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Assessing Policy Measures Safeguarding Workers from Artificial Intelligence in the United States

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Abstract

With the proliferation of artificial intelligence (AI) technology, the profound impact it has had on the economy cannot be ignored. With each passing day, AI advancements grow increasingly significant, demanding the close attention of both corporations and governments. It is imperative for all stakeholders to grasp the ramifications of AI on the workforce and societal inequality. While past research has predominantly revolved around the potential of AI-driven automation and the specter of job displacement, a crucial aspect often overlooked has been policy evaluation that considers those directly impacted—employers and employees within the workplace. Through a comprehensive survey encompassing the perspectives of over 5000 individuals and 2000 firms, we endeavor to unravel the intricate web of AI implementation within professional settings and, by proxy, potential policy solutions to combat the various aspects of AI. The revelations stemming from our study are telling Training emerges as an indispensable catalyst in the assimilation of AI, rendering it more effective and, notably, enhancing the perceptions of AI among the workforces. Furthermore, consultations surrounding AI integration within organizations prove to be a positive force, facilitating its harmonious coexistence with human labor. However, it is the vital nexus of communication between employers and employees that stands as the linchpin to the successful incorporation of AI into the modern workplace. Furthermore, examples of federal and regulatory policy are provided that could be used to combat concerns that will arise in accompaniment with AI. In essence, our findings implore a balanced and nuanced approach—One that empowers rather than alienates employees. Only through such an approach can we hope to foster coexistence between AI and the invaluable human workforce.

Keywords

Artificial Intelligence, US, Workplace, Automation, Tasks

1. Introduction

In an era marked by rapid advancements in artificial intelligence (AI) technology, the integration of AI systems into various sectors of the economy has become increasingly prevalent. While AI systems continue to demonstrate the incredible existing and potential impacts on labor relations, many are slowly realizing its effect on workers of all incomes. Both popular opinion, government and research in a variety of disciplines have been concerned with the rise of AI [1]. Though a broad definition, the OECD's AI Experts Group (AIGO) defines an AI system as a "machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations or decisions influencing real or virtual environments" [2] AI reached another milestone when generative AI applications such as ChatGPT, GitHub Copilot, and Stable Diffusion recaptured the imagination of people globally. For the first time, changes in technology will no longer only automate physical tasks, such as the factory worker archetype [3]. Generative AI refers to the "fact that these tools identify patterns across enormous sets of data and generate new content" and their "natural language capabilities", which are required for many workers [4].

In this paper, we offer first a brief synopsis of the effects of automation through the lenses of robot installation in the US, we then expand the potential parallels in adoption to generative AI. OECD survey data is then analyzed through descriptive statistics to ensure an accurate impression of generative AI's impacts on the status quo, and potential policies aimed at assisting the smooth, "human-in-command" adaptation of AI are explored with findings in mind.

2. Literature Review

The recent decade has witnessed a steady increase in AI Systems and Automation. According to the most recent McKinsey report, as of 2022, 50% of surveyed organizations reported having adopted AI in at least one business unit or function [3]. The demand for AI-related professional skills has increased in virtually every American industrial sector, with machine learning pulling ahead in the US. Private investment in AI has significantly increased in the last decade, with focus areas being medical and healthcare, data management, processing, cloud, and Fintech. The US leads investment in AI, with total investment being roughly 3.5 times the amount invested than the next highest country, China, in 2022 [5].

Legislation to regulate or control AI has sprung up in recent years. The number of mentions of AI in legislative proceedings has seen a steady increase, along with both proposals and ratifications of AI-related bills in the past 6 years [5]. In 2022, the United States processed 88 AI-related proposals, passing 9 of them at the federal level. On the state level, there has also been a steady increase in AI-related bills too, with 60 being proposed and 21 passing in 2022 [5]. Within academia, the number of AI-related policy papers by US-based organizations has also seen an increase with 284 published in 2022. A survey conducted by the Pew research center has also identified that Americans are, overall, more concerned

than excited when it comes to the increased use of AI in daily life [6]. In the post-ChatGPT era, it was identified that negative perceptions commonly highlight a lack of trust in current AI technologies and an apprehension about the future trajectory of AI development [7].

As an important precursor, it is important to differentiate between AI and automation. Though these terms are used synonymously in daily life—associated commonly as physical or software robots along with other machines that allow for more efficient work-automation is defined as software or hardware capable of automatically performing tasks without any form of human intervention. Unlike AI, it is not created to make machines that mimic or supersede human intelligence and behavior [8].

AI and automation perform the similar roles, that being performing human tasks faster, and more efficiently, which allows parallels to be drawn between the two. The breadth of automation has grown rapidly since the emergence of information and communications technology (ICT) in the late 1940s. A specific type of automation is industrial robots, defined by The International Federation of Robotics (IFR) as an "automatically controlled, reprogrammable multipurpose manipulator, programmable in three or more axes which can either be fixed in place or mobile for use in industrial automation applications". The use of robots has expanded globally, with an increase in the US from 0.49 robots per thousand workers in 1995 to 1.79 robots per thousand workers in 2017 [9]. Research has also shown that for every robot added per 1000 workers in the US, wages decline by 0.42% and the employment-to-population ratio goes down by 0.2 percentage points [10]. The number of newly installed industrial robots is not showing signs of slowing either, with the annual growth rate of industrial robots installed in the US being at a steady 14.5 per cent in 2021 relative to 2020 [5] Automation and offshoring are credited for causing the most "job polarization" within the US, with the long-run change expected to occur in the US, wherein middle-skill occupations-like manufacturing and production jobs-decline and high and low-skill occupations increase. It remains clear that employment in routine occupations has been stagnant or even declining, largely due to the introduction of industrial robots [9].

There exists a view of automation of the direct "negative effect" which is that implementing automation would be offset by new jobs created induced by the new lower equilibrium wage [10] This idea was later toppled by empirical evidence demonstrating that automation leads to direct positive effects caused by the expansion of the market, entailing increased demand for labor due to increased productivity followed by a counteraction of an indirect negative effect due to "eviction effect" [10]. However, as noted by the countervailing effects of increases in demand are insufficient automation, increases output per worker more than wages and reduces the share of labor in national income. Especially when there is a mismatch between the skill requirements of new technologies and of the now-unemployed worker [8]. Thus, low-wage workers, who tend to

work in roles involving repetitive and procedural tasks are affected the most, for example, 20% of Texans earning under $65,000 are likely to experience job loss in the next five years due to automating technologies [11]. It is recognized that automation undoubtedly improves the quality of production, providing exacting and repeatability, and we should collectively strive for a seamless human-in-command [12] approach to the future integration of AI and humans.

Though the consensus remains that AI increases productivity and amends the accompanying job losses by expanding other sectors and contributing to overall growth it has also garnered concerns. A myriad of research has expressed that automation technologies—explicitly aimed at replacing labor through the form of cheaper capital [10]—are generally accepted as synonymous with a decrease in demand for low wage labor, and previous legislative measures have been primarily concerned with retraining and redeploying low-income workers affected by this displacement. However, with the rise of generative AI, concerns have expanded towards higher-income workers outside of the manufacturing sector.

Not only can generative AI perform a range of routine tasks, reorganizing and classifying data, but they can also write text, compose music, and create digital art. It was a breakthrough, rather than simply perceiving and classifying, machine learning is now able to create images and texts [13]. According to Ellingrud *et al.* [4], although still in its early stages, the applications for businesses are endless; from writing code to analyzing legal documents and even accelerating scientific research, it can be used singularly or collaboratively ("humans in the loop"). By 2030, AI is expected to automate 30 percent of hours worked today. The same study states that a decline may occur for office support, clerks, retail salespersons, and administrative assistants. The Pew Research Center also concluded that about a fifth of all workers have high AI-exposure jobs and that about 19% of American workers were in jobs in which the most important activities could be replaced or assisted by AI in 2022. Interestingly, jobs with high levels of exposure tend to be in higher-paying fields where a college education and analytical skills can be a plus. Those with more education are more than twice as likely to be exposed to AI than those with a high school diploma [6].

It remains important to recognize that although AI initiatives have been adopted in leading technology firms, many applications of AI are still at their conceptual stage, with little current commercial value prior to generative AI [14] Even in its current state, the most current literature still insists little evidence of significant negative employment effects, with job quality benign more impacted than job quality thus far. Despite this, it is imperative to further research on projections, and concerns should be raised more, now more than ever, due to the outpour of commercially used NLP's and generative AI.

3. Methodology

Special access to microdata of survey conducted on employers and workers of the manufacturing and financial sectors of seven countries was provided by The

Organization for Economic Cooperation and Development (OECD). The survey included a total of 5334 workers and 2053 firms in the manufacturing and finance sectors in Austria, Canada, France, Germany, Ireland, the United Kingdom, and the United States. The employer survey sought to shed light on how AI is being implemented in the workplace, whereas the worker survey captures the receiving end.

Using survey responses, data was visualized using graphs, charts and tables that aided in forming general conclusions that pertained to the frequency of adaptation and what measures were undertaken to adapt AI.

4. Findings

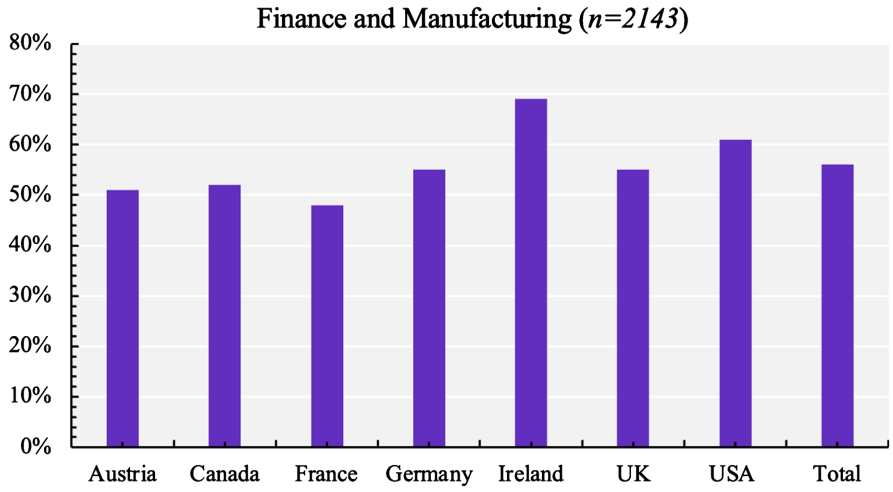
Among the respondents hailing from Ireland and the United States who participated in the survey, it was revealed that a notable 69% and 60%, respectively, had the privilege of receiving training facilitated by their employers or had their workplace finance their AI-related training endeavors. In the broader context, most AI users, encompassing over half of the sample, profited from company-sponsored training initiatives aimed at equipping them to effectively engage with AI technologies.

Impressively, as demonstrated by **Figure 1**, more than 80% of those fortunate enough to have undergone such training reported experiencing positive impacts on their job performance, a significantly higher proportion than the roughly 60% of their counterparts who had not received any such training. Paradoxically, those who had been the beneficiaries of AI training exhibited heightened apprehension about the potential threat to their job security over the next decade.

This divergence in perception underscores the importance of fostering AI-related training programs to enhance performance and working conditions, but simultaneously raises concerns about the need for employers to assuage their workforce's anxieties regarding AI-induced job insecurity.

Figure 2 outlines that, surprisingly, less than half of the surveyed employers disclosed that they engage in consultations with their employees regarding the integration of new technologies, including AI. However, when consultation did take place, employees were more inclined to report the positive impacts of AI on their job performance and working conditions. Moreover, they were more optimistic about AI's potential to lead to wage increases. The act of consultation seems to not only bolster the positive aspects of AI from an employer's perspective but also plays a pivotal role in mitigating, even avoiding, the overarching issue of AI-related job displacement, particularly in the manufacturing sector. The focal point of these consultations generally revolved around discussions about AI-related skills development and training.

Table 1 illustrates that of the all those interviewed, only 56% receive training overall, while showing which countries are more likely to provide training, such as Ireland and USA, 69 and 61 percent respectively, while workers in Austria or



Subtitle: % of all AI users.

Figure 1. AI users in Ireland and the US are most likely to say that their company has provided or funded training.

Table 1. Finance and manufacturing (n = 1231).

	Austria	Canada	France	Germany	Ireland	UK	USA	Total
Training Provided?	51%	52%	48%	55%	69%	55%	61%	56%

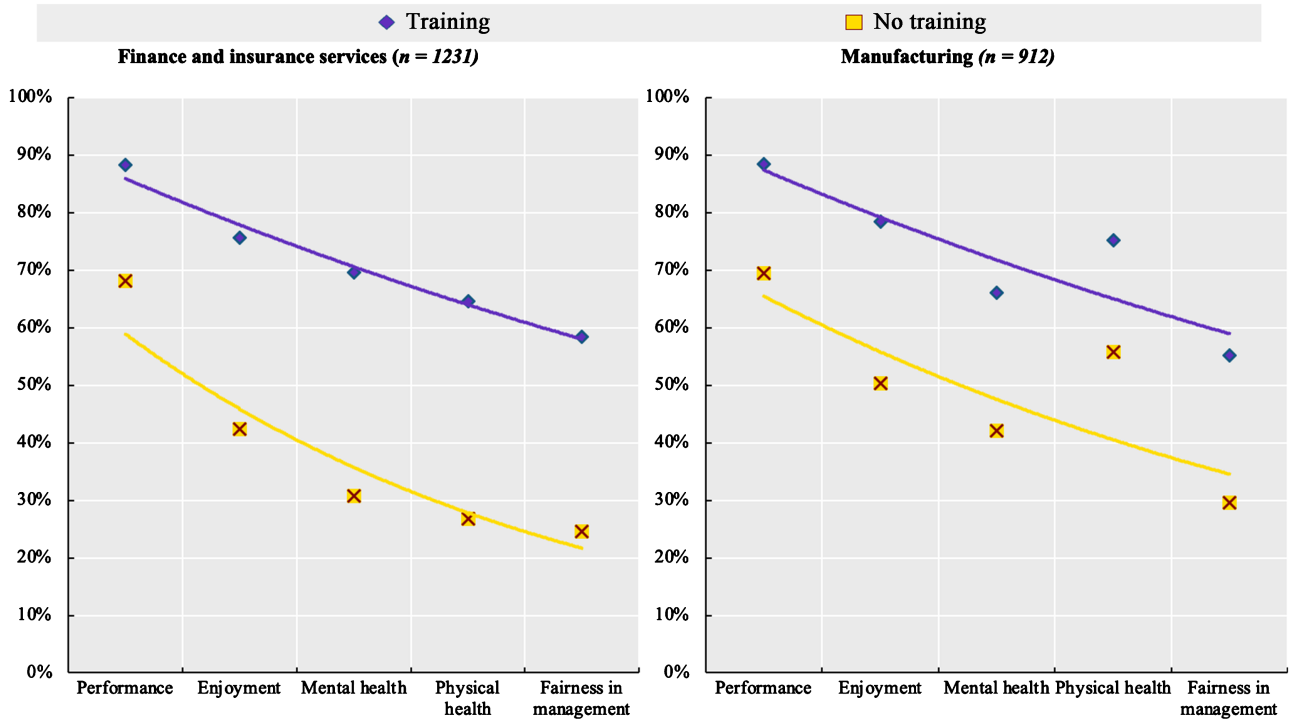
Notes: AI users were asked: "Has your company provided or funded training so that you can work with AI? Yes; No; Don't know". Source: Data from OECD worker survey on the impact of AI on the workplace (2022), graph constructed by the author.

France have been receiving less training overall.

Promoting the practice of consultation should be heavily endorsed by employers, as it not only serves to enhance workforce morale but also cultivates a more favorable perception of AI within the workplace while bolstering its overall effectiveness. Furthermore, it is interesting to note how out of those who did not receive training, workers belonging to the manufacturing sector seem to be report more positive outcomes on AI in general than those in the finance/insurance sector. Coupling this with the fact that employers in the manufacturing sector are almost 50% likely to address skills need by employing new workers, it seems as though the manufacturing sector has been assisted by AI.

Table 2(a) and Table 2(b) highlight the differences between receiving training and not receiving training in performance, enjoyment, mental health, physical health, and fairness in management, for both the fields of finance and manufacturing. These tables show how similar the effects of both receiving and not receiving training are for both manufacturing and finance, as well as further showing the importance of providing training, as they generally report more positive effects of AI. For example, the almost 40% difference in mental health for the finance field.

As Figure 3 demonstrates, approximately one-quarter of employers who have



Subtitle: % of all AI users, by whether they received training.

Figure 2. AI users who have received training are even more likely to report positive outcomes of AI on performance and working conditions.

Table 2. (a) Finance and insurance services (n = 1231); (b) Manufacturing (n = 912).

(a)

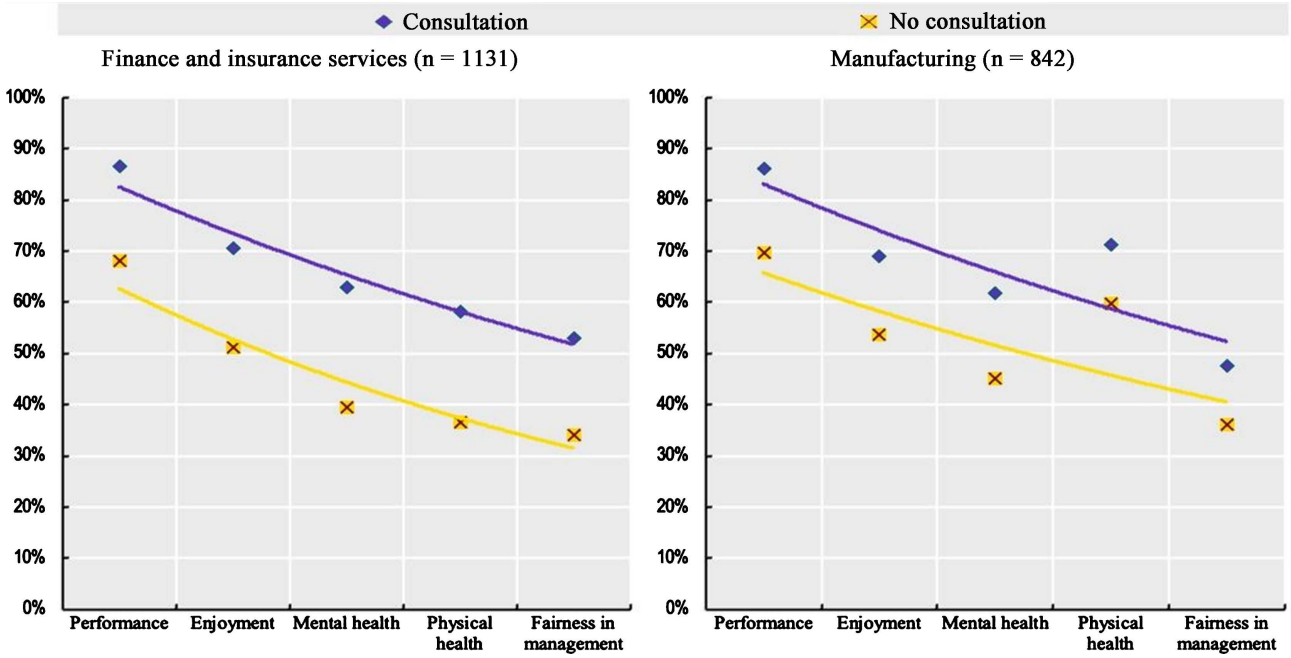
	Performance	Enjoyment	Mental Health	Physical Health	Fairness in management
Training	88%	76%	70%	65%	58%
No Training	68%	42%	31%	27%	25%

(b)

	Performance	Enjoyment	Mental Health	Physical Health	Fairness in management
Training	88%	78%	66%	75%	55%
No Training	69%	50%	42%	56%	30%

Notes: AI users were asked: "How do you think AI has changed your own job performance (performance)/how much do you enjoy your job (enjoyment)?/your physical health and safety in the workplace (physical health)?/your mental health and well-being in the workplace (mental health)?/how fairly your manager or supervisor treats you (fairness in management)?" The figure shows the proportion of AI users who said that each of these outcomes were improved (a lot or a little) by AI. Source: OECD worker survey on the impact of AI on the workplace (2022).

embraced AI technologies have also ventured into AI-related data collection practices.



Subtitle: % of AI users, by consultation.

Figure 3. Where consultation takes place, workers are even more likely to report positive impacts of AI on performance and working conditions.

Table 3. (a) Finance and insurance services (n = 1,131); (b) Manufacturing (n = 842).

(a)

	Performance	Enjoyment	Mental Health	Physical Health	Fairness in management
Consultation	87%	71%	63%	58%	53%
No Consultation	68%	51%	40%	37%	34%

(b)

	Performance	Enjoyment	Mental Health	Physical Health	Fairness in management
Consultation	86%	69%	62%	71%	48%
No Consultation	70%	54%	45%	60%	36%

Notes: AI users were asked: "How do you think AI has changed your own job performance (performance)/how much do you enjoy your job (enjoyment)?/your physical health and safety in the workplace (physical health)?/your mental health and well-being in the workplace (mental health)?/how fairly your manager or supervisor treats you (fairness in management)?" The figure shows the proportion of AI users who said that each of these outcomes were improved (a lot or a little) by AI. Source: OECD worker survey on the impact of AI on the workplace (2022)

However, over half of the surveyed workforce expressed concerns about these data collection efforts associated with AI. These concerns are mirrored in the fact that more than half of the employees surveyed advocate for some degree of

regulation surrounding AI's role in hiring and firing processes, with some even advocating for an outright ban.

Table 3(a) and Table 3(b) highlight the same factors as Table 2(a) and Table 2(b), however showing the effects of consultation as opposed to training. As seen in the tables, the effects generally seem to be similar except for one notable exception, that being fairness in management for manufacturing. This serves to highlight the concerns of using AI at all in management, especially on the manufacturing front.

The integration of AI in the workplace carries the dual potential of either exacerbating or mitigating inequality, as its effects may be disparate across different demographic groups. Additionally, the implementation of AI in hiring and firing processes raises significant concerns for both employees and governments due to the potential biases inherent in AI systems.

5. Discussion

5.1. Assisting Adaptation to the AI Era

Though a plethora of research exists on how AI could increase worker productivity [15], there is still much-needed evolution regarding how AI could coexist with workers, and how governments can facilitate the current transition.

Though short-run considerations need be taken into consideration, where short-term effect of mismatch in skills and technologies may occur, Acemonglu and Restrepo in 2018 predicted optimistic long-run effects through the task-based approach, wherein new tasks are created that cater to skills that labor has a comparative advantage to. However, despite frameworks that could be implemented to mitigate short-run job losses related to the transition of AI, it is important to note that ultimately, AI will impact different geographic regions, socioeconomic classes and genders differently [16] and in ways that transcend the customary concerns of job losses. Furthermore, unequal distribution of the proceeds that result from the adoption of AI may have destabilizing effects on societies. The US is behind in domestic AI regulation and, as established in the view of a new paper from the Adam Smith Institute, the status quo of current welfare systems are not readily prepared to adapt to the challenges presented by automation [17]. With the exponential power that AI systems are garnering, the US needs to bolster AI regulatory frameworks to assist adaptation to the AI era and since systems may make impacts at a faster rate than governments can react.

5.2. Workforce Training and Reskilling

The World Economic Forum projected in 2022 that half of all employees would need to be reskilled by 2025. In the next ten years, both manufacturing and service firms will have to adapt to survive competition in "Industry 4.0", revolutionizing, most notably, the manufacturing processes [14]. Unlike previous industrial revolutions, a premium will be placed on human capital and intellectual resources, and the trend of change in competency requirements for the global

supply chain and manufacturing industry that depends on people, not technologies, will have to be acknowledged soon. Top skills that will see a rise are generally higher and broader, with the demand for digital, analytical, transversal, and soft skills increasing [18] Of course, digital literacy and the ability to use AI applications will be needed to fully take advantage of these new technologies.

It is important to note that important deviances decide the degree of need for workforce retraining. For example, Africa's manufacturing industry is generally characterized by a significant percentage of low-skilled workforce that deviates from the higher skill levels required in the new industrial era, and workforce reskilling and upskilling is thus vital to African economic development. On the other hand, developed economies of the Nordic countries have hitherto provided funding for R&D and bolstered resources for universities and research institutes to prepare for upskilling [14].

One way to combat the concerns over job losses would be to grant all individuals opportunities to develop the skills they need to participate fully in the workplace through life-long learning. Given that new skills and technologies are being introduced every day to aid in worker reskilling, learning through life has not only become a necessity given the upward trend of increasing job complexity but also a key decider in the higher education domain of the coming century.

Multiple ways to reskill and upskill in the era of industry in ways that do not come with the time lags of traditional upskilling and reskilling through higher education, vocational schools, and experiential learning have been identified [14]. Non-traditional training, such as professional certificates, re-certification, company-sponsored on-the-job training, and self-study open course programs are all measures companies can implement to upskill high and middle-income workers.

All in all, conclusions of studies cited in this paper have led to the consensus that despite the unlikeliness that AI and machine learning will lead to mass unemployment being observed, many tasks that new technologies can perform may still be devalued or disappear. However, with proper educational policies and an upskilling of low-skilled workers, future workforces can be more prepared.

5.3. Educational Policies

Wage inequality and other consequences that arise due to AI will not only be dependent on demand for labor, but also depend on the supply of different levels of skill, or the distribution of educational attainment [19].

Economists have identified the three types of skills that workers will need to adopt: analytical and creative thinking, interpersonal communication, and emotional control [20] in addition, there may be an increased need for social skills that include engaging, motivating, and comforting other humans [21]. Overall, most of the literature points to more value associated with social skills and judgment, with judgment being defined as the skill of knowing the objectives of an organization and translating that into data that can be collected [20]. Executing this skill with the best judgment would require understanding both the ca-

pabilities of the machine and the goals of the organization. However, it is important to note that some argue machines are likely to be more emotionally intelligent, which might mean other skills, such as skills related to telling an AI what to predict, may become more valuable since they can provide a variety of different uses in many different fields.

However, even the most seemingly direct educational policies need to be considered heftily. Highly educated people benefit the most, so the assumption is that we need to create more highly educated people. Unfortunately, not all people are equally likely to benefit from education and so a policy recommendation for more education may fail due to a lack of effectiveness, or people simply not learning [20]. AI could potentially exacerbate the education gap between different wealth classes as people with better access to education can better take advantage of what is provided.

In sum, governments need to invest more significantly into AI development and increase regulation regarding issues related to AI. Governments should encourage cross-disciplinary research to support K-12 education standards to assist Gen-Z's transition into a world that is infused with AI applications and AI judgment-making. This allows for a useful skill to be given to the future workforce, in a workplace where AI is very important.

5.4. Cushioning Inequality through a Universal Basic Income (UBI) and Taxation of Capital

Other potential policies aimed at dealing with the unequal consequences of AI include the taxation of capital. Despite the standard model of interpretation suggesting that such taxation would lead to less investment, slower productivity growth and a poorer society overall, models have demonstrated circumstances where taxation of capital could simultaneously reduce inequality without causing economic stagnation. For example, under the circumstance that there are necessary but fixed factors of production, taxing that factor could enable redistribution without distortions. Furthermore, if the supply elasticity of capital remains sufficiently low, then a combination of intellectual property rights and capital taxation can enable redistribution with minimal distortions [20]. A study was conducted as well and found that tax levied on robots did reduce the probability of worker replacement [22]. A tax on AI could have similar effects, protecting more at risk workers from replacement.

Secondly, another policy alternative could be a UBI, or Universal Basic Income. Defined as "an income paid by a political community to all its members on an individual basis, without means test or work requirement" [23], it has received substantial support as highlighted through growing interest in Canada, Finland, Uganda, and Kenya. Though long-run predictions seem optimistic, the possibility of automation, the gig economy and global trade could risk populist backlash from individuals hit by creative destruction. Sam Altman, CEO of OpenAI, has championed a BI approach that provides all adult citizens annual unconditional cash payments funded by taxing certain companies. Mustafa Su-

leyman, co-founder of DeepMing, has also expressed support for a BI and insisted governments provide compensation for people who lose their jobs due to AI. Elon Musk endorsed Andrew Yang's freedom dividend, proposing a monthly US $1000 benefit to offset job loss due to automation. A recent poll surveyed found that about two-thirds of Americans are now in favor of a universal basic income [24]. The popularity of UBI as a future policy could influence future decision making to the implementation of UBI. The same study that found that taxes levied on robots did reduce the probability of worker replacement also found that workers were no less productive when given a universal basic income. Basic income also removes the need for more complicated programs like unemployment or welfare, allowing easier access to financial support [22]. However, it is important to note that a universal basic income is significantly costlier than taxation and should be viewed as a more general instrument aimed at the broader fight against inequality. Regardless, basic income is both politically feasible and financially sustainable, whereas short-term regulations designed to protect jobs risk economic stagnation [24]. UBI could serve as a more long-term solution, granting time for workers to reskill, as well as decreasing the impact of sudden unemployment.

5.5. Cushioning Inequality through a Universal Basic Income (UBI) and Taxation of Capital

"In no other field is the ethical compass more relevant than in artificial intelligence" [25]. Ethics help us discern the right from the wrong. Currently, there is no consensus on moral frameworks, with utilitarianism, deontology, and divine command theory representing a multitude of different approaches.

The rise in artificial intelligence has raised concerns regarding what is right and wrong in a multitude of areas. Of those, concerns over data privacy, fairness, environmental sustainability, misuse, and value alignment are the most prevalent.

Data Privacy

AI systems rely greatly on vast data to train algorithms and improve performance, handing whoever processes and collects data the potential to proliferate unauthorized access to personal information. It can be utilized to monitor individuals in ways that were previously impossible. According to a study conducted by Pew Research over 50% of U.S. adults are opposed to AI monitoring at their employment, such as tracking worker's movements, and recording what workers do on their computers. Comprehensive privacy legislation provides a starting point for combatting hesitations regarding AI. In the US, legislative action has been comprised of recapping the White House Executive Order on bias, the AI Bill of Rights, and an additional package of initiatives focusing on research and development in late May 2023. In an outline by Senate Majority Leader Chuck Schumer on June 21, more "comprehensive" AI legislation was called for along with a balanced call for greater explainability for AI models. Governance is optimistic; however, as frameworks for legislation do not seem to be started from scratch, with most having a consensus on aims for algorithmic transparency,

fairness, and accountability. In a 2019 Nature survey that examined ethical AI guidelines and principles globally, a total of 84 such existing frameworks were identified. Among these, 73 included aspects related to transparency in varying degrees, 68 encompassed principles related to "justice & and fairness," and 60 incorporated the concept of "responsibility." Additionally, many of these frameworks shared other key elements, including the principles of beneficence and the prevention of harm [26]. Another concern is a data leak, since AI databases compile so much information, with would be a prime target for cyber-attacks [27]. From 2021 to 2022, the victim counts from data leaks doubled from 128 million to 422 million. With the rise of large AI databases full of people's personal information, victim counts could increase as more people's personal information is added to databases.

Environmental Sustainability

Training AI models based on big data requires computations that can emit more than 626,000 pounds of CO_2 equivalents [28]. Furthermore, e-waste produced by AI technologies, if adopted on a large scale, poses serious environmental challenges by contaminating soil and water supplies to aggravating human health and environmental concerns. Considering that in 2019, only 17.49% of e-waste reached a proper facility [29]. Ramped-up production of AI technologies will lead to a serious increase in pollution. This issue is conjoined and exasperated by a lack of transparency and accountability, with many companies potentially putting profit over social consequences.

The most worrying fact is that there is a substantial lack of priority for laws and regulations for environmental sustainability for AI systems. Though many countries have established or outlined rules for regulating emerging AI systems aimed at other concerns, few have explicitly called for environmental sustainability. For example, one of the most common methods of carbon offsetting—planting trees and other activities that reduce carbon dioxide emissions—are typically ineffective. The issue is however that when carbon offsets are legally mandated, the increasing amount of carbon emissions released from AI companies can have a more serious effect on the environment. The US guidelines have also primarily been focused on protecting businesses and consumers, ignoring the potential externalities.

Reducing AI's environmental impact necessitates a multifaceted approach. This includes investing in energy-efficient hardware and algorithms to decrease energy consumption, implementing ethical AI design standards, and emphasizing responsible practices such as avoiding unnecessary data collection. Additionally, fostering a culture of transparency, data sharing, and collaboration among stakeholders, including governments, businesses, academics, and policymakers, is crucial to ensuring both ethical AI development and environmental sustainability [30].

Fairness

The Harvard Law School Forum on Corporate Governance stated that we are

at a "critical moment for companies to take proactive mitigation measures to avoid harmful biases from becoming discriminatory practices that are the subject of litigation and front-page stories in the Wall Street Journal". In this context, fairness is the "absence of any prejudice or favoritism toward an individual or group based on their inherent or acquired characteristic. Machine learning algorithms can be biased towards certain sub-groups. With the rise of generative AI, worry has increased about other invisible biases and visible inequalities that reflect human biases. For example, the bias of the COMPAS software against African Americans, the bias of AI systems in beauty pageants against darker complexions, and facial recognition software in digital cameras that overpredicts Asians as blinking [31]. Bias can be introduced at multiple points during its development, including the coding process and through the ingestion of biased data sets later. A potential source for these biases may come from government datasets for faces. One government dataset of faces was found to have 75% men and 80% light-skinned people, and less than 5% women of color [32]. These biases present in the databases that AI is trained on can lead to future biases in AI.

In the context of enhancing fairness in AI policies in the United States, various government agencies and regional jurisdictions have taken a series of measures to address potential discrimination and bias in AI systems. The Federal Trade Commission (FTC) has a significant history of enforcing regulations against deceptive practices and is actively working towards proactive AI regulation to curb algorithmic discrimination. The Fair Housing Act (FHA), which prohibits housing-related discrimination on various grounds, has prompted the Department of Health and Human Services (DHHS) to engage in rulemaking to address tenant screening algorithms that may violate the FHA. Meanwhile, the Equal Employment Opportunity Commission (EEOC) and Department of Labor (DOL) are focusing on ensuring that AI usage in employment adheres to federal civil rights laws, offering guidance on considerations like the Americans with Disabilities Act and rethinking hiring practices. The Consumer Financial Protection Bureau (CFPB) is utilizing the Consumer Financial Protection Act to combat algorithmic discrimination in the financial sector and mandate disclosure of algorithmic decision-making. In the realm of education, the Department of Education is making recommendations to ensure fairness in AI models. Additionally, the DHHS is proposing rules to prevent discrimination in clinical and healthcare algorithms, while actively seeking input to reduce bias in algorithms and predictive modeling through Medicare. Moreover, several states, including New York City and Illinois, have passed laws specifically addressing AI's role in employment decisions, mandating bias audits and candidate notification for certain AI tools. These collective efforts reflect a growing commitment to promoting fairness and equity in AI technologies across various sectors.

There are tools; however, that can be implemented to ensure fairness. There are several fairness metrics being explored, including identifying subgroups early on to ensure a representative population for each type and more complex me-

trics like privacy-preserving federated learning. However, the simplest starting point would be to lessen bias in AI models by updating data sets from antiquated ones to newer trends with more inclusion metrics.

Value Alignment

"Right and wrong" can be distinguished automatically by humans through their experiences, norms, and values, however, AI systems do not. It therefore becomes imperative for developers to ensure consideration of existing values in AI systems.

One potential step towards value alignment, though as daunting as it may seem with the plethora of differences in values within human cultures, is bolstering research actively engaged in alignment-based projects. This can be attempts at imparting principles of moral philosophy to machines, to training language models on crowd sourced ethical judgment. However, attempts have been largely futile at getting machines to reason about complex and realistic situations, with many alignment researchers diverting their attention to a machine learning technique known as inverse reinforcement learning (IRL), which essentially is a way for machines to learn by observing and imitating human expertise. Though it's unclear whether this method can be used to teach machines abstract ideas, there is optimism regarding this tool [33].

More research and policy proposals should be devoted to exploring the unique challenges and risks associated with complex AI systems.

6. Conclusions

In conclusion, the rapid ascent of generative AI within the broader landscape of artificial intelligence heralds transformative change across industries. As this technology augments decision-making and content creation, it reshapes labor dynamics, impacting workers of varied income levels. Amidst growing public concerns and legislative attention, it is evident that the AI era demands proactive strategies.

First and foremost, workforce reskilling initiatives are crucial to equip individuals with the skills needed to thrive in an AI-driven workforce. Simultaneously, our educational systems must evolve to ensure that the workforce remains adaptable and resilient in the face of technological change.

Ethical AI adoption is paramount. It ensures that AI technologies are developed and implemented in ways that align with human values, preserve individual autonomy, and minimize bias and discrimination.

Furthermore, policies addressing income inequality, such as Universal Basic Income (UBI) and taxation of capital gains, assume increasing importance. These measures provide a safety net and redistribute wealth in a world where AI may reshape traditional labor markets.

In essence, a balanced and nuanced approach is essential, ensuring that AI empowers rather than displaces workers. This approach fosters a harmonious coexistence between technology and humanity in this ever-evolving AI-driven

landscape.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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