The Influence of Artificial Intelligence on the Trajectory of Work and Labour Regulations

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This paper explores the exciting world of Artificial Intelligence (AI) and how it's changing our lives. AI includes smart computers and robots, and it's being used in countries like the USA, Europe, China and India. AI can do many tasks that were once done only by people, like analyzing data or recognizing objects in pictures. It's used in factories, offices, and even our phones. As AI becomes more important, it's changing how people work. Now, we often work alongside smart computers and robots. This can be interesting, but it also means we have to learn new skills. For example, factory workers might need to learn how to use and fix AI-driven machines, and office workers might use AI to make decisions based on data. With AI becoming a big part of work, there are some predictions. Some worry that AI might make income inequality worse, meaning some people make a lot of money while others don't. There's also concern that AI could take over jobs, leading to joblessness. But there are positive sides too. New jobs could emerge because of AI, like AI medical assistants or people who create and improve AI tools. AI could also create new opportunities in fields like entertainment and education. To make the most of AI, we need to get ready. Workers should be prepared to learn new skills, which might mean going back to school or taking special training. Governments and companies can help by offering education and training. This way, people can adapt to the changes AI brings and feel more secure in their jobs.

Keywords: *labour regulations, workers right, legal issues, algorithmic management.*

INTRODUCTION

The quick growth of Artificial Intelligence (AI) and its smooth use in workplaces have brought big changes to jobs. This new technology is really powerful and helps businesses do better work, like getting things done faster and more accurately. But this big change in how we work also brings some complicated problems. As AI becomes a bigger part of workplaces, it brings up a lot of legal issues and challenges that we need to look at carefully. AI is great at doing tasks by itself, understanding data, and making smart choices. This has changed how industries work, making things easier and saving money. Also, because AI can process lots of data quickly, it helps make better decisions, lowering the chances of mistakes and improving the results we get. Still, as AI becomes a bigger part of our work lives, some legal worries have come up. One of the most important is making sure workers' rights are safe. Even though AI can make things better, it could also affect things like privacy, fair treatment, and making sure no one is treated unfairly. AI systems collect and look at data from workers, which makes people worry about how private their information is and if they're being watched too closely. We need rules that clearly say how AI can use data while making work better and still respecting people's rights.

Another big concern is the fear that AI might take away jobs. When AI does routine tasks, some jobs might not be needed anymore, and some workers could lose their jobs. This raises questions about what companies should do to help those workers. They might need to learn new skills, and companies should take responsibility to teach them or help them find new jobs. We need laws that make sure AI changes in jobs don't make things unfair for workers. AI can also cause problems related to fairness. When AI learns from data, it can pick up on biases from that data and make unfair decisions. This can lead to unfair treatment and discrimination. This is a big deal for creating diverse and inclusive workplaces. We need strong rules to watch over AI and fix any unfair biases it might have.

Talking about how AI affects jobs isn't complete without thinking about how it changes the idea of work itself. Even if AI takes some jobs, it can also make new kinds of work. This means people might need to learn new skills to get new jobs. This is where laws come in to help people keep learning and adapting to new ways of working in this digital age.

To handle these legal challenges well, we need everyone to work together – policymakers, leaders in industries and people who care about these issues. Laws have to change as technology grows, so workers are treated fairly while businesses can still use AI to their advantage. We might have to change old rules, make new ones, and watch over how AI is used. The fast rise of AI and how it's used in workplaces is changing how we work for the better. But this change also brings up some big legal questions that we need to solve. To make sure AI is helpful while still respecting workers' rights, helping with job changes, and treating everyone fairly, we need to update our laws and create new ones. It's a teamwork effort that involves everyone, so we can make AI work for us in the best way possible.

THE PRESENT STATUS OF AI IMPLEMENTATION

Integration of AI in the USA: The most recent available information about how different technologies, including AI, are being used in the United States comes from the **Census Bureau's Annual Business Survey**. Two recent research papers by **Acemoglu[1]** and **McElheran[2]** used data from 2019 and 2018 to study how AI is being adopted by companies in the US. Both papers found that while AI adoption is not widespread, it is more common among big and young companies.

McElheran[3] looked at how the characteristics of company owners and managers are related to AI adoption. They discovered that companies whose owners are younger, well-educated, and experienced are more likely to use AI technologies. **Acemoglu[4]** had more detailed information about AI adoption. They explored why companies use AI, the obstacles they face in using it more, and how AI adoption is connected to how productive companies are. Both papers found

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[1] Daron Acemoglu et al., 'Automation and the Workforce: A Firm-Level View From the 2019 Annual Business Survey' in Susanto Basu et al., *TECHNOLOGY, PRODUCTIVITY, AND ECONOMIC GROWTH* (University of Chicago Press 2022)

[2] Nikolas Zolas et al., 'Advanced Technologies Adoption and Use by U.S. Firms: Evidence from the Annual Business Survey' (2020) National Bureau of Economic Research <https://www.nber.org/papers/w28290> accessed 10 September 2023

[3] *Ibid*

[4] Acemoglu (n 1)

that only a small percentage of companies have adopted AI, but this masks the fact that many workers are actually exposed to AI in their jobs.

For example, **McElheran**[5] found that in 2017, about 2.9% of companies used machine learning, 1.8% used machine vision, and 1.3% used natural-language processing. Similarly, **Acemoglu** found that only 3.2% of US companies used AI between 2016 and 2018. However, in 2017, around 11.7% of workers were in companies that used machine learning (with similar percentages for machine vision and natural-language processing), and between 2016 and 2018, 12.6% of workers were in companies that used AI.

The main reason for this difference between the number of companies using AI and the number of workers exposed to AI is that larger companies are more likely to adopt AI technologies. The papers also found that certain industries like information, professional services, management, and finance are more likely to use AI. However, even in industries like retail, transportation, and utilities, workers have a higher chance of encountering AI. Another interesting finding is that younger companies are more likely to use AI. For instance, among the biggest companies, about 7% of the youngest ones have adopted AI, while only around 3 to 4% of the oldest ones have done the same. This concentration of AI adoption in larger and younger companies is likely because using AI involves significant costs and challenges. Additionally, companies with characteristics like venture capital funding and conditions similar to those of startups aiming for high growth are more likely to use AI.

The information from the **2019 ABS survey** shows why companies adopt AI and what challenges they face. Both companies that use AI and those that don't say that the main reasons for not using it are that AI doesn't fit their business or it's too expensive. Most companies that use AI, around 80%, do so to make their products or services better. About 65% use it to improve their current processes, and 54% use it to make their processes automatic, this means they use AI to do things on their own.[6]

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[5] *Ibid*

[6] *Ibid*

Using AI to automate processes could affect workers because AI might do tasks that people used to do. The survey doesn't cover all the ways AI is used. For example, many people use voice assistants like Siri or Alexa and this is a type of AI too. This shows that AI is becoming a part of everyday life, not just something companies use.

The US government is also using AI. For example, the IRS, which deals with taxes, uses AI to help people get answers quickly when they call. They have a system where you can talk to a computer that sounds like a person. The government also had a competition using AI to predict how patients will do in their health. They used records from a health program called Medicare to figure out which patients might have problems and told the doctors about it. So, AI is being used in many places, not just in companies. It helps them do things better and faster.

Integration of AI in Europe: In Europe, a survey done in 2021 found that around 8% of companies with more than 10 employees were using AI technology. This information comes from a survey that asks companies about the ways they use AI, like deep learning, analysing images and language, and making work automatic. Bigger companies were more likely to use some form of AI, with 28% of companies with more than 250 employees saying they used it. The survey also showed that companies used AI most often to make work processes automatic, use machine learning, or understand written language (each of these was used by 3% of companies)[7].

This is similar to what was seen in the previous year's survey. In 2020, 7% of European companies said they used AI. Some common uses of AI were analysing big sets of data using machine learning and using chatbots. The survey also looked at how different countries in Europe used AI. Denmark had the highest percentage of companies using AI in 2021 at 24%, Portugal (17%), Finland (16%) and Luxembourg and the Netherlands (both 13%) were next in line.

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[7] *Ibid*

Experts Hoffman and Nurski (2021)[8] talked more about this survey and others that were done in Europe. Just like in the US, they found that robots were mostly used in manufacturing, while other advanced technologies, like AI, were used more in services like finance, education, health and social work. In all these areas, bigger companies were more likely to use AI. This suggests that using AI is not easy and might involve a lot of costs and challenges. The main problems companies reported were not having enough skilled people to use AI and not having enough money to buy the technology and make it work in their operations.

Integration of AI in China: China launched a significant AI strategy in 2017 with the goal of becoming a global leader in artificial intelligence by 2030. The main principles of this strategy are to lead in AI research, use the government's influence to boost local technology, speed up the use of AI in practical ways, support open sharing of data, and promote collaboration between different sectors like the military and civilian areas.

To achieve these goals, the Chinese government has laid out key tasks. They want to create an open and collaborative environment for AI innovation, become skilled in both the software and hardware parts of AI, train people in AI quickly, set up places to try out new AI ideas (including a big AI park), establish a secure and efficient way to share information and invest in important science and tech projects. China has already applied for more than 15,000 patents related to AI, and the money earned from AI is growing quickly. The country's new strategy means that they will spend a lot of money, billions of dollars, on AI research and development. This strategy aims to help China become really good at AI and make it a big part of the country's future.[9]

Integration of AI in India: The Indian Government has shared a report from its AI Task Force that talks about the main difficulties India faces in bringing AI into its economy and society. The report suggests a few important ideas to tackle these challenges. It says that India should spend money on making people aware of AI, doing research, and helping people start new businesses.

[8] Mia Hoffmann & Laura Nurski, 'What is Holding Back Artificial Intelligence Adoption in Europe?' (*Bruegel*, 30 November 2021) <https://www.bruegel.org/policy-brief/what-holding-back-artificial-intelligence-adoption-europe> accessed 10 September 2023

[9] Paul Dalby et al., 'The Impact of AI on the Future of Work and Workers' (2021) 54 South Australian Centre for Economic Studies

They should also create big collections of data. Another idea is to make rules for how AI should work. This advancement of AI in every field will cut short the physical needs of the workers. Their jobs will be done by the AI machines. The report also talks about making good policies that help AI grow. India should make a plan to teach about AI and train people to use it better. The report also says that India should work with other countries to make global rules for AI and partner up with them to solve AI problems together. These recommendations are meant to help India deal with the challenges of using AI smartly.[10]

CONCERNS ABOUT INCREASING INCOME INEQUALITY AND WIDESPREAD UNEMPLOYMENT ARE ALSO BEING PREDICTED

The IMF, which is a group that looks at money and how economies work, wrote reports about how robots and smart computers (AI) becoming more common in the economy could change things. These reports said that robots and AI might make some people richer, but some might not have jobs anymore. The reports used computer models to guess this, but those models thought robots could do everything humans do. But that's not true yet. Robots and AI still need to learn a lot, and they are expensive to create.

These reports also said that jobs that robots and AI could do might be in danger. This has happened before when new machines came along. Some jobs, like typists or taking care of horses, aren't needed anymore because machines can do those tasks now. So, robots and AI could take over some jobs. However, history shows that even though machines took over some jobs, new ones popped up, and people became better at things. When technology changes a lot, some people might lose their jobs for a bit, but with training and learning new things, they can find new jobs.[11]

The reports also mentioned that some of the technical stuff in the models might not be exactly right. They said that robots and AI won't do everything that humans do, so we don't need to worry too much. It's more about helping people learn how to use these new technologies.

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[10] *Ibid*

[11] *Ibid*

Countries like the USA, China, the UK, India and Canada are already making plans for this. They're putting money into education and making rules to use AI safely.[12]

In the end, robots and AI are like the next step in how work is changing because of machines. They can be really useful, like finding illnesses or making farming better. We just need to use them well and make sure everyone has the chance to learn how to work with them.

CONSEQUENCES OF ARTIFICIAL INTELLIGENCE ON WORKERS

The way technology is getting better, like AI, affects how we work in two main ways: it can make jobs automatic or improve what workers do, even in specific types of jobs. So, researchers, bosses, business owners, and people who make rules should pay attention to not just how AI can replace or improve jobs, but also how jobs can be changed. For example, experts **Brynjolfsson, Mitchell and Rock (2018)** guess that machine learning will make jobs like concierges, credit authorizers, and brokerage clerks need to change a lot. Changing jobs also makes it tough for workers: they need to learn new things to do their jobs, and it's not always easy to switch to different jobs in the job market.[13]

Acemoglu et al. (2022) used a new tool from the US Census Bureau in 2019 to find out how much companies are using AI. They also asked these companies about how AI affects the number of workers they need and the skills they look for. Out of the companies using AI, 15% said they hired more people because of AI, and 6% said they hired fewer. This shows that AI doesn't have a clear effect on jobs. But, 41% of AI users said they needed workers with more skills, and hardly any companies (less than 2%) said they needed fewer skilled workers. This means that when companies start using AI, they often need workers with better skills. This could explain why there's a gap in skills that workers have and what companies need. So, it's important for companies to invest in helping their workers learn new skills.

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[12] Andrew Berg et al., 'Should We Fear the Robot Revolution?' (2018) International Monetary Fund Paper 116/2018 <https://www.imf.org/en/Publications/WP/Issues/2018/05/21/Should-We-Fear-the-Robot-Revolution-The-Correct-Answer-is-Yes-44923> accessed 10 September 2023

[13] Erik Brynjolfsson et al., 'What Can Machines Learn, and What Does It Mean for Occupations and the Economy?' (2018) 108 American Economic Association <https://www.aeaweb.org/articles?id=10.1257/pandp.20181019> accessed 10 September 2023

Genz et al. (2022) provide similar evidence for Germany. They examine how German workers adjust to firms' investments in new digital technologies, including AI, augmented reality, or 3D printing. For this, they collected novel data that linked survey information on firms' technology adoption to administrative social security data for Germany. They then compare technology adopters with non-adopters. Though they find little evidence that AI affected the number of jobs, the absence of an overall employment effect masks substantial heterogeneity across workers. They find that workers with vocational training benefit more than workers with a college degree. One explanation might be that AI augments vocational workers more than it augments tasks done by college workers. Another explanation is that Germany's traditionally strong vocational training system (76 percent of all workers in the sample completed vocational education) provides an abundance of specialized skills that direct the development and adoption of AI toward making use of (and thereby augmenting) vocational skills.[14]

It's bound to happen that some jobs will disappear because AI can do the tasks on its own, or because workers don't have the skills needed anymore. Losing a job is tough for people, and it can cause problems in the job market overall. We've seen this happen before when technology changed how jobs worked, like when the job of a telephone operator became automated. But now, with AI growing so quickly, these problems might be even bigger. Sadly, not much research is there to show how well workers can switch to new jobs because of AI.

However, there's one study by **Bessen et al. (2022)** that looks at what happens when a company in the Netherlands starts using AI to make things instead of people. They found that workers who lost their jobs because of AI lost about 9% of their yearly earnings after 5 years. These workers mostly faced periods of not having a job during the year, instead of finding lower-paying jobs quickly. The money they got from unemployment benefits didn't cover all their lost income. These effects were stronger for older workers and those with middle-level education, especially in smaller companies.[15]

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[14] Sabrina Genz et al., 'How Do Workers Adjust When Firms Adopt New Technologies?' (2021) IZA Institute of Labour Economics IZA DP No 14626/2021 <https://docs.iza.org/dp14626.pdf> accessed 11 September 2023
[15] Martin Goos et al., 'Automatic Reaction - What Happens to Workers at Firms that Automate?' (2022) The Review of Economics and Statistics

This tells us that when jobs go away because of AI, it's hard for workers even if they get some money from being unemployed, it doesn't make up for all the money they used to earn. On the positive side, AI can also help people find new jobs by matching them with employers who need their skills. But there are also some potential problems with this that we'll talk about later.

CONSEQUENCES OF ARTIFICIAL INTELLIGENCE ON THE WORKPLACE

The way we set up our workplaces and how businesses run is on the verge of a big transformation due to something called AI, or artificial intelligence. This change is not just about machines doing tasks, it's about how our jobs, offices, and companies will be different. And as these changes unfold, they're going to have an impact on how we work and what our work looks like.

Think of it this way: Picture a computer program acting like a boss, telling employees what to do. This is known as algorithmic management. It's a bit like having a digital supervisor that guides workers. This is becoming more and more common, especially on platforms where people find gig work like driving or making deliveries.

Imagine you have a platform where people can offer rides or deliver packages. The program running the platform instructs drivers where to go and what to do next. This information pops up on their phones, giving them tasks. However, sometimes it doesn't reveal all the details upfront. Instead, it might show only a portion of the job and then quickly ask the driver to accept or decline. This is done to make sure drivers don't reject jobs too often. If they do, they might face consequences from the program.

This kind of algorithmic management isn't limited to ride-sharing platforms; it's spreading to different sectors like warehouses, retail stores, and offices. It's even influencing fields like journalism and law. What's concerning is that this form of management can limit workers'

<https://scholarship.law.bu.edu/cgi/viewcontent.cgi?article=1585&context=faculty_scholarship#:~:text=Workers%20experience%20a%205%2Dyear,for%20firms'%20investments%20in%20computers> accessed 11 September 2023

choices. It enforces rules set by the program, reducing the autonomy employees have over their work.

Researcher **Wood** studied many real-life examples of this kind of management. He discovered that it can make things tough for workers. They might not have the freedom to select the jobs they prefer or the flexibility to work the way they want.[16]

Another researcher, **Weil**, dove into the broader consequences of algorithmic management. He mentioned that companies might start shifting away from directly hiring employees. Instead, they might contract other companies to handle the work. These subcontractors could end up paying workers less, creating an unfair situation. This practice could also pose risks to workers' health and well-being.[17]

Now, AI is about to take this management style up a notch. It can enhance the capabilities of algorithmic management. This means companies could use AI to closely watch and control workers, potentially making work even more challenging. Despite the positive aspects of AI, like helping with tasks, it's important to remember that it could also make work harder for people.[18]

The changes brought about by AI aren't just about machines doing tasks instead of us. They're about reimagining how work is organized and performed. It's a shift that could reshape industries, change the way we interact with our jobs, and transform our understanding of employment. As these transformations unfold, it's vital to keep an eye on how AI is influencing the workplace and what steps can be taken to ensure that workers' rights, well-being, and dignity are upheld in this new era of work. While AI has the potential to bring progress, we must also ensure it doesn't come at the cost of human welfare.

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[16] European Commission, '*Consequences for Work Organisation and Working Conditions*' (2021)

[17] David Weil, 'Understanding the Present and Future of Work in the Fissured Workplace Context' (2019) 5(5) RSF The Russell Sage Foundation Journal of the Social Sciences <http://dx.doi.org/10.7758/RSF.2019.5.5.08> accessed 12 September 2023

[18] *Ibid*

WHAT NOVEL OCCUPATIONS AND RESPONSIBILITIES WILL ARISE DUE TO AI?

AI doesn't just take jobs away, it can also make work better. Remember, history shows that jobs that were thought to disappear due to technology grew and changed. For example, when ATMs were introduced in the 1970s, people thought bank tellers would lose their jobs. But instead, more tellers were needed to do different tasks because ATMs couldn't do everything **(Bessen, 2015)**.[19] But what about the future of AI? Well, there is not much research on how AI can create new jobs. However, we can learn from history about how new jobs are born when technology changes. **Autor et al. (2022)** looked at how new jobs have emerged over time. They found that more than 60% of jobs in the US in 2018 didn't even exist in 1940. So, even if AI takes some jobs away, it's also likely to create new ones.[20]

These new jobs aren't just random. The Autor's research shows that in the past, many new jobs for people without a college degree were in middle-skilled tasks. But after 1980, these jobs shifted to lower-paying personal services. On the other hand, jobs for college-educated workers moved towards professional and technical roles. This means that new jobs today are often higher-skilled or service-related.

The Autor and his team used something called Natural Language Processing (NLP) to understand how technology impacts jobs. They found that some technologies make jobs more efficient (augmentation) while others take jobs away (automation). For instance, in some cases, AI might help workers do their jobs better, while in other cases, it might replace their tasks. Certain jobs, like radiologic technologists, could be at risk of losing jobs due to automation. However, jobs that involve decision-making or creativity might grow because of AI.

Understanding this balance between automation and augmentation is crucial for policymakers. It helps them make the most of AI's benefits. For instance, they could encourage technology that

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[19] Goos (n 15)

[20] David Autor et al., 'New Frontiers: The Origins and Content of New Work, 1940–2018' (2022) National Bureau of Economic Research 30389/2022 <https://www.nber.org/papers/w30389> accessed 12 September 2023

enhances work instead of replacing it. However, not all new jobs brought by AI might be what society wants. At the same time, AI might replace certain high-paying jobs.

In simpler words, AI doesn't just steal jobs; it can also create new and better ones. It's like a race between technology taking away jobs and making them better. This is a chance for policymakers to guide technology toward creating good jobs. Keep in mind that the research doesn't focus only on AI. Many new jobs with AI could appear in the future – jobs like digital assistant engineers or social media content taggers. But we need to think about whether these are the jobs we want AI to bring. At the same time, AI could replace well-paid jobs. So, it's a balancing act – using AI to create jobs that improve our work and lives.

CONCLUSION

Artificial intelligence (AI) is already changing the way we work, and this will continue in the future. While AI brings good things to work, there are also important legal and ethical issues to think about. From a legal perspective, we need to be sure that AI doesn't hurt workers' rights or treat them unfairly. We might need to change our laws and make new rules to handle AI the right way but AI can also be helpful for work. It can create new jobs and help workers do their jobs better. We should talk openly about the legal and ethical worries about AI. This will help us use AI in ways that are super useful and do not cause big problems.

AI is transforming the way we work and the places we work in. It's being used around the world, from factories to offices. While there are concerns about income inequality and joblessness, there are also exciting possibilities for new jobs. As AI becomes a bigger part of our lives, we need to prepare by learning new skills and staying, of open to change. The future with AI holds both challenges and opportunities and by embracing them, we can shape a world where AI works for everyone.