Automation and AI in the workplace: The future of work is more complex than ever

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Chelsea Perino
Managing Director, Global Marketing & Communications, The Executive Centre, Hong Kong

With an undergraduate degree in anthropology and linguistics from New York University and after a four-year solo trip around the world, Chelsea Perino first discovered her love for advertising in Cape Town, South Africa. There, Chelsea spent two years running all things marketing-related for an experiential marketing start-up, before returning to New York to complete her MA in Public and Organizational Relations. Since then, Chelsea has worked in advertising both in New York and Seoul, South Korea, leading digital strategy for Samsung Global, Mobile. Now based in Hong Kong, Chelsea is the Managing Director, Global Marketing & Communications at The Executive Centre, Asia’s largest premium flexible workspace provider, which she has helped establish as the leader in workspace experience, community and corporate-culture facilitation. Chelsea is passionate about organisational culture and believes that creating a dynamic and collaborative working experience positively affects team morale, productivity and fosters community. She is an adjunct professor and published author, a regular guest speaker at corporate real estate and marketing industry conferences and represents The Executive Centre on the board of CoreNet Global's Hong Kong Chapter, the Urban Land Institute's Women in Leadership Initiative and is the Chair of the American Chamber of Commerce's Women of Influence committee.

E-mail: chelsea_perino@executivecentre.com

Abstract  Artificial intelligence (AI) and automation are revolutionising the workplace, transforming the way businesses operate, how people interact and having an impact on the future of work. These technologies have the potential to enhance productivity, address societal challenges and contribute to economic growth. With machines becoming increasingly capable, they can now perform tasks previously done by humans, complement human work and even surpass human capabilities in certain areas. As a result, the nature of work is changing, with some occupations declining, others growing and many more undergoing significant transformations. This paper explores the promise and challenges of AI automation in the workplace, highlighting key workforce transitions and presenting several critical issues that need to be solved.

KEYWORDS: AI, automation, future of work, coworking, real estate, technology, flexible workspace, hybrid work

INTRODUCTION  Artificial intelligence (AI) and automation are revolutionising the workplace, transforming the way businesses operate, how people interact and having an impact on the future of work. But what are some of the changes that we are going to see, both short and long-term? Realistically, the answer is that nobody knows. We are amid unprecedented times, and really the only comparable period would be the Industrial Revolution, the Age of the Internet, or the advent of Big Tech; however, the speed at which changes with regards to AI are taking place today are astronomically faster, propagated by a connected world as opposed
to gradual change over decades or even centuries, as in the past.  

AI technologies have the potential to enhance productivity, address societal challenges and contribute to economic growth. A study by the McKinsey Global Institute suggested that AI could contribute US$13tr to the global economy by 2030 as well as a 1.2 per cent increase in global gross domestic product (GDP) per year. Of course, this also has the potential to fuel job displacement and there are hypotheses which suggest that up to 375m workers worldwide may need to either upskill or switch occupations altogether in order to remain employable as AI adoption accelerates. With machines becoming increasingly capable, they can now perform tasks previously done by humans, complement human work and even surpass human capabilities in certain areas. As a result, the nature of work is changing, with some occupations declining, others growing and many more undergoing significant transformations. This paper explores the promises and challenges of AI automation in the workplace, highlights key workforce transitions, discusses critical issues that need to be addressed and shares real life examples of where automation and AI in the workplace is making meaningful, and more importantly positive, change.

**AI: A BRIEF HISTORY**

To start our discussion around AI and its integration, utilisation and impact on the workplace experience, let us leverage a definition of AI from global consultancy Accenture: a combination of systems or machines working together ‘to sense, comprehend, act and learn with human-like levels of intelligence’ and utilise the information they collect to iteratively improve their outputs.

But AI, while recently emerging into the spotlight, has actually been around for years. The first iteration of AI is called Traditional AI (or in some more harsh cases, Narrow or Weak AI). This kind of AI is different from the current AI systems that we hear about on the news (referred to most frequently as Generative AI [GenAI] — more about that later), because it refers to systems that are designed to respond to a specific data sets or inputs. Forbes’ article ‘The Difference Between Generative AI and Traditional AI: An Easy Explanation for Anyone’ uses an excellent analogy to help describe the parameters in which Traditional AI works:

‘Imagine you’re playing computer chess. The computer knows all the rules; it can predict your moves and make its own based on a pre-defined strategy. It’s not inventing new ways to play chess but selecting from strategies it was programmed with. That’s traditional AI — it’s like a master strategist who can make smart decisions within a specific set of rules.’

There are many examples of Traditional AI in real life: Netflix or Amazon’s capabilities to present recommended lists based on your viewing history, Siri or Alexa recognising your voice, or even Google’s search algorithm. ‘These AIs’, says Forbes, ‘have been trained to follow specific rules, do a particular job, and do it well, but they don’t create anything new’.

GenAI is the new frontier. Understanding the difference between Traditional AI and GenAI is almost like comparing the definitions of creativity versus innovation. Innovation is ‘the alchemy of imagination and action, and the fearless leap beyond conventional thinking’. Innovation stems from the belief that there is always a more brilliant solution waiting to be discovered and that we must never become complacent, but it builds on ideas that already exist. Creativity, however, is slightly more complicated, because it requires people to not just action, but actually ideate to try and come up with something totally new. The same logic applies to Generative AI
— instead of relying on a specific set of data and rules, it creates something new from the information provided.

AI, standing itself in isolation, whether traditional or generative, does not really deliver much value: it is how companies use AI powered by data to make educated and personalised decisions in order to, for example, design more productive and human-centric workspaces, or to create higher-quality employee or customer experiences and services. The workplace applications for AI are incredibly diverse: from utilisation metrics, to employee and visitor recognition, to seamless and faster customer response time (think routing a call correctly the first time, sending lead follow-ups, providing arrival information and guiding users through any necessary follow-up procedures). AI utilises aggregated human behaviour to guide users through the most seamless path to help them achieve their goals more efficiently. With this definition at hand, let us now dive into how and in what capacity AI is being integrated into the workplace.

WORKPLACE DESIGN

AI is having a significant impact on workplace design, revolutionising the way office spaces are planned and optimised. From using big data analysis to inform different kinds of physical space solutions, customised for specific organisations and even for individual people, to aiding developers and landlords towards more sustainable decisions, we are seeing AI emerging in every faction of workplace experience.

Let us first explore how AI is affecting the actual physical design of workspaces. Technologies such as sensors, beacons and other smart building systems allow organisations to monitor usage of various office areas. Why is this useful? Because with this data, organisations can identify underutilised spaces, as well as those areas that are popular or overcrowded. With this kind of knowledge on hand, areas that are not being used can be repurposed into spaces that are fit for purpose and that can encourage productivity. By collecting and analysing this kind of spatial and usage data, AI can also identify patterns and trends that were previously unnoticed. This information can then be used to optimise the layout and design of workspaces, creating environments that are more conducive to productivity and collaboration.

While this example might be more of a task for Traditional AI, because it is taking pre-existing data, analysing and presenting it in a way that people can use to then make informed decisions, GenAI could take it a step further and actually generate a new office design based on that same data set. And the more information a designer or architect provides the AI system with, the more it could do. So, for example, in addition to looking at space usage patterns to understand what design elements are most utilised, it would also be possible to feed in brand guidelines, colour palettes, patterns or even design material to further customise a design output.

Additionally, AI is being utilised to automate repetitive tasks in the field of workplace design and architecture. But, as mentioned previously, AI can generate design proposals that adhere to particular requirements and limitations, saving designers valuable time and effort. Especially in the ideation phase, AI is being used to create virtual simulations of workspaces. Designers and architects can use AI-powered simulations to test different layouts and configurations before making any physical changes. This allows for quick and accurate assessments of the impact of different design choices, saving time and resources. Furthermore, AI can streamline the generation of construction documents, minimising the occurrence of errors and enhancing overall efficiency.

In the realm of office design, AI brings about significant changes, and while it will
definitely help to build efficiencies and uncover new insights, there are certain challenges that need to be addressed. These challenges involve effectively harnessing creativity and ensuring that workplace designs align with architectural drawings, specifications and relevant building codes.

According to experts, although AI demonstrates proficiency in providing data-driven insights, its capability to generate original and creative design ideas is still being developed. The process of transforming AI-generated designs into architecturally accurate plans is still ongoing.

THE LARGEST WORK-FROM-HOME EXPERIMENT CONTINUES

Dror Poleg, in his article ‘Remote Work and AI: A Match Made in Heaven’, suggests that remote work enables AI to take on more jobs, and stronger AI enables more humans to work remotely. ‘Remote Work and AI have a symbiotic relationship’, says Poleg:

‘The shift towards remote and hybrid work models has opened doors for AI-driven chatbots and virtual assistants to join the workforce. AI, in turn, enhances remote collaboration by improving communication tools and incentivizing humans to rely even more heavily on digital communication and modular work.’

AI plays a crucial role in enabling remote work by providing a range of tools and solutions that enhance productivity, communication, collaboration and security. For example, AI-powered tools facilitate effective communication and collaboration among remote teams. These tools streamline communication channels, offer intelligent recommendations for meetings and resources and enhance video conferencing and document sharing experiences. AI can adjust factors such as lighting and background image during video conferences, and even provide real-time transcription and translation, allowing colleagues from different locations and those who do not speak the same language to collaborate.

In terms of productivity and efficiency, AI helps remote workers automate repetitive tasks and optimise workflows, maximising overall efficiency. By analysing patterns in employee behaviour and performance, AI can identify areas for improvement and provide tailored recommendations for optimisation. Additionally, AI empowers remote workers to access and share knowledge, curate information and personalise learning paths for skill development.

AI-powered tools also play a crucial role in ensuring cyber security and privacy for remote workers. They can detect and prevent cyberattacks, continuously monitor networks and devices for unauthorised access or malicious activity, encrypt data and enforce policies to safeguard sensitive information.

AI even has the potential to positively support the health and well-being of remote workers by monitoring health indicators, providing feedback and reminders and predicting potential mental health issues. By analysing data from wearables and other health monitoring devices, AI can offer personalised recommendations for maintaining physical and mental well-being, helping to prevent burnout and promote a healthier work environment and work–life balance.

As AI assumes a broader range of tasks, it drives humans to focus on work that requires more creativity, specialisation and scalability. Consequently, companies are compelled to expand their hiring efforts across multiple locations and larger talent pools to match individuals with increasingly specific job requirements. In base use cases, AI tools can be used to help remote employees feel more connected to their colleagues and organisations, as well as empower them to do better work. Another study by McKinsey suggests that by 2030, activities that account
for up to 30 percent of hours currently worked across the US economy could be automated—a trend accelerated by generative AI.\textsuperscript{15}

The next generation of AI is even more frequently being viewed as a companion, a brainstorming tool that can help unlock new potential and create new opportunities for innovation. The study also suggests that generative AI can enhance the way STEM, creative, and business and legal professionals work rather than eliminating a significant number of jobs outright.\textsuperscript{16}

**CASE STUDY: AI AND AUTOMATION IN THE FLEX INDUSTRY**

The Executive Centre (TEC), Asia’s largest premium flexible workspace with 200+ offices, serving close to 50,000 members across their global network, did not have a clear understanding of the occupancies of their office spaces at different times throughout the day and the year. Within these offices there are a variety of spatial design configurations, from private offices of various sizes to communal lounge areas, coworking tables, barista bars, call rooms, meeting rooms of various sizes and even event spaces. With the changing ways people are thinking about where and how they work, they wanted to get a better understanding of the kinds of spaces that people were using, how they were using them and at what frequency, to inform their designs both for the present, but also to provide insights as they design new centres in the future.

The challenge
Finding ways for coworking spaces to effectively leverage occupancy data in order to enhance the overall experience for their members is not easy. Creating a great experience includes (but is not limited to) providing personalised services, exceptional staff support and top-notch amenities that promote well-being for every individual using the space. The goal was to create a seamless and frictionless experience that caters to the unique needs and preferences of each member, but with over 3,000 members in this test scenario, the use of automation and data aggregation was imperative.

A lot of the information available at the beginning was anecdotal, from operational staff that spend their time in the centre or from the front-of-house engagement teams that run the reception area, but because it was observed behaviour only, the information was not highly accurate. TEC wanted data that was more reliable and proven, so they could look at real numbers and compare activity. They were interested in workplace trends at TEC, but in order to be accurate about these trends actual data is necessary, and the use of automated tools and technologies can help synthesise and uncover connections between these sometimes seemingly unrelated data points.

The project
Equipped with over 80 dedicated office spaces, nine meeting rooms, 50+ hot desks and three inviting lounges and breakout areas, this project aimed to address common concerns faced by coworking operators. These included determining the most popular desks, understanding seating preferences between the lounge, bar and various other seating areas, analysing the utilisation of meeting rooms and exploring the possibility of allocating staff based on traffic flow. The ultimate challenge was to uncover real-time occupancy data and behavioural patterns to optimise space utilisation, enhance service quality and maximise return on investment.

The insights
AI played a pivotal role in helping TEC to better understand their space management and workplace utilisation. By collecting and analysing spatial and anonymous behavioural
data, valuable insights on people counts, average daily and weekly attendance, peak entry hours and utilisation of meeting rooms and private offices was uncovered. These insights enabled the identification of daily and weekly patterns, uncovering opportunities to streamline staff allocations based on actual traffic trends and informed on the utilisation of different workplace designs.

The objective behind deploying sensors and utilising AI technology was to gain a clear understanding of space utilisation within the office. With this data, informed decisions could be made regarding the allocation of resources. For instance, the data allowed for identifying the need for more huddle rooms or call rooms based on actual usage, rather than relying on guesswork. Moreover, the data empowered TEC to inform their clients about the practicalities of using flexible workspaces. By sharing real information about how people were utilising their centres, they could assist clients in their own workspace planning efforts — something that is increasingly in demand.17

The next phase of this project will be to incorporate AI into individual identification of members when they enter the office. Through a combination of aggregated usage data (such as how frequently an individual books a meeting room, orders a coffee, etc.) and manual inputs that outline personal interactions, a unique profile is created of each TEC member. When a member enters the office, the reception staff will immediately be notified and supplied with that individual’s profile, allowing them to provide even more tailored service and support.

Through the utilisation of data analytics, flexible workspace operators have the chance to adopt a proactive approach in anticipating the needs of their members. By leveraging technology, they can effectively deliver an enhanced workplace experience that aligns with those anticipated requirements.

PERSONALISATION AND CUSTOMISED EXPERIENCES

The experience of remote work has served as a reminder that human connection and a shared workplace environment are important to people. In-person interactions and connections foster deeper relationships, build a sense of community, trust and mentorship and reinforce the shared purpose and culture of an organisation.

While AI-powered systems can create personalised experiences for employees by learning individual preferences and adapting to their behaviours, such as adjusting lighting, temperature and noise levels based on an employee’s preferences (in theory creating a more comfortable and productive environment and leading to increased employee satisfaction), the larger impact is more human-centric.18

Now, with the emergence of GenAI tools, incorporating this technology into the workplace represents a significant shift in office culture. The advantages of AI extend beyond enhancing efficiency, simplifying decision making and analysing data. The time saved by optimising tasks through the use of AI can also enhance organisational effectiveness and unlock opportunities for increased personal interactions that strengthen teams and enrich company culture.19 By removing the mundane tasks that consume many hours of each worker’s day, people can focus their energy on tasks that AI still cannot do on its own — creativity, brainstorming and problem solving.

Extending beyond the employee experience, there is huge significance from a customer experience perspective as well. Yet another study by McKinsey suggests that AI can be a valuable tool for customer service management and can provide a deeper level of personalisation. For example, the application of AI technology in call centres, such as improved speech recognition, can ensure that calls are routed to the correct source and can ensure a more seamless
experience for customers. It can also make processing more efficient. For example, deep learning (DL) analysis of audio allows systems to assess a customer’s emotional tone; in the event a customer is responding badly to the system, the call can be rerouted automatically to human operators and managers.²⁰

Marketing is another great example. Many companies use automation software to streamline and personalise their marketing campaigns: combining customer demographic and past transaction data with social media monitoring can help generate individualised product recommendations; the aggregation of search behaviours and the utilisation of retargeting strategies can ensure that potential customers find the most relevant information in the most efficient manner possible; AI can be used to set up automated e-mail sequences based on user actions, such as sending follow-up e-mails to those who opened the initial e-mail, reminding people that they have items in their carts or sending discount codes after a predetermined period of time in order to encourage repeat purchases. Automation tools such as chatbots and automated text message marketing solutions can be used to handle common customer service interactions; these tools can answer frequently asked questions, provide basic support and escalate complex issues to human representatives when necessary. Automation is used in sales processes to streamline tasks such as lead generation, invoicing, order processing and tracking shipments. By automating these tasks, sales teams can focus more on building relationships and closing deals.²¹

**SUSTAINABILITY AND DE&I**

AI technology offers numerous opportunities for sustainability across various domains. First, in energy optimisation, AI can analyse data on energy usage, consumption patterns and environmental factors, to identify areas where energy is being wasted.²² Environmental monitoring on workplace factors such as air quality, water quality and noise levels is also important. AI can detect anomalies, predict environmental risks and provide real-time alerts that enable facilities managers to proactively action improvements. Smart building systems optimise energy usage, monitor and control heating, ventilation and air conditioning (HVAC) systems and adjust lighting based on occupancy patterns, leading to reduced energy waste and improved efficiency.

In supply chain optimisation, AI can analyse data on inventory levels, transportation routes and demand patterns to optimise logistics, reduce waste and lower carbon emissions. In waste management, AI can track waste generation and disposal patterns, suggesting recycling or reuse options and optimising waste collection routes. AI can also contribute to sustainable product design by analysing data on materials, manufacturing processes and product life cycle, identifying opportunities for eco-friendly materials, waste reduction and improved durability. In transportation, AI can optimise routes, analyse traffic patterns and suggest alternative modes of transport to reduce fuel consumption and emissions.²³

But it is not just the physical space where AI is having positive impact. From a diversity, equity and inclusion (DE&I) perspective, AI is playing a crucial role in empowering DE&I in organisations. Forbes suggests that ‘when developed intentionally and used thoughtfully, AI can contribute to the success of DE&I programs by helping organizations recognize areas for improvement and develop more inclusive practices’.²⁴ AI technologies are being used to surface suggestions that make job listings more inclusive and attractive to candidates from diverse backgrounds. This is particularly important as the workplace becomes more diverse and contingent workers with varied career experiences become more common.
Diversity drives innovation, improved performance and more satisfied employees, but to make equality a reality, it is important to build a work environment where everyone, regardless of their background, can participate and achieve equal outcomes. Post-COVID-19 has seen a shift in focus onto attracting, engaging, empowering and retaining a diverse talent pool, and efforts are being made to improve diversity in multiple sectors, with organisations recognising the need for a more representative workforce. For example, the Tech Council of Australia has identified diversity as a key area of improvement in its plan to employ 1.2m tech workers by 2030. Increasing opportunities for women in data and AI-related positions is also a priority, as currently, only 26 per cent of such positions are held by women.25

To accelerate progress in DE&I, equity matters and collaboration is key. Workplaces need to be supportive and empowering for women, especially in the technology industry. Flexibility and new ways of working are crucial, as they can help support primary carers and single working parents. Inclusive policies and programmes that support women rejoining the workforce after extended time off can help create a more equitable environment.26

AI is empowering DE&I by helping organisations create more inclusive job listings and by driving efforts to attract and empower a diverse talent pool. It is important for the technology industry and other sectors to collaborate and prioritise DE&I to build a more sustainable, inclusive and equitable world.

CONCLUSION
Ultimately, while there are definite challenges and reasons to question AI’s role in the future of work, overall, the positive impacts that AI has on the workplace experience outweigh the negative. AI-powered tools can automate repetitive and time-consuming tasks, allowing employees to focus on more strategic and creative work. This increased efficiency and productivity leads to cost savings, faster decision making and improved customer satisfaction. Because AI can analyse vast amounts of data and identify patterns and insights that humans may miss, businesses are able to make better informed decisions, anticipate customer needs and predict future trends.

From enhancing productivity and efficiency to improving communication and collaboration, AI technologies are transforming how people work and interact with colleagues, as well as how they stay connected to their organisations. AI is enabling remote work by providing seamless communication, efficient task management and robust cyber security measures.

As AI continues to evolve, it is crucial for organisations to embrace its potential while ensuring ethical and responsible use. By harnessing the power of AI, organisations can create a more inclusive, diverse and empowering workplace experience for everyone.

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