhlmann and Zalmanson highlighted not only the control function of algorithms but also the governance one. In fact, algorithms' outcomes can be used not only for controlling workers in real-time but also for long-term decisions like strategic or financial planning.

Duggan and his colleagues defined AM as "*a system of control where self-learning algorithms are given the responsibility for making and executing decisions affecting labour, thereby limiting human involvement and oversight of the labour process. It replaces some of the tasks and processes that workers typically engage with by using algorithms that are developed by the very same individuals' data on the platform.*" (Duggan et al., 2020, p.119).

This definition focused mostly on AM inside online labour platforms. These platforms are relatively new, and they serve as a bridge between the supply of labour and the demand for simple tasks or jobs. The definition given by Duggan et al. (2020) empathizes the *replacing role* of AM towards already existing jobs inside an organization. In their paper, those algorithms, according to Duggan and colleagues (2020), are utilized to carry out common HR operations such as task assignment and performance management. However, as said before in the last paragraph, organizations are in different stages of the digitalization process; not all organisations can integrate algorithms in order to replace human decision-making. In a standard organizational context, there are different stages of digitalization. For this reason, it is not realistic to consider only fully automated algorithm management because many organizations are still at the bottom of the algorithm implementation process. For now, these organizations only benefit from tools that help improve the extraction of useful information from big data. Jabagi et al. (2019) highlighted that it is not correct to reduce the issue of algorithms only to their role of replacement in performing tasks or replacing human roles within companies. It is important also to study what are the effects generated by AM used only to support decision-making.

Jarrahi et al. (2021) instead of Duggan et al. (2020), focused their AM research not on OLPs but traditional workplaces. In standard organizational contexts, the role of algorithms is more complex because they cannot only substitute or help existing jobs. Algorithms need to be integrated into the existing environment and adapted to it. For this reason, Jarrahi et al. (2021) prefer to not consider questions about substitution or replacement but instead questions on balance, contestation, coordination, and negotiation. These authors proposed a *sociotechnical perspective* of AM. For the authors, AM can be understood as a "*sociotechnical process emerging from the continuous interaction of organizational members and the algorithms that mediate their work*" (Jarrahi et al., 2021, p.2). AM is seen as a process in which relationships and interactions between organizational members and technological systems are constructed and enacted. AM both "*reflects and redefines existing relationships between managers and workers. The boundaries between the responsibilities of managers, workers, and algorithms are not fixed and are constantly negotiated and enacted in management practices.*" (Jarrahi et al., 2021, p.2).

The sociotechnical perspective given by Jarrahi et al. (2021) highlighted the situation of AM embedded in pre-existing power and social structures of the organization. Algorithms can shape power structures and be shaped by the existing structure in turn (Jarrahi et al., 2021). Algorithms

in this context are deeply rooted in the organizational culture of the company (Kellog et al., 2020). Outcomes derived from algorithms, regarding transforming the structure of an organization or a relationship between workers and managers, are socially constructed (Jarrahi et al., 2021). Especially in traditional workplaces, where workers have mainly standard contracts, factors like job commitment, personal long-term goals, skills development, loyalty to the company and direct relationship with their unitary superior (Shoukens & Barrio, 2017) are important to determine workers' productivity and satisfaction. Jarrahi et al. (2021) highlighted the introduction of algorithms can influence many stakeholders, but workers and human managers are the categories that are mostly influenced by them. Furthermore, the relationship between managers and workers "*will continue to be reconfigured and negotiated through uses of algorithms in organizations.*" (Jarrahi et al., 2021, p.10).

Starting from these two perspectives, Meijerink and Bondarouk (2021) stated a more comprehensive definition of AM. These two authors suggested that AM can be seen as a "*system of control that relies on machine-readable data and software algorithms that support and/or automate managerial decision-making about work.*" (Meijerink & Bondarouk, 2021, p.3). This definition, like that of Duggan and colleagues, defines AM as a system of control. Thus, both also emphasized the automation of the process by algorithms and the role of data in this procedure. However, this definition is more general and permits to include a broader set of AM features. As Jarrahi et al. (2021), this definition permit to consider algorithmic of control as a tool that managers can use in order to enhance the precision of decision-making. For this reason, Meijerink & Bondarouk introduced in their definition the verb *support*. These two authors considered the possibility for managers to not consider algorithmic outcomes or use them to confirm their intuition or thesis.

Table 1: Definitions of Algorithmic Management

Author(s)	Year	Definition	Focus of the definition
Lee et al.	2015	*"algorithms that assume managerial functions and surrounding institutional devices that support algorithms."*	Describe a broader view of AM
Möhlmann, Zalmanson	2017	*"...oversight, governance, and control practices conducted by software algorithms over many remote workers […] characterized by continuously tracking and evaluating worker behavior and performance, as well as automatic implementation of algorithmic decisions."*	Information System management perspective
Duggan, J., Sherman, U., Carbery, R., McDonnell, A.	2020	*"a system of control where self-learning algorithms are given the responsibility for making and executing decisions affecting labour, thereby limiting human involvement and oversight of the labour process. It replaces some of the tasks and processes that workers typically engage with by using algorithms that are developed by the very same individuals' data on the platform*."	Focus on replacing role of AM
Jarrahi, Newlands, Lee, Wolf, Kinder, Sutherland	2021	*"sociotechnical process emerging from the continuous interaction of organizational members and the algorithms that mediate their work"*	Sociotechnical perspective
Meijerink, Bondarouk	2021	*"system of control that relies on machine-readable data and software algorithms that support and/or automate managerial decision-making about work."*	Include also the supporting role of AM

2.2 Algorithmic Management recurring features and issues

These definitions presented in the previous section gave a general overview of AM describing its main characteristics. All these authors agree in considering AM as a system of control. They also highlighted the role of AM in decision-making inside an organization: supporting role and replacing role. In fact, algorithms *providing information* or through *automation* (Leicht-Deobald et al., 2019) can help managers in a final decision.

The definition given by Meijerink & Bondarouk (2021) highlighted three important features in explaining how AM work in all the organizations that adopt these different types of a control system.

- *Machine-readable data as input*: Without specifically designed databases that provide data, algorithms are "*meaningless machines*" (Gillespie, 2014, p. 169). Thanks to new technologies like badges, GPS tracking, smartphones or generic smart tools, organizations can collect different types of data for monitoring performances of their workers. All these new sources create a constant flux of data. These data are impossible to be analysed by humans over a long period, instead algorithms can do it in a short time. Big Data is impossible to analyse due to its volume, speed of collection, and variety of sources (Cheng & Hackett, 2021). Using Big Data as an input inside algorithms can offer new solutions or different points of view of the problem to the manager. The challenge with big data is represented by the *datafication* of the workplace (Gal et al., 2020). Gal and colleagues (2020) explained that through the continued implementation of algorithms and tools that collect data about work, workers are no longer viewed as subjective beings, but instead as a collection of objective data from various sources that workers produce through work. The problem is related to the over-quantification and measurement of members' practices. Workers are reduced to a series of numbers and assessments; this oversimplifies their efforts and contribution to the work. This problem diminishes the opportunities for workers to develop and extend their skills and potential (Gal et al., 2020).

- *Automated processing of data:* Algorithms can easily perform tasks such as cleaning, extracting, sorting, and filtering data generated by members of the organization (Strohmeier & Piazza, 2015). Furthermore, algorithms equipped also with AI can learn

by themselves by analysing data in order to adjust their parameters and improve through experience (Meijerink & Bondarouk, 2021). The automatization of the data process instead can generate uncertainty among workers if it is not clear how the algorithm works; *algorithmic opacity* generates an ethical issue for the AM (Gal et al., 2020). By algorithmic opacity, Kellog and colleagues (2020) mean all the problems generated by the worker's difficulty in understanding the employers' strategies and the algorithmic process. In fact, the algorithmic process is complex, unpredictable, and not traceable for workers (Gal et al., 2020). Algorithms can collect data not just about people's job but also about their personal life without their knowledge. The fundamental issue with algorithmic opacity is the inability of employees to know and agree on the algorithmic process or rules in advance, as well as the capacity to contest the results of the algorithms.

-   ***Decision-making and evaluation as output***. They utilized Leicht-Deobald et al. (2019) distinction to illustrate how algorithms may help with decision-making. Leicht-Deobald et al. (2019) distinguished three kinds of algorithms: descriptive, predictive, and prescriptive. These will be explained further in the following section. Leicht-Deobald et al. (2019) also have described important characteristics that differ algorithmic control systems from traditional electronic ones. Algorithm-based decision-making systems, for example, may analyze not just contextually related performance but also non-task-related factors like engagement and health data. These algorithms have the ability to breach professional boundaries and manage private elements of employees' lives, such as social media accounts or the content of e-mail communications (Angrave et al., 2016). Algorithm-based decision-making tools may also mix data from previously separate sources in traditional systems.

We saw that the definition of AM as a system of control is accepted by academics. Kellogg et al. (2020) gave a definition of control close to labour process theorists' view. These authors defined control as "*a dialectical process in which employers continuously innovate mechanisms to maximize value captured from workers, and workers inevitably engage in resistance to maintain their autonomy, dignity, and identity*" (Kellog et al., 2020, p. 4). Kellog and colleagues (2020) based their research on algorithmic control on Edwards' (1979) identification of control mechanisms.

Edwards (1979) defined two types of activities adopted by managers to control the labour process: *rational* control and *normative* control. The first one appeal to workers' self-interest

in order to obtain the desired behaviour, while the latter tries to obtain desired behaviour through imposition.

Kellog et al. (2020) classified algorithmic control as a type of rational control since it used three connected control processes: direction, evaluation, and discipline. Kellog et al. (2020) think algorithmic control is a better option to two other types of rational systems because it is more comprehensive, instantaneous, and interactive than previous technologies (technical and normative control).

- *Comprehensive* because it can process data from different devices like biometric sensors, smartphones, and audio devices.
- *Instantaneous* because it can provide feedback in real-time with workers or managers.
- *Interactive* because algorithms can be modelled for different situations or workplaces following precise requests from managers.

Moreover, Kellog et al. (2020) describe six mechanisms, called *6 Rs*, in order to describe how managers can exercise control on workers through algorithms. They found out two *Rs* for each mechanism control mentioned before and their relative issues. In the following part, I will use Kellog and colleagues' framework to describe in which ways employers wield control on workers through algorithms.

Employers can use two key mechanisms to direct workers' behaviours: *restricting* and *recommending*.

<u>*Algorithmic Restricting*</u>: Algorithms can restrict information for workers to guide them into desired choices or to warn about certain behaviours. Through these mechanisms, employers can also interactively constrain activities of people that are inside or outside the organizations. However, Algorithmic Restricting generate consequences for workers. For example, workers can feel alienated from their work because they do not feel anymore the proponents of their jobs. Imposing assignments that are more and more simple and a part of a chain, also called micro-tasks, and being considered as independent contractors rather than dependent workers, like in an online labour platform can reduce bargaining power and increase the sense of replaceability of workers (Graham et al., 2017).

<u>*Algorithmic Recommending*</u>: algorithms can generate suggestions for workers targeted to generate desired behaviours. These suggestions can be explicit prescriptions or implicit patterns that guide workers toward pre-selected opportunities (Karunakaran, 2016). Being guided explicitly or implicitly, however, can generate a sense of frustration in workers. Algorithms can

shape the environment inside an organization because they can act as data filters. In this way, algorithms can alter the perception of the work environment through their results. Algorithms can produce from a large quantity of data meaningful results or insights; these results are considered by managers as accurate, simple to read, and objective (Ananny, 2016). Nonetheless, the process that led from raw data to accurate and readable results is complex and difficult to understand. Especially workers impacted by people analytics outcomes have no access to the logic that guided the final decision (Gal et al., 2020). This phenomenon is defined by Burrell (2016) as *algorithmic opacity*. If workers don't understand how algorithms work, they may lose their ability to understand how their activities are perceived by their supervisors and co-workers. Burrell (2016) classified opacity into two types: technical and organizational. The first is related to a lack of technical intricacy, which is difficult to grasp without specific knowledge. The latter, on the other hand, refers to a lack of knowledge as a result of strategic interests and intellectual property (Jarrahi et al., 2021). Gal et al. (2020) emphasized the impact of this opacity on workers' capacity to gain practical wisdom and act voluntarily. Workers may judge the algorithms as unreliable because they do not know the process that led to that precise prescription. Especially in online work platforms such as Uber, algorithms try to push gig workers to work in certain areas through the creation of premium-priced areas, but often fail because they do not consider that workers are driven not only by economic assumptions but also by moral assumptions or feelings (Lee et al., 2015). Algorithms are considered unbiased, but their results can be biased. Leicht-Deobald et al. (2019) pointed out that algorithms are not truly objective because they learn from historical data. This data, collected within the workplace, may reflect previous patterns of inequality or discrimination.

The definition of rational control suggests that employers can obtain desired behaviours from workers also through evaluation. Algorithmic evaluation utilizes two mechanisms: *recording* and *rating*.

Algorithmic Recording*:* algorithms can aggregate, report, and monitor a wide range of data through computational procedures. Rather than prior kinds of monitoring, algorithmic monitoring enables employers to evaluate a broader variety of worker behaviours and human interactions using tracking devices. The capacity to evaluate a broader variety of activities and deliver fast feedback increases workers' experience of surveillance. Being constantly watched increases the sense of loss of privacy and increases the perception of working under the "*tyranny of algorithms*" (Duggan et al.,2020). Furthermore, constant surveillance challenges human

sense-making (Leicht-Deobald et al.,2019) because it causes workers to uncritically conform to organizational behaviours.

Algorithmic Rating: algorithms can also be used to collect and calculate ratings or rankings to evaluate worker performance. The use of algorithmic control to evaluate workers can benefit employers because it gives them the ability to aggregate quantitative and qualitative data from a variety of sources. In addition, the use of statistical tools allows employers to have the ability to predict future worker performance with some probability as well. However, relying too heavily on these ratings can cause discriminatory outcomes. Rosenblat et al. (2017) described that the data from which rankings and ratings are generated are also taken from customer reviews. These reviews are often unreliable, but it is nearly impossible for workers to challenge their findings. These evaluations not only affect workers' current situation but can also influence their future because have been shown that employers and customers tend to select based on prior ratings.

In order to obtain cooperation and impose compliance, employers can use algorithmic *replacing* and algorithmic *rewarding* as mechanisms of punishment or reward.

Algorithmic Replacing: Algorithms, through computational mechanisms, can automatically fire people and replace them with substitutes. Especially within online job platforms, if gig workers don't follow the rules, they can be expelled from the platform. Platforms that rely on remote work have the possibility to choose from a larger number of workers. However, the possibility to be replaced instantaneously by algorithms can generate into workers a sense of frustration and fear caused by precarity. Graham et al. (2017) pointed out that gig-workers can only express limited forms of dissent because they are unable to build any effective labour movements. Without union movements, they have less bargaining power and are forced to accept platform policies. Another factor that can cause frustration is economic dependence on platforms. Economic dependence on platforms increases the power of the disciplinary device because they fear losing their jobs (Schor et al.,2020; Kuhn & Maleki, 2017).

Algorithmic Rewarding: Through algorithms, employers can offer professional or material incentives to drive workers' behaviour. In recent years, many major companies such as Amazon or Nike are using different systems to incorporate rewards into workers' daily tasks; this system of non-monetary incentives is called *gamification* and refers to several techniques like elements of video games that can increase worker motivation (Kim, 2018). However, the daily competition for non-monetary rewards can increase workers' frustration and stress because they cannot always understand the ultimate goal of these incentives.

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Figure 1: Algorithmic Management features and functions
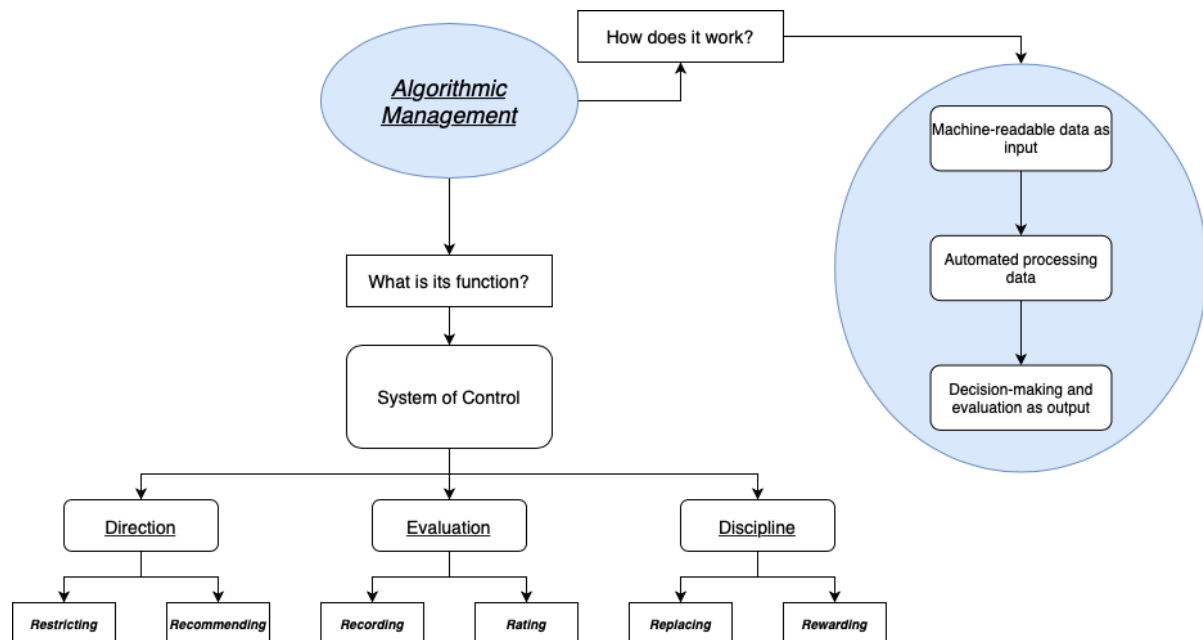
However, as highlighted by the socio-technical perspective, workers and managers are not passively affected by algorithms' outcomes, but they can have an active role in shaping AM's results. For example, Wiblen and Marler (2021) described that the interaction between operational managers, HR managers and algorithms is not completely predictable, especially in the field of talent identification. This is caused by the fact that HR managers role, their ways to interact with algorithms, and the concept of talent itself can produce different outcomes in different organizations, even if they are using the same algorithm. Between workers there are developing new organizational roles to work alongside algorithms. Functions like trainers, explainers, and sustainers (Wilson et al., 2017) are necessary to ensure the effectiveness of algorithms to minimize their unintentional effects. In fact, a lack of *algorithmic competencies* (Jarrahi & Sutherland, 2019), skills that help workers to work with algorithms, can reduce professional autonomy and their ability to make decisions. Attitudes toward algorithms are essential to establishing the relationship between AM and workers or managers. *Algorithmic complacency* manifests itself when managers or workers take algorithmic outcomes for granted and do not inquire through the factors that lead to that solution (Newell & Mirabelli, 2015). *Algorithmic aversion* refers to people's aversion to using algorithms or a broad sense trust issues in algorithms. According to Dietvorst et al. (2016), algorithm aversion lessens when decision-makers can adjust the algorithms' findings and have control over the consequences. Kellog et

al. (2020) developed the definition of *algoactivism* to describe all the tactics implemented by workers to resist algorithmic control like data obfuscation or non-cooperation tactics.

Meijerink & Bondarouk (2021) proposed the concept of *duality* of AM. This duality explained that there is a cyclical process between algorithms outcomes and workers. AM restrain and enable professional autonomy and value. AM restrains different aspects of workers' job autonomy such as its content, performances, job location, scheduling, and working hours (Langfred, 2007). Wood et al. (2009) showed that algorithms can also limit workers' non-monetary value derived from work like the desired career path, personal growth, and satisfaction. In turn, workers can shape algorithms through *algoactivism*. Software engineers, after they have seen workers' responses, can modify the structure of algorithms or revisit mechanisms of control to support organizational members in gaining autonomy or restrain workers in doing so.

It is possible to consider this particular relation between workers, managers, and algorithmic tools as another important feature of AM. Unlike previous control mechanisms, which were mainly imposed by top management without the possibility for workers to affect their outcomes, the concept of duality of AM and control considers workers as an active part of this process. The features above mentioned help to have a more homogenous view of AM. This section showed not only how the algorithms work in the work context, but also highlighted the differences from other control mechanisms. Already from this point of view, it is possible to see in which fields the different streams of AM literature have focused their studies. From the definitions, it seems that there is a dominant current that has focused on the mechanistic aspect of AM; this current has delved into aspects such as methods of operation and advantages over other mechanisms. However, there is another current that has focused more on relational aspects such as the interaction between workers, managers, and algorithms or how workers are affected by this type of management. In the following part, it will be described different manifestations of AM in Human Resources in order to understand better the practical uses of algorithms inside a workplace and in which ways they can affect the outcome of HRM.

2.3 Manifestations of Algorithmic Management in Human Resources

The definition given by Meijerink et al. (2021) on AHRM highlighted the importance of algorithms' impact on HRM. Algorithms are shaping the role and functions of HRM. *Digitization* of data is a process that turns information into digital data, and it permitted a

growing use of algorithms to support decision-making or directly replace human decisional roles inside the organization.

Leicht-Deobald et al. (2019) described three categories of algorithms and their relative role in HR issues. These categories are descriptive algorithms, predictive algorithms, and prescriptive algorithms. Inside HR Analytics, descriptive statistics and predictive algorithms can improve human decision-making by offering additional insights or forecasting how a current decision may impact future outcomes (Meijerink et al., 2021).

- ***Descriptive algorithms***: used to describe what actually occurred and how it relates to the present (Leicht-Deobald et al., 2019). The algorithms analyse data by combining data supplied by workers from various sources with operational statistics that reveal new information about the workplace that might assist managers in making decisions (Meijerink & Bondarouk, 2021).

- ***Predictive algorithms***: can be used to explore new patterns in data not yet discovered by humans, such as machine learning or data mining (Tambe et al., 2019), and determine the probability that an event will occur in the future. Furthermore, regression-based forecasting approaches can aid in predicting which employees are likely to depart the organization or forecasting a job candidate's future performance based on his or her current talents (Cheng & Hackett, 2021). Tambe et al. (2019) also examined data mining and machine learning as types of prediction algorithms for uncovering patterns in data that people could never uncover on their own. Algorithms can also provide recruiters, to improve their decision, with a candidate's ability to perform suspicious behaviour in the future. (Leicht-Deobald et al.,2019).

- ***Prescriptive algorithms***: they select and execute a decision without presenting to a human the different possibilities. Perspective algorithms go one step further than predictive statistics because they can autonomously make a decision. Perspective algorithms not only try to predict the future but also can analyse different scenarios. These statistics are used mainly inside OLPs to automatize recruiting, monitoring, and managing workers (Meijerink & Keegan, 2019). Meijerink et al. (2021) highlighted that the introduction of AI on algorithms can shift the responsibility of decision-making from humans to machines and increase the possibility for human HR managers to be replaced by software.

Predictive, prescriptive, and descriptive algorithms offer increasing analytical power to managers (Leicht-Deobald et al., 2019). This augmented power can be leveraged in different areas of HRM. An example of predictive and descriptive algorithms used inside HRM is People Analytics (PA). According to Marler and Boudreau (2017), PA is a human resources practice that uses descriptive, visual, and statistical analyses of data linked to HR processes, human capital, and organizational performance to allow data-driven decision-making with a business effect. These systems provide practical recommendations for performance evaluation, incentives, and promotion (Gal et al., 2020). For example, through predictive or descriptive algorithms it is possible to analyse past, present, and future work-related attitudes such as job satisfaction, motivation, and employee turnover (Cheng & Hackett, 2021). PA also can analyse employees' performances and it helps with training management; algorithms can rank HR capabilities in order of importance against developmental needs (Lin & Hsu, 2010). Training algorithms can help employers on deciding the right training needed for their own employees (Cheng & Hackett, 2021).

Jarrahi et al. (2021) presented many internal organizational systems that may be utilized to assist or automate HR decision-making, such as automated scheduling, recruiting systems, and people analytics. I also added three other systems: training, compensation, and appraisal. These systems can be considered as overarching categories that describe in how many ways AM can influence and redefine already HR roles and functions inside an organization or improve different HRM fields.

- *__Recruitment systems__*: these systems, such as algorithms for filtering job applicants or evaluations of interviews, are useful to implement and improve decision-making. Köchling & Wehner (2020) describe two different phases in recruitment systems: recruitment and selection. Algorithms during the recruitment phase are used to find suitable candidates across different job profiles. These algorithms can be used by employers to find workers, but also in turn by workers to find employers; LinkedIn is a clear example of this feature. Instead, algorithms during the selection phase are used to select among different candidates using keywords or phrases as a filter to analyse their CV or interviews. Algorithms in recruitment systems also help employers to remove unconscious gender or ethnicity biases (Cheng & Hackett, 2021). For example, Textio, a writing-enhancement software, can analyse wording in the job listings and signal if

the recruiter is inadvertently attracting one gender over another.[2] Through predictive algorithms, it is also possible to forecast gaps in competencies and help employers with decisions during recruitment evaluating a candidate not only for current skills, but also for the possibility to learn new abilities in the future.

- ***Automated scheduling systems***: These technologies are used to forecast labour demand and schedule employees based on information about specific organizational difficulties. Meijerink & Keegan (2019) highlighted that these systems governed by algorithms are present, especially inside online labour platforms. These authors reported that the key purpose of automated scheduling systems inside these platforms is "*to match the supply and demand for labour by connecting gig workers and requesters who are remote from each another, yet wish to transact*" (Meijerink & Keegan, 2019, p. 217). Pignot (2021) pointed out that these systems shift power from workers to managers because they can change workers' schedules with little notice and do not give workers the opportunity to ask the reasons for the change. This problem can cause workers frustration and a sense of insecurity.

- ***Training systems:*** Training is defined by Cascio (2019) as a series of programs thought to improve employee's skills, knowledge, or attitude. These programs aim to improve performance of the company. Algorithms are fundamental inside online labour platforms, but in most app-work, there is little concern for training. For this reason, algorithms are used for training purposes mainly inside traditional workplaces. Through rating functions, descriptive algorithms are used for helping workers on developing their skills or knowledge. These algorithms aggregate quantitative and qualitative feedback and filter them to provide workers with insights and suggestions for their improvement. The mismatch between employee skills and job needs can also be utilized to predict the need for employee upskilling using algorithms. Ramamurthy et al. (2015), for example, created a methodology for identifying the ideal worker who can be retrained to a target skill successfully. They used algorithms that can anticipate people's learning potential based on human resource data for this aim.

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[2] Silverman, R. E., & Gellman, L. (2015). Women in the workplace (A special report) – Apps to battle job bias: Software takes on hiring and workplace practices. The Wall Street Journal (pp. 7). (Eastern edition. R). (September 30).

- ***Appraisal and Compensation systems:*** Appraisal in HRM refer to how organizations evaluate and reward, and how this is communicated to workers (Waldkirch et al., 2021). Algorithmic rewarding, as said before, is used to discipline worker behaviour. Algorithms can provide rewards, or penalties, using professional and material incentives in real time (Kellog et al., 2019). Descriptive algorithms can differentiate workers by performance given and provide them with differential rewards (Kim, 2018). In this way it is possible for descriptive algorithms to identify and resolve the mismatch between the cost of rewards and benefits, and the perceived value of them by workers, enhancing the effectiveness of rewards itself (Diez et al., 2019).

Table 2: Examples of descriptive, predictive, and prescriptive algorithms

Type of Algorithms	Examples
Descriptive	- In recruiting systems, descriptive algorithms filter candidates through their CVs or their interviews. - In training systems, descriptive algorithms can aggregate qualitative and quantitative feedback from customers and generate insights to workers.
Predictive	- In training systems, algorithms can predict employees' potential to reach a certain performance target. Through this process, algorithms can help managers on planning the right training for the employee.
Prescriptive	- In online labour platforms, prescriptive algorithms match automatically supply and demand between gig-workers and requesters. These algorithms, based on designed parameters, analyse and automatically assign a gig-worker to a requester without human approval. - In compensation systems, descriptive algorithms can differentiate workers by performance, and automatically provide them rewards or punishments.

Jarrahi et al. (2021) also identified three important key questions about these systems inside an organization: the impact on power dynamics, how the use of algorithms shapes and redefine organizational roles, and how opacity influences workers' behaviours.

These authors explained that these systems inside an organization can both increase or decrease the power and agency of managers. Through systems like automated scheduling or CV filtering, Algorithms can give new opportunities to exercise control over the workforce because it adds to pre-existing traditional hierarchies. The use of wearables to collect and analyse workers' performance can be seen as a possibility for people analytics to capture their emotional state and find solutions to increase productivity (Gal et al., 2020) or nudge them toward desirable behaviours (Newlands, 2020).

At the same time, AM can decrease agency of managers. Shrestha et al. (2019) described how managers can work alongside algorithms in three possibilities: full delegation, sequential decision making, and aggregated decision making. In the first option, middle managers are entirely substituted by algorithms and they have only to design the system. In the remaining two methods instead, these authors highlight the limitations of managers' control and the deprivation of the possibility to develop tacit knowledge.

This review of AM creates a clearer picture of the field in which this thesis will focus. At the outset, through the definition given by Meijerink & Bondarouk (2021), I described three important features that characterize this new type of control system. Kellog and colleagues' (2020) article gave the structure needed to describe in what ways algorithmic control can be used in the workplace. Finally, I provided several examples of algorithms used in workplaces and how they affect different human resource roles or functions. It is important to highlight methods of functioning with their relative advantages and issues because these features are used by different management literature streams to focus on different aspects of AM. There is a dominant view that emphasises mainly how AM can improve the efficiency and effectiveness of different HR functions. Algorithms are tools that rely on workers' data from different sources. AM is the result of the continuous attempt to make economics, and managerial aspects, increasingly quantifiable and objective. But this clashes with the reality of work because it is only possible to quantify a part of the information coming from the workplace. More qualitative information, such as the well-being of workers, is neglected.

From the algorithmic issues noted above, it can be understood that a new perspective on management theory has formed. This perspective is becoming broader and broader because it stems from the need to include the human aspect within the dynamics of business. In the next

part, I will see how more and more academics are beginning to challenge the conception of man as a rational agent and to consider more and more intrinsic values such as dignity to make management theory closer to reality

3. Different Perspectives on Management Theory.

Bal in his book "Dignity in the Workplace" (2017) argued in his first chapter for the need to develop new ideas to shape the workplace of the future. This urgency stemmed from the fact that the concept of humans as rational agents is not anchored in factual reality. Profit maximization, individualism, a lack of integrity, and the emergence of the surveillance state, according to the author, are signals that management studies should build a new paradigm on which theory, research, and practice should be based. Bal (2017) proposed considering not only the transactional aspects of human beings but also the relationships they engage in and their own inherent virtues such as dignity. It is important to define it to know in how many ways dignity can be considered from different management theory perspectives. It is necessary to focus on paradigms' pluralism because during these years the dominant view (the economistic one) is being more criticized by the humanistic view (which is arising) for its negative outcomes and for the fallacies of its assumptions. The trend toward mechanization, datafication, and automation, which is called *dehumanization* by critics, is epitomized by the emergence of AM. So, it is essential to look at the relationship between human dignity and AM because the humanistic perspective argued how the concern for intrinsic human values can improve not only shareholders' profits, but also all the stakeholders' interests. At the same time, AM is a form of control already present in many workplaces and it is growing day by day thanks to new technologies. It is unrealistic to wish for the abolition of AM and a return to the habits of the past because instead AM could prove to be a powerful tool that promotes general welfare. Instead, it is useful to think of ways to adapt AM to humanistic perspectives and use it to enhance overall social benefits for all stakeholders, not just shareholders.

Hodson (2001) defines dignity as "*the ability to establish a sense of self-worth and self-respect and to appreciate the respect of others*" (Hodson, 2001, p. 3). Hurka (2010) considered aspects that form humanity, such as morality, character, integrity, knowledge, and wisdom, as a part of the concept of dignity. These two visions by Hurka and Hodson are both aligned with the Kantian concept of dignity. Kant (1785) argued that whatever is above all price and accepts no substitute shapes dignity. Both unconditional and conditional concepts of dignity are

conceivable (Pirson, 2019). The unconditional dignity can be seen as the capacity to be moral (Pirson et al.2016) while the latter can be defined as acting in accordance with your morality. These aspects cannot be priced, for this reason they sidestep the logic of exchange. Pirson and colleagues (2016) took from the existentialist philosophy stream the consideration that freedom is the discriminant factor that dignifies all humans. For this reason, inside the umbrella term of dignity we can consider all the declinations of freedom. In management theory, the concept of freedom is manifested through both professional autonomy and freedom of opinion. According to Pirson (2019), autonomy may be regarded a component of freedom because it allows persons to set their goals and develop their virtues. The author also regarded the ability to articulate one's view about one's moral competence, and as such, it may be included as a component of conditional dignity.

Dignity is also a qualitative dimension that is difficult to quantify, which is why management research has paid little attention to the concept of dignity (Arnold, 2013). However, the difficulty associated with qualitative measurements, as well as the lack of attention devoted to this notion, do not imply that dignity has little value in management theories, or, more specifically, in the field of human resources. McCloskey (2010) argued that instead dignity is a fundamental precondition for economic growth, and it is an important factor in long-term success.

In the HR field, dignity is essential for developing job and non-work capacities as well as producing well-being. According to Sen (2001), dignity is a prerequisite for successful capacity development. According to Pirson (2017), worker well-being cannot be attained without dignity.

The goal of this thesis is to discover what are the different views on dignity within the AM literature. I will use the framework developed by Pirson (2019) to highlight all the different positions in the AM literature on this topic. Pirson (2019) re-examined conceptually the connection between management theory and social welfare; from this conceptualization he could develop new archetypes of management theory.

Pirson (2019) analysed and re-conceptualized according to two basic precepts:
- The role of human dignity inside theories
- The notion of social welfare as either wealth or well-being creation.

Indeed, this author distinguished between economistic forms of management theory, which view social welfare as wealth creation or profit generation at the firm level, and humanistic forms, which instead view social welfare as well-being creation at an individual level.

From this distinction, Pirson (2019) categorized several management theory archetypes based on their consideration of human dignity. Human dignity in this categorization can be ignored, protected, or promoted. In the first case, theories are indifferent to it. Instead, in the second case theories are concerned about human dignity protection. The advancement of human dignity in the final scenario is crucial for the growth of human potential. In the following part, I will highlight the different archetypes theorized by Pirson (2019), and I will analyse the differences between the economistic view of management theory and the humanistic one.

Table 3: Pirson's Framework (2019)

Pirson's Framework

Well-being Creation	Dignity neglected	Dignity protected	Dignity promoted
	Fake Humanism	Bounded Humanism	Humanism
Wealth Creation	Economism	Bounded Economism	Masked Economics

3.1 Characteristics of the Economistic perspective

Pirson (2020) defined Economism as "*the idealization and super-elevation of assumptions made to study aggregate collective human behaviour in market situations and pursues maximization as ideal*" (Pirson,2020, p. 776). This perspective, as highlighted by Dierksemeier (2010), takes the roots of the utilitarian philosophy and mathematical mechanics. These two philosophies allowed to turn management theories from outcomes where philosophical and economical aspects are strictly braided, to a more scientific vision of this social science. Thanks to this materialistic twist, the aim of economics became material satisfaction. This perspective allows the discipline to shift from societal utility optimization to quantitative maximization. Indeed, management theories changed their target from individual satisfaction to a collective one, where the maximization of this plurality was achieved through a series of material desires satisfied, even at the expense of the desire of a single individual. Because of the economistic perspective, "*Economics had turned moral concerns of 'better' versus 'worse' into a (technical) calculus of 'more' over 'less'*" (Dierksmeier, 2011, p. 4).

The economistic perspective of management theory views the human being as a *Homo Economicus*: an amoral person with a fixed entity, interested only in maximizing his immediate utility (Pirson & Lawrence, 2010). The *Homo Economicus* model perfectly incarnates theorem the peculiarities of the Economistic view of economic behaviour because it considers the individual as only interested in transactional and short-term oriented relations with others (Dierksemeier,2010). These engagements are based on the conception that other people are "a *means to an end*" (Pirson & Lawrence, 2010, p. 6) and can be used to maximize only their own utility, formed only by the psychological and safety needs.

In order to explain better the figure of the Homo Economicus, Pirson and Lawrence (2010) compared it with the *Renewed Darwinian Theory of Human Beings* (RD Theory) by Lawrence (2007). This theory postulates four basic drives that guide humans to make decisions. These four drives, often in conflict with each other, are:

- The drive to obtain vital resources.

- The drive to defend oneself against all life-threatening entities.

- The drive to connect in long-term reciprocal caring relationships with other human beings.

- The drive to understand the world around us and the different relationships that shape it.

Pirson & Lawrence (2010) explained that the *Homo Economicus* bases its view only in the first two drives while considering secondary (or not consider at all) the drive to bond with fellow humans.

Translating the concept of *Homo Economicus* from an individual to an organizational view, it is possible to understand why, inside the economistic perspective, companies considered social welfare maximized when they can maximize their total market values (Jensen, 2009). Friedman (1970) declared that the sole duty of business is to maximize profits. Following this logic, it is obvious that from an economic viewpoint, emphasis is placed on the efficacy and efficiency of organizations. Pirson (2020) highlighted that in an economistic view, companies considered responsibility only for these two parameters. The author also noted that for this reason, the ethical domain can be seen as a factor that negatively affects them. For this reason, CSR strategies can be considered only if the application of ethics will have a payoff.

The *maximization imperative* (Pirson & Lawrence, 2010) guides organizations, and an optimal way to ensure it is to focus only on shareholder interests while neglecting stakeholders' needs. Pirson & Lawrence (2010) also showed that this view of persons as amoral individuals who only act to satisfy their personal needs can be dangerous for organizations. For this reason,

governance notions relied on the agency theory. This theory controls and prevents those self-serving actions that will damage shareholders' interests. For example, AM, through the principal-agent theory, can be used to control workers for creating economic worth using data that the same workers produce through their job. However, by relying only on data, AM can lead to the objectification of people. However, the economistic view does not consider this issue, but only focus on how AM can increase the organization's effectiveness while at the same time cutting costs of managing human resources. Through this perception, top-down controls and a hierarchical structure of the company is privileged; In an economistic view, Pirson and Lawrence (2010) noted that incentive systems are central. Indeed, to align personal needs with organizational goals, monetary incentives are offered to workers. For example, the AM rewarding function, already mentioned, can be seen through the economistic perspective as a tool for employers to understand better which material benefits will improve employers' efforts and their productivity. In this view, material benefits are considered the only manner to ensure maximization of workers' efforts.

To resume, in an economistic view, corporations have as the main goal to accumulate wealth or profit creation for shareholders, people are guided by the first two drives theorized by Lawrence (2007), and they aim to satisfy material needs. As mentioned in the introduction, AM accelerates the trend of *dehumanization* in management (Haslam, 2006) by controlling workers to capture value as if they were a mere factor of production. Furthermore, through the processes of algorithmic mechanization, AM helps to shift the issue of satisfying all stakeholder interests to focusing only on the shareholder interest of maximizing profit.

Economistic Archetypes founded by Pirson (2019) and focused on wealth creation are Economism, Bounded Economism, and Masked Economism. The *replacing role* of AM, described by Duggan and colleagues in their definition, highlights the economistic root of this type of management. Automation and the *digitalization* of the workplace are examples of factors that may be employed to reduce the cost of human resource management while boosting worker performance. This viewpoint is consistent with the economistic perspective's profit-maximizing perspective.

In the following section, I will describe these archetypes and how one can see which archetypes researchers adopt within the AM.

- *Economism*: Indifferent to the human dignity question, this archetype considers Human Resources as a way for management to enhance performance through their human

resources. People inside the organization are considered just as *Human Capital*. Through this view, AM is seen as a powerful tool for employers. Algorithms can easily reduce a large amount of information into objective and data-driven outcomes. Features such as algorithmic recording are perfectly suited in an economic view because they provide instantaneous feedback and can analyse a wider range of worker behaviours to correct any dangerous profit-making behaviours and improve performance. In Marler and Bodreau's (2017) article, the role of information technology, and consequently algorithms, in analysing the HR process is strictly linked to establishing a business impact. In this case, there is not a real concern for human intrinsic values; workers are seen just as passive subjects of algorithms. The use of the term *Human Capital* is already a sign of an economistic view because it considers people just as a resource for the organization. AM research that focuses only on improving business performance without putting at the centre of their attention the improvement, or only the protection, of the human being and his intrinsic value, can be considered in the archetypal *Economism*.

- **Bounded Economism**: Focused on human dignity protection, this archetype studies the relations between human rights protection norms and their effects on wealth creation. Bounded economistic research focuses on organizational performance and how elements, such as emotions or morality, affect this topic. Through this perspective, AM studies focus their efforts on theorizing how algorithmic tools can improve performances and maximize profits while remaining within moral boundaries. Yan & Skorburg (2021) focused on the impact assessment for hiring algorithms. The potential ethical dangers of hiring algorithms and their effects on a person's sense of autonomy, self-identity, and active participation in society were known to Yan and Skorburg (2021). Due to this, they assessed four different algorithmic impact assessments (AIAs) depending on how well they genuinely take job candidates' human rights into account. Then, they determined which of these AIAs can help companies and reduce the accountability gap these ethical risks have created. In this case, human dignity is protected using AIA, but the purpose of this paper is to reduce the accountability gap. The focus on this gap reveals that the outcome of this research is to improve the effectiveness of companies through the improvement of their accountability. In this case, human values are protected, but people remain to be considered a means for an end. It is possible to include in this archetype AM research that considers "*company*

performance as a dependent variable" (Pirson, 2019) and how the protection of human dignity affects this variable.

- "***Masked" Economism***: This archetype is focused on human dignity promotion. It is based on the *animalistic dehumanization* concept proposed by Haslam (2006) who consider all the activities that deny aspects like civility, moral responsibility, or personal maturity as activities that demote people to animals. This archetype' research studies the effects of activities that promote dignity (like moral sensibility aspects, civility, or reason) on firms' wealth creation. Through this perspective, AM studies analyse in what ways algorithms that foster human flourishing can also produce profits for the organization. Functions such as algorithmic rewarding can be used to provide non-monetary rewards and improve worker morale, while at the same time increasing their efforts and commitment to the company. For example, Jabagi and colleagues (2020) focused their work on perceived organizational support (POS). POS can be defined as a system of beliefs concerning "*the degree to which an organization values their contributions and cares about their well-being*" (Jabagi et al., 2020, p. 4001). These authors considered the impact of AM on POS and how algorithms, through the promotion of algorithmic fairness or perceived autonomy support, can engender POS. At a first sight, this paper seems to put at the centre of its studies the promotion of human dignity and consider workers as an end. But looking at the concluding section it is possible to notice that this new conceptual model that they proposed is intended "*to gain strategic advantage by engendering POS through the design of their platforms to address the universal challenges of retention and supervision in the gig-economy*" (Jabagi et al., 2020, p. 4009). In this case, the economistic view is masked by the authors using actions that promote human dignity to improve organizational performance and gain strategic advantage.

3.2 Characteristics of the Humanistic perspective

Dierksmeier (2010) in his article theorized that the single focus on profit maximization given by the economistic view is increasingly criticized for removing the moral question from the debate. Instead, this issue is increasingly felt to be necessary by academics and the general public. Then, according to Dierksmeier (2010), subjects like human freedom, the vast array of human interests, and the obligation of corporations to not only their shareholders but to all

stakeholders should once again be at the centre of economic theory. Dierksmeier (2010) suggested reintroducing into the economic discussion sensitivity for the normative dimension of human work. For Melé (2003) humanistic management can be seen as "*a management that emphasizes the human condition and is oriented to the development of human virtue, in all its forms, to its fullest extent*" (Melé, 2003, p. 79). The author in his paper also highlighted two main characteristics of humanistic management: the importance of community and human virtues. Melé (2003) stated that the main goal of humanistic management is to build a community of people and foster the development of human virtues. He introduced the fact that a humanistic view does not see only material satisfaction, but instead aims at the human growth of people.

Actually, the humanistic perspective does not rely on the assumption of the *Homo Economicus*, but instead observes a socially embedded and morally oriented human being (Dierksmeier,2010). The humanistic perspective replaced the concept of *Homo Economicus*, theorized by John Stuart Mill, with the Aristotelian notion of *Zoon Politikon*. In this view, people are seen as rational persons who are guided by universally applicable principles and aim at long-term relationships (Pirson & Lawrence, 2010). Another main difference described by Pirson, and Lawrence (2010) regards entity; in this view people do not have fixed preconceived utility functions, but the development of their interests is closely linked to the relationships they undertake with the world around them. The reason for this change in perspective is not only purely related to ethical issues but is instead aimed at having a clearer and deeper understanding of why human choices are made.

In fact, these choices are not only related to the desire to satisfy material desires but are guided by more complex mechanisms such as maintaining relationships or aspiring to improve oneself or one's surroundings. The RD theory mentioned above in fact described the four basic drives that guide the choice of a rational man. "*The drive to connect in long-term reciprocal caring relationships with other human beings*" and "*the drive to understand the world around us and the different relationships that shape it*" distinguish the Zoon Politikon from the Homo Economicus (Lawrence, 2007). The description of Zoon Politikon contrasts with the characteristics of AM control: constant surveillance challenges human sense-making and reduces the possibilities to establish long-term relationships. For this reason, there is an increasing urgency to develop a humanistic vision within AM to develop algorithms more concentrating on human needs.

There is growing attention inside humanistic research toward the AM topic. Dierksmeier (2010) stated that "*replacing the reductionist model of the homo economicus with an economics based on the relational nature of the conditio humana, economics will, it stands to reason, not only become more humane but also more realistic and relevant too*" (Dierksemeier, 2010, p. 7). Humanism views organizations as a necessarily social phenomenon because people need to satisfy their drives for constructing long-term relationships. In this vision, organizations do not aim to create profits only for their shareholders but aim to harmonize and balance all stakeholders' needs to create mutual goals (Pirson & Lawrence, 2010). As mentioned before, AM is rooted in the economistic view. However, humanistic research is focusing to reduce negative effects generated by the algorithmic control and creating practices that continue to use algorithms to foster these relational aspects, or at least try to protect them. For example, humanistic research such as that of Leet et al. (2021) is trying to find a way to include mutual goals in algorithms through the creation of well-being models using the participatory approach within AM. In this way, algorithms can be used to promote well-being as well and not just serve the needs of shareholders. Organizations are a part of society and interact with it, for this reason, Melé (2003) stated that they need an ethical requirement.

Dierksmeier (2010) highlighted three main motives for people to create and maintain an organization.

- External compensations like salary, personal learning, or the desire to occupy a prestigious position.
- The pleasure of being in working with a certain group.
- Identification of the organization's values, commitment, and loyalty to firms' goals

Meta-economic procedures that integrate everyone into the decision such as equilibrium systems are best considered to fulfil the role of representing all key stakeholders in strategic decisions. (Pirson & Lawrence, 2010).

The vision of the humanistic perspective on HR management is very different from the economistic one. In the humanistic view, people are seen not as *human capital* but instead as active subjects in the organization. Dierksemeier (2010) noted that HR practices need to be reframed to embrace a theory of human capabilities development and not only as a way to improve organizational performances. For this reason, it would be better to consider Human Resources as management of human relations.

Bal (2017) wrote his book starting from the "*relational nature of conditio humana*" (Dierksmeier, 2010), and the desire of finding new processes that increase the chances of fostering human capabilities. These typical features of the humanistic perspective were applied in order to develop a common and unique notion of dignity. Through this book, it is possible to understand better how humanistic academics view dignity and why it is important for them to flourish this intrinsic value.

Starting from the Kantian notion of dignity and Daoist tradition, Bal (2017) look at dignity not only from a wider level than the individual one. According to Bal (2017), the workplace itself has dignity since individuals come together there to participate in activities and form social connections in addition to carrying out their jobs. Bal for this reason defined workplace dignity as *"the intrinsic, unalienable, worth of everything in the workplace, which should be respected, protected and promoted"* (Bal, 2017, p. 74). Bal offered a relational model of workplace dignity, and as a result, dignity may be observed in people's relationships with their surroundings. The humanistic view must consider this relational aspect of dignity and not only the individual one. It is important for humanistic academics to highlight how these interactions affect workplace dignity and subsequently human well-being. AM, as described before, interacts both with workers and employers and affect their interactions. For this reason, it is important for the humanistic approach not to understand how AM can improve efficiency, but instead how it affects these relations and how algorithms can be used to protect or promote dignity. In the following part I will explain humanistic archetypes focused on well-being creation proposed by Pirson (2019) and how it is possible to connect them to AM literature:

- *Fake Humanism/Paternalism*: Indifferent to the human dignity question, research related to this archetype focus on factors not related to human dignity that affects well-being. Pirson (2019) considered examples of this archetype all research that examines well-being-related outcomes based their consideration on homo economicus assumptions. In the AM literature, research can be included in this archetype if it is interested in well-being outcomes, but views workers as human beings interested only in transactional relationships and satisfying material desires. An example of AM literature incorporated into Fake Humanism can be research studying how algorithms, through monetary reward systems, can influence well-being-related outcomes such as satisfaction or career development.

- ***Bounded Humanism***: Focused on human dignity protection, this archetype studies how to re-establish human nature and its effect on well-being. Papers like Jarrahi & Sutherland (2019) can be included in this archetype because they describe relational aspects of AM. They theorized that workers are not passive recipients of algorithms, but instead they can protect their professional autonomy through the development of specific skills called *algorithmic competency*. This paper explained how workers can protect their dignity (in this case conceived as the possibility of maintaining their professional autonomy) and described in which ways AM can affect the well-being of their members. Papers like Leicht-Deobald et al. (2019) and Gal et al. (2020) are also clear examples of this archetype. The first paper described how algorithmic-based HR decisions influence employees' integrity. In this paper, it is clear the attention on well-being and human dignity because it explains how algorithms can challenge and crowd out moral convictions and reduce moral imagination. At the end of the paper, Leicht-Deobald and colleagues (2019) proposed different actions to improve ethical awareness of algorithms, such as participatory design methodologies and private regulatory regimes.

  Gal and colleagues (2020) instead concentrate on PA and how it might impede people's capacity to nurture and flourish. They focus on datafication, algorithm opacity, and nudging. At the end of their paper, they also recommended activities to break *the vicious cycle* like the figure of *algorithmists*. This new role theorized by the authors could be responsible to translate and mediate between algorithms and people in order to increase the credibility of AM outcomes and prevent possible biases or discriminations.

- ***Pure Humanism***: Focused on human dignity promotion. This theory focuses on the impact of restoring human uniqueness on the well-being of stakeholders. Organizational success is solely considered a facet of human growth in this archetype. In the humanistic approach, research such as social entrepreneurship, which focuses on creating responsibility for all stakeholders across society, might be considered. This archetype differs from the previous one because not only dignity is protected, but also promoted. Lee and colleagues (2021) provided an excellent example of humanistic research within the AM literature. These authors described a participative approach to optimizing AM in terms of worker well-being. They developed elicitation techniques to assist workers in discovering their preferences and improving their well-being. They will increase workers' sense of empowerment and enable them to build their own well-being models

using their method. In their paper, workers are the goal of their studies. This AM research is focused on fostering dignity for the sake of improving well-being only.

Table 4: Differences between the Economistic and Humanistic Paradigm

Paradigm	Economism	Humanism
Individual Model	Homo Economicus	Zoon Politikon
RD Theory	Drive to acquire, drive to defend	Drive to acquire, drive to defend, drive to comprehend, drive to defend
Individual Goal	Maximization of utility	Develop personal skills, create long-term relationships
View of the other	Means to an end	Means and ends
Organizational Governance	Shareholder oriented	Stakeholder oriented
Organizational Goal	Short-term profit maximization	Long-term financial, social, and environmental sustainability
Theories about Algorithmic Management	Algorithms used for enhancing efficiency and productivity of workers	How algorithms can affect interaction between members and their personal well-being

3. METHODOLOGY

The AM topic is a relatively new field in the management literature. Many authors have focused on this topic and developed new theories or results by looking at it from different perspectives. Management literature still does not have a clear and unified view of AM in general, nor of its ethical aspects. For this reason, I need to adopt the systematic review process to build a consistent baseline for this topic. The systematic review process allows us to collect from various sources different academic papers or articles and divide this literature using Pirson's framework mentioned in the previous section. By highlighting the economistic and humanistic

perspectives within the AM literature, I will have a better understanding of the different academic positions on the issue of dignity. In addition, it will be possible to find the common traits that characterize the economistic and humanistic perspectives on this topic and highlight what the differences are between these two.

3.1 Introduction to the Systematic Literature Review

This section outlines the systematic review process that will be used for this thesis. Fink (2005) defined this literature review as *"a systematic, explicit, comprehensive, and reproducible method for identifying, evaluating, and synthesizing the existing body of completed and recorded work produced by researchers, scholars, and practitioners"* (Fink, 2005, pp. 3, 17). This technique is important since there is a wealth of literature on AM, but it is dispersed across several academic domains such as HRM, Organizational Behaviour, Psychology, Management, Information Technology, and Computer Science. Thanks to this method, it will be possible to extract relevant references and summarise large quantities of research studies to obtain the quantity and importance of literature (Tranfield, 2003). Furthermore, a systematic review has been argued to be the higher-quality method to identify and evaluate extensive literature because it is also possible to take into account cross-disciplinary perspectives and various approaches to a research topic that already have previously been addressed (Tranfield, 2003).

3.2 Process

Tranfield (2003) in his paper explained the advantages and disadvantages of this process. Furthermore, the author developed three stages to properly conduct a systematic literature review. These three stages are:

- **Stage I: Planning the review.**
  This initial stage has as outcome the development of a review protocol that will be used as a reference in order to address the following stages and provide a guide for readers
- **Stage II: Conducting the review.**
  This stage focuses on delivering pertinent information from selected articles. Articles will be picked during this step, and the selection procedure will be documented to allow replication and boost the research's reliability. There may be numerous stages to the process of choosing articles for the review. At first, keywords and search terms are identified in order to include all possible relevant articles. Then, these selected articles

need to respect previously chosen inclusion criteria. Another important aspect covered in this stage is the data-extraction process. After the identification of selected articles, qualitative coding will be used as analytical method in order to extract only the necessary aspects for answering to the research question and relative sub-questions.

- **Stage III: Reporting and dissemination**

   In this stage all the information generated by the second stage will be gathered and resumed in order to present a clear vision of the characteristics and relationships between these different archetypes within AM literature.

Figure 2:Tranfield's (2003) Stages for conducting a systematic literature review

Stage I
- Phase 0 - Identification for the need for a review
- Phase 1 - Preparation of a proposal for a review
- Phase 2 - Development of a review protocol

Stage II
- Phase 3- Identification of research
- Phase 4- Selection of Studies
- Phase 5 - Study quality assesment
- Phase 6 - Data extraction and monitoring progress
- Phase 7 - Data synthesis

Stage III
- Phase 8- The report and recommendations
- Phase 9- Getting evidence into practice

3.3 Stage I

The initial stage of this process regards the review's planning. This stage is useful to develop a review protocol and to explain the steps that I will take to answer my research question. Tranfield (2003) defined the protocol as a "*plan that helps to protect objectivity by providing explicit descriptions of the steps to be taken*" (Tranfield, 2003, p. 215). To be helpful for the comprehension of the process, this protocol contains the focus of the study, the specific questions to be answered, the search strategy, and the criteria for inclusion and exclusion of studies (Davies & Crombie, 1998).

- **Specific questions to be answered**: This literature review will be focused on answering the following research question: _What are the different points of view about dignity inside the algorithmic management literature?_ To address this question, several sub-questions will need to be answered. In the theoretical framework, I have highlighted two main perspectives on management theory, but it is still unclear whether there is a relevant humanistic perspective in the AM literature. Thus, the first sub-question is: _Is there a relevant humanistic perspective in the AM literature?_ If I can show that it exists, it would also be interesting to develop a clearer and unified view on the humanistic and economistic perspective about dignity, so the following sub-question is: _What are the main features and aspects that humanistic and economistic perspectives in AM focus on in relation to the concept of dignity?_ Pirson's distinction (2019) developed in the theoretical framework revealed six different archetypes between the humanistic and economistic perspectives.

- **Search Strategy:** To answer these questions, a strategy must be constructed to judge which article is relevant to this literature review. For each article, I will ask the following questions. _What is the aim of this article?_ This question is necessary to understand whether the end goal of the article is wealth or well-being creation. This distinction will help me understand if the article should be classified from an economistic or humanistic perspective. I will exclude all those articles whose goal is not well-being or wealth creation. If theories expounded are made to increase productivity (or its synonyms), they will be classified as economistic. To determine whether an article is humanistic, I will consider two major factors. Humanistic articles are those that aim to develop human virtue, live a worthy life, and improve the conditions of all stakeholders. If the article's human figure is conceptualized in a manner comparable to the previously described "Zoon Politikon" notion, I will consider it humanistic because it addresses people's long-term relationships.

Furthermore, in order to understand in which archetype I can classify the article, the following question _"What is its position on human dignity?"_ will be asked for each article. Elements such as freedom, professional autonomy or capability development are reported as intrinsic values, and for this reason, are considered as a part of human dignity. To answer this question, I will look at their introduction section, where the hypotheses are presented, and their concluding section. This framework will help by highlight any discrepancies between their hypotheses and their conclusions. This will provide insights into whether the

hypotheses of promoting dignity are only being used to "mask" their profit maximization goals or if there is a real concern for the conditions of the worker who deals with the AM. Through this method, it will be easier to identify the archetypes of "Masked Economics" or "Fake Humanism".

- ***Criteria for inclusion/exclusion of studies:*** In this part, I will explain how I will filter these articles related to AM. The database search will be Scopus. I will include in my search all the articles that at least the keywords: "Algorithmic Management", "Algorithmic Human Resources Management" or synonyms and related terms. To include articles that focus on the role of algorithms inside an organization, I will also create a query string on Scopus that select all the articles that take into consideration the role of algorithms in HRM or Organizational aspects.

Figure 3: Framework of Search Strategy
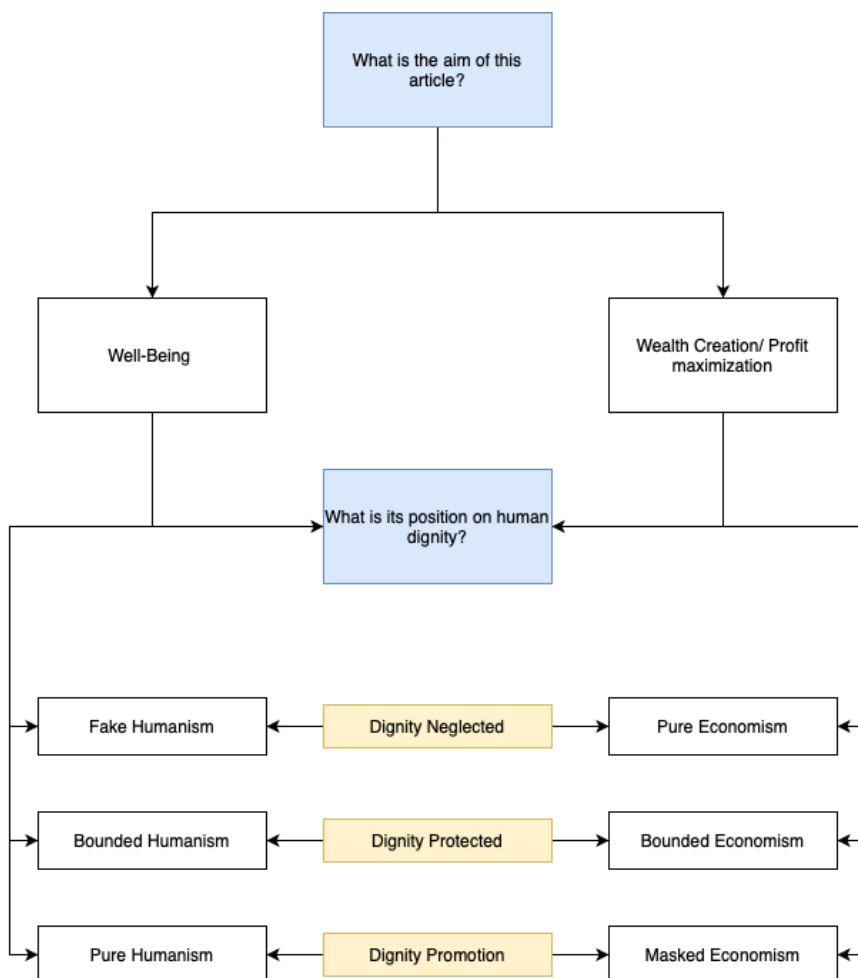
3.4 Stage II

The second stage of this systematic literature review is the most important. To create a clear picture of the process, I'll split this paragraph into two sections: article selection and coding.

Selection of Articles

The purpose of this review is to learn about the various perspectives on dignity found in the AM literature. This phase's goal was to create a comprehensive list of search terms that could be used to generate a comprehensive list of articles in Scopus, the electronic searching database used for this literature review.

I decided to work on two levels of terms, following the approach of Pereira et al. (2021), who conducted a systematic literature review on a similar topic and adapting it to the context of this research. The first level was focused on including "Algorithmic Management" and its possible synonyms like "Algorithmic Authority", "Algorithmic Surveillance", "Algorithmic Labor" and "Algorithmic Labour". The inclusion of synonyms, alternative spelling and related terms permits to increase the comprehensiveness and reliability of the search (Xiao & Watson, 2019). The following keyword formula was used for searching through titles, abstracts, and keywords: *("Algorithmic Management" OR "Algorithmic Authority" OR "Algorithmic Surveillance" OR "Algorithmic Labour" OR "Algorithmic Labor").*

Instead, the second level was created to include in the search all articles that did not specifically refer to the concept of AM, but instead focused on the impact of algorithms on stakeholders within HRM or organizational management. For this reason, I utilized a list of terms comprehending "Human Resource management", "e-HRM", "Organizational Control" and "Organizational Management" and combined this to another list of terms that can be used for referring to algorithms, through the use of the Boolean operator "AND". This second list was made by specific terms to comprehend all the possible uses of algorithms inside an organization, for example as a control system or to improve/automatize decision-making. This list is composed of: "Algorithm*", "Artificial Intelligence", "People Analytics", "Workforce Analytics", "Machine Learning", "Automation", "Analytics", "Automated Decision making" and "Automated Control System". The following keyword formula was used: *("Human Resource* Management" OR "e-HRM" OR "Organizational control" OR "Organizational Management") AND ("Algorithm*" OR "Artificial Intelligence" OR "People Analytics" OR*

"Workforce Analytics" OR "Machine Learning" OR "Automation" OR "Automated Decision Making" OR "Automated Control system" OR "Analytics").

These two levels of keyword formula were merged by the Boolean operator "OR" and entered into Scopus as a query string. Using the database's filters, I was already able to exclude articles from subject areas that were incompatible with our topic. Indeed, articles from engineering, physics, energy, earth sciences, chemistry, material science, mathematics, medicine, environmental studies, pharmacology, and biology fields were already excluded. However, I decided to not exclude other fields like Computer science in order not to lose possibly cross-disciplinary articles. I also decided not to impose time constraints in order to capture all potentially related studies and track the evolution of this topic. With this first keyword search it was possible to identify a list of 1388 articles (11/05/2022).

The two-stage procedure proposed by Xiao and Watson was used to screen this list and apply the inclusion/exclusion criteria already mentioned in the review protocol (2019). The first step in determining which articles should be included for data extraction is to read all of the abstracts and titles. The second stage, on the other hand, is a text review-centred evaluation method. The first screening stage was used to assess the fit between the research question (and sub-questions) and the abstract of each article. Indeed, all abstracts were reviewed to see if they were focused on AM and if they focused on, or at least mentioned, the implications for stakeholders within an organization. Articles mentioning algorithms or synonyms but only as an academic method for testing hypotheses were excluded. For example, articles like Lee & Kang (2017), DeGroot et al. (2022), and Ismail et al. (2018), even if they were related to HRM, they used algorithms only to test their hypotheses and not as an active tool that can actively impact on workers or members of an organization.

Articles that viewed algorithms as an active tool but were also more focused on aspects that were not strictly related to human resources were also excluded. For instance, Yingfei et al. (2018) used algorithms to simulate people flow in personnel evacuation management.

Also, articles that refer to topics not strictly related to HR were excluded. For this reason, topics like sports science (Kaur & Jagdev, 2020; Zhang et al.,2019; Hervert-Escobar et al., 2018) or crisis management (Crossman et al., 2019) were excluded.

This first stage of screening led to a reduction of selected articles to 431 articles. (23/05/2022).

As mentioned before, the second stage of screening aim to increase the quality assessment of selected articles by reviewing also their text. Thanks to this second stage it was possible to

decide whether or not to include each of the 131 items marked as "in doubt" by the previous stage. Indeed, during the first stage, all the articles that were not immediately clear were labelled for a text-check. These articles were examined by analysing their result and conclusion sections, as suggested by Xiao & Watson (2019). After this check, all the articles were extracted to start the analysis: it was possible to obtain 230 fully text articles from this second stage (30/05/2022). Besides that, because this selection of articles based on keywords in digital libraries may indeed miss studies, I compared the list of articles with the reference lists of related papers in order to apply a backward and forward snowballing procedure (Lamers et al., 2022; Meijerink & Bondarouk, 2021; Gal et al., 2020). This procedure included 12 more articles in the final list (31/05/2022).

Figure 4: Flow chart representing the various stages of the Articles selection process.
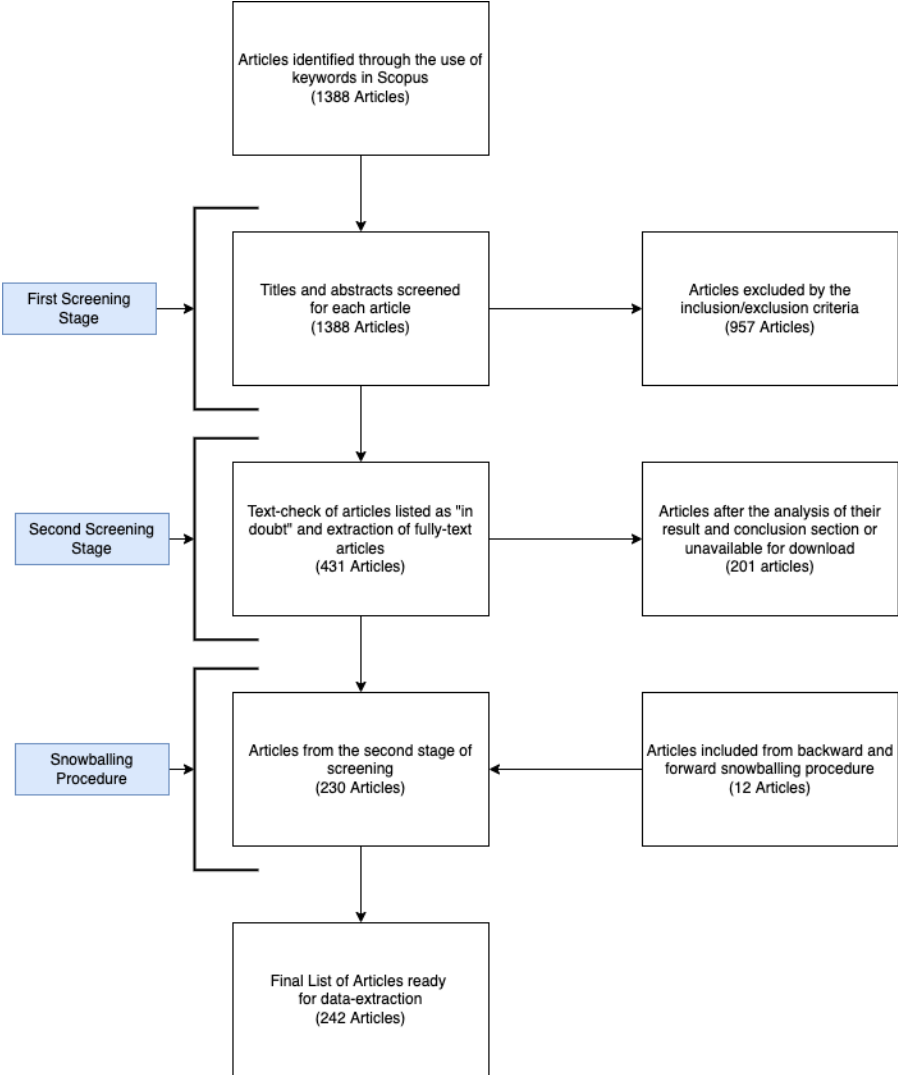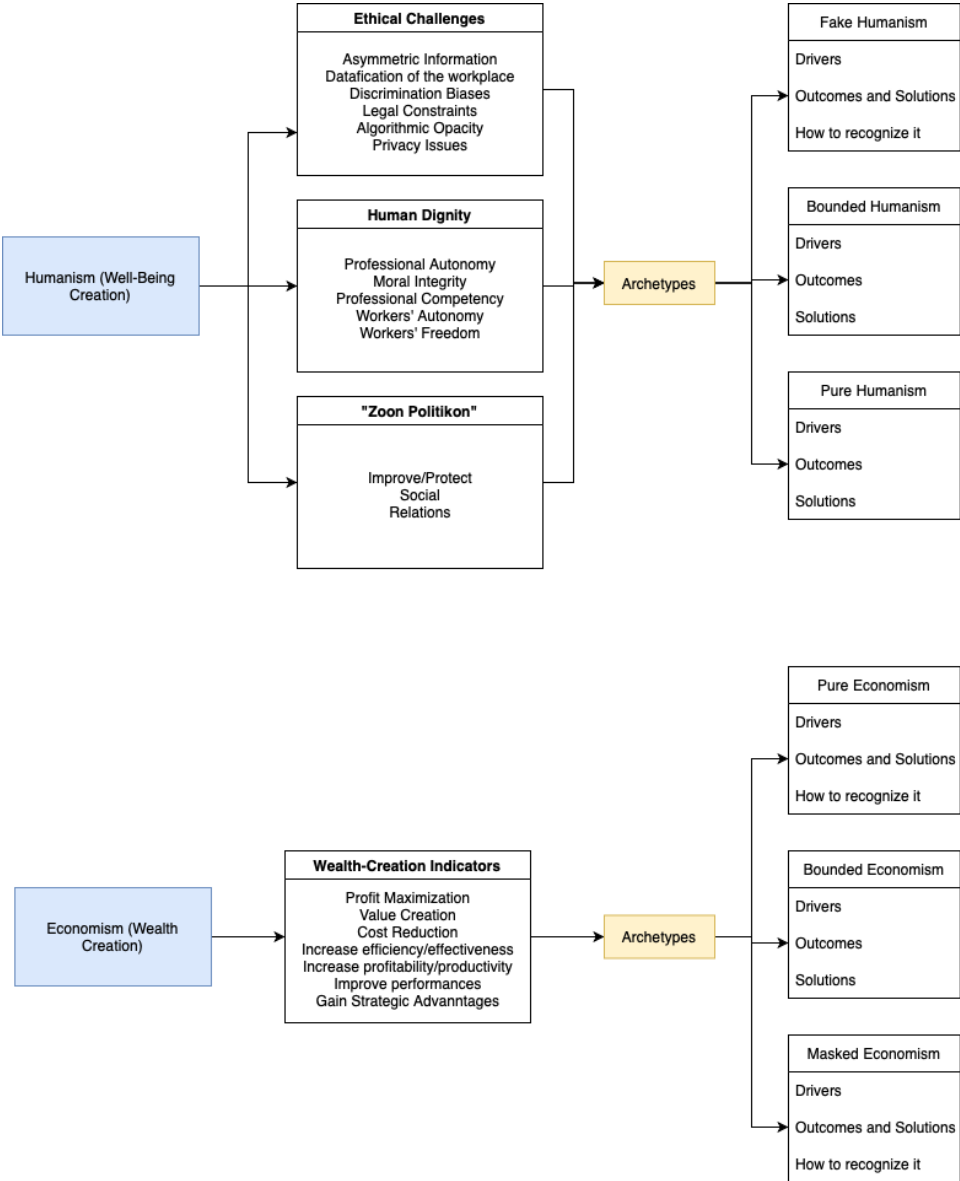
Coding

The analytical coding approach was adopted with the purpose of conducting an SLR in the most complete and bias-free manner possible. I used _ATLAS.ti_ Mac (Version 22.1.0)to improve the quality and dependability of this procedure. This software enabled me to conduct a computer-assisted qualitative study, identify intriguing aspects, and document my results (Friese, 2019). During this phase, I decided to divide the project into two steps. The first concerned a general categorization of basic information about selected articles, while the second concerned the identification of humanistic and economic perspectives, as well as features of all Pirson's archetypes (2019) within the AM literature.

The second phase was more complex since it required identifying all of the conceivable nuances of these two views. _ATLAS.ti_ results as a useful tool during this time, particularly for its "Text Search" analysis feature. Because of this feature, it was possible to search in each article for certain terms, or combinations of words, that may indicate an article's adherence to one perspective rather than the other. In order to identify the economistic perspective, several indicators of wealth-creation as final aim were coded. Synonyms of wealth creation like "profit maximization", "Value Creation", "Cost reduction", "increase efficiency/effectiveness/profitability/productivity", "improve performance" and "gain strategic advantage" were coded within articles.

The humanistic perspective, on the other hand, was more difficult to identify due to its broad meaning. As a result, three distinct coding strategies were pursued with the goal of include all of the features that might classify an article as humanistic. The first strategy was to search several terms related to ethical challenges. This strategy permitted to understand the position of articles on topics like asymmetric information, datafication of the workplace, discrimination biases, legal constraints, algorithmic opacity and privacy issues. Another way to spot well-being creation was to follow the capability approach proposed by Lamers et al. (2022) that translate human dignity into tangible capabilities. In essence, through this view, it is possible to conceive capabilities as necessary freedoms to achieve a dignified life (Lamers et al., 2022). Development of capabilities can be seen as the possibility to have a meaningful work or a worthy life, develop their own skills and preserve or improve workers' status. For this reason, "Text Search" analysis was used for search and code sentences regarding "professional autonomy", "dignity", "morality", "moral integrity", "professional competency", "workers' autonomy" and "workers' freedom". The third way was instead to also include the conception of persons as "Zoon Politikon". In this way were searched and coded sentences regarding sociality of members like "improve/protect social relations".

Through this analysis, it was possible to categorize the articles as either humanistic or economistic. However, it was necessary to further analyse this distinction and code the characteristics of all the different archetypes. Therefore, phrases that can signal possible drivers and outcomes were coded for each archetype. Additional coding was added to catalogue the possible solutions suggested by the articles for each archetype. Finally, particular codes have been created for understanding what differs archetypes as Fake Humanism, Masked Economism, and Pure Economism from the others. Indeed, particular sentences could reveal the real nature of these articles and it was necessary to catalogue them.

Figure 5:Flow Chart representing the Coding Scheme

4. FINDINGS

The outcomes of the coding procedure will be reported in this section. I'll divide this part into three sub-sections to provide findings and address the main research topic and its related sub-questions. The current state of AM literature and its development through time will be reported and described in the first sub-section. Understanding the two perspectives' current circumstances will be made easier with the aid of this paragraph. The distribution of articles across academic journals will demonstrate the multidisciplinary nature of the topic. The figure about years of publication will provide the evolution of AM literature over time. The second subsection will highlight the distinguishing features of humanistic and economistic perspectives The third one will include characteristics and outcomes for each AM archetype, making it easy to explain how to distinguish these archetypes from one another. Additionally, it will be useful for adapting Pirson's (2019) framework to fit AM features and assessing its efficacy.

4.1 Descriptive Analysis

4.1.1 Article distribution across academic journals

The previously mentioned criteria for inclusion/exclusion of articles produced 242 publications contained in 145 among conferences and journals. In Table 5 there are reported the ten most present academic journals and conferences inside this selection.

Figure 6: Articles distribution across academic journals and conferences

Journals and Conferences	Entries
International Journal of Human Resource Management	14
Human Resource Management Review	11
ACM International Conference Proceeding Series	9
Technological Forecasting and Social Change	6
Conference on Human Factors in Computing Systems - Proceedings	5
Big Data and Society	5
Surveillance and Society	4
Proceedings of the ACM Conference on Computer Supported Cooperative Work, CSCW	4
Procedia Computer Science	4
Work, Employment and Society	3

It is possible to notice that the majority of articles are from two journals and a series of conference: *International Journal of Human Resource Management, Human Resource Management Review,* and *ACM International Conference Proceeding Series.* These selected publications are also from various fields of study. HRM and Computer Science are the guiding principles. The significant presence of articles from Human-Computer Interaction and Sociology also emphasizes the interdisciplinary nature of this research. Indeed, various fields emerge and interact; for example, articles from Management can be found, as can articles that combine the fields of information technology and moral philosophy.

4.1.2 Year of publication for sampled articles

Figure 7 provides a representation of the year of publication for sampled articles. This selection covers a range from 1996 to 2022.

Figure 7: Year of publication for sampled articles
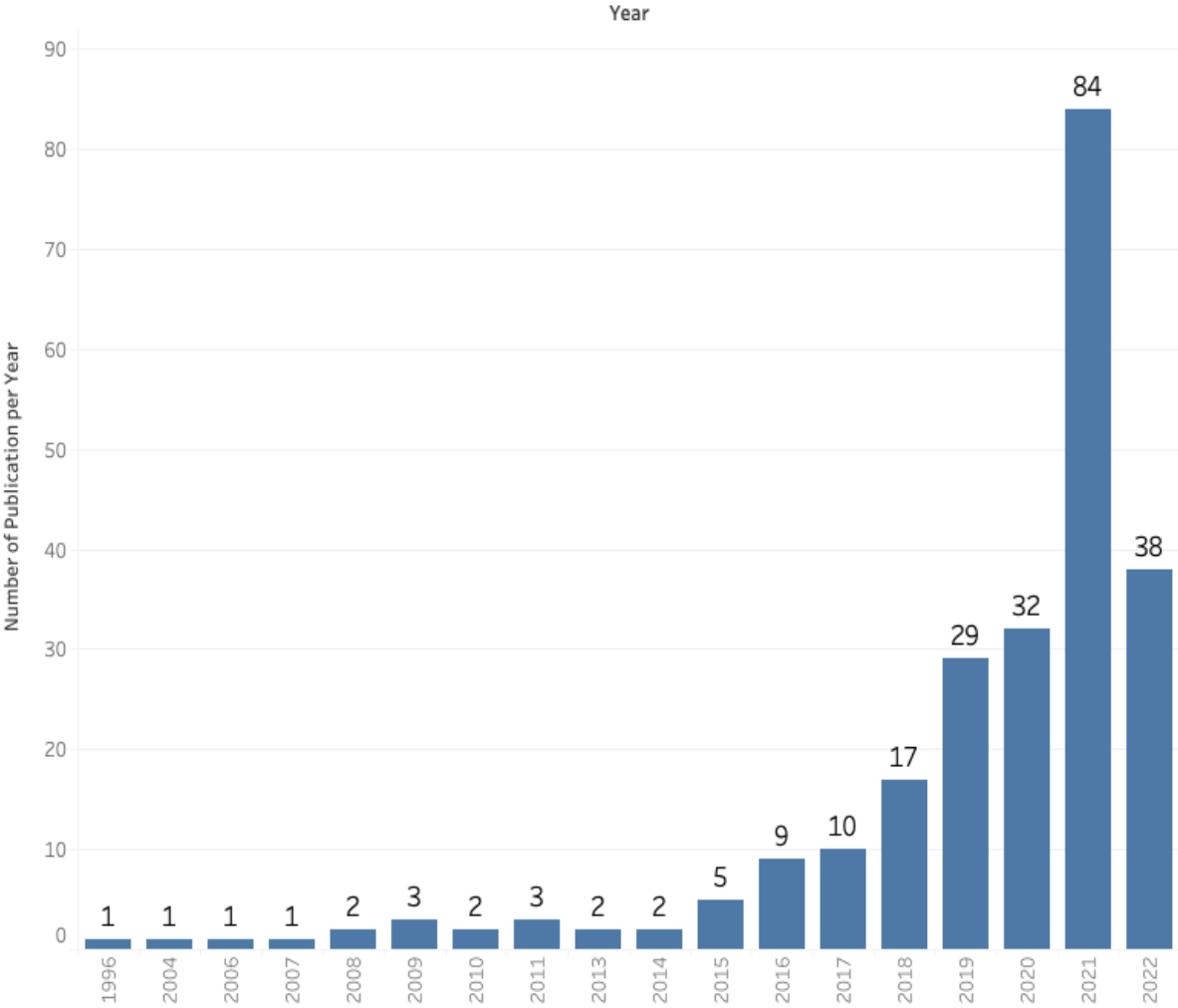
The first selected article in chronological order is from Kwok et al. (1996). It showed the possibility to use algorithms to automate the planning activity among teachers in a secondary school. It can be considered one of the first humanistic papers because the aim of this publication was to find a way to reduce the pressure on the planner and anxiety among teachers. However, this was an exception; from 2004 to 2014, the field of AM was barely considered; only 23 articles were found during this period. Indeed, engineering or information technology studies dominated this field, but they failed to consider the impact on workers. As a result, these types of articles were excluded.

Because it marks the beginning of an emphasis on the interplay between algorithms and management, the year 2015 might be considered a key milestone in AM literature. Lee and colleagues (2015) provided the first definition of AM during this year, as reported in the theoretical framework. Algorithms came to be seen as more than just a tool, with the potential to convert HR into a strategic department (Lal, 2015; Strohmeier & Piazza, 2015).

There has been a steady increase in interest in this topic since 2015. Rosenblat & Stark (2016) opened up a new area of inquiry by looking at the impact of algorithmic labour on Uber drivers. These new working methods carry with them new opportunities as well as threats. Researchers are particularly concerned about the interaction of gig workers and platforms.

Experts began to raise concerns about the ethicality of these new technologies as they became more common in the workplace. Lusting et al. (2017), for example, investigated how algorithmic authority shows itself and what ethical and political issues these new technologies raise. Aust (2018) went deeper into this argument the next year, wondering what the expansion of algorithmic power means for human rights law and the concept of equal protection under the law. This concern for human conditions grew, and methods that not only preserve human dignity but also increase well-being began to emerge. Berelson et al. (2018), for example, created a smart hot desking system for identifying the best desk for a certain employee.

The number of articles published increases noticeably between 2020 and 2021. The number of publications increased from 32 to 84 in these two years. One of the most important factors that contributed to this growth was the Covid-19 Pandemics. During the lockdown, gig workers and riders saw a surge in the volume of employment and their relevance to society. As a result, studies have focused on the association between gig workers and AM. Indeed, Duggan et al. (2021) investigated how AM practices limit gig workers' abilities and careers, whereas Newlands (2021) focused on the role of algorithmic surveillance. Furthermore, the lockdown period increased the importance of remote working, and as a result, attention is drawn to the

impact, and potential risks, of AM on workers in areas such as recruitment and talent analytics (Ore & Sposato, 2021; Giermindl et al., 2021).

By the time the last study was selected, 38 articles had already been published. This aspect can be interpreted as a willingness on the part of the researchers to continue investigating the role of AM and its impact on workers.

4.2 Evidencing the different perspectives within the AM literature

The analysis of selected articles aimed to discover and classify different points of view about dignity inside AM literature. Through this analysis, I decided to test if Pirson's (2019) framework holds also for AM literature. Pirson (2019) overcame the difficult challenge of incorporating the philosophical concept of dignity into management theory by selecting this framework. Indeed, Table 3 demonstrated that there are two levels of concepts that can lead to perspectives inside AM literature. The pursuit of well-being or wealth creation is the most obvious indicator of concern for human dignity. However, concern for dignity comes in a variety of forms and grades. Only focusing on well-being and wealth outcomes would be limiting. Pirson (2019) demonstrated through his archetypes that economic articles can also consider dignity protection or promotion. The selected framework permits to capture and highlight these nuances.

This section presents the results of this analysis, which were discovered during the coding process while testing Pirson's framework (2019) using the logic shown in Figure 4. The first results from the coding process permitted to distinguish between well-being and wealth creation inside the AM literature. This stage of the process served two purposes: first, it aided in understanding the characteristics of these two notions, and second, it revealed the presence of a relevant humanistic perspective. Instead, the second stage of the process permitted to reveal main characteristics and outcomes of each of Pirson's (2019) archetypes. These findings will be discussed in the following sub-sections.

4.2.1 Economistic characteristics revealed in AM literature

As previously stated in the theoretical framework section, the final goal of the economistic perspective can be seen as wealth creation for organizations. It was possible to identify different declensions of this wealth creation using ATLAS.ti's "Text search" analysis. The statement "*The end of HR is to create value*" made by Ulrich and Dulebohn (2015, p. 202) summarizes the real intent of the economistic perspective. For example, in this view within the AM

literature, algorithmic functions such as predicting turnover are viewed as tools for reducing staffing costs and productivity drops (Strohmeier & Piazza, 2015). Other possible outcomes include the use of HR data to make the HR department necessary for achieving a strategic position (Prikshat et al., 2021).

The coding analysis identified four elements that characterize wealth creation as the final aim from an economistic perspective: improve/maintain the image of the organisation, improve performances, improve profitability/efficiency, and reduce costs. There will be reported examples for each element.

- ***Improve the image of the organization***: Danylevych et al. (2021) analysed the introduction of chatbots in HR management. Their results showed that this introduction not only influences positively the efficiency but also *"contributes to the formation of the brand of an employer that is attractive to talent"* (Danylevych et al., 2021, p. 175). This can be considered as a proof to catalogue this article into the economistic perspective.
- ***Improve performances of the organisation***: This element resulted as one of the most common with 60 quotations under its code. Improving performances can be related both to the organizational and individual level. For example, Tong and colleagues (2021) demonstrated in their articles that AI feedback can increase employee performance and consequently can improve also firm productivity.
- ***Increase firm profitability***: In their article's introduction, Hamilton and Sodeman (2020) explained that organisations should use HR big data in order to capture the *"strategic linkage between human capital and profitability"* (Hamilton & Sodeman, 2020, p. 86).
- ***Reducing Costs***: Along with "improve performances", this element results one of the most common with 121 quotations that reveals the aim of reducing costs. Harris et al. (2011) in their article tried to reorient HR management towards business performances explaining which analytical capability are required in order to reduce costs and increase the overall ROI of the company.

These four elements all have one common thread: they only apply to organizational outcomes. This is another feature of the economistic perspective within AM literature that distinguishes it from the humanistic one. The concept of *Homo Economicus* embedded in this school of thought does not allow for consideration of the relational aspect of human life. Continuing the analysis through Pirson's framework (2019), it is possible to see that articles that refer to ethical issues

or directly address dignity do not regard them as a social aspect, but rather as a variable that influences organizational outcome. For instance, Hamilton and Sodeman (2020) considers following and respecting General Data Protection Regulation (GDPR) only in order to avoid possible legal compliances.

4.2.2 Humanistic characteristics revealed in AM literature

Using ATLAS.ti's *Text search* analysis, not only was the economistic perspective explored, but an emerging humanistic perspective within AM literature was identified. Indeed, 86 quotations attributed to humanism were found within the sampled articles. This result demonstrates that there is a growing interest in going beyond the transactional relationship between individuals and algorithms.

This sub-section will explain the main characteristics that distinguish this current of thought, as well as the concept of well-being.

The humanistic perspective added two key concepts to the AM literature: the concept of stakeholders as *active players* and the concept of humans as members of a larger relational network.

- ***Stakeholders as "active players":*** All stakeholders are considered in research from a humanistic standpoint because they can influence AM outcomes. Indeed, in this view, considering other stakeholders as passive actors is no longer correct because the effectiveness of AM is the result of this bilateral relationship. This feature is particularly noticeable in articles about gig work and online labour platforms. These humanistic articles are concerned with how gig workers react and express themselves at work (Anicich, 2022). This feature is directly visible in Veen and colleagues' (2020) research question. Indeed, they inquire, *"how do workers experience and react to these regimes?"* (Veen et al., 2020, p. 390).

- ***Sociality***: Connecting this feature to the previous one, workers and members in general are no longer just as interested in transactions as they are in deeper interests that drive them to become an active member. Indeed, these articles are concerned with relational aspects such as the employer-employee relationship (Anicich, 2022), trustworthiness and acceptance (Keding & Meissner, 2021), sensemaking (Lee et al., 2015), and reputation (Wood et al., 2019). Humanistic articles typically do not confine themselves

to an economic perspective, but instead take a socio-technical approach in which social and technological aspects are examined concurrently (Bankins, 2021).

These two key concepts also influence the goal of humanistic articles. The concept of well-being, for example, refers to these characteristics when attempting to achieve a satisfying work environment (Wensche & Sonderegger, 2019). Well-being as a concept of social welfare implies that there is ongoing research to develop human virtues and promote human capabilities. It is essential to consider important aspects such as community and sociality in order to achieve the Aristotelian concept of *eudaimonia*, a state of well-being in which human potential can be maximized (Gal et al., 2020). To accomplish this, humanistic AM research looks for ways to support or improve well-being, such as artificial intelligence systems that support work ability sustainability (Kocsis et al., 2019).

4.3 Evidencing different Archetypes inside AM literature

Previous sub-section evidenced the presence of the humanistic perspective inside AM literature and presented several features about these two perspectives. These results were useful also for validating the possibility of using Pirson's framework (2019) on AM literature. In fact, it was possible in the second phase AM literature to conceptualize whether dignity is denied, protected, or promoted. The precepts and underlying assumptions about human dignity were better understood because of this conception. In this sub-section, there will be presented characteristics and outcomes for each archetype inside AM literature.

4.3.1 Pure Economism

After the coding process, there were founded 29 quotations that specifically spot the pure economistic archetype. I will follow the above-mentioned scheme also for reporting findings related to Pure Economism.

Characteristics of Pure Economism:

There is a whole concentration on wealth generation or profit maximization for shareholders within the Pure Economism archetype. Starting new research is required for purely economic reasons, for example, such as lowering recruitment expenses (Pan et al., 2022), and investigating possible environmental and technical elements that affect HR data analytics (Shet et al., 2021), and optimising scheduling procedures (Liu, 2022). Employees and members, in general, are only regarded as "human capital" in this perspective, as stated in the preceding

subsection. For example, in Xu's (2021) article, humans are merely regarded as a resource, with the goal of making this resource more efficiently. This aspect can be seen as a result of the fact that there is an urgency in this viewpoint to transform HR into more scientific procedures. Every aspect must be calculated and predicted; concepts such as "performance appraisal" are regarded as unscientific due to their difficulty in quantifying (Shet et al., 2021). The goal of this archetype is to reshape HR toward more purposeful quantifiable measurements for the company (Harris et al., 2011). Only in this way can pure economic research transform HR into strategic departments.

Another important aspect that differentiates this archetype from other ones inside the economistic perspective is the complete absence of ethical concerns in its research. For example, the paper by Soewito and colleagues (2019), for example, investigate how to design a solution for tracking employees working outside the office using their smartphones. During the phase of implementation of this new attendance system, ethical concerns such as workers' privacy or their reaction to this new system are completely ignored and are not addressed in the paper.

Outcomes and solutions of Pure Economism:

The characteristics of pure economism mentioned above help to understand what drives this line of research and why certain outcomes are produced. I'll describe some typical results discovered during the coding process in order to explain the role of algorithms and potential solutions devised by researchers.

Algorithms in this paradigm are considered as tools conceived for organizations, other users can only passively interface with them. Mehta and colleagues (2013), for example, created a decision-support system for ranking candidates and optimizing screening activities during the hiring process. This algorithm was designed solely to improve business value metrics and hiring yield while reducing the number of interviews. This automated analysis did not take into account possible responses from applicants or their individual characteristics; instead, applicants were treated as data.

The ultimate goal of this archetype is to create wealth for shareholders; this statement by Pirson (2019) is consistent with coding results. The Pure economism archetype confirms key elements discussed in section 4.2.1, such as improving performance, lowering costs, and increasing profitability (Ben-Gal, 2019; Harris et al., 2011). Workforce analytics, for example, are viewed as a potential means of improving the workforce, organizational strategy, and, as a result, team performance when combined with HR investments and differential management (Wang &

Cotton, 2018). In this case, as in others, the concept of differentiated workforce management ignores the relational aspect of work, viewing people as more or less valuable resources in which the company can invest.

Finally, the characteristics and outcomes found in the AM literature about Pure Economism are consistent with Pirson's framework (2019). The consideration of people as human capital and the complete absence of ethical concerns within these papers distinguish this archetype from the others.

4.3.2 Bounded Economism

Bounded Economism still aims for wealth creation or profit maximization as Pure Economism, but it differs for its focus on effects elements conducible to dignity, such as human rights protection or morality, and how those affect organizational performance. Dignity protection can be seen as a constraint that research must consider. The coding process analysis identified 23 quotations referable to Bounded economism.

Characteristics of Bounded Economism:

The first distinguishing feature of Bounded Economism within AM is its willingness to address critical issues concerning strategic human capital, such as ethics, in order to improve worker and business performance. One of the research questions in Schildt's (2017) article, for example, demonstrates this characteristic. Indeed, he wondered whether AM is more successful *"when transparency is extended to the work and activities of the upper echelon"* (Schildt, 2017, p. 27). Considering the issue of transparency is not intended to solve an ethical problem, but rather to comprehend its effects on organizational performance. The protection of human dignity within Bounded Economism can also be completed in order to maintain the organizational status. The protection of dignity in Garcia-Arroyo and Osca's (2021) article took the form of privacy concerns, but ethical management of HR data is seen only as a way to avoid potential legal and reputation problems.

The inclusion of a section inside the theoretical framework or in variables that take into account ethical difficulties is the second feature that distinguishes this archetype, and it is a result of the first. *Transparency* (Schildt, 2017), *workers' autonomy* (Vrontis et al., 2022), and *datafication* (Garcia-Arroyo & Osca, 2021) are examples of ethical challenges**.** This characteristic is a good indicator of whether or not an article belongs in this archetype. For example, the fifth section

of Hamilton and Sodeman's article (2020) is devoted to potential ethical considerations of HR big data analytics deployment, such as discriminating biases or privacy concerns.

Outcomes and solutions of Bounded Economism:

Inside the Bounded Economism archetype, the role of AM and automated systems remains to link human capital and profitability, but without violating human dignity in all of its forms. Results can be seen as a balance between these two parallel goals. Indeed, Hamilton and Sodeman (2020) intended to use real-time data to track employees' outputs rather than every employee movement in order to avoid potential legal and privacy compliances in companies such as Amazon or Walmart. Outcomes and solutions produced in this archetype balance concern for human dignity while allowing HR data to become a strategic tool within the organization. Yang and Chou's (2011) paper can be considered an example; they proposed a new algorithmic model to facilitate staff-to-job assignment. This model enabled the possibility of maximizing profits while at the same avoiding excessive overtime hours. This solution permitted to safeguard workers' dignity by protecting also their working autonomy and freedom. It is common in this archetype that articles suggested to follow different legal frameworks in order to avoid ethical problems. These legal frameworks' principles must be included inside algorithmic or big data management in order to make AM compatible with the principles of human dignity. Nocker & Sena (2019) proposed to follow four principles of privacy, confidentiality, transparency and identity in order to enhance a respectful use of data inside talent analytics.

4.3.3 Masked Economism

Together with Fake Humanism, this character might be considered one of the most deep and nuanced. Indeed, this archetype required 63 quotations coded in order to understand all of its possible features. Masked Economism take the difficult job to improve human dignity and reach wealth creation goals at the same time. However, it is still embedded in the economistic perspective, for this reason the concept of *Homo Economicus* shapes its outcomes and solutions.

Characteristics of Masked Economism:

AM studies look at how algorithms that promote human flourishing can also generate revenues for the company. The original goal of developing dignity through AM collided with an economic perspective, resulting in a *transactional* approach to cultivating dignity. Indeed,

activities that boost commitment and worker morale can be considered as an economically sound approach of meeting the need to improve worker dignity through this merged concept. Masked economics articles aim at improving workers' conditions through actions that increase commitment (Choi & Choi, 2020) or engagement (Barykin et al., 2020). Choi and Choi (2020), for example, used machine learning techniques to investigate the determinants of job involvement. These techniques allow for the prediction of job involvement and, as a result, the implementation of countermeasures, thereby improving workplace productivity. In this case, a component of dignified work, such as job involvement, is quantified and used to improve both work conditions and, more importantly, performance.

It is difficult to identify a Masked Economism article because it appears to be humanistic at first glance. However, it is possible to discover the true hidden purpose of the article, which also reveals its true nature, within it. The following characteristic of Masked Economism can aid in its identification: the article's point of view. The Masked Economism archetype always takes the firm or organization's perspective because it is the ultimate beneficiary of the outcomes created.

Polychroniou and Giannikos (2009), for example, created an algorithm to aid in employee selection decision-making. This algorithm was designed to help the human capital pool grow, but the real beneficiaries are HR managers who can match employees' qualities with organizational goals. Instead, an article like that of Kocsis and colleagues (2019) can be considered humanistic. Even if organizations can benefit from their AI system, the focus remains on humans. This difference of ultimate beneficiary signals the difference between Masked Economism and Pure Humanism.

Outcomes and solutions of Masked Economism:

Following these characteristics, outcomes refer to employees and organizations. Ramamurthy and colleagues (2015, B) created a tool to predict the likelihood of leaving. This tool is useful for increasing employee engagement, but it primarily benefits the company financially. The most important finding, however, is based on the relationship between outcomes generated for workers and organizations. Indeed, wealth creation and dignity promotion can occur as one the result of the second, or simultaneously. Mazurchenko and Marsikova's (2019) article is an example of the first option. The implementation of new HR technologies is meant to create a new ecosystem within the organization. If HR can successfully train employees to use these new technologies, the company's flexibility and, as a result, efficiency will improve. Instead, Mondal and colleagues' (2014) article is an example of an attempt to create actions that promote

dignity while also creating wealth. Indeed, they proposed a job rotation algorithm that eliminates boredom while increasing job satisfaction and productivity by lowering turnover. The main difference about the concept of dignity between Bounded and Masked Economism is that the first is focused on the protection of the unconditional aspects of it, like workers' autonomy, freedom, and privacy. The second instead aim to promote the conditional aspects like job involvement, human capabilities, and responsibilities.

Figure 8: Findings of Economistic archetypes

Pure Economism		
Characteristics	• Humans are considered only as a resource • The goal is to reshape HR toward more purposeful quantifiable measurements for the company • Total absence of ethical concerns	
Outcomes	• Algorithms are thought of as tools designed for companies; other users can only interact with them passively • Wealth creation: improving performances, lowering costs, and increase profitability	

Bounded Economism		
Characteristics	• Willingness to address crucial strategic human capital problems like ethics in order to enhance worker and corporate performance • Human dignity considered, but as a constraint • Inclusion of a section regarding ethical challenges	
Outcomes	• Connect human capital and profitability while respecting human dignity in all of its manifestations. • The maintenance of economic production is subject to the safeguarding of dignity. • Concern for the inherent and universal aspects of dignity	

Masked Economism		
Characteristics	• Improving human dignity. but still embedded in the economistic perspective • Understanding how algorithms that encourage human flourishing may help the firm gain income • point of view of organizations	
Outcomes	• Relationship between wealth creation and dignity promotion. These two concepts can occur as one the result of the second, or simultaneously. • Components of dignified work, such as job involvement, are quantified and used to improve both work conditions and, more importantly, performance.	

4.3.4 Fake Humanism

The analysis of Fake Humanism archetype produced results that differ from the framework developed by Pirson (2019). Pirson (2019) examined examples of this archetype in all studies that examined well-being-related outcomes based on homo economicus assumptions. However, new characteristics emerged from 31 quotations found within sampled articles, which can change one's perspective on this archetype.

Characteristics of Fake Humanism:

Prior to the analysis, the research should have fit into this archetype if it was interested in welfare outcomes but considered workers as human beings interested only in transactional relationships and the satisfaction of material desires. A less pronounced distinction has arisen from the coding process, as the concept of homo economicus appears to have been contaminated by the humanistic trend. Indeed, it is possible this archetype as a transition phase between the economistic and humanistic perspective. Articles in this archetype make the first attempt to indagate into relational aspects albeit steeped in the conception of Homo Economicus. As a result, the focus switched from the organization's perspective to a broader one, in which all stakeholders are considered for their potential to affect AM outcomes. The reciprocal influence between stakeholders and AM is examined in publications about online

labor platforms or gig-work. Workers are no longer considered as passive actors, but as capable of influencing algorithms in turn (Cheng & Foley, 2019). For example, according to Pignot's (2021) research, Uber drivers can manipulate the app to meet their needs. These needs are still embedded in the concept of Homo Economicus because they aim to obtain more profitable conditions for themselves and/or for their colleagues (Newlands, 2021). Material needs such as *employee acceptance*, *perception*, and *level of trust* (Keding & Meissner, 2021) are embedded in a socio-technical rather than a pure humanistic stance.

To summarize, three key characteristics distinguish this archetype from others: a broader perspective that includes more than just shareholders, a focus on the relationship between these groups and algorithmic management, and a willingness to reach transactional needs.

Outcomes and solutions of Fake Humanism:

Algorithms' position in this archetype has expanded: they are no longer only a tool; they may also be thought of as another player who influences and is influenced by others (Meijerink & Bondarouk, 2021). This archetype's research focuses on describing possible scenarios between the people involved and examining how these interactions manifest in contexts such as online labour platforms (Amorim & Moda, 2020).

While these articles are focusing on these relationships, they can also produce more in detail practical or theoretical suggestions for organizations and stakeholders. For example, Cheng and Foley (2019) suggested to Airbnb hosts to develop *algorithmic competency* in order to gain a competitive advantage and distinguish from others. At the same time the paper suggested online labour platforms to improve the algorithmic accountability in order to keep *human-in-the loop*. The socio-technical stance of this archetype instead can produce outcomes related to material needs, like suggestions for raising system usage and satisfaction (Wickramasinghe, 2010), understanding of algorithmic evaluation (Kinder et al., 2019), or system acceptance (Langer et al., 2019).

4.3.5 Bounded Humanism

Bounded Humanism is a step forward from Fake Humanism toward a genuinely humanistic archetype. Indeed, the move from the Homo Economicus notion to the Zoon Politikon concept is fully completed here. As a result, there is a concern not only for well-being outcomes but also for maintaining human dignity. The coding process resulted in 82 quotations that highlight different characteristics and outcomes.

Characteristics of Bounded Humanism:

The coding procedure resulted in an AM Bounded Humanism article vision that adhered to Pirson's paradigm (2019). The entire transition to a human idea that is likewise interested in long-term relationships and is driven by higher goals than transactional aspirations allowed the notion of dignity to be included in the discussion. Indeed, aiming for stakeholders' well-being necessitates safeguarding human professional autonomy, competency, and integrity. Indeed, as indicated in the theoretical framework section, these values might be regarded as an element of human dignity. The perspective adopted now is no longer external, but rather that of those who are subjected to AM actions, such as gig workers. In this case, the role of algorithms is transformed because of the humanistic concept of people interacting with algorithms as if they are social agents and not just tools, and the reaction that people give to computer outcomes is comparable to human-human interaction (Lee, 2018). For this reason, the impact of AM on people can have not only technical but also ethical and sociological implications (Lee, 2018). Technologies are viewed as non-neutral (Walkowiak, 2021), for example, algorithms in Uber can be viewed as a means of structuring unsymmetrical organisational relationships (Rosenblat & Stark, 2016). For this reason, there is a need to investigate about effects of *mechanistic dehumanization* (Haslam, 2006) on people and find possible solutions that protect human dignity from this issue. For example, Gal and colleagues (2020) investigated the effects of potential algorithmic features, such as opacity or datafication, on people's ability to nurture virtue.

The concern can also be extended to working conditions and the consequences of AM on them (Parent-Rocheleau & Parker, 2021; Basukie et al., 2020). Taking the perspective of those subjected to AM makes the protection of human dignity necessary, not to achieve the organizational goal, but for the good of humanity itself.

These elements can be identified by looking at research questions in papers. For example, Ebert and colleagues (2021) discuss how worker privacy can be safeguarded against datafication. The goal of this research question is to protect employees' figures to protect their dignity and allow them to achieve well-being outcomes.

Outcomes and solutions of Bounded Humanism:

It is conceivable to see in the characteristics that the outcomes are focused on protecting humans' status and improving their well-being. These tools are designed to prevent potentially harmful conditions such as discrimination and bias. The final subject is no longer the organization, but the individual human being in its working and social context. There are several

articles in the Bounded Humanism archetype that suggest creating ethical boundaries within AM by using a legal framework (Introna & Wood, 2004), or preventive risk management (Calvard & Jeske, 2018), but the difference from an economistic standpoint is that these legal frameworks are not used to avoid legal compliances, but to protect human dignity. AM technologies, such as AI, are now regarded as flawed (Gal et al., 2020). As a result, there is a need to avoid biases and make these technologies more human-friendly, while also considering the social and altruistic motivations of human workers (Lee et al., 2015). The goal of these outcomes is to understand the effects of AM on working and social worker conditions and to find solutions to protect their human agency (Ebert et al., 2021).

4.3.6 Pure Humanism

The framework's final archetype represents the final step toward full inclusion of human dignity within AM. Looking for human dignity protection is an unavoidable step because it is impossible to achieve the goal of dignity inclusion without it. However, the Bounded Humanism archetype is a necessary but still in-between stage; the aim must be dignity promotion. The coding process yielded 40 quotations that explain how this shift toward human dignity promotion occurs.

Characteristics of Pure Humanism:

There is a fine line between protecting and promoting human dignity. The first, as explained in the previous theoretical framework, attempts to counteract the effect of *mechanistic dehumanization* (Haslam, 2006) through unconditional aspects such as psychological or social vulnerabilities. Instead, the second step is to promote focusing on the unique characteristics of individual employees in an effort to overcome *animalistic dehumanization* (Haslam, 2006).

Indeed, archetype is defined by the desire to improve aspects such as development of workers' capabilities and responsibilities. Bounded and Pure Humanism share same features as the focus on human agency and the conception of algorithms as social agents (Lee, 2018). Also, in this context, AM is conceived in a socio-technical context, but it is aided to the betterment of humans rather than just their protection (Bankins, 2021). For example, Bankins (2021) explored how to determine the optimal mix of human and machine involvement inside HRM through improving *moral sensitivity* of algorithms. In order to improve workers' responsibilities, articles like Parent-Rocheleau and Parker (2021) explored how to include workers' voice into AM outcomes or create participatory model for designing algorithms (Lee et al., 2021). Pure

humanistic articles are also motivated by civility and moral sensibility; for example, Carrero and colleagues (2019) designed a disability-inclusive recruiting algorithm. Their goal was to develop a diverse and empathetic algorithm capable of creating a welcoming environment for people with disabilities.

Outcomes and solutions of Pure Humanism:

Animalistic dehumanization (Haslam, 2006) tends to deny human uniqueness. For this reason, Pure Economism outcomes are focused on restoring and improving human capabilities. Bankins (2021) developed a model for assessing task-technology fit based on five ethical principles theorized by Floridi and colleagues (2018) that are beneficence, non-maleficence, autonomy, justice, and explicability. This model fosters human responsibilities because it can recognize when it is necessary to assess needs for human control inside HR functions and keep or not *human-in the-loop*. The balance of human and technological involvement in HR is a challenge that is being addressed in a variety of ways, to improve human responsibilities and valorize the uniqueness of human touch even within AM. Asgeirsson (2014) presented an algorithm for irregular staff scheduling. This algorithm gave the possibility to employees to partial request schedules and maintain their autonomy and improving their responsibilities through the direct participation of staff scheduling. Lee et al. (2021) paper was taken as a possible example in the theoretical framework. The coding process validated this example because the proposed participatory approach increases workers' opportunities to play an active role within AM while also fostering their working skills and preferences.

Figure 9: Findings of Humanistic archetypes

Fake Humanism		Bounded Humanism		Pure Humanism	
Characteristics	• Indagate into relational aspects, albeit rooted in the Homo Economicus notion • External point of view • Focus on commitment, engagement, and job involvement • No concern for human dignity	**Characteristics**	• Full Transition to the concept of Zoon Politikon • Aim at well-being creation; protection of inherent aspect of human dignity is a prerequisite • Internal point of view • Algorithms seen as social agents	**Characteristics**	• Aim to counteract the effect of animalistic dehumanization by promoting earned aspects of human dignity • Desire to increase characteristics such as worker capability and responsibility development
Outcomes	• Algorithms considered as active agents • Introduction of a socio-techinical stance • Focus on the relationship between these groups and algorithmic management, and a willingness to reach transactional needs	**Outcomes**	• Tools are designed to prevent potentially harmful conditions such as discrimination and bias. • The final subject is no longer the organization, but the individual human being in its working and social context.	**Outcomes**	• The topic of balancing human and technological engagement in HR is being addressed in order to improve human responsibilities and valorize the uniqueness of human touch even inside AM. • Tolls or suggestion promoted tends to restore human uniqueness

The procedure of identifying each archetype was challenging. In actuality, the lines between these archetypes are blurred. Articles are not immediately categorized into one archetype or the other; rather, it takes numerous reads to fully comprehend the article's intricacies and the subtleties that enable a particular paradigm to be established. At first glance, Kochling and

Wehner (2020) article appeared to be a study based on Bounded Humanism. However, it is only after reaching the conclusion section that it is feasible to see that the true result of this research is organizations. Indeed, by using algorithmic decision-making systems that avoids ethical difficulties such as implicit discrimination and unfairness, it is feasible to improve performance and reputation. This implies that it was only in the end that it was possible to decide that this research may be classified as Bounded Economism. Another example is Barykin et al. (2020) article about digitalised personnel management model. This article, which used terms such as acceptance, listening, and trust, may mislead the reader. Indeed, these terms can be seen as a signal of the consideration of the relational aspects of the individual and induce the reader to consider this article as a fake humanist one. Instead, these terms revealed that workers are considered only as passive actors, that can only undergo the action from algorithms. this feature, in addition to the fact that the benefits of this model are also for the firm, signal that it belongs to the archetype of masked economism.

However, the goal of this research was not to count how many items belonged to one rather than the other paradigm, but to list the characteristics and outcomes of each archetype. In the next section there will be discussed how these listed characteristics can be useful for adapting Pirson (2019) framework to AM literature and implications for future research.

5. DISCUSSION

The goal of this study was to look at AM literature to determine if the topic of dignity was considered and what points of view were on it. These findings were required to define the current status of the literature and the choices given by researchers for developing societal advantages via AM. While earlier studies examined the link between algorithms and stakeholders, as well as the consequences of AM on workers and members in general, the implications of these outcomes on human dignity have received little consideration in the AM literature. To fill this gap, Pirson's (2019) approach had to be adapted to the AM, and then a framework for analysing the literature on the topic of dignity had to be established. Pirson's framework (2019) was able to transfer the philosophical concept of dignity into management theory, capture diverse views on dignity, and determine which outcomes these viewpoints could provide. This framework helped on creating a more complete vision on the argument, and then highlights characteristics and outcome for each archetype.

This research did not only report the current state of the art about dignity's concept inside AM, but also analysed the evolution of this literature over the years. Indeed, descriptive analytics allowed us to comprehend the evolution of this literature across time. Before 2005, there was minimal interest in this debate, but the emergence of these new technologies allowed AM to become increasingly relevant within organizations. The 2020-2021 period saw the greatest spike in interest as a result of another key factor: the Covid-19 epidemic. During the lockdown, there was an increase in remote working or gig-working and, as a result, digital surveillance (Tursunbayeva et al., 2021). This incident resulted in disruptive changes inside organizations and HRM (Minbaeva, 2021), as well as a shift in study focus on the implications of these changes. This reason can explain the steep increase in publication during the 2021-2022 period. Papers like Huang (2022), Bryce et al. (2022), or Schislyaeva et al. (2021) confirm this trend.

In summary, this research offered a general overview of AM features, deepened into the question of dignity, and provided an applicable version of Pirson's (2019) framework for AM literature. This research was necessary to provide a basis to AM for linking its outcomes with the ethical challenge of human dignity. In the following subsections, I will outline and discuss theoretical and practical implications, connecting the research findings with Pirson's (2019) work. I will also explain which changes I would recommend in the framework and suggest indications for future research and practitioners.

5.1 Theoretical implications and future research direction

In this systematic literature review, I didn't only report a general overview of AM literature, but I also tested the validity of Pirson's (2019) framework on AM literature. Following its assumptions, I revealed the presence of six different archetypes inside AM and I reported their principal features and outcomes generated by these ones. Furthermore, I will propose in this subsection also several changes to adapt better this framework to AM literature.

These archetypes represent various assumptions about the role of human dignity, characteristics, and understanding of social wellbeing. The results section highlights features and consequences of the Pure Economism paradigm matched with the Pirson's (2019) framework. Indeed, its articles show no regard for human dignity. People are simply seen as human capital, and the ultimate goal is to create profit for the corporation. AM pure economistic papers seek to translate human capital into measurable metrics and a see algorithms as tools capable of tying human capital to business profitability.

The results of the Bounded Economism paradigm similarly confirm the one proposed by Pirson (2019). Indeed, dignity is addressed under this paradigm, but only as a limitation. Articles will consider the notion of human dignity protection since it is incorporated in the economic perspective to prevent potential legal or reputational repercussions to the firm. The protection of dignity is subservient to the preservation of wealth creation. Because it is focused on inherent and universal notions of transparency (Nocker & Sena, 2019), autonomy, privacy (Sodeman, 2020), and human identity represented by the problem of datafication (Garcia-Arroyo & Osca, 2021), the concept of dignity protection within pure economistic AM literature attempts to restore human conditions from the Haslam (2006) concept *mechanistic dehumanization*.

The findings not only allowed us to match the Masked Economics paradigm with the one proposed by Pirson (2019), but they also suggested new characteristics that may be added to its description. Dignity is fostered in this paradigm in such a transactional approach. There isn't a concern for the relational and social aspects of dignity, but there are only "*efforts to promote dignity that effectively support wealth creation*" (Pirson, 2019, p. 49). This archetype varies from the preceding one in that it promotes the conditional features of dignity. It is feasible to see this hazy difference when comparing Mondel et al. (2014) to Yang and Chou (2011). These two papers concentrated on creating job-rotation models. The first fits under the Enlighted Economism archetype because it creates an algorithm capable of enhancing worker happiness while decreasing turnover. The second piece, on the other hand, is only concerned with developing a job-rotation model that avoids excessive working hours while preserving workers' independence. The difference is that the first attempted to improve the actual conditions, whilst the second just sought to prevent them from deteriorating.

During the study, I discovered two paths to achieving both dignity promotion and money creation: dignity promotion can lead to wealth creation, or both goals can occur concurrently. I propose separating this archetype in two based on these two foundations; the first would be named *Masked Economism* since dignity enhancement is only a pretence to accomplish money development. The second will be labelled *Enlightened Economism* since dignity enhancement and wealth production are considered as being on the same level in this situation. Pirson (2019) proposed the word Enlightened, but this split will assist to frame and separate the negative connotation (*Masked*) from articles that truly try to attain both aims at the same time (*Enlightened*).

Instead, findings on Fake Humanism tend to reconstruct the basic framework. Based on these findings, I'd want to offer a different definition of Fake Humanism. This archetype, as described in the results section, can be viewed as a transition state between the economic and humanistic

perspectives. These articles concentrate on the relationship between stakeholders and algorithms in order to meet their transactional demands. This archetype begins to address human beings' relational characteristics and imagines them as active players; for example, research that focuses on how employees react to algorithms and how they impact them in turn (Meijerink & Bondarouk, 2021, Kellog et al., 2020). However, contrary to Pirson's (2019) belief, this research does not deserve the negative connotation of *Fake*. I believe the notion of *Economic Humanism* is more appropriate. At first glance, this title appears to be a contradiction, however it refers to a more neutral perspective than the *paternalistic* one identified by Pirson (2019) as a feature of Fake Humanism.

The concept of human dignity inside the Bounded Humanism archetype is in line with the selected framework. In this paradigm, human dignity is conceived as an indispensable concept without which well-being cannot be achieved. Managerial outcomes in this case are achieved only if they do not danger the human sphere. This paradigm aims to protect human dignity from *mechanistic dehumanization* (Haslam, 2006) as the Bounded Economism one, but only for humanity's sake.

There is also a focus in the Pure Humanism paradigm within AM for enhancing human dignity and, as a result, well-being through the employment of algorithms within HRM. This archetype is concerned with earned characteristics of dignity that might thrive a good life, such as moral awareness, attention to human responsibilities, and the development of human abilities. Because they both attempted to strengthen conditional components of dignity, the contrast between the Pure Humanism and Masked Economism archetypes is less obvious than it may appear. For example, Ramamurthy and colleagues (2015, B) developed a tool for predicting work engagement, whereas Lee and colleagues (2021) discussed the benefits of participatory algorithms. The distinction is in their goal. The first paper suggests using job engagement to improve worker performance and profits, while the second suggests using participatory algorithms to boost worker involvement and responsibility.

These implications adapt and validate the use of Pirson's (2019) framework for linking the concept of human dignity to AM literature.

This framework may be applied to new research to correctly incorporate discussions of dignity, or it can be used to evaluate already published publications. Indeed, these findings explained that is not so simple to identify an article at a first glance. Although the idea of dignity may not be stated clearly, there may be elements or synonyms that call to mind, such as integrity or autonomy. Up until the final paragraph, some writings can be categorized as humanistic before

revealing their desire to create wealth. These instances provide proof that it would be overly simple to focus just on whether the human dignity issue exists in AM. Instead, the revised framework enables having a more solid foundation for evaluating articles and providing examples to better recognize details that might place the article in a certain archetype.

Future research will benefit from this framework as well; AM researchers may use it to put up new studies centred on the idea of dignity. Researchers can avoid straying from their intended goals by using reported features. Additionally, if generating wealth is the main objective, this research provides suggestions for at least taking the protection or advancement of dignity into account without compromising the main objective. To conduct another literature review in the future, it would be possible to use this framework in order to categorize all the selected articles into an archetype and analyse trends in this research and find which paradigm is dominant inside AM literature regarding human dignity. For these reasons, I would advise future research to first determine their research objective/scope. If their goal (well-being or wealth creation) is clearly stated, they can also determine how to incorporate the concept of human dignity into their studies. Whatever their goal, I would advise them to always consider the socio-technical aspects of AM to make the results more realistic, as well as the possible relationships between people and algorithms within HR practices. The rise of the humanistic perspective pointed to the need to introduce the concept of dignity within AM literature. Through this research, I provided an overview of the current status of the concept of dignity within it and adapted an assessment tool for future research.

5.2 Practical Implications

The analysis in the preceding sections demonstrated that research on AM and workplace outcomes is expanding annually. Although the issue of human dignity is still not explicitly addressed within this topic, external circumstances like the COVID-19 pandemic have made it necessary to do so given the matter's rising significance. The created framework is helpful for further study because of this.

For HRM professionals and companies in general, this research can already have beneficial practical implications. In the following part, I will make a distinction between implications for HRM practitioners and organisations in general.

HR analysts and managers must examine how some choices may impair the dignity of their employees. Two trends regarding the concept of dignity emerged from the analysis: the first was focused at preserving its inherent and universal component, while the second was aimed at

enhancing its conditional and earned component. To ensure the protection, if not the promotion, of human dignity through the application of AM instruments and functions, HRM practitioners should:

- When introducing a new AM tool into the organization, they should consider social implications as well as economic ones. By adopting a socio-technical viewpoint and considering potential worker responses and countermeasures, the instrument may be tailored to their needs, which will improve worker acceptability.

- They should not rely too heavily on AM tools, but should always maintain a *human touch* inside their functions. Using AM technologies to improve decision-making or data analytics to judge personnel can help you get a better picture of their performance. However, it is not required to delegate the transmission of outcomes to these instruments. Maintaining connections with employees entails considering the social aspect of human beings, including their emotions and sentiments, rather than just as a resource.

- They should also go above and beyond current legal frameworks, such as the GDPR law, to protect the privacy of their employees, and establish ethical guidelines within the organization to manage the connection between algorithms, or artificial intelligence, and workers. For example, an ethical use of data HR department can establish a framework based on the principles of *confidentiality, privacy, transparency* and *identity,* as suggested by Nocker and Sena (2019).

- As previously indicated, it is preferable to see AM from a socio-technical perspective. HR professionals should encourage workers to actively engage in the process and provide feedback throughout the design phase. It is possible to boost not just openness, but also commitment since employees will feel more responsible to the organization. Giving employees the ability to actively engage in AM choices increases their empowerment; employees will no longer feel like a number, but as an integral part of the organization.

Human dignity protection is not just the duty of HR practitioners, but must concern the entire enterprise. As example:

- Establishing ethical standards and an organizational structure may not be enough on their own. It would be beneficial to form an ethical committee within the organization to reinforce its authenticity. This ethical council should be comprised of figures who

are well-versed in algorithms and other AM technologies, allowing them to monitor their functions and get direct reports from workers. The role of an ethical auditor or of an *algorithmist* (Gal et al., 2020) can help avoid worker attrition toward technologies since they can explain the complexity of these tools and increase their transparency.

- According to Wesche and Sondegger (2019), algorithm designers should explicitly include ethical criteria into their programs in order to emphasize worker well-being, provide a fair system that operates openly, and foresee and avoid any misuses or violations of human rights. Another proposal is to include the ability to disable these tools in order to return to making human judgments as the ultimate and definitive one when needed.

- Workers' unions can also play an active role in this process. They should request an auditing position within firms to guarantee the protection and promotion of dignity, but they may also take this issue to a higher level and request legal changes directly from governments. Indeed, as these technologies evolve, so do their consequences on labour. They should, for example, adopt Nowik's (2021) idea and request the legal creation of an electronic personality. It is, therefore, feasible to ensure material accountability in the event of worker moral or physical damage.

5.3 Limitations and suggestions for future research

Despite all the strategies used to increase the credibility of this study, there are still limitations to the methodology section. The first issue is one of inclusion criteria. Focusing solely on papers in the social sciences or those that consider the influence on members of the organization eliminated the option of reviewing engineering literature connected to AM. Next study might use this analysis by taking into consideration similar papers and investigating how engineering research develops and designs these algorithms. It would be beneficial for the concept of dignity to investigate how these algorithms are made and find way for including aspects referable to dignity into the design of the algorithm, this research can already offer some suggestions.

A second limitation concerns the article selection criteria. Both articles about online labour platforms and traditional workplaces were chosen during the selection phase. Analysing these two types of workplaces separately allows for a better understanding of their differences and how they relate to human dignity.

Another limitation that may have an impact on the validity of this study is the inclusion of only papers written in English. The AM literature, as stated in the findings, is growing attention

toward itself and becoming a worldwide topic. Taking into consideration also articles written in other languages would be beneficial for highlighting new specific features for certain nations or cultures, or different conceptions of human dignity. This research also embraced the largest possible conception of AM. Future research should concentrate on specific components of AM, such as decision-making or recruitment, and examine how these relate to human dignity to identify peculiar characteristics.

6. CONCLUSION

This research conducted a systematic review of the AM literature to investigate the various perspectives on dignity in this discipline. The study included a review of 242 publications published between 1996 and 2022, allowing for a more comprehensive understanding of AM and its influence on employees.

This study contributes to algorithmic management and the larger subject of human resource management in four ways. First, despite the growing interest in the relationship, this is, to the best of my knowledge, the first comprehensive literature review that examines the relationship between AM and the idea of human dignity. Second, our examination of the literature showed an important and developing humanistic perspective within AM, and it characterized and contrasted its primary characteristics to the economistic one. This study also reported on the important characteristics and qualities that humanistic and economistic viewpoints in AM emphasize regarding the different ideas of dignity inside of it. Third, in order to identify and report these traits, the framework by Pirson (2019) was used to translate the philosophical idea of dignity into management language. This study examined the framework's validity and offered some adjustments to improve the match between archetypes and AM literature. This framework can be considered as a beneficial tool that may be utilized in future studies to evaluate past articles or as a guideline for generating new ones. Fourth, I contributed to the field of human resource management by making recommendations for future studies in this area. In addition, I contributed to the work of HRM practitioners by gathering and resuming practical advice on how to include the preservation and promotion of dignity in HR practices. In conclusion, the arise of humanistic perspective highlights the necessity of including the concept of human dignity within AM research, this research contribute to a better comprehension about different points of views on human dignity within AM literature and adapted a framework that can be useful for future research.

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