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Strategical Reskilling in the Human -AI Economy: A Multidimensional Framework for Workforce Adaption

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ABSTRACT

The rapid integration of artificial intelligence into the global economy necessitates a fundamental paradigm shift in workforce development. Drawing upon empirical findings from the OECD AI Surveys of Employers and Workers and frameworks on labor market exposure, this paper proposes a Multidimensional Framework for Workforce Adaptation to guide strategic reskilling in the Human-AI economy. While data indicates that AI heavily elevates demand for high-skilled roles, cognitive agility, and data interpretation, it simultaneously exposes critical skills gaps as a primary barrier to organizational adoption. Addressing the limitations of traditional, linear training models, the proposed framework integrates cognitive agility, socio-emotional intelligence, technical literacy, and employer-backed lifelong learning ecosystems into a cohesive operational architecture. This study adopts a mixed-methods, design-based research methodology, combining secondary empirical data analysis with conceptual framework building. To map the transition from technological displacement to Human-AI Collaboration, the methodology follows a three-stage architectural pipeline: diagnostic gap analysis, multidimensional competency mapping, and multi-stakeholder governance alignment. Data Sources and OECD Integration: In alignment with methodologies established in OECD Labor Policy research (specifically utilizing data from the OECD AI-WIPS program and employer-worker surveys), the framework evaluates labor market exposure through two primary metrics: Task-Level Exposure Index, Skills-First Readiness Indicators. The core of the methodology relies on a competency-based matrix to drive Strategic Reskilling. Rather than treating job roles as static units, occupations are deconstructed into four core human dimensions.

Keywords: *Human-AI Collaboration, Workforce Adaption, Strategic Reskilling, Multidimensional Framework, OECD Labour Policy.*

Introduction

The nature of our roles is changing faster than ever thanks to technologies such as intelligent software, robots and generative AI. These tools are being embedded into day-to-day business operations to increase company efficiency, reduce costs and increase productivity. While this creates amazing opportunities for economic growth and innovation, it has caused great uncertainty amongst those working within organisations. Many people are very concerned about their roles being replaced by machines, not having job security and the pressures of learning completely new skills.

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In order to adapt to this major change, businesses and employees must work together to learn new ways to work with these technologies. This doesn't necessarily mean going back to school to become a computer programmer, but instead finding a balance between:

Learning how to use AI to complete mundane and repetitive tasks within the role whilst focusing on areas that cannot be completed by a machine. These include skills such as empathy, creativity and real leadership.

By making learning an everyday practice we can turn technology from something that threatens our positions, into something that helps us improve.

AI is impacting the workforce in two ways. Firstly, it can cause certain roles to be replaced. Secondly, it can cause changes in the way certain roles are completed. This can cause issues with job displacement, however it also causes new roles to be created where humans and AI work together which will require employees to learn new skills.

- **Organisation for Economic Co-operation and Development (OECD)**

Vision: The OECD aim to create policies which will improve well-being and quality of life, whilst increasing an economy and individual's ability to adapt to change. They want to develop labour market policies to ensure that technological advances create productivity and jobs. Workers should have the ability to adapt to changes in skills. Goal: Their objective in the future of work area is to develop evidence-based policies that assist governments, enterprises, and individuals in navigating through the changes. Particular attention is paid to developing skills, lifelong learning, and employment-related policies to address the needs of workers and enterprises in the age of AI. The OECD recently made a significant contribution to the future of work by analysing skills in the era of AI and exploring policy options for AI-ready workplaces.

- **International Labour Organization (ILO)**

Vision: The ILO's vision is focused on a human-centred future of work in which technological and economic progress contribute to decent work, social justice and human dignity. Its Centenary Declaration specifically calls for shaping a future of work that puts people and their wellbeing at the centre. Goal: The main goal is to promote decent and productive work for women and men with the support of such four strategic areas as fundamental rights at work, employment opportunities, social protection and social dialogue.

- **World Economic Forum (WEF)**

Vision : The WEF's vision in the future-of-work scope is to promote a workforce and economy that can adapt to rapid technological and structural change. Its Future of Jobs Initiative engages businesses, governments and civil society to assess the coming occupations, skills requirements and labour-market transitions. Goal: Its goal is to provide ahead-looking information, frameworks and collaborative platforms that can help employers, policymakers and other stakeholders prepare for changes in jobs and skills. The Future of Jobs Report uses employer survey data to examine how socio-economic and technological trends may influence the workplace.

How AI Changes Work

- Job Loss: AI takes over repetitive tasks. Fewer human workers are needed for those specific duties.
- Job Change: Many jobs shift instead of disappearing. Workers learn to use AI tools to make better decisions.

Affected Industries

This shift is happening across almost every major field:

- Production and Tech: Manufacturing and Information Technology (IT).
- Services and Finance: Banking, retail, and transportation.
- Care and Learning: Healthcare, education, and media.



59% of workers are projected to require training by 2030, including 29% expected to upskill within their current roles, 19% expected to be reskilled and redeployed, and 11% expected to face barriers to accessing training.

Objectives

Evaluate the current impact of Generative AI and automation on workforce displacement and job role transformation across various industry sectors.

- To investigate to the psychological and organizational barriers-such as the illusion of control and the fear of failure-that hinder effective workforce reskilling.
- To develop a comprehensive, multi-dimensional framework for strategic reskilling that bridges the gap between human capabilities and technological augmentation.
- To identify the critical success factors required for organizations and policymakers to foster a culture of continuous learning and calculated risk-taking.

1st Objective

Spanning manufacturing, construction, production, and processing-Generative AI and automation are reshaping the industrial workforce through three interconnected developments:

The displacement of the workforce is occurring as standardised, routine production tasks, assembly line work, quality testing, and administrative logistics become more and more automated. Although technology is taking over these particular operational tasks, on a large scale job losses in the manufacturing sector have so far been limited.

The nature of industrial jobs is such that they are changing rather than vanishing. Plant technicians and workers on the floor are adjusting to workflows which are assisted by AI, moving on from carrying out tasks manually to taking charge of automated machinery, handling predictive maintenance systems, and using improved analytical and safety skills. New job opportunities are being created by the industrial transition, with the need for specialised technical positions such as industrial robotics engineers, smart-factory data analysts, cybersecurity specialists for connected supply chains, and automation maintenance managers.

In the second sector as a whole, the introduction of technology mainly results in a change to the nature of the tasks and in the way plants are organised rather than in widespread unemployment. Nevertheless, the effects are not even: people applying for entry-level positions in factories and in administrative roles are coming up against increasing obstacles, while those who have access to technical retraining, business investment, and specialised skills are the ones who stand to gain the most from smart manufacturing.

According to the International Labour Organization (ILO), its 2025 global assessment found that:

- Approximately 25% of jobs worldwide are potentially exposed to generative AI.
- Around 3.3% of global employment falls into the highest exposure category.
- Clerical and administrative occupations have the highest exposure.
- Most occupations are more likely to undergo transformation than complete elimination.

These figures measure potential exposure to AI, not actual job losses.

Workforce Transformation Patterns Summary

Industry	Tasks Most Exposed to Automation	Main Job Transformation	Potential Displacement Risk
Manufacturing	Assembly, inspection, packaging	Robotics and system supervision	High for repetitive tasks
Information Technology	Routine coding, testing	AI-assisted development	Moderate to high for routine tasks
Banking and Finance	Data processing, reporting	AI-assisted analysis	High for repetitive administrative tasks
Healthcare	Documentation, scheduling	AI-supported patient care	Lower for direct care
Education	Grading, content preparation	Personalized AI-supported teaching	Moderate for routine tasks
Retail	Checkout, inventory processing	Digital customer management	High for some routine tasks
Transportation	Sorting, route planning	Automated logistics management	Moderate to high for selected tasks
Media and Marketing	Basic content production	AI-assisted creative work	High for standardized content tasks

Future of Work | [Company Logo]

The ILO's 2026 review indicates that the evidence so far points more clearly to changes in work organization and task composition than to widespread job elimination. However, the effects are uneven, and some workers—particularly those entering highly exposed occupations—may face greater challenges.

2nd Objective

Manufacturing, construction, production and processing-the quick uptake of AI and industrial automation means that it is essential to continually reskill the workforce. Yet the process of upgrading factory and operational teams meets with particular psychological and organizational obstacles.

Psychological Barriers

Industrial workers frequently experience anxiety about technology, have a low sense of self-efficacy when it comes to digital skills, and are afraid of failing when they move from traditional processes to systems driven by artificial intelligence. Because they feel insecure about their jobs, lose control over their operations, and resist the automated work processes, members of plant staff become less confident and are less willing to take part in smart-manufacturing training.

Organizational Barriers

The reskilling of workers on the shop floor is often blocked by insufficient managerial support, the absence of practical technical resources, bad communication about the transitions to automation, and unclear routes for career advancement. Workers on the floor and those involved in assembly tend to hesitate in adapting to production environments that make use of technology because there is no strong sense of psychological safety.

Strategic Impact

The individual and structural factors work together to determine the level of reskilling participation and adaptability in automated facilities. In order to enhance workforce resilience, managers in the secondary sector should combine technical training with effective leadership, open and transparent communication, and organizational support. An environment is created that provides security between humans and AI. This allows flexibility to adapt operations and provide stability to employees.

3rd Objective

The Human-Technology Augmentation and Strategic Reskilling Framework (HTASRF) aims to provide a multi-faceted approach to managing change within the workforce due to changes in the secondary sector caused by generative AI. This framework focuses on changing tasks and creating collaboration between humans and machines. The framework has 8 objectives:

Analysis of tasks and capabilities: This identifies tasks that can be automated, augmented by mechanical processes or need human oversight. This looks at the capabilities of workers including technical skills, cognitive skills and safety.

Targeted Skill Pathways: This provides personalised reskilling for workers on the floor based on their capability gaps and new plant requirements. Redesigning jobs: Tasks are assigned to workers based on their individual strengths. This provides a balance between the efficiency of AI and automation and workers' skills such as problem solving, quality and leadership skills.

Ecosystem enablement: Combines the support within the organisation, partnerships with technological equipment and government initiatives to ensure flexibility on the shop floor.

Outcomes are based upon technical skill development, internal movement, increased productivity, quality of jobs and retaining workers. HTASRF achieves this by coordinating automation, operational tasks, the skills of the workforce, and plant management, thus turning industrial reskilling into a continuous strategy which enhances long-term manufacturing competitiveness and promotes human–machine synergy on the shop floor.

4th Objective

For workers, adapting to new developments in generative artificial intelligence and automation requires a pattern shift away from episodic training toward ongoing learning and experimentation. Successfully integrating these changes into shop floors and production plants requires attention to several drivers at multiple levels:

Organizational Drivers Leadership and Psychological Safety: Plant managers should promote environments of psychological safety for technicians and machine operators who are experimenting with new tools, asking questions, or raising concerns about process errors.

Controlled Experimentation

Facilities should establish controlled experimentation environments – such as digital twins or isolated test lines – to allow staff to engage with new automated systems in a manner that balances innovation with safety.

Continuity

A commitment to continuous infrastructure improvement, access to digital tools, and rewards for technical advancement will motivate shop-floor personnel to pursue opportunities for innovation. Policy and Ecosystem Incentives Public-private technical training partnerships, tax credits for lifelong learning, and certification programs for evolving industrial skills can help governments and industrial conglomerates incentivize adaptation at the plant level. Investing in responsive leadership, safe experimentation, and broader ecosystem support, industrial firms can promote sustainable change and ongoing technical improvement within their workforce, supportinglong-term production goals and competitiveness.

A second factor is calculated risk-taking. In an AI-enabled workplace, organizations need mechanisms that allow employees to experiment with new technologies while maintaining appropriate governance, accountability, and risk controls. Create environments to facilitate experimentation.

At a policy level, governments can provide a number of ways to support continuous learning. This includes providing accessible lifelong learning systems, encouraging reskilling, public-private partnerships, flexible learning opportunities, and recognising new skills and qualifications. The OECD highlights that lifelong learning and developing skills are important to support employees in adapting to changing labour market demands. Furthermore, the World Economic Forum state that continuous learning, reskilling and upskilling is becoming increasingly important. This study will explore how leadership, culture, psychological safety, learning systems, incentives, experimentation and supportive policy will work together to encourage continuous learning. Ultimately, the goal of this study is to create an evidence based list of critical success factors that can be used to create resilient, adaptable and future ready workforces.

RQ1: How significant is the impact of AI driven automation on traditional job roles, compared to human-AI augmentation?

Artificial intelligence is impacting traditional employment structures. As AI can automate certain processes, change skill requirements and create new ways for humans to work alongside AI. These impacts will vary between industries.

Approximately one in four workers globally are working in an occupation where they have some exposure to generative AI (ILO 2025). However, whilst there are impacts to jobs, it is found that jobs are more likely to be transformed rather than eliminated completely for most occupations as many roles still need humans (ILO).

Overall, AI automation and augmentation can work together to shape the future of work. Automation will lead to a decline in the demand for certain roles whilst augmentation will improve productivity and create a demand for new skills. How organisations utilise AI will determine the overall effect.

RQ2: What are the main psychological and structural barriers stopping employees from taking up reskilling opportunities?

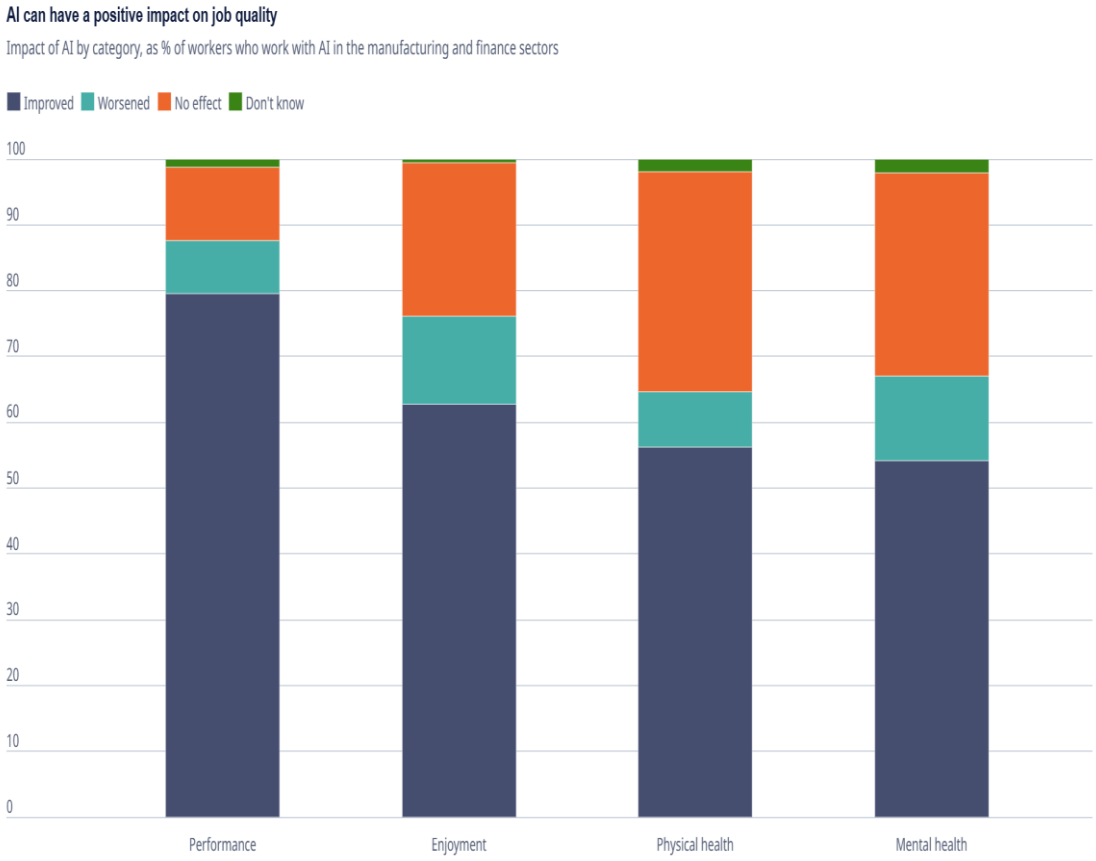
Psychological Barriers

- **Fear of Failure/Competence:** Employees can have a high level of competence within their role. They can become fearful of appearing inexperienced as they go through reskilling. They become anxious about not being able to understand new concepts such as AI or advanced data tools which can cause negative feedback from peers.
- **Lack of Control:** Moving from a structured environment to a fast-paced tech-based one can cause anxiety. They will feel like they no longer have control over their performance and will therefore be resistant to any changes.
- **Loss of Identity:** Employees often have a strong sense of identity around the particular skill they are good at. Being forced to move towards data science can make them feel like their identity is being lost.
- **Structural Barriers:** These barriers are real-world barriers which stop an employee from undergoing training.

- **Time Pressures:** According to the OECD report on barriers to training, lack of time due to work commitments (29%) and family (18%) are the biggest barriers to adults up-skilling. Demanding employees to undertake tiring training can cause instant burnout.
- **Lack of Employer Support/Rigid Cultures:** Many companies expect employees to innovate but won't give them the structures in place to do so. If an organisation has a low tolerance for error then employees will avoid learning.

  How the OECD explain this

  - To overcome the fear of failure, the OECD framework for public and private talent insists a culture of learning should be built. This means if employees know there will be a temporary drop in performance when using new software they won't get a poor performance review. This removes the fear.
  - Structural barriers can be overcome by governments and companies applying policies such as paid training leave. This removes the pressure of having to choose between family/work and learning.
  - Instead of losing their identity, the OECD emphasise digital tools which help employees to monitor and plan their gradual improvements. This makes them feel in control.



RQ3: How can a multidimensional framework systematically classify and address the diverseHow can organisations identify and classify skill gaps and implement reskilling practices?

2. Structural barriers

Barrier	Explanation
Lack of time	Employees struggle to balance training with regular work responsibilities.
Financial constraints	Training fees and related expenses can discourage participation.
Limited employer support	Employees may lack access to paid training time, mentoring, or organizational encouragement.
Inadequate training infrastructure	Workers may lack access to suitable courses, digital tools, or learning facilities.
Unequal access to opportunities	Workers in different occupations and organizations may have unequal access to training.
Poorly designed programs	Training may not match employees' existing abilities or actual workplace requirements.

A multi-dimensional approach should be taken when identifying, classifying and addressing skills gaps. To ensure organisations identify and address the correct skills gap, they should adopt an approach that considers the development of digital, cognitive, interpersonal and adaptive skills.

According to research conducted by the OECD relating to skills in the AI age it is clear fundamental skills, information and communication technology skills and complementary skills such as critical thinking, creativity and collaboration are vital.

The skills are classified into 3 categories:

- **Advanced AI Skills:** High level skills required to develop and programme AI models within an organisation. This category contains a small amount of people in the workforce such as Data Scientists, Machine Learning Engineers and Software Architects.
- **AI Literacy & Digital skills:** Digital skills that are required by the majority of people within an organisation. These may include prompt engineering, data comprehension, understanding AI bias and safe use of automation.
- **Complementary 'Human' Skills:** These are lasting non-technical skills that cannot be easily automated by AI. These focus on advanced cognitive skills such as critical thinking, creative problem solving, leadership, empathy and working collaboratively.

RQ4: How does personal and organisational risk taking enable successful career adaptation?

Career adaptation in an AI driven labour market will require employees to take personal risk by experimenting with new technologies, gaining new skills and exploring other career options. Organisations will also need to invest in training, encourage experimentation, reshape roles and provide opportunities for employees to implement new skills.

Employees may take personal risks by investing time and effort into reskilling without knowing if they will benefit. Employees may also take risks by exploring new careers, developing digital skills, experimenting with AI tools or seeking new roles. Research shows that employees who are more adaptable are more likely to be actively involved in career related activities.

However, organisations can also provide resources and a positive attitude to encourage employees to take risks by providing training, mentoring, career advice, paid learning time, AI tools and internal mobility.

Empirical research was carried out by Wang et al (2024). 519 employees were surveyed from Chinese manufacturing organisations. It was found that perceived support from the organisation, proactive personality and continuous learning had a positive effect on occupational adaptability. Continuous learning was found to be an important mediator between personal proactivity and perceived support from the organisation.

This shows that career adaptation can be seen as an interaction between personal risk and organisational factors. Employees need to be motivated to develop their skills and organisations need to provide a learning environment.

Responsible risk taking should not mean taking risks with careers or businesses. However organisations can provide risk free opportunities for experimentation. These could come in the form of pilots, structured training, mentoring and internal career changes. Employees can develop continuous learning and proactive career planning.

H0 (Null Hypothesis)

The null hypothesis states that strategic reskilling and organisational risk taking do not have a significant impact on successful adaptation and retention within the Human-AI economy. This means there would be no difference in adaptation and retention due to reskilling strategies and organisational risk taking. Instead they may be caused by other reasons.

H1 (Alternative Hypothesis)

A multi dimensional strategic reskilling practice coupled with an organisational culture that encourages calculated risk taking will have a positive relationship with successful workforce adaptation and resilience to AI driven job loss. Recent research has shown that AI is changing the skills required and emphasising the need to continuously upskill and reskill. According to the OECD skills are a major factor in successfully implementing AI. Workers now need more digital, analytical, problem solving, creativity and complementary skills. According to the World Economic Forum 77% of employers surveyed expect to upskill or reskill their workforce.

The study investigated if organisations who have a structured reskilling practice and encouraging risk taking will have better workforce adaptation.

Methodology

A mixed methods approach will be implemented. Quantitative data will be used to investigate the relationship between strategic reskilling, AI, adaptability and job security. Qualitative data will be used to understand employees and HR professionals experiences with psychological barriers, organisational support and challenges.

Primary Data

Surveys and semi-structured interviews with employees, HR professionals, Managers and Leaders within organisations that have experienced AI changes. This can be in many industries such as Technology, Finance and Manufacturing.

Secondary Data

Academic research, ILO and OECD reports, industry reports, Labour Market statistics and research into AI automation, augmentation, reskilling and workforce adaptation. The ILO have done research into AI in 2025. This is relevant as it looks at the exposure to AI at a task level. They have found that most jobs are more likely to transform.

Quantitative

Descriptive, correlation and regression analysis will be carried out to see if structured reskilling and organisational support has a relationship with workforce adaptability and job security.

Qualitative

Thematic analysis will be carried out to identify themes from responses. Themes could include fear of job loss, reluctance to change, motivation to learn, AI readiness, organisational support and willingness to reskill. Overall, this ties in with your multi-dimensional framework as it looks at what skills workers need, what is preventing them from gaining them and how organisations can enable successful workforce adaptation.

Conclusion

The study of Generative Artificial Intelligence (GenAI) and automation has highlighted the significant impact it has on workforce displacement and changing job roles across many industries. These new technologies are transforming traditional employment by automating repetitive tasks and increasing productivity. Many industries are being affected such as manufacturing, banking, healthcare, education, information technology and retail.

However not everyone will benefit from technological advancements. Those with limited access to education, training and digital resources will struggle to adapt. Organisations, educational institutions and government will need to work together to ensure an inclusive workforce and responsible AI.In conclusion the future of employment will rely on how well humans work alongside intelligent technologies. By focusing on continuous learning, developing skills and responsible innovation we can overcome workforce challenges and create a more adaptable, productive and sustainable employment environment.

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