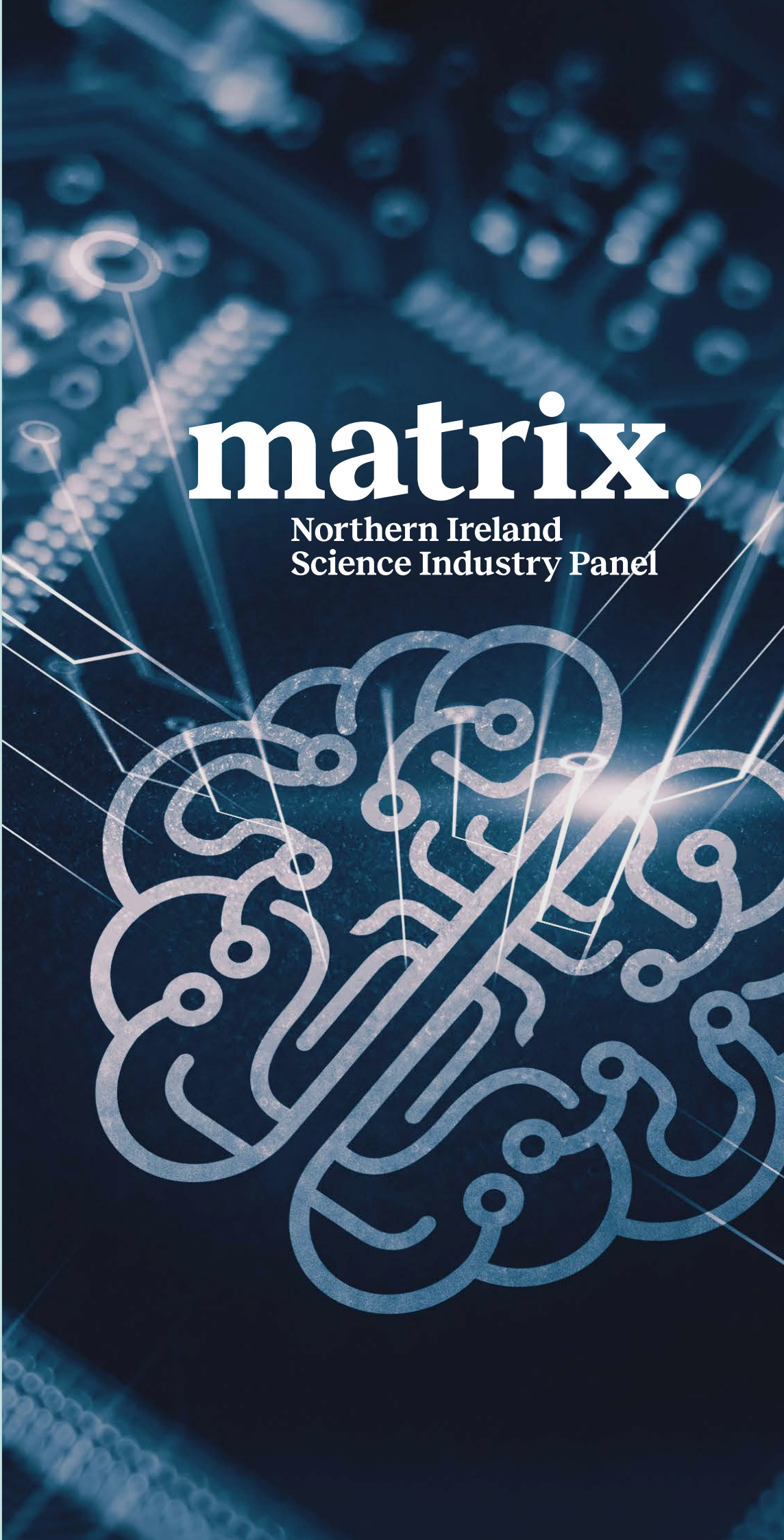

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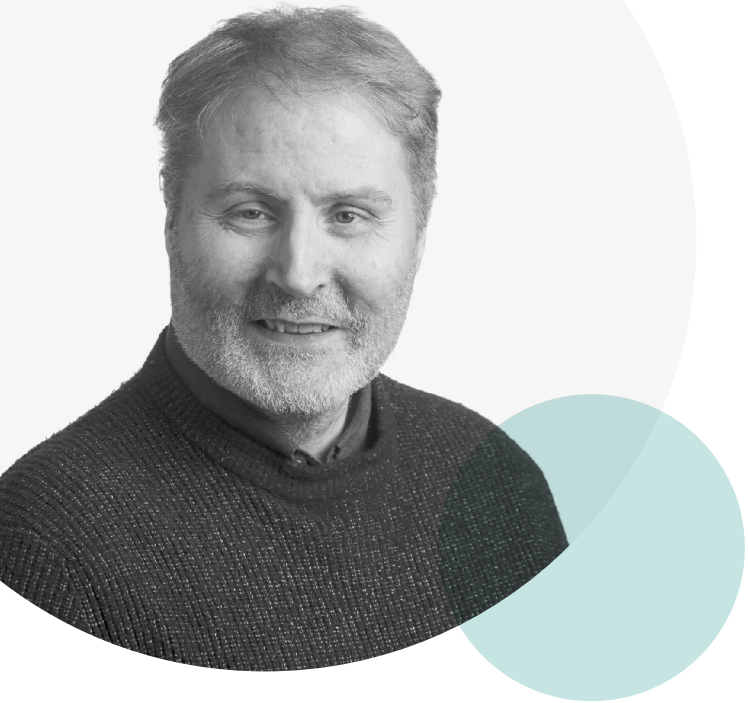
Northern Ireland
Science Industry Panel

AI and the Future of Work in Northern Ireland

September 2025

Firetail
Strategy for social progress

Contents



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Foreword

Tom Gray

Chair of the Study

Matrix, the Northern Ireland Science and Industry Panel

As Chair of this study on AI and the Future of Work in Northern Ireland, I am honoured to present our findings and insights. This report represents a comprehensive exploration of the transformative impact of artificial intelligence on our workforce and economy.

Our journey has been one of discovery and collaboration, engaging with experts, industry leaders, and policymakers to understand the opportunities and challenges that AI presents. The insights gathered here are not just a reflection of the current state of AI but a roadmap for harnessing its potential to drive sustainable growth and innovation in Northern Ireland.

I extend my gratitude to the dedicated team of researchers, contributors, and stakeholders who have made this study possible. Their commitment and expertise have been invaluable in shaping this report.

Artificial Intelligence stands as the defining force of the 2020s: a technology reshaping economies, redefining skills, and redrawing the map of opportunity at an unprecedented pace. For Northern Ireland, the challenge and opportunities are clear: we must choose to be the owners of our future, not bystanders to global change.

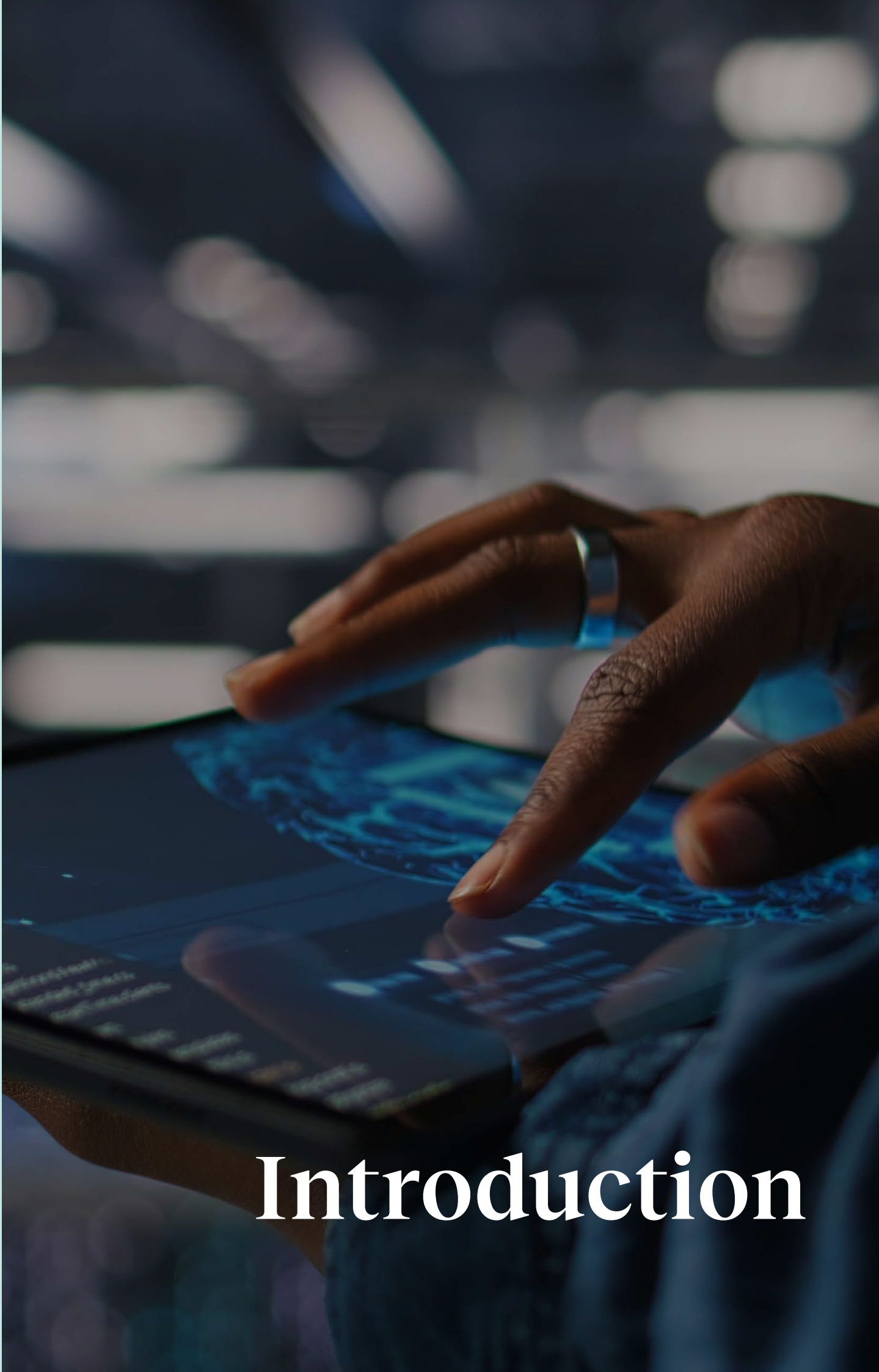
AI's impact on the workforce will be profound, touching every sector and every community. The potential rewards are immense: more productive industries, new forms of work, and a society empowered by innovation. But these rewards will not be realised through caution or delay. The window for effective action is narrow; other regions and nations are moving decisively, and so must we.

The cost of hesitation is the risk of leaving our businesses, our institutions, and most importantly, our people unprepared as automation and augmentation transform the world of work.

In the recent past, our response to waves of technological change has been cautious, meaning we have sometimes lagged in adopting digital innovations. The rapid acceleration of AI now demands a different approach. We cannot afford to let the pace of change outstrip our readiness or our ambition. Incrementalism is no longer enough—this moment calls for bold new thinking, agile experimentation, and partnership across government, business, and education. However, more broadly, Northern Ireland has a proud history of resilience and ingenuity. Now is the moment to channel that spirit, making bold, coordinated decisions that secure a thriving, inclusive future. The time to act is now—decisively, collaboratively, and with ambition. We must be proactive in anticipating the needs of our workforce, investing in skills and retraining, and fostering a culture of lifelong learning. Traditional strategies will no longer suffice; agile, innovative, forward-thinking solutions are needed to ensure that all sectors of our society can thrive in the AI era.

This report urges leaders to move with renewed urgency and imagination. By working together in new ways, embracing experimentation, and scaling what works, Northern Ireland can not only catch up but become a leader in harnessing AI for economic and social good.

Thank you for your interest in this important work. We hope this report serves as a catalyst for informed decision-making and strategic action.



Introduction

1.0 Introduction

1.1. Project background

Matrix, the Northern Ireland Science and Industry Panel, was established to inform government on the development of science and technology strategies and policy that will ensure Northern Ireland's sustainable competitiveness in the global economy.

Artificial Intelligence is no longer a horizon technology—it has arrived and is already transforming the nature of work. As capabilities evolve from generative AI that augments human work to agentic AI capable of autonomous decision-making and complex task execution, organisations across every sector face both unprecedented opportunities and significant disruption.

Northern Ireland stands at a critical juncture. The region's strengths in software development, FinTech, and advanced manufacturing position it well to capitalise on AI-driven transformation. However, these same sectors—along with Northern Ireland's significant Foreign Direct Investment in back-office operations—face particular vulnerability to AI disruption. The pace of change demands urgent strategic response: research shows AI adoption in workforces has surged by 52% in just six months, suggesting the window for proactive adaptation is narrowing rapidly.

Matrix, on behalf of the Northern Ireland Department for the Economy, commissioned this foresight-driven study to explore how Northern Ireland can position itself at the forefront of AI-driven economic transformation whilst addressing the profound societal and ethical questions arising from AI's impact on work, workers, and the nature of employment itself.

1.2. Objectives

This study has six objectives:

Redefining workforce structure in an AI-powered economy. Exploring how entire industries and job roles could be redesigned as AI systems evolve from productivity tools to autonomous decision-makers and task performers, examining workforce structures needed to maximise human-AI synergy whilst preventing technological redundancy.

Balancing workforce and AI capabilities. Assessing which sectors and roles in Northern Ireland are most susceptible to transformation, identifying both displacement risks and opportunities for new job creation, and evaluating reskilling and adaptation strategies needed to ensure workforce competitiveness.

Scenario planning. Developing plausible future scenarios with projected timeframes for how AI could reshape work across Northern Ireland, considering industry trends, skills demand, economic policy, and rates of adoption across business sectors.

Economic and productivity implications of workforce transformation. Evaluating how AI adoption and workforce redesign could impact Northern Ireland's GDP, sectoral growth, and overall productivity, assessing the economic case for investing in AI-driven transformation and how labour demand might change.

Governance, ethics, and societal considerations. Identifying key risks associated with AI adoption including workforce inequalities, ethical considerations in AI decision-making, and governance challenges, providing foresight into policy approaches to ensure inclusive transition.

Actionable strategies for Northern Ireland's AI adoption. Providing a roadmap of interventions to maximise benefits of AI-driven workforce transformation, including policy recommendations, industry strategies, and education/training initiatives tailored to Northern Ireland's unique context.

1.3. Definitions

Artificial Intelligence encompasses a spectrum of technologies that are reshaping how work is performed. This report adopts a broad definition spanning three evolutionary stages:

Traditional AI includes established techniques like machine learning, computer vision, and natural language processing that have been automating specific tasks for years.

Generative AI: the current wave transforming workplaces - creates new content through Large Language Models (like ChatGPT), image generation, and code creation.

Agentic AI represents the emerging frontier: autonomous systems that can plan, reason, and execute multi-step tasks independently. Unlike generative AI which responds to prompts, agentic AI pursues objectives autonomously, fundamentally shifting workers from task executors to supervisors and quality controllers.

1.4. Scope

The scope of this study is to provide a comprehensive assessment of how artificial intelligence will transform work in Northern Ireland through to 2030, delivering both evidence-based analysis and strategic foresight to inform policy and investment decisions.

This study examines AI's impact across all sectors of Northern Ireland's economy, with particular focus on identifying which roles and industries are most susceptible to transformation—encompassing both displacement risks and opportunities for augmentation and new job creation. The analysis covers the full spectrum of AI technologies, from current applications of generative AI to emerging agentic AI systems capable of autonomous decision-making.

The research employs a mixed-methods approach combining:

- Landscape review of current AI adoption and impacts in Northern Ireland.
- Economic modelling to quantify potential GVA and employment effects, building on Matrix's 2021 AI foresight study.
- Scenario planning to develop plausible futures under different adoption trajectories.
- Stakeholder engagement through approximately 24 interviews with industry, academia, and government representatives.
- Strategic analysis to identify actionable interventions.

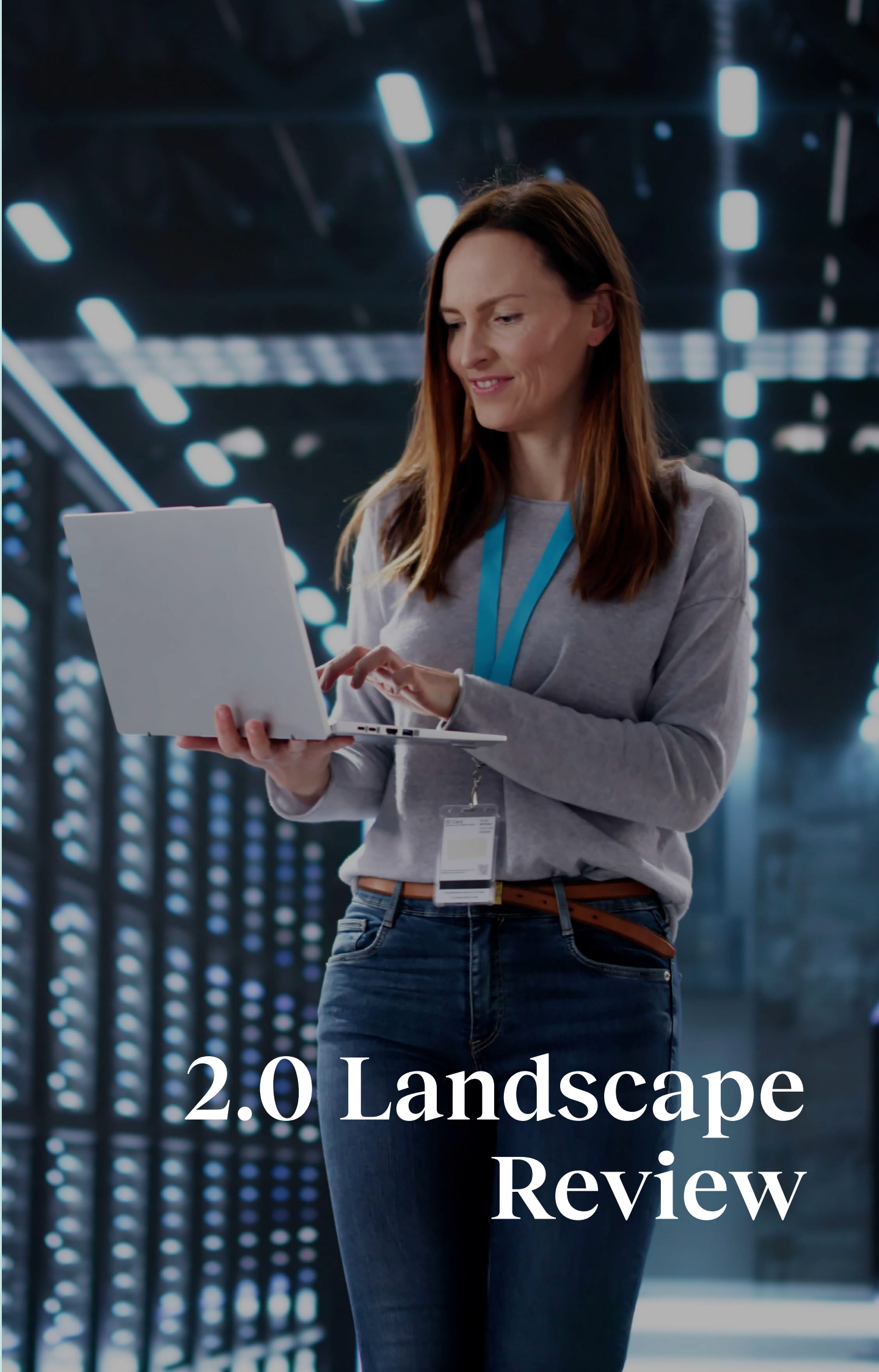
The study addresses Northern Ireland's specific context, including its unique economic structure, workforce composition, dual market access position, and relationship with both UK and all-island economies. It explores critical considerations including governance frameworks, ethical implications, workforce inequalities, and the changing nature of work itself—from examining how entry-level roles may disappear to understanding how career progression pathways might be fundamentally restructured.

The output will provide government, industry, and academia with a flexible framework—not a rigid roadmap—to guide adaptation to AI-driven change, building on regional strengths whilst addressing risks of workforce displacement and widening economic disparities.

1.5. Contributors

The project team would like to thank the following individuals who contributed significant time, expertise, and guidance through their participation on the project's steering group:

Name	Role
Tom Gray	CTO, Kainos - Chair of Steering Group (Matrix Panel member)
Patricia O'Hagan	Co-founder, Core Systems - Deputy Chair of Steering Group (Matrix Panel member)
Andrew Bruce	Director of Software Engineering, Expleo Ireland (Matrix Panel member)
Ian Getgood	Skills Strategy Branch, Department for the Economy
Dr Simon Grattan	Director of Research Services & Government Affairs, Almac Group (Matrix Panel member)
Gareth Hetherington	Director of Economic Policy Centre, Ulster University
Mark Huddleston	Managing Director of jheSOLUTIONS and King & Fowler UK (Matrix Panel member)
Dr David Jordan	Senior Researcher, Queen's Business School, Queen's University Belfast
Paul McCoy	International Investment Manager, Invest Northern Ireland
Steve Orr	CEO, Catalyst
David Spence	Innovation Lead - Artificial Intelligence and Machine Learning, Innovate UK
Robert Turkington	All-Island Economy, AI and InterTradeIreland, Department for the Economy
Gavin Warden	All-Island Economy, AI and InterTradeIreland, Department for the Economy
Nell Watson	Executive Consultant Philosopher, Apple. Chair, Agentic AI Safety Experts Focus Group, IEEE Standards Association
Lisa Wilson	Senior Economist, Nevin Economic Research Institute. Expert Advisor to the Minister for the Economy in Northern Ireland



2.0 Landscape Review

2.0 Landscape Review

2.1. Introduction

Artificial intelligence (AI) is no longer a horizon technology. It has arrived and is already transforming the nature of work. AI is reshaping sectors, disrupting operating models, and redefining career journeys.

> "The future has arrived —it's just not evenly distributed yet."[1]

AI's trajectory is uncertain. Some experts believe we're approaching the limits of current AI capabilities, whilst others predict continued rapid advancement toward artificial general intelligence.[2] The technology faces real constraints—the massive energy requirements, costs, and data needs—but also shows remarkable momentum, with major tech companies investing hundreds of billions in AI infrastructure. For Northern Ireland, this uncertainty makes adaptation even more critical: we must prepare for multiple possible futures rather than betting on any single trajectory.[3&4]

AI is already altering work in NI; the question is pace and distribution of impact. We estimate a range of £0.2bn to £3.7bn with a mid-estimate of £1.2bn, with 12–23% of employment's worth of tasks reconfigured rather than outright eliminated. Outcomes hinge on management quality, worker participation, and regulatory certainty. This report sets out the sectors most exposed, early-warning indicators, and ten achievable, measurable interventions to convert exposure into productivity.

Early deployments are already demonstrating this transformative shift across sectors. In financial services, agentic AI is acting as digital workers that autonomously validate payment instructions, prepare compliance memos, and write code.[5] Healthcare systems are beginning to combine multimodal data—including imaging, genomics, and existing literature—to draft personalised treatment recommendations.[6] Supply chain and logistics operations are deploying agents that monitor internal systems and external feeds to optimise usage and efficiencies,[7] whilst in customer experience and e-commerce, agentic AI is running end-to-end shopping workflows that autonomously recommend products, place orders, and track deliveries.[8]

1 *Attributed to Willam Gibson, quoted in Scott Rosenberg (1992) April 19, San Francisco Examiner, Section: Style, "Virtual Reality Check Digital Daydreams, Cyberspace Nightmares" by Scott Rosenberg, Page C1, San Francisco, California.*

2 *For example: Villalobos, P. et al. (2024) Will We Run Out of Data? Limits of LLM Scaling Based on Human-Generated Data accessed via link*

3 *The computational requirements for frontier AI are expanding dramatically. If current trends continue, with computational performance of leading AI supercomputers doubling every nine months, projections suggest that by 2030, the leading AI supercomputer will incorporate 2 million AI chips, cost $200 billion in hardware, and require 9 gigawatts of power. However, some researchers argue that limitations from energy usage, cost, and data availability will create diminishing returns with each new model generation, potentially slowing the pace of capability improvements (see: Konstantin F. Pilz, James Sanders, Robi Rahman, and Lennart Heim, (April 2025) Trends in AI Supercomputers arXiv:2504.16026v2 (April 2025), pp. 1-2, 8-9, 19.)*

4 *Marcus, G. (2024) Evidence that LLMs are reaching a point of diminishing returns – and what that might mean, accessed via link*

5 *Wall Street Journal (2025) 'Digital Workers Have Arrived in Banking'. Available at:* https://www.wsj.com/articles/digital-workers-have-arrived-in-banking-bf62be49

6 *Nature Cancer (2025) 'Agentic AI in Healthcare'. Available at: https://www.nature.com/articles/s43018-025-00991-6.pdf*

7 *McKinsey (2025) 'Seizing the Agentic AI Advantage'. Available at: https://www.mckinsey.com/capabilities/quantumblack/our-insights/seizing-the-agentic-ai-advantage*

8 *Reuters (2025) 'Walmart Bets on AI Super Agents to Boost E-commerce Growth'. Available at: https://www.reuters.com/business/retail-consumer/walmart-bets-ai-super-agents-boost-e-commerce-growth-2025-07-24/*

Regardless of the exact trajectory, the current level of AI capability is already shaping the nature of work and the workforce. Business leaders are grappling with profound questions about business, operating, and organisational models as AI capabilities expand. As one interviewee observed:

"AI will transform how people work internally... a third of those workflows can be automated... what does that mean for how you structure your team?"

Another noted:

"The business model changes when... your search function, your customer support, and your knowledge base are all being handled by one LLM-based interface."

The window for strategic AI preparation is closing faster than expected. The pace of this transformation is accelerating rapidly across developed economies. This is evident from workforce data: research tracking generative AI adoption in the US workforce shows that usage has surged from 30.1% in December 2024 to 45.9% by June-July 2025—a 52% increase in just six months. Such dramatic acceleration suggests that the window for proactive adaptation may be narrower than previously anticipated.

Data from research by Microsoft and Trinity College Dublin shows that 96% of managers in Northern Ireland report employee usage of free AI tools, whilst 24% of public sector organisations use AI in most data-driven decision-making processes.[9]

These changes are not merely theoretical; they have real world impacts for individuals across the economy and society. Research by the AI Safety Institute suggests that general-purpose AI is being adopted faster than previous technologies like the internet or personal computers. Early evidence demonstrates meaningful productivity gains in real-world work settings across various cognitive tasks, from customer service to software development, though the magnitude varies significantly by occupation and implementation. Whilst some economists anticipate that new job creation will offset losses in the long term, the AI Safety Institute warns that the breadth and speed of potential disruption presents novel challenges for workers, employers, and policymakers that differ fundamentally from previous technological transitions.[10] There have been multiple international efforts to estimate the impact of AI on jobs:

- The World Economic Forum estimates that by 2030, technological advancements, including AI, are expected to disrupt 22% of jobs, equating to 170 million new roles created and 92 million displaced, resulting in a net increase of 78 million jobs.[11]
- IPPR, in their worst-case scenario, estimate that 7.9 million jobs would be lost as AI is integrated into workplaces. Their central estimate is a loss of 4.4 million jobs. [12]

9 *Trinity Centre for Digital Business and Analytics (CDBA) and Microsoft Ireland. (2025). The AI Economy in Ireland 2025: Trends, Impact & Opportunity. pp. 10, 12*

10 *AI Safety Institute (2025). International AI Safety Report: The International Scientific Report on the Safety of Advanced AI. DSIT 2025/001, pp. 111-117.*

11 *World Economic Forum (2025) The Future of Jobs Report 2025 p.5*

12 *IPPR (2024) Transformed by AI p.25*

- The ILO estimate 5.5% of employment in high income countries is highly exposed to automation.[13]
- The Tony Blair Institute estimates that 1 to 3 million UK jobs could ultimately be displaced by AI, but crucially these displacements will not occur all at once. Annual job displacements are projected to peak at between 60,000 and 275,000 jobs per year—relatively modest compared with the average 450,000 job losses seen annually over the past decade.[14]
- McKinsey estimates that 30% of all tasks across most jobs can be automated with current AI technology.

These varied projections recognise both AI's disruptive potential and the economic adjustment mechanisms that may emerge. Whilst some highly routine roles may face elimination, the broader impact of AI will be to fundamentally reshape how work is organised and valued, with most occupations experiencing transformation rather than wholesale replacement. The public sector faces similar pressures: the National Audit Office estimates that one-third of civil service tasks could be automated, with up to 40% of Department for Work and Pensions tasks potentially suitable for AI intervention.[15]

Recent analysis of US payroll data covering millions of workers finds differential employment trends by age and AI exposure since late 2022. The data shows a 13% relative employment decline for workers aged 22-25 in highly AI-exposed occupations, whilst older workers in these same roles maintained or increased employment levels. These patterns, particularly visible in software development and customer service roles, align with hypotheses that entry-level positions may be more affected during initial AI adoption phases. The research notes that employment adjustments are occurring primarily through reduced hiring rather than wage changes.[16]

AI is transforming Northern Ireland's economy through multiple channels: specialist firms developing AI tools and solutions, companies embedding AI into products to enhance competitiveness, and enterprises redesigning business processes to capture new efficiencies. This reflects AI's dual role as both an emerging high-value sector and a transformative force across all industries. Artificial Intelligence Collaboration Centre's (AICC) Capability Census[17] maps Northern Ireland's specialist AI sector: the 198 firms creating AI solutions, employing 1,340 specialists, and generating £82m in direct GVA. Whilst this represents a small fraction of Northern Ireland's economy, it demonstrates an established foundation for AI expertise that can support broader economic transformation.

The scope of possible outcomes for AI's impact on work remains vast. Research suggests that not just whether but how AI is adopted—its pace, implementation approach, and strategic priorities—will determine dramatically different futures. In a pessimistic scenario, up to 7.9 million jobs might be lost without corresponding GDP gains. However, a more optimistic trajectory envisions full job augmentation, resulting in no net job losses and a 13% boost to GDP—approximately £306 billion annually.[18]

The difference between these outcomes will largely depend on how organisations, workers, and policymakers respond. The concern extends beyond immediate displacement to systemic effects on career progression. As one observer warned: "If there's no junior role, there's no path

13 *International Labour Organisation (2023) Generative AI and Jobs: A global analysis of potential effects on job quantity and quality, ILO Working paper 96 P.*

14 *Tony Blair Institute for Global Change. (2024, November). The Impact of AI on the Labour Market. Retrieved from link*

15 *National Audit Office (2024) The use of artificial intelligence in government p.9 and The Tony Blair Institute for Global Change (2024) Governing in the Age of AI: Reimagining the UK Department for Work and Pensions p.4*

16 *Brynjolfsson, E., Chandar, B., & Chen, R. (2025, August). Canaries in the coal mine? Six facts about the recent employment effects of artificial intelligence (Working Paper). Stanford Digital Economy Lab.*

17 *Perspective Economics (2025). Artificial Intelligence Capability Census: A Baseline Study of AI Adoption, Opportunity and Impact in Northern Ireland. Commissioned by the Artificial Intelligence Collaboration Centre (AICC), July 2025, pp. 3-4, 30-31.*

18 *PPR (2024) Transformed by AI p.25*

to senior. That is a huge systems-level issue." This points to a fundamental challenge: AI's capacity to automate entry-level work may disrupt traditional pathways to expertise and seniority. The question is not whether AI will reshape work, but whether that reshaping will serve society's broader interests or exacerbate existing inequalities. Employees are adopting AI far faster than leaders recognise. Younger workers entering AI-augmented workplaces may develop different but equally valuable skill sets, just as previous generations adapted to computers and spreadsheets. Research shows workers are three times more likely to be using generative AI than expected, with 47% believing AI will handle over 30% of their work within a year, compared to leaders' estimate of just 20%. This suggests that rather than lacking employee readiness, we may face a leadership recognition gap about workforce AI adoption.[19]

The impacts are uneven across sectors, within organisations, and for individuals.

The effects of AI adoption are being felt unevenly across different groups of workers and economic sectors. Entry-level positions appear particularly vulnerable to AI automation, potentially disrupting traditional pathways to expertise and seniority.[20] This pattern is already evident in technology sectors, where new graduate hiring has plummeted by over 50% compared to pre-pandemic levels, with new graduates now accounting for just 7% of hires in big tech companies.[21] One interviewee for this process noted: "I have a concern that entry-level graduate type roles, internships, placements... will be threatened... They are the canaries in the coalmine."

This concern extends beyond individual job losses to systemic disruption of traditional career pathways and talent development. Dario Amodei, the CEO of Anthropic, caused headlines when he predicted that AI could wipe out half of entry level jobs.[22] However, AI researchers Carl Benedikt Frey and Michael Osborne argue that whilst generative AI has expanded automation's scope, particularly in virtual social interactions and creative recombination tasks, critical bottlenecks remain that constrain wholesale job displacement—noting that current AI systems are better understood as tools that lower barriers to entry and intensify competition within professions, rather than eliminating entire occupational categories.[23]

Certain professions are experiencing immediate disruption, whilst other sectors are likely to experience more gradual change. Information and communication, professional services, and education face immediate disruption. These knowledge-intensive sectors are particularly vulnerable where work is structured around billable hours rather than outcomes. One interviewee highlighted "main concerns are for professional services, legal services. Those billable hour roles." As another interviewee observed: "This technology revolution... has the potential to negatively impact white-collar workers. Partly, because the tools will be able to do the lower-level work in their roles quite quickly. By contrast, manufacturing and physical operations may see more gradual change, with AI augmenting rather than replacing workers. As one participant noted: "AI is refining the robotics and automation... there will be efficiency savings but... always a need for a human in the loop."

19 *McKinsey's (2025) Superagency in the Workplace p.12*

20 *AI Safety Institute (2025) Ibid. p.112*

21 *SignalFire (2025) The SignalFire State of Tech Talent Report - 2025*

22 *Axios (2025) Behind the Curtain: A white-collar bloodbath https://www.axios.com/2025/05/28/ai-jobs-white-collar-unemployment-anthropic*

23 *Frey, C.B. and Osborne, M. (2023) 'Generative AI and the Future of Work: A Reappraisal', Oxford Martin School Working Paper.*

AI exposure risk assessment by sector[24]

Sector	Impact on GVA	Impact on employment	Key vulnerabilities	Northern Ireland context[25]
Information and Communication	High	High	Software development, data analysis, content creation, technical writing	Growing tech sector; automation of coding tasks already visible
Professional, Scientific & Technical	High	High	Legal research, consultancy, accounting, architectural drafting	Major sector serving UK/ international markets; billable hour model under threat
Education	High	Medium	Administrative tasks, basic tutoring, assessment marking	Large public sector employer; opportunities for AI-augmented teaching
Financial and Insurance	Medium	High	Claims processing, financial analysis, customer service, compliance	Significant back-office operations; FDI concentration in these functions
Administrative and Support Services	Medium	High	Data entry, scheduling, customer support, document processing	Core FDI focus area over past decade
Human Health and Social Work	Medium	Medium	Administrative functions, basic diagnostic support, appointment scheduling	Essential services: human interaction remains core requirement
Manufacturing	Medium	Medium	Quality control, predictive maintenance, supply chain optimisation	Gradual change likely; human oversight still essential for safety

24 Risk assessment based on synthesis of: WEF Accenture (2025) Global Economic Futures: Productivity in 2030; Anthropic (2025) Anthropic Economic Index: Insights from Claude 3.7 Sonnet; the sector (US); EY (2024) The uneven future of work: GenAI and labor market; McKinsey (2023): The economic potential of generative AI

25 Drawn from insight and analysis of interviews/workshops

Sector	Impact on GVA	Impact on employment	Key vulnerabilities	Northern Ireland context
Wholesale and Retail Trade	Medium	Medium	Inventory management, customer service, basic sales support	Mixed impact; physical retail less affected than online operations
Public Administration and Defence	Medium	Medium	Document processing, compliance monitoring, routine enquiries	Large NI employer; potential for efficiency gains through automation
Arts, Entertainment and Recreation	Medium	Medium	Content creation, event management, basic graphic design	Creative industries experiencing rapid change; tools augmenting/ replacing work
Transportation and Storage	Low	Medium	Route optimisation, basic logistics, administrative functions	Physical elements provide resilience; gradual automation likely
Accommodation and Food Services	Low	Medium	Booking systems, basic customer service	Service delivery remains largely human; gradual technology integration
Construction	Low	Low	Project planning, basic design tasks	Physical work dominates; on-site problem-solving remains human domain
Agriculture, Forestry and Fishing	Low	Low	Farm management software, basic monitoring	Physical outdoor work; variable conditions require human adaptability
Mining and Quarrying	Low	Low	Equipment monitoring, safety systems	Specialised physical work; safety regulations maintain human oversight

Existing inequalities risk being amplified. The digital divide that already affects access to opportunities may deepen with AI adoption. One interviewee warned: "We know there's a digital divide. We know it's potentially getting worse with AI." Gender disparities are particularly pronounced, with women accounting for 70.2% of employees in jobs most at risk of automation.[26] Research confirms this pattern, finding that women are significantly more affected by AI exposure as they are more likely to work in the most exposed occupations, such as secretarial and administrative roles.[27] Entry-level positions are particularly vulnerable, with administrative professionals having 14 percentage points higher risk of automation than those with more experience.[28] There is also evidence of discriminatory hiring practices based on gender, race and personality traits when AI is used in recruitment.[29]

Northern Ireland faces specific vulnerabilities due to its economic structure. Foreign Direct Investment (FDI) over the past decade has concentrated on precisely the functions most susceptible to AI automation such as back-office operations, customer service centres, financial processing, compliance and regulatory reporting, and data entry workflows. One interviewee noted: "FDI investment in Northern Ireland has for the last decade been focused on back-office roles, workflow automation, KYC… It's a bunch of things that are right in the sweet spot of how AI and agentic workflows are going to change everything." Government analysis suggests Northern Ireland is likely to experience a small percentage decrease in jobs over a 20-year period, with some regions—particularly Armagh, Banbridge and Craigavon—predicted to experience the highest number of job losses, with the potential for gradual decline followed by rapid disruption.[30]

IPPR's analysis of UK occupational exposure confirms this vulnerability, finding that back office jobs such as personal assistants and secretaries (69% exposure), human resources administrative occupations (68% exposure), and marketing associate professionals (65% exposure) are among the most exposed to current AI capabilities. Administrative occupations could see about a third of jobs displaced even with current AI technology.[31]

26 *ONS (2019) Which occupations are at highest risk of being automated? Accessed via link*

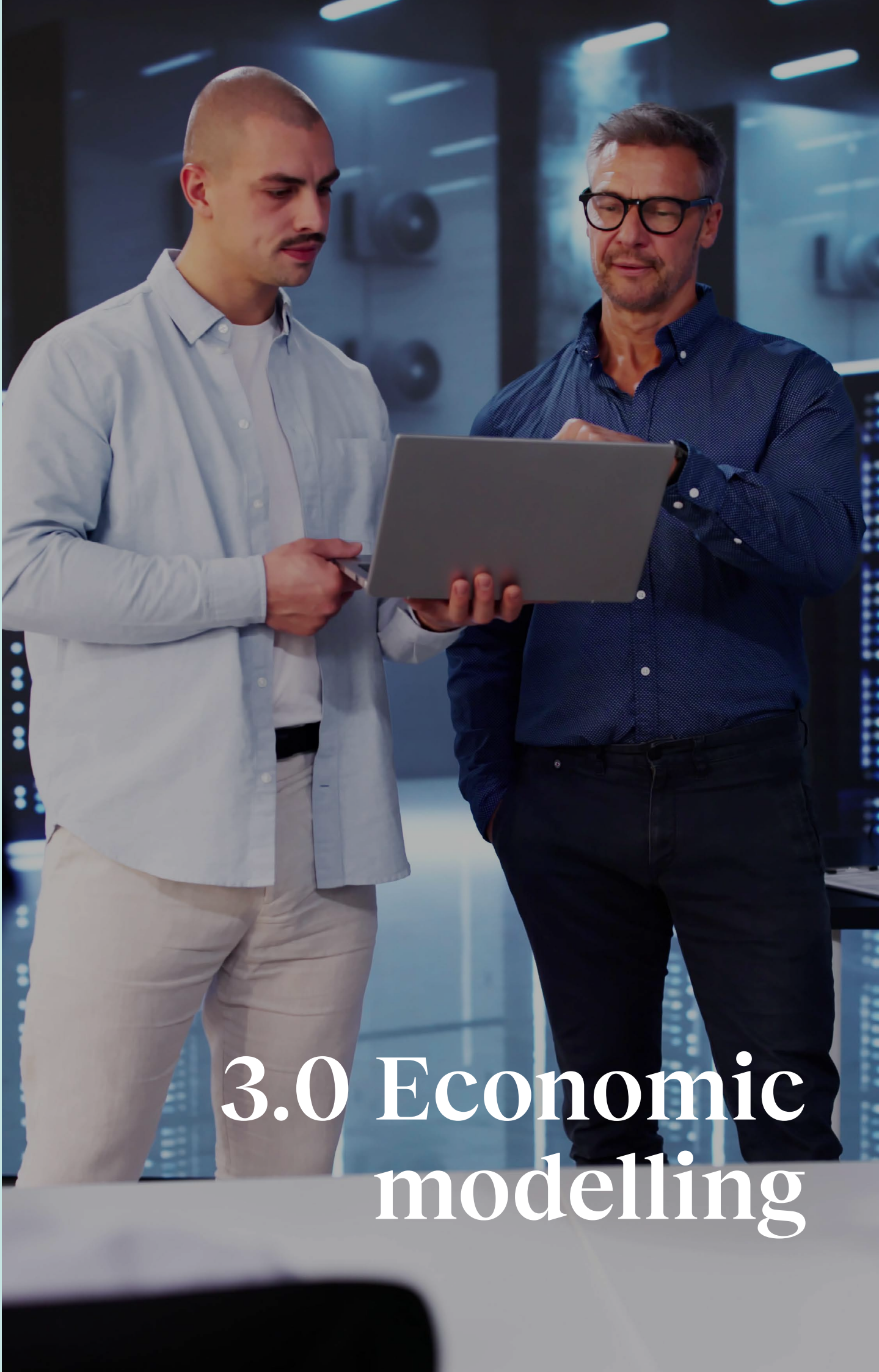
27 *ILO and (2025) Generative AI and Jobs: A Refined Global Index of Occupational Exposure ILO Working Paper 140; Theunissen, A. & Novoa, L.O. (2025) AI threatens women's job market participation accessed via link*

28 *IPPR (2024) Transformed by AI p.17*

29 *Nature (2023) Ethics and discrimination in artificial intelligence-enabled recruitment practices accessed via link*

30 *Stennett, A. (2 May 2024) Artificial Intelligence Regulation, Use and Innovation in the United Kingdom: a broad overview Northern Ireland Assembly Research and Information Service Briefing Paper 11/24 pp. 40-44.*

31 *IPPR (2024) Transformed by AI p.17*



3.0 Economic modelling

3.0 Economic modelling

3.1 Economic forecasting methodology and headline findings

Our economic analysis represents a comprehensive update of Matrix's established 2021 AI foresight study, designed to quantify the incremental additional impact of AI from today's baseline through to 2030. The model addresses the fundamental challenge of measuring AI's marginal economic contribution whilst acknowledging high uncertainty about adoption rates, technological capabilities, and implementation approaches.

Methodological approach and model architecture

The modelling follows a structured four-step methodology designed to balance analytical rigour with practical applicability. The model is structured so that the highest quality sources are used to drive the highest leverage assumptions. For instance, there are more and higher quality macroeconomic forecasts available than sector-level forecasts, so overall growth and overall AI contribution to growth is anchored in the former, whereas sector-level forecasts are used indicatively to apportion this growth across high, medium, and low impact sectors.

Firstly, we establish macroeconomic growth and employment forecasts as anchor points, incorporating Northern Ireland-specific adjustments to UK projections. Drawing on the latest estimates from the OBR, ESRI, NIESR, and UUEPC, the baseline assumes 1.35% average annual GDP growth for Northern Ireland and 0.35% employment growth, providing foundations for measuring AI's incremental contribution above these trends. The low/high growth scenarios are based on forecast uncertainty in our source data, being 0.7%-2.0% and 0.3%-0.5% respectively.

Secondly, we synthesise AI impact estimates from authoritative macro and sector-level reports, drawing on multiple quantitative sources to inform overall AI contribution projections. There is significant diversity across the 18 primary sources drawn for this synthesis, ranging from negligible impact on GVA by 2030 (e.g. 0.2%-0.4% higher than the early 2020s) through to high end estimates (e.g. around 10% higher than the early 2020s). Weighting studies by their rigour and match for our purposes, we identify a base case for Northern Ireland GVA to be 2.2% higher in 2030 than it would be if AI made no relative to our 2023 base year (the most recent with sector-specific GVA data), with a low-high range of 0.4%-6.2%.

Then, we project changing sectoral distribution patterns using historical analysis of government data, examining average 7 and 8 year shifts in recent years (excluding those strongly affected by Covid-19) to identify plausible future shifts for GVA and employment respectively. The fourth step synthesises sector-level views of likely impact on AI and employment tasks from third party research, grouping sectors into high, medium, and low exposure. This approach reduces the risk of over-reliance on absolute predictions in the source data and reduces the risk of spurious precision in the model mechanics.

Lastly, reflecting the quality mix of the third party research driving the model and the needs of this project, we recommend using the model primarily for its macroeconomic modelling. Sector-level estimates can be treated as initial inputs into possible future studies that draw on detailed, Northern Ireland specific sector insights.

3.2 Scenario framework and incremental impact calculations

The model incorporates three forecasts reflecting different trajectories of AI adoption and economic integration. Critically, all AI impact calculations are marginal—representing incremental additional economic activity attributable to AI above baseline economic growth, not AI's total contribution to the economy. This approach recognises that AI capabilities are already partially embedded in current productivity assumptions within macroeconomic forecasting.

Headline economic projections

The analysis projects AI contributing between £0.2 billion and £3.7 billion in incremental GVA by 2030 relative to 2023, with a midpoint estimate of £1.2 billion.

The low case represents cautious adoption patterns with limited economic diffusion. The midpoint case—reflecting most probable outcomes given current trends—suggests meaningful but measured AI integration across Northern Ireland's economy. The high case models accelerated implementation scenarios generating transformational economic impact, representing ambitious but plausible change given adoption patterns observed in leading organisations globally. The possibility of artificial general intelligence or economy-wide transformation is not included in our models, reflecting both the low consensus likelihood that this takes place by 2030 and the lack of historical economic data that could inform quantitative modelling.

Employment transformation patterns

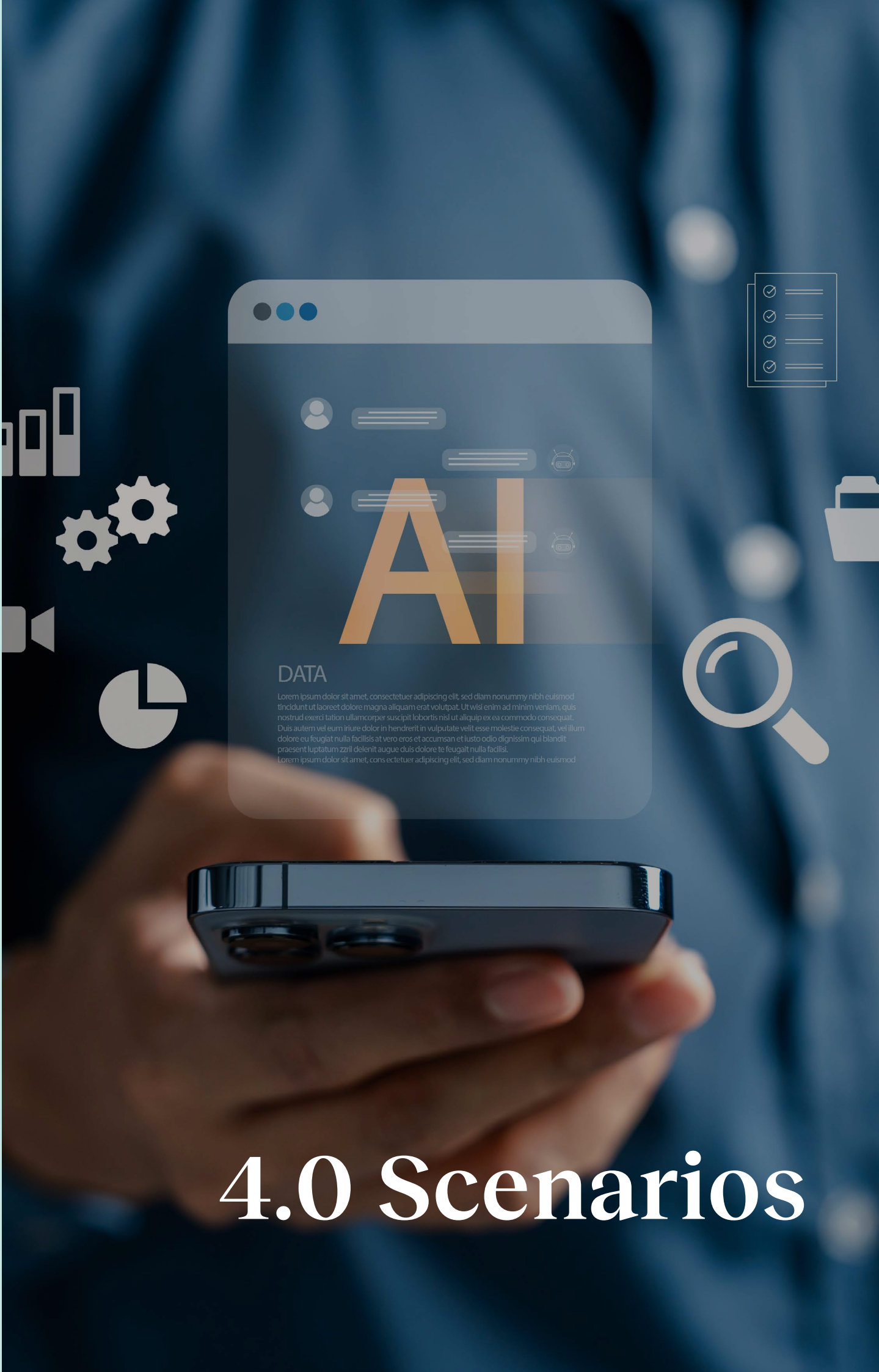
Employment analysis projects 13% to 47% of tasks affected across scenarios, translating to 110,000 to 200,000 job-equivalent impacts. These figures reflect task transformation rather than job displacement—much AI impact represents augmentation of human capabilities rather than wholesale replacement. The model distinguishes between high-impact sectors, medium-impact sectors, and low-impact sectors, providing a framework for differentiated workforce adaptation strategies.

Validation and uncertainty management

The model incorporates Northern Ireland-specific adjustments to global developed country AI impact estimates, applying a 12%-20% downward adjustment in the midpoint and low case estimates to reflect the region's historically measured technology adoption compared to leading economies. In the high case, we apply a 5% uplift in AI benefits for Northern Ireland compared to the UK average, noting the potential to leverage strengths such as a small, agile tech ecosystem, the public sector as a possible anchor innovative client where large gains are possible, and existing strengths in high exposure sectors such as cybersecurity and gaming.

The wide range between scenarios—from £0.2 billion to £3.7 billion—reflects genuine uncertainty about implementation trajectories rather than analytical imprecision.

This range demonstrates both the substantial opportunity available through coordinated AI adoption and the critical importance of strategic choices around business support, skills development, and enabling infrastructure over the next five years. The model provides confidence in order-of-magnitude estimates whilst explicitly acknowledging inherent uncertainties in predicting technological diffusion patterns and economic integration timelines across Northern Ireland's distinctive economic structure.



4.0 Scenarios

4.0 Scenarios

4.1 Introduction

This section presents four plausible scenarios for how artificial intelligence (AI) could reshape the future of work in Northern Ireland, alongside a wildcard discontinuity and strategic recommendations that remain robust across multiple possible futures.

The scenarios emerge from a synthesis of outputs generated during our scenario development workshop, involving stakeholders from the Steering Group and selected interviewees. We have developed these workshop insights into full narrative scenarios that capture both the systemic dynamics and lived experiences of workers and businesses in each possible future.

In developing these narratives, we have employed AI tools to enhance our analysis—using large language models (LLMs) to identify potential gaps in our reasoning, stress-test the internal logic of each scenario, and explore implications we might have overlooked. This AI-assisted approach has helped ensure the scenarios capture the full complexity of transformation whilst remaining grounded in evidence from our stakeholder engagement and desk research.

Each scenario includes economic, social, and governance implications, historical parallels that provide context for understanding potential trajectories, and early warning indicators that can help policymakers and business leaders recognise which future Northern Ireland is moving towards. The document concludes with six strategic recommendations designed to enhance Northern Ireland's adaptive capacity regardless of which scenario ultimately emerges.

4.2 How to read these scenarios

These scenarios are strategic planning tools, not predictions. They explore four plausible pathways (and a wildcard) for how AI could reshape Northern Ireland's economy and society by 2030, based on two critical uncertainties: the pace of AI adoption and our collective capacity to build adaptive skills.

These scenarios focus specifically on workforce transformation in Northern Ireland through AI adoption. They assume continued technological advancement but explore how different implementation approaches and institutional responses could lead to dramatically different outcomes for workers, businesses, and communities.

Each scenario is designed to help stress-test current thinking and identify strategic choices that remain robust across multiple possible futures.

4.3 How these scenarios have been developed

Based on our desk research, stakeholder interviews and steering group consultation, we developed a list of ten critical uncertainties (see below). These are drivers of change that are both highly important for Northern Ireland's AI future and genuinely uncertain in their outcomes. Through a structured workshop, we asked participants to assess each uncertainty on two dimensions: the level of influence it would have on AI and the future of work in Northern Ireland, and how certain we could be about which direction it would take. We were particularly interested in identifying drivers with high influence but low certainty, as these create the most compelling foundations for scenario planning.

From this process, four uncertainties emerged as the highest priority candidates. We then asked workshop participants which of these they most wanted to explore through scenarios. They selected the pace of AI adoption (whether it will be gradual and managed or rapid and disruptive) and workforce reskilling capacity (whether reskilling efforts will keep pace with technological change) as the two axes that would shape our scenario development. These scenarios are built around these two fundamental questions about AI's impact on Northern Ireland's future of work.

10 critical uncertainties

1. Will AI primarily augment or replace human workers?
2. Will the benefits of AI-driven productivity gains be widely distributed or concentrated among capital owners?
3. Will AI enhance or undermine worker agency and voice?
4. Will workforce reskilling and adaptation keep pace with technological change?
5. Will AI adoption be gradual and managed or rapid and disruptive?
6. Will regulatory frameworks proactively govern AI deployment or lag technological development?
7. Will Northern Ireland overcome digital divides or see them deepen?
8. Will vulnerable groups be protected or disproportionately harmed by AI adoption?
9. Will NI move with leadership and pace in driving AI adoption?
10. Will AI adoption erode or enhance public trust in technology?

Axis 1: Pace of AI Adoption

Will AI adoption across the economy and society be gradual or rapid?

Rapid adoption assumes AI capabilities spread quickly through Northern Ireland's organisations and sectors, driven by competitive pressure, early success stories, and fear of being left behind. Implementation timelines compress from years to months, with businesses racing to deploy AI tools across operations. This creates immediate productivity gains for early movers but also significant disruption as traditional processes become obsolete rapidly.

Gradual adoption assumes a more measured pace, where AI implementation follows careful planning, consultation, and pilot testing. Organisations prioritise risk management and workforce preparation over speed. Change happens incrementally, allowing time for adjustment and learning, but potentially missing first-mover advantages and falling behind more aggressive competitors.

Axis 2: Skills Transformation Response

Will workforce skilling, reskilling and adaptation in Northern Ireland keep pace with the changes brought by AI?

'Adaptive skills' response assumes that education systems, employers, and workers successfully coordinate to build AI-relevant capabilities. This includes effective retraining programmes, agile educational curricula, collaborative learning networks, and supportive policies that help people transition. Workers develop both technical AI literacy and complementary human skills, with institutions responding quickly to changing needs.

'Skills gap grows' assumes that adaptation efforts lag behind technological change. Traditional education systems struggle to keep pace, retraining programmes prove inadequate or inaccessible, and many workers find themselves with obsolete skills. Workers are unwilling to adopt AI as it makes an unwelcome change to their day-to-day experience. This creates widening inequality between those who successfully adapt and those who don't, despite well-intentioned but insufficient efforts to bridge the gap.

The intersection of these two dimensions creates four distinct pathways, each with fundamentally different implications for Northern Ireland's economic and social future.

4.4 Overview of critical uncertainty matrix

AI adoption	Skilling Response	Scenario name	Core dynamic in on line
Rapid	*Adaptive skills*	"Titanic Leap"	Northern Ireland becomes a nimble, productive AI powerhouse that continuously reinvents jobs and services.
Rapid	*Skills gap grows*	"AI Stampede"	Technology races ahead while people,firms and public services splinter into winners and losers.
Gradual	*Adaptive Skills*	"Crafted Catching-Up"	People upskill proactively, but the cautious roll-out of AI means NI stays capable yet mid-table.
Gradual	*Skills gap grows*	"Slow-Lane Spiral"	Adoption crawls, complacency sets in, and competitiveness, wages and optimism erode year-by-year.

4.5 Titanic Leap / Silicon Causeway

Northern Ireland surprises the world by converting compactness into agility. A bus driver displaced by autonomous fleets reskills via a six-week mixed-reality course and lands in battery AI diagnostics. Stormont's AI Assurance Lab rubber-stamps algorithms for Europe, while Belfast's "Code Harland" district hosts night-time hackathons overlooking the original shipyard cranes. But this isn't corporate brochure success; it's the result of radical public sector experimentation, Singapore-style coordination, and a willingness to pay premium salaries for in-house expertise rather than outsourcing to consultants.

How we got here (narrative)

Northern Ireland experienced an "AI epiphany" when leaders grasped that transformation required abandoning traditional procurement and embracing radical experimentation. Instead of mega-contracts with global consultants, the public sector committed to small-scale pilots, regulatory sandboxes, and rapid iteration. They scaled what worked and killed what didn't. This cultural shift proved catalytic when Stormont began paying Silicon Valley salaries to attract top talent into government AI labs, building in-house capability rather than dependency on external providers. A breakthrough partnership with Singapore brought proven small-nation innovation methods, whilst local tech philanthropists funded "AI bursaries" for displaced workers. A breakthrough came when Northern Ireland developed innovative data governance frameworks that allowed safe, privacy-preserving access to public sector datasets, making the region a magnet for AI companies seeking rich, ethically-managed training data unavailable elsewhere. The transformation accelerated through open-source AI models hosted on Northern Ireland infrastructure, creating a commons approach where SMEs could access world-class tools without individual investment.

This combination of public sector innovation, strategic partnerships, and community-centred implementation had created not just adoption, but genuine technological leadership built on Northern Ireland's distinctive advantages.

Synthesised insights from groups

Economy and competitiveness

- NI positions itself as a trusted AI hub, attracting FDI and exporting AI compliance frameworks.
- Productivity lifts broadly across sectors; new high value supply chains emerge; driven by AI but also by increased effectiveness/availability of supporting infrastructure such as connectivity, leading to acceleration of plans for full-fibre and 5G coverage.
- NI is seen as a leader in how 'peripheral regions' can adopt AI in an inclusive and balanced manner.
- Rather than the economy being concentrated by a few 'winners' - a more equitable skills and knowledge base enables a large proportion of exports to come from a diverse range of mid-sized firms in health tech, cyber trust and agricultural AI, thus de-risking shocks.

Labour market and inequality

- Disruption is real, certain roles vanish swiftly, but agile reskilling paths funnel displaced workers into new roles. Strategic approach to skilling/reskilling mitigates the risk of a chasm between the haves/have nots; rapid adoption of AI shifts business models and role structures - but targeted engagement, awareness, skill, and knowledge development helps to protect.
- Economically inactive numbers fall as inclusive upskilling reaches marginalised groups.
- Beyond AI-enabled growth; investment in supporting virtual infrastructure (e.g. connectivity) helps to address the digital divide and supports accelerated growth in rural/remote locations.

Skills and education

- NI's approach to education and skills developed through a 'future first strategy' - with early recognition that current models will need to be fundamentally disrupted.
- NI is a leader in supporting a strategic approach to skill/knowledge mapping & targeted approaches to skilling/reskilling - recognising the different needs of incumbents vs new entrants in supporting adoption.
- A fundamental shift in qualifications and credentialling; less focus on formal qualifications and a more flexible, adaptable skills passport approach - helping to recognise individual learning journeys.
- Stackable micro modules (AICC, universities, colleges, employer academies) provide more regular skills refresh.
- C-suite bootcamps become standard to accelerate awareness of the benefits and practicalities of AI-first business.
- Real-time AI-informed labour market intelligence systems enable "just-in-time" learning aligned with actual workforce needs.
- Local tech success stories fund comprehensive "AI transition bursaries," providing income support during intensive retraining programs.
- Different tracks emerge for leading-edge skills versus basic competence and confidence in using AI tools.
- The region solves the "step-up gap" through systematic mentoring and collaborative learning approaches.

Business models and entrepreneurship

- NI builds on its City and Growth Deals to help support AI adoption; with an expanded programme of Government city deals helping to de-risk early prototypes; time to market halves.
- Bottom-up maker communities mimic 1970s Silicon Valley - now borderless and cloud based; NI has been able to harness these emergent communities to support self-guided learning and experimentation - see collaborative/ commons approaches across sectors to leverage shared data.
- "Capability equalisation" enables NI's SME-dominated economy to compete globally for the first time.
- Clever adoption of AI lets SMEs across NI gain a globally competitive edge, from supply chain optimisation to much higher ROI on marketing.

Public sector and governance

- NI government and public sector focus on building the environment and enablers to attract, encourage, and scale AI innovation for societal benefit.
- Government pays competitive salaries to recruit top AI talent in-house rather than relying on consultants, creating genuine public sector expertise.
- Premium public sector salaries and intensive infrastructure investment create budget pressures that depend on AI dividend materialising within 3-5 years to remain sustainable.
- A breakthrough partnership network with other "peripheral regions", from Estonia to New Zealand, brought proven small-nation innovation methods, creating a coalition of compact economies that could move faster than larger jurisdictions.
- Public services are re-imagined with proactive benefits administration and predictive healthcare. The public see significant increases in the effectiveness/efficiency of public services - helping to grow trust and confidence.

- NI leverages its relatively larger public sector by being an early mover in creating safe and responsible access to its public data sets, becoming a leading candidate for companies looking to build scaled/ sustained AI offerings.
- NI public sector creates an environment for open, iterative approaches to innovate around AI for societal benefit. Regulatory experimentation zones allow rapid testing of AI applications with real-world impact, becoming a template for other regions. These build on existing approaches such as NI's City and Growth Deals to deliver local impact and then scale what works.
- NI builds on its position as a leader in AI assurance, trust and safety and develops world-leading expertise and exports regulatory sandboxes for responsible AI.
- Early awareness drives vision and leadership from NI - who move with pace to make rapid decisions around support initiatives and infrastructure to keep pace with rapid adoption.
- Rapid adoption supported by flexible, agile programmes of skilling/reskilling.
- Tax base erosion emerges. As productivity gains concentrate among capital owners whilst employment in routine roles falls, payroll tax revenues begin declining despite GDP growth, forcing early discussions about alternative revenue models.

Society

- Early action on setting vision/priorities by Government ensures that awareness/ skill/knowledge development supports responsible and safe use of AI; reducing the risk of individual and social exclusion/ exploitation.
- Rapid adoption with a consistent skills base allows sectors to increase their productivity; leading to a review of the role and nature of work across society; as companies shift their business models, many more begin exploring new models of work - such as the 4-day working week.
- New forms of social capital develop around shared learning and adaptation communities.
- Work becomes more meaningful and less routine, improving mental health outcomes across the population.

Environment

- Clean power initiatives underpin NI's "responsible AI" leadership position.
- Green "data heat" hubs: Edge data centres in Derry and Ballymena pipe waste heat into social housing heat networks, funded via city deals.

Worker experience

Work becomes a collaborative dance between human creativity and AI capability. There's a palpable sense of empowerment as workers discover they can accomplish things previously impossible, but crucially, they remain in control of the process. The transition feels supportive rather than threatening, with clear pathways for skill development and peer learning. Workers describe feeling more valuable, not less, as routine tasks disappear and strategic, creative, and relational work expands. There's optimism about the future and pride in being part of something innovative. The pace is fast but feels sustainable because everyone is moving forward together.

Historical parallels

- Denmark's industrial automation (1980s). Strong social partnership and systematic retraining enabled technological advancement without mass displacement.
- Singapore's economic transformation. Used small scale as an advantage for rapid, coordinated change through comprehensive planning.
- Finland's forestry-to-technology transition. Compact size enabled comprehensive, collaborative approaches that larger regions struggle to achieve.

Questions posed by this scenario

- What would it take to achieve the "AI epiphany" moment where all sectors move together?
- How can Northern Ireland's small scale become its superpower rather than its limitation?
- Can we really create "capability equalisation" where a village restaurant competes globally?
- What value could NI's public sector data offer for AI innovation and how can this be done safely and ethically?

4.6 The AI Stampede

Belfast's gleaming AI district showcases remarkable success stories—autonomous code factories that compress year-long projects into weeks, creating Northern Ireland's newest millionaires and putting the region on the global AI map. Yet this transformation happened without coordination or strategy. The same AI tools that created these titans remain largely inaccessible to others, creating a bifurcated economy. Across the city, workers juggle algorithmically scheduled shifts whilst university students abandon degrees for creator careers or wellness practices. The promise wasn't false - AI genuinely transformed productivity and created wealth - but the benefits concentrated among those who sprinted first, leaving a widening gap that becomes harder to bridge each month.

How we got here (narrative)

The transformation began with dramatic efficiency gains that created genuine opportunities, but these spread through personal networks rather than systematic planning. Leading software companies achieved extraordinary productivity improvements that rippled through business communities, creating "AI panic adoption" as firms rushed to keep pace. This generated real success stories - Belfast now hosts three globally competitive AI companies and a thriving creator economy - but access to AI tools and knowledge remained deeply unequal. Those with venture capital, technical backgrounds, or strong social networks caught the wave early, whilst others watched opportunities pass by. Geographic inequalities intensified as AI-enabled work concentrated in urban centres, and traditional career pathways fragmented as degrees became less predictive of success than AI fluency or personal brand building. By 2030, Northern Ireland had created genuine wealth and innovation, but the unit of competitiveness became individual access to networks and resources rather than systematic capability building, creating a chasm between those who moved fastest and those left behind.

Synthesised insights from groups

Economy and competitiveness

- Firms that move quickly to master become AI-driven enterprises see 20 → 70% efficiency gains. Those that move with speed and agility outstrip those that don't, creating a competitiveness gap in the economy.
- A two-speed economy emerges, with 3-4 Belfast AI driven enterprises achieve global success and unicorn valuations, but benefits concentrate among early movers rather than spreading strategically across the economy.
- Peripheral regions (e.g. NI) finally have tech that can overcome distance, but only a minority seize it.
- Domestic orientation grows; a handful of AI-first firms dominate exports.
- A small number of early, rapid adopters see significant growth and grow to become a significant proportion of NI's GDP - reducing resilience and increasing potential for economic shocks.
- NI experiences a rebalancing of its FDI - with more direct capital investment into the fast growth AI early adopters but a significant reduction in the traditional 'back office' focused FDI, as many of these roles become replaced by AI.

Labour market and inequality

- Economically inactive cohort expands; rise of "meat-robot" precarious work.
- Creator economy, wellness services, and human-centred work flourish as people bypass traditional education, but success depends on cultural capital and risk tolerance rather than systematic support.
- Economic inactivity edges above 30% (28.5% in 2024) as displaced mid-skill workers exit job search altogether due to a lack of suitable roles and insufficient skilling/reskilling opportunities.
- Impact on early careers leads to significant increase in NEET, with perceptions of a 'lost generation'.
- Lower participation across secondary/tertiary education systems as the link between education and economic attainment breaks down.
- A higher premium placed on vocational education, especially in relational jobs which are perceived by the public as less likely to be impacted by AI.
- High-skill specialists thrive; mid-skill roles hollow out.
- Polarised pay and patchy in-firm skill profiles.
- Media portrayal divides between "AI titans" pioneering a new Belfast and "data serfs" trapped in algorithmic piecework; social cohesion frays.
- Shadow AI use (BOYAI) creates internal skill gaps within organisations as individuals adopt faster than companies.
- Traditional career progression breaks down as AI-natives leapfrog experienced workers without technical skills.
- Rural areas are particularly disadvantaged as AI-enabled work concentrates in urban centres with better infrastructure, despite the promise of high speed satellite Wi-Fi.

Skills and education

- Skill and knowledge debt accumulates quietly; organisations lag behind fast learning individuals.
- University participation drops as degrees become less predictive of success; practical human-centred skills gain premium, but guidance systems lag behind these shifts.
- Limited consistency of skill/knowledge profile as individuals/communities have developed knowledge at vastly different rates - challenging consistent cross-organisational learning.

- Knowledge gap about AI basics in the wider business community.
- Traditional model of education begins to entrench disparities and fails to equip people for this new world.
- The “step-up gap” emerges - workers can use AI tools but struggle to review and improve AI outputs.
- Cross-organisational learning becomes challenging due to vastly different individual skill development rates.

Business models and entrepreneurship

- AI-first start-ups reboot entrepreneurship; incumbents struggle with historic business models.
- Major AI companies create significant wealth and employment for core teams, whilst creator economy and personal service platforms support alternative career models.
- Entrepreneurial activity and company formation does not reliably link to job creation, with one person AI-first start-ups able to deliver the work of traditionally high headcount-based businesses.
- Bottlenecks well known but unaddressed across the economy at large; AI-first firms accelerate growth, but others are left behind.

Public sector and governance

- Awareness, knowledge and skill gaps means that government strategy and adoption lags.
- Policy still aimed at 1990s inclusion challenges, not AI age divides.
- Businesses that adapt see a flywheel effect; outstripping the pace of governance and regulation.
- Investment in public infrastructure such as advanced wireless networks continues to lag and ‘last mile’ connectivity remains a challenge for rural communities, further increasing economic and social divisions.

Society

- Economic disparity drives social division.
- Debates intensify around taxation models as gains accumulate to a small number of major technology companies.
- Some big winners become the new generation of philanthropists; trialling societal interventions such as UBI to address the widening gap.
- AI millionaires become prominent local figures inspiring some whilst creating resentment; debates intensify around “real work” and economic fairness as traditional employment patterns break down.
- A lack of awareness/knowledge increases inappropriate/unsafe use of AI with algorithmic bias increasing discriminatory and divisive practice.
- Automation uncertainty, underemployment and the “always on” performance culture among winners push NHS waiting lists for psychological services to record highs. AI offers opportunities to help address.
- the demand, but a lack of consistent skills/ knowledge prevents its effective application.
- Social unrest grows as a result of knowledge/ awareness gaps in society, leading to public protests on AI oversight and surveillance of workers and the social/economic gap between the ‘haves’ and ‘have nots’ - especially as personal/ organisational productivity and economic gains become more concentrated.
- Cultural tensions develop around “AI gentrification” as traditional ways of working become economically unviable.
- Mental health challenges emerge from rapid technological change and job insecurity affecting community wellbeing.

Environment

- The extra data centre demand jeopardises NI's legally binding 2030 emissions reduction target, forcing emergency procurement of offshore wind PPAs and grid scale storage.
- The Irish government's 2024 pause on new hyperscale sites pushes operators north of the border. Belfast's harbour estate hosts three 200 MW campuses, straining a grid that SONI already flags as capacity tight through 2032.

Worker experience

Work becomes increasingly precarious and polarised. Those with AI skills experience a constant pressure to stay ahead - every day brings new tools to master and new ways to prove their value. The pace is exhilarating but exhausting. Meanwhile, workers without AI access feel increasingly invisible in meetings, watching colleagues produce outputs they can't match. Traditional expertise becomes devalued overnight. There's a pervasive sense of the ground shifting beneath people's feet, with no clear pathway to stability. Workers describe feeling like they're in two different economies that happen to share the same geography.

Questions posed by this scenario

- How do we prevent Northern Ireland from splitting into "AI titans" and "data serfs"?
- What early warning systems can detect when rapid adoption is leaving people behind?
- Can we build bridges across the "AI chasm" once it opens, or is prevention the only option?

4.7 Crafted Catching Up

Northern Ireland is admired for prioritising social cohesion over speed. AI adoption happens through consensus-building and worker protection agreements that other regions study as templates for inclusive transformation. Visitors tour smart distilleries where master blenders orchestrate AI-driven flavour analytics. Yet a plane ride away, faster ecosystems command the premium AI talent pool. NI proves that cautious modernisation can preserve social cohesion. The question lingers: at what opportunity cost?

How we got here (narrative)

Northern Ireland took a deliberately differentiated approach, focusing on its core strengths and prioritising workforce adaptation over technological speed through extensive consultation with unions, business groups, and communities. Rather than looking to be an early adopter and leader in AI transformation, NI instead focused on building the enablers and environments to farm the benefits of AI. The focus was building systemic capacity for adaptation, recognising that individuals were adopting AI faster than organisations. Early adopters concentrated in niches where AI enhanced rather than replaced expertise: agri-food with precision agriculture, healthcare with diagnostic support. The pace accelerated gradually with careful, consultative implementation where workers participated in designing AI integration. Trade unions negotiated "AI agreements" guaranteeing retraining and protecting conditions, becoming templates for other regions. Small businesses benefited from shared services making AI accessible without individual investment. However, gradual adoption meant not all overcame barriers with required pace, and inertia in incumbents facing innovator's dilemma at scale limited progress. By 2030, this created steady progress and social cohesion, but at the cost of falling behind faster-moving regions internationally.

Synthesised insights from groups

Economy and competitiveness

- Steady but unspectacular gains; NI trails frontrunners yet avoids free-fall.
- Niche AI-augmented craft industries (e.g., advanced textiles, agri-food provenance) flourish.
- Traditional 'back office' foreign investment declines as AI automates administrative functions, but this is offset by new investment in AI-enhanced manufacturing and services.

Labour market and inequality

- General AI literacy high; however, limited local demand pushes high skill talent abroad.
- Brain drain partially offset by diaspora contracting remotely back to NI firms.
- Risk of brain drain emerges if organisations don't provide scope for individuals to utilise their AI skills.
- Individually-driven adaptation creates benefits despite lack of organisational consistency.

Skills and education

- Leadership programmes focus on marrying efficiency gains with opportunity creation.
- Sector specific upskilling (clusters in life sciences, cyber).
- Low barriers to awareness and capability exist, but gradual adoption means not all overcome these barriers with required pace.
- Getting people in front of tools to see benefits proves necessary but not always sufficient for adoption.

Business models and entrepreneurship

- Incremental adoption suits SMEs; pilot to production pipelines remain slow.
- Lack of risk capital for blue sky ventures.
- Potential strength of NI's size and scale enables prioritisation of sectors and regions for targeted support.
- Inertia in incumbents creates innovator's dilemma at scale, limiting progress despite good intentions.

Public sector and governance

- Moderately modernised services; digital ID and health records finally interoperable.
- Policy promotes regional pilots before scale up.

Worker experience

Work feels increasingly frustrating and stagnant. Workers see opportunities elsewhere and feel trapped by inertia. Those who've learned AI skills in their spare time find limited chances to apply them, leading to quiet resignation and eventual departure. Older workers feel relief at avoiding disruption, but younger workers feel held back. There's a growing sense of missed opportunities and "what might have been." The overall mood is one of gradual decline, not dramatic enough to force change, but persistent enough to erode confidence and ambition over time.

Questions posed by this scenario

- Is there such a thing as "good enough" progress in a rapidly changing world?
- How do we balance social cohesion against global competitiveness?
- Can measured approaches still attract the best talent, or do we inevitably lose them to faster-moving regions?
- What's the real cost of being admired for balance whilst others capture the premium opportunities?

4.8 Slow-Lane Spiral

The once-celebrated digital ambitions of Northern Ireland gather dust. Anxious SMEs tinker with no-code dashboards while international competitors deploy full AI supply-chains. University halls sit half-empty as students flock abroad. The province's story is not one of catastrophe, but of incremental slippage, until the gap feels irrevocable.

How we got here (narrative)

AI is something that happens to Northern Ireland. Northern Ireland thinks it has time because change seems gradual, but competitors are moving much faster elsewhere. The region ends up caught in the wake of the waves created by others who adopt with more vision, strategy, and speed. Northern Ireland's cautious and thinly spread approach masked underlying challenges in building adaptive capacity. Each month of delay makes catching up harder. While avoiding disruption from rapid change, NI faced gradual decline in relative competitiveness. Implementation remained fragmented despite announced initiatives, with training focused on theoretical knowledge rather than practical application. Risk of complacency grew due to perceived "time cushion," but this proved illusory. The region's risk-averse business culture created resistance to AI experimentation even as leaders acknowledged its importance. Adoption remained incremental and individually-driven rather than organisational, creating patchy skills profiles. Skills gaps persisted despite investment, with educational programmes disconnected from workplace needs. Workers completed AI training but returned to traditional methods because organisations lacked frameworks for applying new skills. By 2029, the productivity gap had grown into a low innovation, low skills economy where international competitiveness weakened and youth emigration accelerated.

Synthesised insights from groups

Economy and competitiveness

- Productivity gap widens; international competitiveness falls.
- Stagnant, low innovation economy; poverty rates climb.
- Risk of complacency grows due to perception of having more time to respond, but this proves illusory.
- The existing baseline of AI capability that is already potentially transformative to businesses goes unrealised.

Labour market and inequality

- Economically inactive and precarious workers grow.
- Gendered impacts: women in administrative roles face displacement risk, but female-dominated care and education sectors prove more resilient to AI replacement.
- Graduate exodus accelerates.
- Increased connectivity allows skilled individuals based in NI to explore remote contracted work overseas.
- Workers become skilled in AI tools individually but can't apply them professionally, creating frustration and quiet resignation.

Skills and education

- AI scepticism plus perceived "time cushion" breed complacency.
- Placements evaporate; early career pipelines collapse.
- Huge gulf between elite coders and the rest.
- Individual approaches rather than organisational approaches create patchy and peaky skills profiles across the workforce.

- AI scepticism persists despite evidence that current AI capabilities could transform business competitiveness.
- Multiple well-funded initiatives launch with fanfare but fail to connect with actual workplace needs, creating cynicism about future programs.

Business models and entrepreneurship

- Few new AI ventures; incumbents patch legacy systems.
- Public sector steps in where private sector falters, but resources are thin and the efficiency gains offered by AI systems are not realised.

Public sector and governance

- Out-of-date software demoralises staff; digital services rank last in UK indices.
- Public realisation that generic, widely available consumer AI offers better services than many existing systems. Empowered by AI, citizens become more demanding users of public systems.
- Policy still reactive rather than strategic.

Society

- Communities become inward-looking as economic opportunities diminish relative to other regions.
- Trust in institutions erodes as people lose confidence in leaders' ability to navigate technological change and as organisational performance and competitiveness declines.
- Defensive nostalgia grows. Increased focus on traditional industries and "what we're good at" as a response to technological anxiety.

Worker experience

Work feels increasingly frustrating and stagnant. Workers see opportunities elsewhere and feel trapped by inertia. Those who've learned AI skills in their spare time find limited chances to apply them, leading to quiet resignation and eventual departure. Older workers feel relief at avoiding disruption but younger workers feel held back. There's a growing sense of missed opportunities and "what might have been." The overall mood is one of gradual decline: not dramatic enough to force change, but persistent enough to erode confidence and ambition over time.

Questions posed by this scenario

- How do we distinguish between prudent caution and dangerous inertia?
- What happens when "having more time" becomes an excuse for not acting?
- Can Northern Ireland afford to miss another technological revolution after previous industrial transitions?
- How do we prevent the perception of stability from masking gradual decline?

5.0 Conclusion

5.0 Conclusions

Northern Ireland has a foundation to build on, but challenges to navigate

Northern Ireland is well placed to benefit from AI whilst mitigating the risks. The region possesses several distinctive advantages: research strengths in cybersecurity and health technologies, a relatively small scale that should enable rapid policy experimentation, a resilient and creative private sector, and a strong track record of collaboration across organisations and communities.

However, to make the most of these strengths and move towards more preferable futures, Northern Ireland must also address a number of strategic challenges that could undermine its AI readiness.

1. Scale	Existing support mechanisms, such as the AI Collaboration Centre, are focussed on firms that are 'builders and implementers' of AI tools, rather than the broader set of firms that might be 'users' of AI. This points to the need for order-of-magnitude expansion in both reach and resources.
2. Capital	Northern Ireland lacks a mature venture capital ecosystem, with minimal local VC funds and limited risk capital for AI ventures. Without accessible funding, promising AI startups struggle to scale or relocate to better-funded ecosystems, whilst established businesses lack investment capacity for meaningful AI transformation.
3. Talent	Northern Ireland produces strong technical talent but faces skills agility challenges as AI rapidly transforms industry requirements. Visa restrictions limit international specialist recruitment, whilst the absence of a vibrant startup ecosystem means graduates often relocate for opportunities elsewhere. The region needs more flexible, industry-responsive skills development that evolves alongside technological capabilities.
4. Leadership	Risk aversion and what stakeholders describe as a "compliance culture" in many boardrooms are slowing adoption rates. This creates a paradox: organisations recognise AI's potential but lack the confidence to move beyond cautious experimentation to meaningful deployment and integration within their operations.
5. Hype cycle	Northern Ireland's conservative business culture and risk aversion mean organisations may retreat at the first sign of AI disappointment. When early AI experiments inevitably encounter challenges or fail to deliver immediate returns, this could reinforce existing cautiousness and halt adoption entirely. Without a culture that normalises learning from failure and iterative improvement, the natural "trough of disillusionment" could become a permanent exit point, entrenching resistance to future AI adoption. This pattern—seen with previous technologies in Northern Ireland—risks repeating unless actively addressed.

6. Trust	Ethics-by-design and public trust represent both challenge and opportunity. Concerns about surveillance, algorithmic bias, and the risk of outliers being "smoothed away" demand proactive governance frameworks. Yet Northern Ireland's size and collaborative culture position it well to pioneer ethical AI development.
7. Participation	Worker voice and participatory governance cannot be an afterthought. Early, meaningful consultation and job-quality safeguards are seen as important by stakeholders.
8. Regulatory uncertainty & fragmentation	Northern Ireland's unique position at the interface between UK and EU regulations creates significant uncertainty about which AI act will apply. 80% of organisations cite regulatory challenges as barriers to AI implementation. [32] The UK's "pro-innovation" non-statutory approach differs from the EU's more precautionary AI Act, which can lead to confusing or contradictory compliance requirements. Businesses will need clear guidance as the regulatory landscape for AI continues to evolve.

32 *Trinity Centre for Digital Business and Analytics and Microsoft Ireland. (2025). Ibid. p. 21.*

There are a wide range of initiatives and investments already ongoing across Northern Ireland's public, private, and academic sectors to help respond to some of these challenges. These include the Office of AI and Digital's strategy and action plan, BridgeAI, the AICC, sector-specific initiatives such as ONEHEALTH, the UK Digital Twin Centre in Belfast, Smart Nano NI's advanced manufacturing programmes, and Ulster University's Smart Manufacturing Data Innovation Hub (part of Made Smarter Innovation).

These challenges are not structural inevitabilities. They can be addressed through coordinated approaches to strategy and policy. By recognising the opportunities whilst remaining cognisant of the risks, and by capitalising on Northern Ireland's strengths whilst taking coordinated action to address these challenges, an AI approach can be developed that protects workers whilst benefiting the economy and society. As one respondent noted "the greatest risk is that we as Northern Ireland aren't quick enough… treat AI like a national emergency but replace the word emergency with opportunity."

6.0 Recommendations

6.0 Recommendations

Even if the acceleration and pace of change were to slow or plateau, the current baseline of AI capability is already enough to reshape the nature of work in public and private sectors.

Northern Ireland must choose its AI future now. Across all possible pathways—rapid or gradual, disruptive or managed—our goal remains clear: businesses empowered through ethical AI adoption, workers equipped with adaptive skills, and technology that enhances rather than erodes our social fabric. The scenarios show us what's at stake; these recommendations chart a course toward shared prosperity.

The recommendations presented in this report are intentionally ambitious, not because they presume unlimited capacity, but because the moment demands it. AI is an emergent and fast-evolving force, with the potential to reshape Northern Ireland's economy, labour market, and public services far more quickly than previous technological transitions.

We recognise that many of the proposed actions will need to be delivered by public sector organisations operating within constrained budgets, complex governance environments, and competing strategic priorities. However, perfection is the enemy of progress and Northern Ireland has, in the past, been held back by excessive risk aversion. If we wait for perfect data, complete certainty, or fully built delivery frameworks before acting, we risk falling irreversibly behind. These recommendations are therefore designed to be catalytic, enabling action now, while building capability and confidence over time. AI adoption does not need to be flawless from the outset. It needs to be underway.

The call to action is clear: do something rather than nothing. Iterate. Learn. Improve. But act.

The following recommendations directly address the challenges and opportunities identified in this analysis. They tackle the capital constraints limiting AI investment, the talent retention issues undermining long-term competitiveness, and the inequality risks that could fragment Northern Ireland's social fabric.

These recommendations focus on building willingness, capability and capacity within private and public sectors to adopt AI for economic and societal benefit.

Recommendation theme 1: Willingness

Northern Ireland must create widespread understanding of AI's potential whilst building trust in its deployment through three coordinated interventions.

Recommendation 1 – **Launch a scaled AI confidence and capability programme for public and private sector leaders**

Action: Launch a significantly scaled-up and accelerated programmes of AI confidence, competence, and capability building for private and public sector leaders.

- Prioritise sectors with the greatest AI transformation potential and those at highest risk.
- Create bite-sized, practical sessions (2-3 hours) that fit within business leaders' schedules. Content developed collaboratively by educational institutions (potentially a University of Regional College) ensuring quality and independence, subject to consultation.
- Focus on building awareness of transformation already underway, confidence in ethical AI adoption that benefits the workforce, and identifying required capability interventions.

- Support with showcases and application demonstrators showing real-life use cases and business benefits.
- Include industry-specific examples for key sectors.

Target: 2,000-3,000 businesses in year one, building momentum through peer advocacy and demonstrated success stories.

Suggested owner: Department for the Economy coordinating content development, delivered through existing business networks and education providers.

Suggested timeline: Content development within 3 months, pilot delivery within 4 months, full rollout within 6 months.

Recommendation 2 – Deliver a comprehensive public and workforce engagement campaign

Action: Launch a comprehensive public and workforce engagement campaign around AI, including both awareness-raising and meaningful engagement.

- Create a citizen's assembly or similar representative body (e.g. AI futures panel) involving 100 participants to build trust and guide ethical implementation, with explicit mandate to address public concerns about AI safety, privacy, and social impact, ensuring genuine dialogue rather than consultation theatre.
- Multi-channel public awareness campaign to demystify AI and its implications.
- Early engagement with workforce representative bodies and trade unions to ensure worker voice in AI transformation planning.
- Transparent reporting of all public sector AI pilots and outcomes.
- Commission independent research on public sector AI transformation opportunities and workforce impacts.

Target: 70% public awareness of AI opportunities and safeguards within 2 years.

Suggested owner: Executive Office (and AI Champion, once appointed) leading citizen engagement, with Department of Finance coordinating public sector transformation elements.

Suggested timeline: Assembly established within 3 months, first recommendations within 6 months.

Recommendation 3 – Establish an independent AI Champion

Action: Appoint an AI Champion to coordinate economy-wide adoption strategy, operating as an independent convenor between government, industry, and academia.

- Position as an independent coordinating role (similar to NI Space Office model) working closely with Invest NI, Department for the Economy, and industry bodies.
- Could be hosted by a neutral entity or established as an independent office.
- Champion to lead public and industry awareness campaigns and citizen engagement initiatives.
- Transparent communication strategy to build public trust.
- Champion to work alongside Office of AI and Digital's public sector focus.

Target: AI Champion appointed within 2 months; coordination structure operational within 3 months.

Suggested owner: Executive Office to appoint, and hosted by an independent body with industry connections and credibility, such as a royal academy, professional body, chartered institute or innovation agency.

Suggested timeline: Champion appointed within 2 months.

Recommendation theme 2: Capability

Northern Ireland must rapidly expand its business support infrastructure to help organisations successfully deploy AI technologies, moving beyond research collaboration to practical implementation of existing tools.

Recommendation 4 - **Enable AI native startups**

This report highlights the need to address capital constraints. Traditional startup support models may be poorly suited to AI-driven enterprises, which often require minimal capital, have different scaling patterns, and face novel regulatory challenges. Rather than prescribing established accelerator methodologies, this recommendation emphasises creating enabling conditions (e.g. shared infrastructure, peer networks, and barrier removal) that allow AIDEs to develop along pathways suited to their specific AI capabilities and market opportunities.

Action: Create targeted support for AI-Driven Enterprises that recognise their unique needs - high impact with minimal capital and employees, recognising that AI startups and traditional startups face fundamentally different challenges and opportunities in AI adoption.

- Provide API and compute credits rather than traditional capital investment.
- Establish fast-track funding mechanisms with compressed timelines, recognising that AIDEs need smaller amounts of capital but require it quickly to respond to market opportunities.
- Offer shared infrastructure: compliance audits, safety testing, legal templates.
- Create AIDE peer networks and industry problem-matching programmes.
- Focus on market access and credibility-building over traditional startup metrics.

Target: Support 50+ AIDEs to reach market within 12 months.

Suggested owner: Established through competitive tendering process and in consultation with REAP.

Suggested timeline: Programme design within 3 months, launch within 6 months.

Recommendation 5 - **Transform existing businesses**

Action: Increase the scale and reach of existing, or establish new, programmes of support that provide an order-of-magnitude scale-up of support for established companies – with a diversity of readiness and attitudes to AI - integrating AI into their organisation and operations.

- Business transformation programme specifically designed to help existing companies integrate AI into established operations and processes.
- Build on programmes like AICC's transformer methodology, scaling learnings via spin-off programmes delivered by network of further education colleges, local software companies, and business support organisations.
- Adapt proven accelerator methodologies for AI-era businesses following, for example, the Nova Scotia approach: its AI-First Accelerator targets established organisations (including SMEs and larger companies) seeking to transform their operations through AI, not just startups looking to build a product. Its unique value is in guiding companies through the human and process side of AI integration. They use a 13-week programme designed to transform organisational readiness for AI.
- Focus on application support programmes that help businesses deploy mature, readily-available AI technologies in their specific contexts. Develop comprehensive SME AI playbooks and adaptation toolkits covering practical implementation guidance. Cover assurance, worker engagement and consultation, transparency, ethics, safety, and generic AI policy frameworks.

- Establish sector-specific AI adoption pathways using fast-track academy model, recognising that each industry requires different AI integration approaches. Starting with priority sectors identified in the UK Industrial Strategy and Northern Ireland's sectoral action plans that demonstrate both AI readiness and regional competitive advantage, develop sector-led consortiums creating two to three-day foundation courses covering industry-relevant AI tools and progression routes, delivered through existing sector bodies and trade associations alongside the broader business transformation support network.
- Establish innovation and challenge funds for early adopters focused on capability and capacity for transformation.
- Prioritise helping organisations maximise value from Microsoft's AI offerings, including 365 Copilot, given many Northern Ireland businesses already use Microsoft productivity tools and have established data-sharing relationships.

Target: Targets for AI adoption rates by NI SMEs to be established in consultation; launch first sector-specific AI adoption pathway within 3 months, with all priority sectors covered within 12 months; publish comprehensive SME AI playbooks covering practical implementation, assurance, worker engagement, transparency, ethics and safety within 6 months.

Suggested owner: Department for the Economy coordinating expanded delivery network; Department for the Economy coordination and qualified provider network to deliver playbook.

Suggested timeline: Scale-up programme launched within 6 months; Playbooks published within 6 months, expanded CAGE operational within 12 months.

Recommendation 6 - **Establish AI Workforce Impact Observatory**

Action: Establish real-time monitoring system to detect early signals of workforce disruption and trigger rapid response interventions. The Observatory's real-time monitoring provides the intelligence infrastructure that enables targeted reskilling programmes to respond rapidly and effectively to emerging displacement patterns, ensuring support reaches those most in need before displacement becomes entrenched (recommendation 9).

- Monitor graduate placement shortfalls, sector-specific job losses, and other early warning indicators of workforce disruption.
- Maintain horizon scanning of emerging AI developments, synthesising insights from major reports, research publications, and policy developments globally to provide Northern Ireland businesses and policymakers with distilled, actionable intelligence on AI trends and their local implications.
- Develop and implement rapid response intervention protocols.
- Monitor AI user adoption rates, by sector and sub-regionally to understand inequalities.
- Link to existing labour market intelligence systems and business support programmes

Target: Observatory operational with quarterly workforce impact reporting.

Suggested owner: Department for the Economy with labour market intelligence partners.

Suggested timeline: Observatory established and operational within 12 months.

Recommendation 7 - **Establish dual market AI compliance support service**

Action: Create targeted support for Northern Ireland businesses operating across UK-EU markets to navigate dual regulatory obligations, recognising that companies serving both jurisdictions face EU AI Act requirements for EU operations alongside UK regulatory guidance.

- Compliance scoping assessments to help businesses determine when EU AI Act obligations apply (EU customers, cross-border data processing, high-risk AI systems affecting EU citizens) and understand the practical implications for their operations.
- Guidance on compliance framework implementation approaches for businesses operating across both markets, including cost-benefit analysis of unified versus dual compliance strategies.
- Subsidised specialist access: Provide cost-effective access to compliance specialists who understand both regulatory frameworks and can guide efficient implementation without over-engineering separate systems.
- Practical toolkits: Create assessment tools and implementation guides that help businesses understand obligations without requiring expensive legal advice for straightforward cases.

Target: Support 200 Northern Ireland businesses with dual-market compliance assessments within first year of operation; achieve 80% reduction in average compliance consultation costs for participating SMEs.

Suggested owner: Department for the Economy with Invest NI coordination and specialist legal/regulatory partnerships.

Suggested timeline: Service design within 4 months, pilot launch within 8 months, full operational within 12 months.

Recommendation theme 3: Capacity

Northern Ireland must address the skills gap through immediate action across multiple levels, ensuring the next generation is prepared whilst providing reskilling opportunities for the current workforce.

Recommendation 8 - **Launch AI skills surge programme**

Action: Create flexible, industry-recognised AI skills certification accessible to all workers and businesses.

- Develop an “AI driving licence” - modular certification modelled on successful programmes like ICDL, covering AI fundamentals, prompt engineering, tool usage, and ethical considerations.
- Create workplace-specific modules with input from professional bodies like CIPD for managers and HR professionals.
- Offer through multiple providers: further education colleges, online platforms, industry bodies.
- Create different pathways: basic AI literacy (2-3 hours), practitioner level (1-2 days), advanced users (week-long programmes).
- Use stackable micro-credentials allowing people to build skills progressively.
- Include sector-specific modules developed with industry bodies (manufacturing, healthcare, finance).
- Match-funded model: businesses and government share costs, making it accessible to SMEs.
- Recognise the rapidly evolving landscape of skills delivery and potential disruption to traditional higher education models.

Target: 5,000 workers certified in year one, expanding to 15,000 by year three.

Suggested owner: Department for the Economy coordinating flexible delivery network.

Suggested timeline: Curriculum development within 3 months, pilot programmes within 6 months.

Recommendation 9 –Targeted skilling and reskilling programme for displaced / vulnerable workers

Northern Ireland must both tackle inequality concerns and create space for new career pathways to emerge whilst ensuring existing workers aren't left behind during AI transformation. The priority should be developing progression models where junior roles evolve toward AI oversight, strategic deployment, and augmented decision-making rather than simply replicating traditional hierarchies. This includes creating breathing room for experiential learning programmes and structured development opportunities alongside forward-looking innovation in AI collaboration skills and strategic deployment pathways.

Action: Provide targeted support for workers at risk of AI displacement to develop AI-augmented capabilities in their existing fields or transition to resilient roles.

- Focus on making workers "AI-capable" rather than converting them to tech roles - teaching them to work alongside AI in their sectors.
- Link directly to business transformation programme (Recommendation 5) - as businesses adopt AI, their displaced workers get priority access to reskilling.
- Target those in high-risk roles with pathways to AI-augmented positions in same organisations/sectors.
- Pathway innovation support: create space for new career progression models to emerge, focusing on AI oversight, strategic deployment, and augmented decision-making roles rather than simply protecting traditional junior-senior hierarchies.
- Strengthen career and employment support infrastructure through training programmes for careers advisers, development of AI-impact resources, and employer partnerships providing realistic previews of AI-transformed work environments. Address current gaps in careers provision that limit young people's understanding of emerging career pathways.
- Include pathways to AI-resilient roles in care, trades, and green economy where human skills remain essential.
- Partnership model: businesses identifying AI transformation plans commit to reskilling affected workers.
- Support with transition funding during retraining periods.

Target: Specific demographic participation rates to be determined through consultation.

Suggested owner: Department for the Economy with employer partnership coordination.

Suggested timeline: Programme design within 6 months, delivery within 12 months.

Recommendation 10 - Scale AI in Education Sectors from proven pilots

Action: Build on successful AI pilots in Education sectors to provide system-wide access and support for teachers and learners.

- Expand existing successful pilots (e.g. Trailblazing_NI genAI_in_educAtIon pilot by Ulster University) to all Education sectors.
- Provide AI tools access including educational licences for established platforms (Copilot, Gemini Classroom).
- Focus initially on teacher productivity and administrative efficiency, freeing time for teaching.
- Create peer support networks where pilot institutions mentor new adopters.
- Ensure safe implementation within existing C2K environment with appropriate safeguards.
- Implement support processes to ensure safe and contained implementation within existing C2K environment.
- Department of Education to produce follow-up research on AI in education including potential benefits and risks for learners: focused research covering primary schools through to tertiary institutions is required on how AI will reshape both learning delivery and career pathways, particularly given concerns about the disruption of traditional routes from education to employment.

Target: Scale from current pilot institutions to 50% coverage within 12 months, full coverage within 18 months.

Suggested owner: Department of Education with C2K coordination; Matrix and Department for the Economy.

Suggested timeline: Expansion plan within 3 months using pilot evidence, phased rollout over 18 months; DoE report published in 6 months.

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Northern Ireland
Science Industry Panel

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