ACCA Think Ahead

CHARTERED ACCOUNTANTS™
AUSTRALIA + NEW ZEALAND

DIFFERENCE MAKERS™

ETHICS FOR SUSTAINABLE AI ADOPTION

CONNECTING AI AND ESG

About ACCA

ACCA (the Association of Chartered Certified Accountants) is the global professional body for professional accountants.

We're a thriving global community of 233,000 members and 536,000 future members based in 178 countries and regions, who work across a wide range of sectors and industries. We uphold the highest professional and ethical values.

We offer everyone everywhere the opportunity to experience a rewarding career in accountancy, finance and management. Our qualifications and learning opportunities develop strategic business leaders, forward-thinking professionals with the financial, business and digital expertise essential for the creation of sustainable organisations and flourishing societies.

Since 1904, being a force for public good has been embedded in our purpose. We believe that accountancy is a cornerstone profession of society and is vital helping economies, organisations and individuals to grow and prosper. It does this by creating robust trusted financial and business management, combating corruption, ensuring organisations are managed ethically, driving sustainability, and providing rewarding career opportunities.

And through our cutting-edge research, we lead the profession by answering today's questions and preparing for the future. We're a not-for-profit organisation.

Find out more at: www.accaglobal.com

About Chartered Accountants Australia and New Zealand

Chartered Accountants Australia and New Zealand (CA ANZ) represents more than 128,000 financial professionals, supporting them to build value and make a difference to the businesses, organisations and communities in which they work and live.

Around the world, Chartered Accountants are known for their integrity, financial skills, adaptability and the rigour of their professional education and training.

CA ANZ promotes the Chartered Accountant (CA) designation and high ethical standards, delivers world-class services and life-long education to members and advocates for the public good. We protect the reputation of the designation by ensuring members continue to comply with a code of ethics, backed by a robust discipline process. We also monitor Chartered Accountants who offer services directly to the public.

Our flagship CA Program, the pathway to becoming a Chartered Accountant, combines rigorous education with practical experience. Ongoing professional development helps members shape business decisions and remain relevant in a changing world.

We actively engage with governments, regulators and standard-setters on behalf of members and the profession to advocate in the public interest. Our thought leadership promotes prosperity in Australia and New Zealand.

Our support of the profession extends to affiliations with international accounting organisations.

We are a member of the International Federation of Accountants and are connected globally through Chartered Accountants Worldwide and the Global Accounting Alliance. Chartered Accountants Worldwide brings together members of 13 chartered accounting institutes to create a community of more than 1.8 million Chartered Accountants and students in more than 190 countries. CA ANZ is a founding member of the Global Accounting Alliance which is made up of 10 leading accounting bodies that together promote quality services, share information and collaborate on important international issues.

We also have a strategic alliance with the Association of Chartered Certified Accountants. The alliance represents more than 870,000 current and next generation accounting professionals across 179 countries and is one of the largest accounting alliances in the world providing the full range of accounting qualifications.

August 2021

ETHICS FOR SUSTAINABLE AI ADOPTION: CONNECTING AI AND ESG

This global research explores how accountancy and finance professionals can play their part in driving the ethical and sustainable adoption of AI. With sincere Thanks to the Technology Working Group at the International Ethics Standards Board for Accountants (IESBA) for guidance and support.

Foreword

Helen Brand
Chief executive, ACCA

Ainslie van Onselen
Chief Executive Officer,
Chartered Accountants
Australia and New Zealand

The adoption of artificial intelligence (AI) is set to significantly increase over this decade. In so doing it will increasingly touch all our lives, whether as individual citizens, employees, or consumers. Accountancy and finance professionals have a key role to ensure this happens in an ethical manner, that will yield equitably distributed sustainable long-term benefits.

The data explosion has reinforced the importance of AI. We now have both the richness of the data, and the processing power to make sense of it – which collectively presents a compelling case for AI.

But with this great data and processing power, comes great responsibility. The report highlights these responsibilities as they fall across the environmental, social and governance (ESG) spectrum. On the environment for example, ESG data is highly unstructured and well suited for AI analysis. Accountancy and finance professionals should consider new AI solutions as part of their toolkit to challenge 'greenwashing', ie where organisations make claims about operating sustainably without this being borne out in the data.

Similarly, the broad applicability of AI across society while potentially a boon, must be handled carefully. The report uncovers a cautious tone among the global accountancy and finance community when reflecting on the impact of AI on their rights as individuals, employees, and consumers. AI adoption must consider the needs of all, especially the under-represented and vulnerable in society.

Our report's findings also highlight the need for effective governance mechanisms to achieve an ethical and sustainable adoption of AI. This starts with setting the right tone at the top, and covers aspects ranging from oversight and delivery mechanisms, to the regulatory landscape and data governance.

The content of the report offers insights that prepare accountancy and finance professionals for a fast-evolving future. Both ACCA and Chartered Accountants ANZ continue to evolve our qualifications and continuing professional development (CPD) programmes to ensure that current and future members develop the relevant skills to thrive in this dynamic arena.

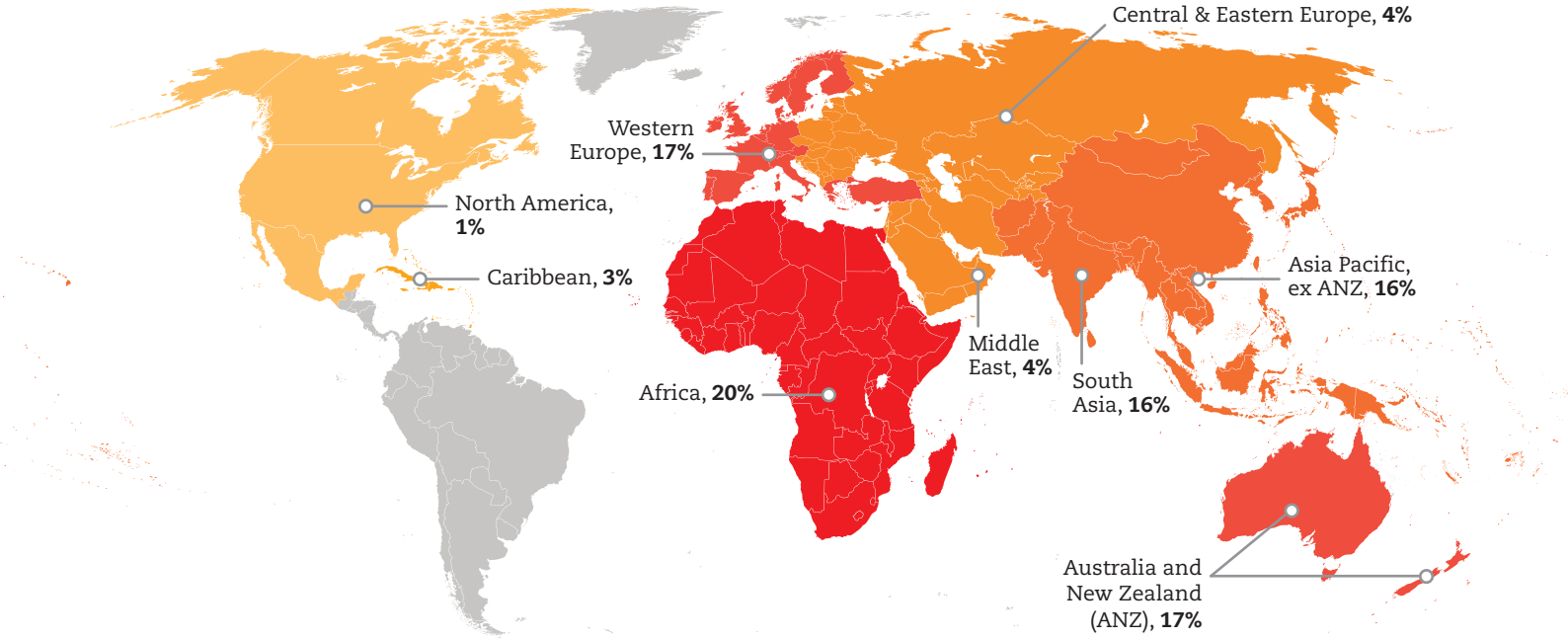
Contents

Methodology

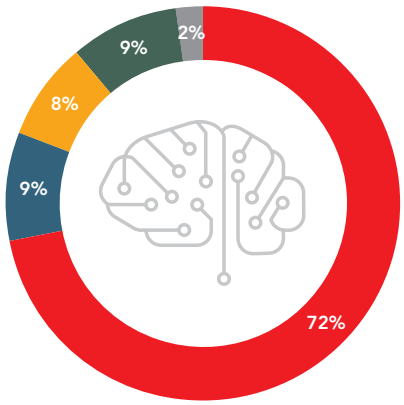
This report is based on the following primary sources.

- **Global survey: 5,723 respondents**
  Regional and country-specific data is available in the appendices.

LOCATION of global survey respondents



EMPLOYMENT STATUS of global survey respondents



- Part/full-time accounting or finance related role, **72%**
- Part/full-time non-accounting or finance related role, **9%**
- Not currently working/career break/retired, **8%**
- Studying full-time, **9%**
- Other, **2%**

- **Online discussion group (ODG):** in keeping with the qualitative nature of ethics, survey data was supplemented with an online discussion. This involved 42 accountancy and finance professionals from around the world in an online forum on AI ethics that took place over five days.

LOCATIONS OF ODGs	
Africa	7
Asia Pacific	7
Caribbean	5
Europe	11
Middle East	3
South Asia	7
Other	2
TOTAL	42

- **Expert interviews:** a list of individuals consulted is given in the Acknowledgements.

GLOBAL

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **66%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

43% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

35% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

47% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

51% My ability to live according to my values

64% The overall standard of living in society

32% Levels of inequality within society

USING AI:

48%
I have a basic understanding of how an AI algorithm works

19%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)

7%
My organisation uses AI in audit and assurance

15%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

21%
My organisation has implemented an ethical framework for AI use

35%
My organisation has considered relevant regulatory requirements for AI use

64%
My organisation is effective/very effective in managing **DATA QUALITY**

72%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
44%	33%	27%	19%	9%

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
16%	23%	46%	26%	17%

Executive **summary**

Artificial intelligence (AI) is relevant to accountancy and finance professionals because it is moving from the experimental stage to adoption at scale over the decade of the 2020s. In doing so, it will transform every aspect of our lives. AI presents considerations across all three of the environmental, social and governance (ESG) dimensions. Managing the transition to mass adoption of AI in an ethical, responsible manner is essential if we are to derive sustainable long-term value from it.

THE ACCOUNTANCY PROFESSION, WITH ITS EXPLICIT AND LONG-STANDING COMMITMENT TO ETHICAL PRACTICES, IS WELL PLACED TO GUIDE ORGANISATIONS ALONG A RESPONSIBLE PATH FOR AI ADOPTION.

To enable this, accountancy and finance professionals can play their part in various ways as noted below (drawing among other sources from a global survey of over 5,700 respondents commissioned for this report):

1. **Set tone at the top on AI adoption:** prioritise an AI approach that is consistent with organisational values such as diversity and inclusion (eg consider the impact of AI on under-represented groups), fairness (eg when using AI for recruitment or surveillance of employees) and transparency (eg appropriately disclosing AI use to customers).
   - 66% believe that their leaders prioritise ethics as highly as profits.
2. **Deliver sustainable value:** when evaluating the business case for AI, consider long-term value and alignment with organisational strategy, beyond an immediate, narrow use case. Consider the reputational risk from mishandling adoption, and the public interest, in addition to immediate costs. Align 'value' to Sustainable Development Goals (SDGs) where appropriate (ACCA 2020a).
   - 64% believe that the impact of AI on overall standard of living in society is positive, but only half that proportion (32%) consider its impact on levels of inequality to be positive. On the latter with 28% recording negative impact, the net positive balance was just 4%.
3. **Exercise professional judgement:** AI may create previously unseen situations; avoid over-reliance on simplistic checklist-based approaches which don't give the full picture or leave room for unintended consequences.
   - Fewer than half (43%) believe that the impact of AI on their rights as an individual is positive (eg safety and personal security, levels of fairness, levels of choice, levels of transparency).
4. **Challenge greenwashing:** seek insights from AI tools to aid professional scepticism in examining whether the organisation's claims about sustainability, eg on net zero requirements, are matched by its performance; and challenge suspect claims ('greenwashing') through this bottom-up view of the data, the preparation of statements and what is eventually reported.
   - Looking ahead, there is an opportunity to leverage AI to a greater extent given that 19% use it for accountancy and finance related tasks or functions (preparing financial statements, management reporting, to inform decision making etc); 15% outside the accountancy and finance function and 7% in audit and assurance.

5. **Comply with regulation and ethics policies:** push for regulatory requirements and AI-specific ethics policies to be adhered to.
   - The majority of those using AI have implemented an ethical framework for it in their organisation (72%) and considered the regulatory requirements for doing so (87%). Accountancy and finance professionals will need to continue pushing this priority, despite the challenge that they may not always be direct owners of the AI.
6. **Prioritise data management:** recognise the fundamental role of data as the raw material that feeds AI; focus on data confidentiality and the improvement of data quality.
   - Three in four report being effective/very effective at managing confidentiality, and two in three at managing data quality.
   - Across the data life cycle from data collection, use, secure storage, dissemination/spread and lawful destruction, the biggest challenge to:
     - **data quality** was the initial collection (44%) – improve the quality of the data when it first enters the organisation; this will make it easier to manage quality as it flows downstream
     - **data confidentiality** was secure storage (46%) – ensure confidentiality is maintained even when data is not being actively used or shared
7. **Take a strategic approach to oversight and delivery:** embed collaboration across siloes with cross-functional teams to ensure that a breadth of perspectives is represented in the approach. Establish mechanisms for contesting decisions made via AI, and for whistleblowing on inappropriate use of AI.
   - Just over half (51%) believe that the impact of AI on their ability to live according to their values is positive.
8. **Understand the vendor landscape:** build awareness of how AI is used within the industry and of the providers of AI solutions. Work with vendors who demonstrate a responsible approach, eg who have credible mechanisms for correcting for unfair bias or unintended consequences and/or who recognise and mitigate the energy consumption of complex algorithms.
   - 31% are aware of AI use within their industry.
9. **Build knowledge and skills:** create avenues (eg training courses, on-the-job opportunities) to build awareness and understanding of issues pertaining to AI ethics and sustainability.[1] Establish processes to document and share lessons learned from AI adoption.
   - Fewer than half (48%) have a basic understanding of how an AI algorithm works.

THE MAJORITY OF THOSE USING AI HAVE IMPLEMENTED AN ETHICAL FRAMEWORK FOR IT IN THEIR ORGANISATION (72%) AND CONSIDERED THE REGULATORY REQUIREMENTS FOR DOING SO (87%).

1 CA ANZ offers an Ethics and Business Module, and various courses in AI including Artificial intelligence and machine learning applications for business and Data is the new oil, so avoid an oil spill! And Data privacy, digital ethics and AI. ACCA offers an Ethics and Professional Skills Module, CPD courses in AI ((i) Machine learning – an Introduction for Finance Professionals – see ACCA n.d.a. – and (ii) Machine Learning with Python for Finance Professionals – see ACCA 2021a) and is launching courses in sustainability in Q4 2021.

TABLE 1: Ethical implications of AI adoption across ESG segments

	OBSERVATION	ETHICAL IMPLICATIONS FOR ACCOUNTANCY AND FINANCE
ENVIRONMENT	■ AI systems have an identifiable carbon footprint	■ **Professional competence and due care** in engaging vendors to assess implications
	■ With focus on the path to net-zero, some will attempt to misrepresent sustainability performance	■ **Objectivity** to assess claims v performance to challenge 'greenwashing'. **Professional competence and due care** to upskill on upcoming reporting requirements and role of AI to assess compliance
SOCIAL	■ Positive AI impact on overall standard of living cited by 64% but on societal inequality by just 32%	■ **Public interest** obligation, particularly to under-represented or vulnerable groups
	■ Fewer than half (47%) positive about AI impact on rights as an employee	■ **Integrity** in communicating impact of AI to employees in straightforward way
	■ Just over a third (35%) positive about AI impact on rights as consumers	■ **Confidentiality** of customer data and treating customers fairly. **Integrity** in communicating transparently when AI is being used
GOVERNANCE	■ Algorithms are shaped by ideas, cultures, and values	■ **Professional judgement** cannot be replaced by a compliance-based checklist
	■ Only 2 in 3 leaders prioritise ethics as highly as profits	■ **Professional competence and due care** obligation to ensure responsible AI adoption
	■ 1 in 3 have considered regulatory requirements	■ **Professional standards** for compliance with evolving AI regulatory landscape
	■ 13% using AI without considering regulatory needs	■ **Professional standards** at risk of compromise
	■ 28% using AI without an ethical framework	■ **Professional competence and due care** challenge
	■ Adopting AI is a strategic decision needing coordination across siloes and spearheaded by senior leaders.	■ **Professional competence and due care** for oversight and delivery mechanisms
	■ Only 1 in 3 aware of AI use in their industry	■ **Professional competence and due care** challenge ensure sufficient AI knowledge to interrogate vendor offer
	■ Good documentation is key to tracking what AI is doing	■ **Professional competence and due care** in operationalising control and monitoring
	■ 75% effective or very effective at data confidentiality	■ **Confidentiality** and **Professional standards**: need to handle data in a compliant manner
	■ Fewer than half (48%) have a basic understanding of how an algorithm works	■ **Professional competence and due care** to understand what the AI system is doing. **Integrity** in not passing accountability to the algorithm.
	■ Channels to contest AI decisions are vital	■ **Professional competence and due care** in setting up mechanisms for redress
	■ Need for training on ethical implications of AI	■ **Professional competence** obligation for continuous learning and development

MANAGING THE TRANSITION TO MASS ADOPTION OF AI IN AN ETHICAL, RESPONSIBLE MANNER IS ESSENTIAL IF WE ARE TO DERIVE SUSTAINABLE LONG-TERM VALUE FROM IT.

1. Introduction

AI is on a journey from the laboratory to live adoption at scale. Research among accountancy and finance professionals has shown that this 'lab-to-live' journey corresponds with an expected explosion in AI adoption from 12% to 86% over the decade of the 2020s (ACCA 2020b). As this unfolds, a human-centred approach is needed that considers how people can partner with technology for the benefit of society.

Partnering for sustainable long-term value requires a sound ethical base. This report explores how ethical issues in AI adoption intersect with ESG considerations that define the wider purpose of organisations. And how finance and accountancy professionals can play their part, working with AI in a way that drives ESG-centred outcomes.

The terms at the heart of this report have complex meaning, nuance, and interpretation. For simplicity and so as not to detract from the main points, the following definitions are used.

AI – The ability of machines to exhibit human-like capabilities in areas such as thinking, understanding, reasoning, learning or perception (ACCA 2019).

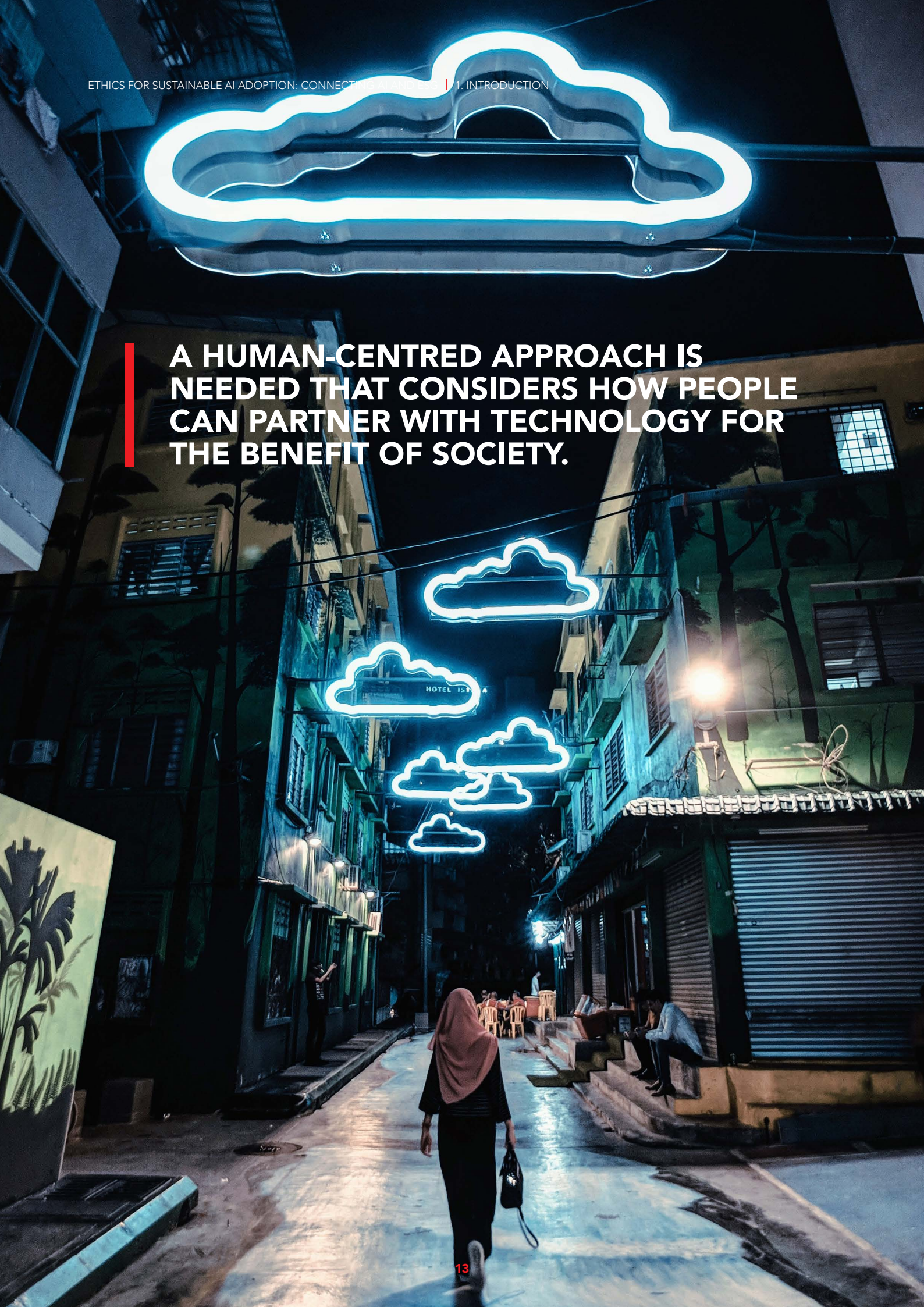
Ethics – In lay person's terms, a sense of what is right and wrong (Cambridge University Press 2021). For the global accountancy profession, this is guided by the Code of Ethics (the 'Code') and its five fundamental principles (Table 1.1) as set out by the International Ethics Standards Board for Accountants (IESBA) (IFAC 2020).

AI ethics – principles and techniques pertinent to the ethical design and use of AI technologies.

ESG – Incorporating environmental, social and governance considerations alongside the financial, in all activities relevant to an organisation, such as management decision-making, external reporting and investment choices.

TABLE 1.1: Fundamental principles set out by IESBA

INTEGRITY	■ A professional accountant should be straightforward and honest in all professional and business relationships
OBJECTIVITY	■ A professional accountant should not allow bias, conflict of interest or undue influence of others
PROFESSIONAL COMPETENCE AND DUE CARE	■ A professional accountant has a continuing duty to maintain professional knowledge and skill at the level required to ensure that a client or employer receives competent professional services based on current developments in practice, legislation and techniques. A professional accountant should act diligently and in accordance with applicable technical and professional standards when providing professional services.
CONFIDENTIALITY	■ A professional accountant should respect the confidentiality of information acquired as a result of professional and business relationships and should not disclose any such information to third parties without proper and specific authority unless there is a legal or professional right or duty to disclose. Confidential information acquired as a result of professional and business relationships should not be used for the personal advantage of the professional accountant or third parties.
PROFESSIONAL BEHAVIOUR	■ A professional accountant should comply with the relevant laws and regulations and should avoid any action that discredits the profession.



A HUMAN-CENTRED APPROACH IS NEEDED THAT CONSIDERS HOW PEOPLE CAN PARTNER WITH TECHNOLOGY FOR THE BENEFIT OF SOCIETY.

2. **AI** and the **environment**

This section covers ethical considerations related to:

- environmental impact of deploying AI
- management and reporting of the environmental footprint.

2.1 Environmental impact of deploying AI

AI is often perceived in abstract terms because 'intelligence' conjures up ideas of the intangible. In fact, the AI supply chain is very tangible, involving real materials and natural resources. At the heart of this is the energy consumption when running algorithms.

2.1.1 Data explosion

Before we consider the question of energy consumption, we need to appreciate AI's raw material: data. Megabytes and gigabytes are familiar measures of data quantity, and you may have encountered terabytes and petabytes. As the expansion continues, zettabytes (ZB – 10^{21} bytes) and yottabytes (1000 ZBs) will become more familiar terms. An estimated 59 ZB of data were created globally in 2020 (IDC 2020). As the absolute amount of data reaches previously unseen levels, the rate at which this new data is added is also greater than ever. The volume of data is massive, and it is growing exponentially, not linearly.

Furthermore, this data includes a significant component of unstructured data, by some estimates as much as 90% of it (eg Marr 2019). This refers to data that cannot be slotted neatly into rows and columns in spreadsheets or databases. Examples include word documents, pdfs, emails, scans, pictures, handwritten notes, video, audio, social media information, and presentations.

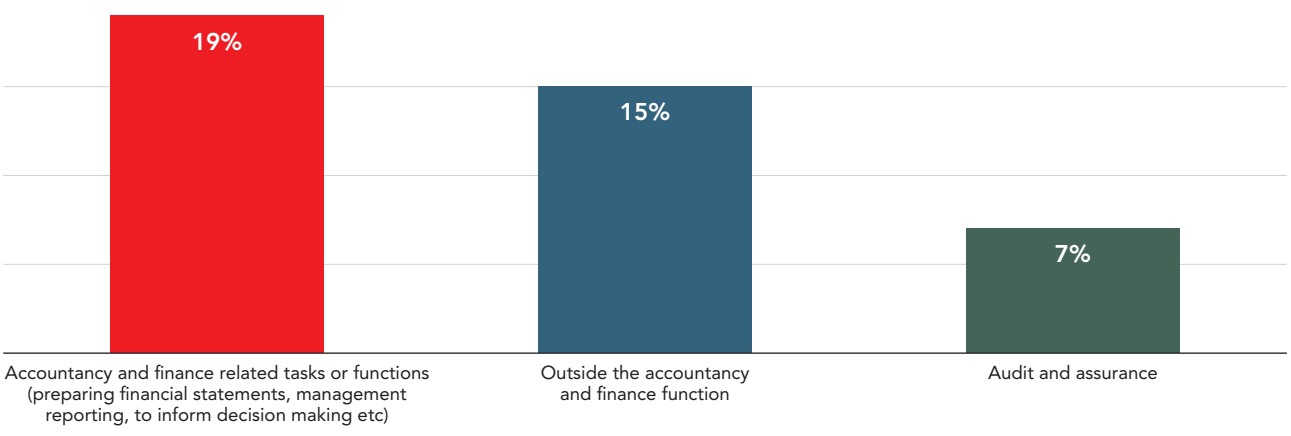
There is currently a mismatch between historical investments in data storage and analysis infrastructure (geared to structured data) and future needs (for unstructured data). This must be addressed to access the rich insights contained in unstructured data. Significant intelligence and contextual understanding are required to extract this raw unstructured data and uncover its meaning and intent.

2.1.2 Use of AI

AI is central to addressing the data explosion. The use of algorithms to tackle data that is increasingly voluminous, more varied, and unstructured, seems assured. This adoption has already begun and depending on the use case, between 7% and 19% of survey respondents report currently using AI in their organisations (Figure 2.1).

As the use of AI intensifies across the economy, the collective usage of energy needed to power them will also increase. It takes time and energy, in the form of electricity, to run algorithms. Initially the model must 'learn' from a training data set. Thereafter in deployment

FIGURE 2.1: AI adoption, by use case



it 'infers' conclusions based on how it's been trained. And it updates these inferences using changing trends in the data as conditions evolve over time. All of which means that any AI system requires both an initial setup and a non-trivial maintenance load to run the algorithms.

These considerations are amplified as models become more complex, such as with black-box deep learning models. By one estimate, the computational power needed for training the largest AI models has been growing exponentially, doubling every 3.4 months (Amodei et al. 2018).

> 'The main impact AI has on creating a sustainable planet is that it may lead to ecological costs in terms of energy needed to power training and inference stages of AI'. **ODG participant**

The growth in processing power means that it seems feasible to ramp up this needed compute. The available computing power may therefore outstrip rates set by previous norms such Moore's law (ie that computing power doubles every 18–24 months) (Saran 2019). Combine this with continuing chip miniaturisation, and we have highly dense systems in which evermore computational power is crammed into smaller chips.

The energy used by computing systems eventually dissipates as heat and so large data centres running AI algorithms can also require significant energy for cooling systems. Data centres therefore consume energy by the nature of their activities, and conventional production of that energy results in emission of greenhouse gases.

In addition, toxic materials or rare earth metals may be needed for cooling or other support processes. For larger centres, a significant amount of energy is spent not on applications but just to make sure the centre is operable, such as for uninterrupted power and lighting.

So, looking across the supply chain, AI systems have an identifiable carbon footprint. And it's not trivial. One study showed that the carbon emissions for training a single natural language processing (NLP) model was equivalent to 125 round-trip flights between New York and Beijing (Dykes 2020). And more complex algorithms such as GPT-3, used for language and text analysis, use even more (Quach 2020).

AI can, however, also be part of the solution. Multi-dimensional real-time interactions between data centre equipment, Cloud infrastructure, cooling systems, electricity generators and human operators can be modelled using machine learning. This is being used to infer use patterns, in one instance resulting in a 40% reduction in energy required for cooling (Seal 2019).

AI can play a role in working towards the SDGs. SDG12, for example, is about the need to 'ensure sustainable consumption and production patterns', which may be enabled by judicious use of AI. One study notes that of the 169 targets across the 17 SDGs, AI is anticipated to enable the accomplishment of 134, although it will also inhibit 59 (Vinuesa et al. 2020).

AI SYSTEMS HAVE AN IDENTIFIABLE CARBON FOOTPRINT.

Responsible computing

IBM has instituted a Responsible Computing Initiative (Figure 2.2) for a holistic look at its approach (Doyle 2021). The Responsible Code element within this considers, for example, the efficiency of algorithms, not just their accuracy. Achieving an optimal level for the quality of the code assists reliability, without over-engineering and creating high resource consumption for low returns. An ACCA whitepaper on coding (ACCA 2021b) emphasises a similar point in relation to clean code.

> 'The main positives associated with AI and sustainability are the fast provision of data and information for planning processes and for national and global development'. **ODG participant**

FIGURE 2.2: Responsible computing

As AI enters the mainstream, finance professionals will sign off budgets to procure systems for their organisations. Typically, the business case will consider the predictive accuracy of the algorithm and monetised value of insight, versus the costs and process implications of procuring it.

In practice, this may mean considering trade-offs if there comes a point where further improvements in model accuracy require disproportionately greater energy consumption. Related to this is a consideration of whether the vendor has proven responsible approaches to AI design and deployment. Accountancy and finance professionals need the necessary awareness and skill level to ask questions about the environmental implications of AI.

✓ **Ethics for accountancy and finance professionals:** Professional competence and due care must be applied when engaging vendors to assess environmental implications of AI.

2.2 Managing and reporting of the environmental footprint

2.2.1 Greenwashing

AI is being used to support organisations in understanding, tracking, and disclosing their carbon emissions and supporting green credentials. A key driver for this is that non-financial reporting involves a lot of unstructured data.

In the run-up to the UN Climate summit COP26 there is a stated goal of significantly reducing UK emissions by 2035 (HM Government 2021) and achieving net zero globally by 2050 (National Grid Group 2021). This has provided organisations with a focus for demonstrating how they are meeting these commitments.

Unfortunately, some will also seek to misrepresent the true extent of their green credentials. This might be through 'picking and choosing' what to disclose or when to disclose it, or via high profile public campaigns that implicitly or explicitly suggest certain actions, but where the subsequent fulfilment is absent.

This 'greenwashing' is unethical and damaging to public confidence in disclosures made and assurances given. Greenwashing can be caused by the inconsistent interpretation and presentation of data exacerbated by no single global framework to report on. Analysis by the European Commission (2021a) suggests that 'half of green claims lack evidence' and were 'exaggerated, false or deceptive and could potentially qualify as unfair commercial practices under EU rules'.

2.2.2 AI as part of the solution

AI such as NLP can be used to compare company specific bottom-up data in the public domain with reported reductions in greenhouse gases emissions. This allows for a more transparent comparison between what is said and what is done by comparing against publicly available sources (CDP n.d.).

While this is a reality check on what is reported, AI can also assist in management decision making and formulating ESG strategy. In other words, it enables data insights to be used to inform the approach even before the external reporting stage.

Determining material impacts is a significant use of AI. While traditional materiality is about reporting on items of importance to financial performance, double materiality additionally requires reporting on items of importance to the environment and to society (Adams et al. 2021) (Figure 2.3).

NLP can be used to analyse an industry, using sources such as company reports, regulatory filings, news, social media, and voluntary initiatives such as SDGs and the Task Force on Climate-Related Financial Disclosures (TCFD).

> 'The main impact AI has on creating a sustainable planet is that it enables efficient use of natural resources by closely monitoring the consumption pattern'. **ODG participant**

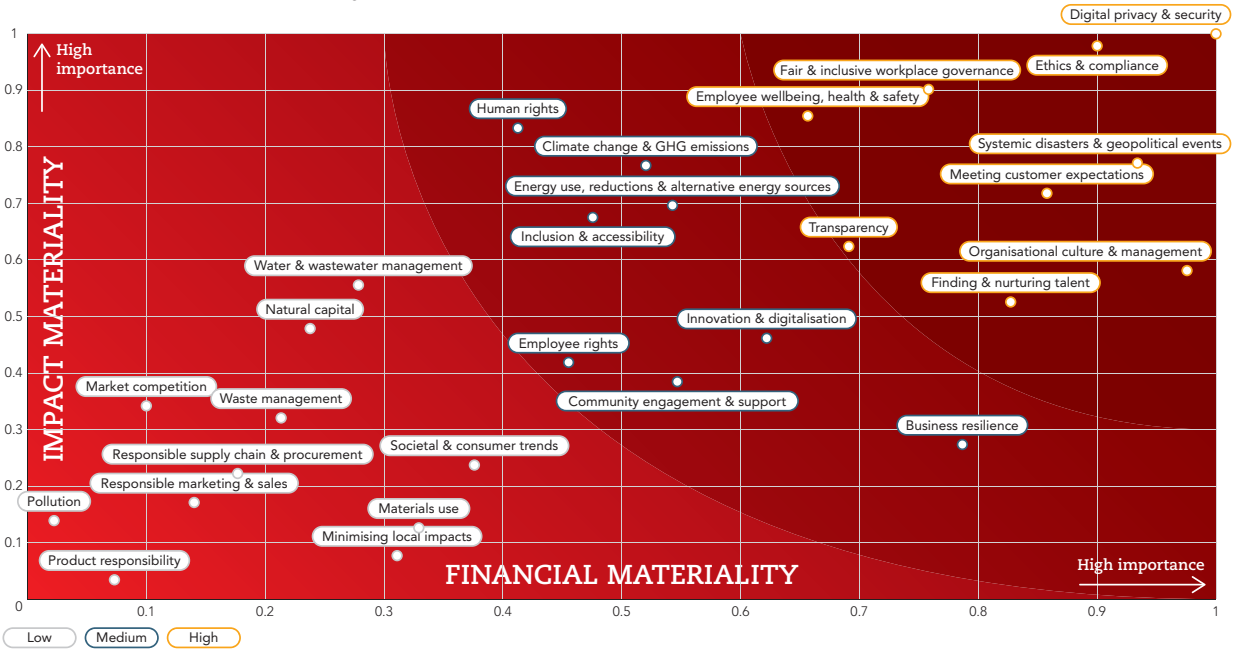
Given AI's ability to 'learn' as issues evolve, its role is likely to be further reinforced as double materiality is overlaid with dynamic materiality. The latter recognises that the importance of items, and therefore their materiality, changes over time and is situation specific (Calace 2020).

This is all part of ensuring that organisations' internal decision making, and external reporting are transparent and based on reliable, decision-relevant information. There is also a significant and growing role for the accountancy profession in the assurance of ESG data – this is especially true for countries such as New Zealand, where TCFD-based reporting (and assurance) are imminently to be made mandatory (Ministry for the Environment 2021).

Double materiality

Datamaran has developed a materiality analysis tool to help companies to identify material ESG risks and opportunities. It's used to model ESG aspects across hundreds of concepts to a high level of granularity, recognising that insight resides in the narratives. AI is used to scan regulation, media and corporate disclosures and classify terms as 'high' or 'low' materiality. This is an intelligent process that combines frequency of mentions with context and importance to reveal which issues are emphasised the most among the sources scanned. The tool is used, for example, by European companies to make double materiality assessments in accordance with the EU Non-Financial Reporting Directive.

FIGURE 2.3: Double materiality



'Accountancy and other finance professionals have a critical role, for example, they should:

- ascertain the effectiveness of systems, processes, and controls over underlying ESG data feeding into financial reporting
- validate ESG data and comprehensively assess the financial impacts of environmental, social and governance considerations
- provide complete, accurate and valid financial reporting pertaining to ESG considerations
- adopt relevant KPIs [key performance indicators], metrics, benchmarking, ongoing monitoring, and performance assessment aligned to recognised ESG disclosure standards/frameworks
- ensure compliance with relevant regulatory reporting standards on ESG, sustainability and/or climate
- lead the transition to greener economies, sustainable environments, and equitable societies by contributing to developing and managing resilient and ethical organisations'.

Lutamyo B. Mtawali (FCCA, MSc)
Sustainable Finance Lead, IBM

✓ **Ethics for accountancy and finance professionals:** Integrity in challenging greenwashing if encountered; objectivity in assessing Green Claims versus Green Performance, regardless of pressures that may be applied; and professional competence and due care to address upcoming ESG reporting and assurance considerations, eg TCFD requirements.

LOOKING ACROSS THE SUPPLY CHAIN, AI SYSTEMS HAVE AN IDENTIFIABLE CARBON FOOTPRINT. AND IT'S NOT TRIVIAL.

3. **AI** and **society**

This section covers ethical considerations related to:

- rights of the individual
- rights of the employee
- rights of the consumer.

3.1 Rights of the individual

3.1.1. A cautious tone

Building back from the devastating effects of COVID-19 is a global priority. This encompasses a variety of aspects spanning health, jobs, and societal inequalities (Sen 2020), whether these involve access to digital resources, the gender gap, or geopolitical differences over vaccine strategy. It will be important that the build-back from the pandemic happens in an ethical way so that solutions don't create further problems for the long term (ACCA 2020c, CA ANZ 2018).

Survey respondents (Figure 3.1) demonstrate caution about the impact of AI on their rights as individuals, with fewer than half (43%) expecting a positive impact. Responses were nonetheless net positive (16%), with just over one-quarter viewing the impact of AI as negative. Others saw the impact as neither positive nor negative or were unsure.

It would be extraordinarily naive to ignore that AI is as much about power as it is about clever technology and solving problems (Kalluri 2020). Nation states vie for influence in this area and large technology providers compete in winner-takes-all marketplaces. The asymmetry of understanding between those in-the-know and everyone else creates the risk that the average citizen will become an unwitting guinea pig in AI's journey from lab to live.

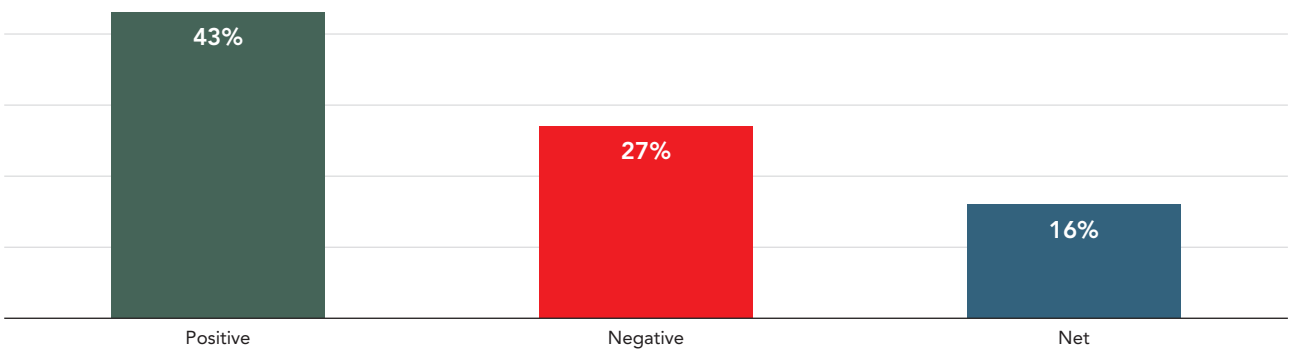
> 'I feel my rights as a citizen are restricted as assumptions are made about me based on scattered data collected'. **ODG participant**

3.1.2. The public interest

AI adoption is set to rise against this backdrop. And it is not a single technology: it's a capability that permeates the fabric of society. If 100 years ago one defined electricity as a single technology, it would completely miss the point of how integrated it is into how we live. Given this, the risk of unintended consequences is high with AI and the public interest must remain at the forefront of our considerations.

These matters are brought into sharp relief when looking at the survey results. As Figures 3.2 and 3.3 show, respondents are relatively positive about the impact of AI on their overall standard of living, with a net 53%

FIGURE 3.1: Impact of AI on my rights as an individual (eg safety and personal security, levels of fairness, levels of choice, levels of transparency)



expecting a positive impact. But when asked about impact on levels of inequality in society, the net positive proportion is only 4%. This compares with double the proportion (64% versus 32%) who are positive about the impact on the overall standard of living.

AI is a rising tide, but will it lift all boats? This is an important question that has implications for the kind of society we want to live in. SDG10 highlights the importance of reduced inequalities within and among countries. Rising inequality, if left unchecked, will have damaging implications for health, including mental health, with long-term and irreversible consequences for many.

> 'The government's tax-collecting arm has announced that it will use AI to detect tax evaders. Therefore, I expect an end to the corruption and an increase in government revenue'. **ODG participant**

The code of ethics for accountancy and finance professionals specifically makes provision for situations that threaten the public interest (IESBA 2016). Where organisations are associated with misuse of AI, these professionals will need to consider appropriate steps.

AI IS A RISING TIDE, BUT WILL IT LIFT ALL BOATS?

Machine learning works by training algorithms on datasets. Often, the subjects who provide this data are unaware they have done so. For example, where data is scraped off a website (not illegal in some jurisdictions) and subsequently fed into an AI training engine. This practice, known colloquially as 'participation washing' results in individuals' participation in an endeavour without their knowledge or consent, and for which they receive neither recognition nor renumeration (Sloane 2020).

Professional accountants have a duty to act in the public interest. Where they come across an AI use case or application that contravenes this, they need to consider appropriate steps, including if necessary, involving others outside their organisation (IESBA 2016).

✓ **Ethics for accountancy and finance professionals:** there is a public interest obligation, particularly to under-represented or vulnerable groups.

FIGURE 3.2: Impact of AI on overall standard of living in society

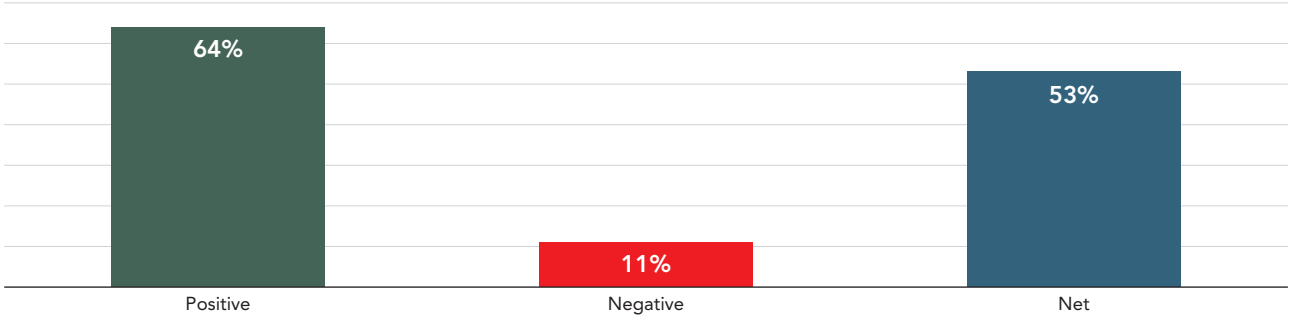
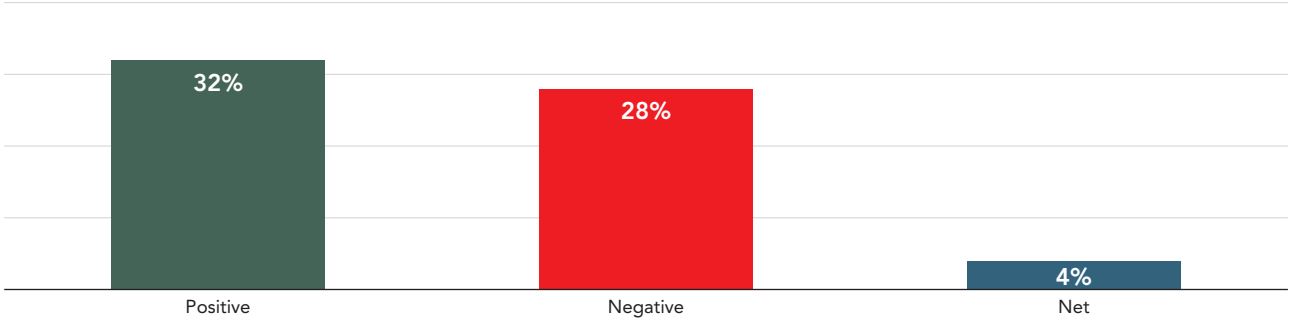


FIGURE 3.3: Impact of AI on level of inequality within society



3.2 Rights of the employee

3.2.1. New challenges

Though respondents were marginally more optimistic than on the rights of individuals, again fewer than half (47%) (Figure 3.4) were positive about the impact of AI on their rights as employees. Though the net figure was positive at 29%, the low proportion of positive responses may reflect unease with how decisions are to be made, and how they might examine and challenge AI-based decisions.

With AI algorithms, we're seeing new roles emerging, such as people who get paid to 'label' the data used as raw material in classification (supervised) algorithms. In effect, these human annotators are the teachers for the training data set on which the algorithm learns. There are fears that these 'ghost' workers may be spending hours doing routine work in the background as part of a gig economy, with few of the rights associated with regular employment (Wakefield 2021).

As always, advantages and disadvantages are relative, and for some these jobs may in fact represent decent wages in a safe environment behind a desk rather than manual work in unsafe conditions. It will be important to understand how AI will transform the global economy and its implications for the relationship between the owners of capital and the workers moving the nuts and bolts in the background.

In a COVID-19 world there have also been new factors to consider. These include the increasing use of AI for monitoring remote employees, such as by intelligently interpreting keystroke patterns or using facial recognition (Scassa 2021). There are clear ethical and legal lines separating managing productivity from inappropriate surveillance, which will need to be understood and respected.

> 'My rights as an employee are both positively and negatively impacted by AI. Positives could be increasing productivity, and less [involvement in] boring activities. Negatives are that AI processes might dictate human behaviour, forcing the employee to behave in certain way to align – which will restrict freedom'. **ODG participant**

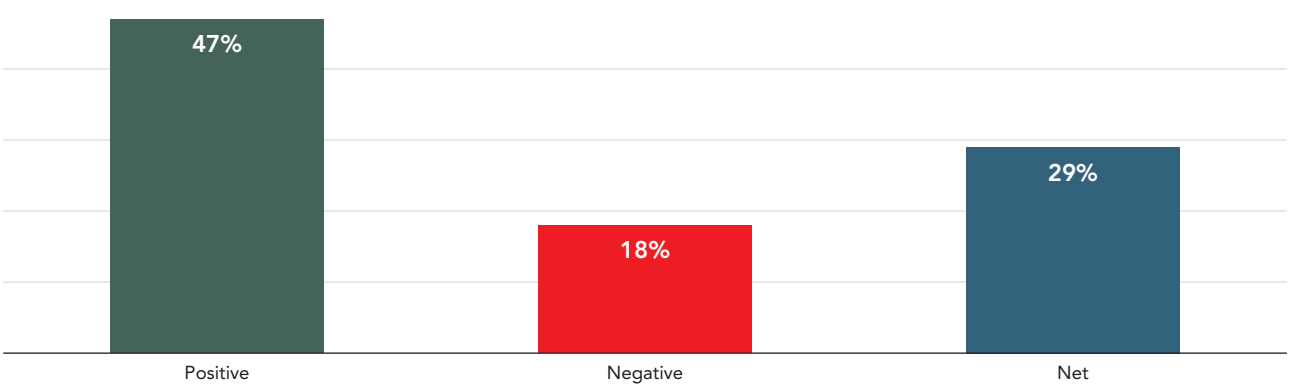
3.2.2. New opportunities

AI presents a complex, nuanced picture of the future of employment, not a one-dimensional jobs-loss story. One study in the US suggested, for example, that while one person in five fears losing their job to AI, AI created three times as many jobs as it destroyed in 2018 (Ziprecruiter 2019). Regardless of the merits or demerits of this study, the wider point is that narratives about 'robots taking over' are simplistic and misleading. It will be important for the roles and value of employees to be seen in their proper context, and to recognise that those who are open to change and learning new skills will find meaningful work.

Employees who win will be those who embrace change, having a growth mindset that recognises that disrupting one's existing ideas is the first step to new opportunities (ACCA n.d.b). Finance leaders will need to create a culture of fairness and transparency to provide the psychological safety to enable this.

✓ **Ethics for accountancy and finance professionals:** Integrity is essential in communicating impact of AI to employees in straightforward way.

FIGURE 3.4: Impact of AI on my rights as an employee (eg fair and transparent hiring and remuneration practices)



3.3 Rights of the consumer

3.3.1 Intrusive AI

One of the most common applications of AI in e-commerce is based on the notion that 'birds of a feather flock together'. In other words, if enough other consumers with traits like your own have a certain type of purchasing profile, then the products they bought should be advertised to you.

This is a mixed blessing. On the one hand, useful product suggestions may enhance consumer choice and speed of product discovery. But on the other, the system's inferences about an individual may be incorrect, or the inferences may highlight aspects that one prefers to keep private.

This is a very basic use case. As one looks at more sophisticated examples such as facial recognition, issues get much more complicated. Using AI to infer emotions or personality traits from physical characteristics is problematic. An insurance provider was compromised when it was alleged that decisions on claims had been made after using AI to examine videos of people filing their claims (Metz 2021), though this was subsequently denied by the company.

> 'My rights as a consumer are infringed, with information collected being processed somewhere to help interested parties plan their business and make money'. **ODG participant**

✓ **Ethics for accountancy and finance professionals:** Confidentiality of customer data is essential to ensure that customers are being treated fairly.

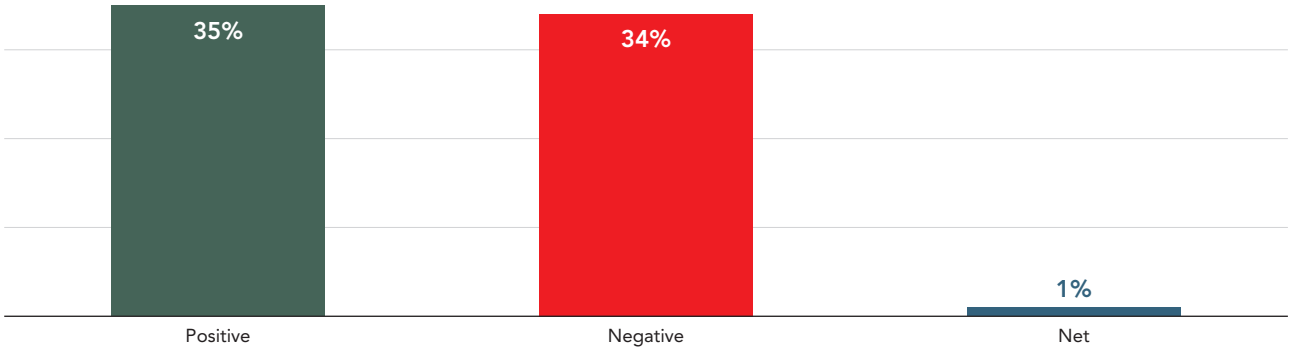
3.3.2 Consumer trust

AI is an appealing tag to apply to products and can help marketing. False marketing to consumers is a risk, with some passing off conventional automation as AI (Overby 2020). The former is geared towards rules-based repetition for efficiencies, rather than intelligence-based learning for insight. This is particularly a risk among smaller AI start-ups where the pressure to look appealing to attract investor funding is high.

Consumer trust is key to realising AI's potential, therefore winning consumer trust will be a priority for organisations that want to implement AI successfully. Survey respondents while already tentative in their views about impact on their rights as individuals and employees, were the most sceptical when it came to their rights as consumers (Figure 3.5). Just over a third (35%) of respondents reported being positive about the impact of AI on their rights as consumers. But strikingly, almost exactly as many (34%) had negative responses.

✓ **Ethics for accountancy and finance professionals:** Integrity is essential in transparently representing when AI is being used and not marketing other software as AI.

FIGURE 3.5: Impact of AI on my rights as a consumer (eg how my data is used by a company, discriminatory treatment, levels of transparency)



THE RISK OF UNINTENDED CONSEQUENCES IS HIGH WITH AI AND THE PUBLIC INTEREST MUST REMAIN AT THE FOREFRONT OF OUR CONSIDERATIONS.

4. **AI** and **governance**

This is a vast area. The emphasis was on ethics considerations in our interviews and other information gathering (Figure 4.1).

4.1 Ethics and philosophy

A deep philosophical discussion is not intended here, but it is worth reflecting briefly on some pertinent and, to a degree, personal aspects (Byford and Gunkel 2020). Legally, personhood is generally associated with having rights and a person may have ownership of property. 'Person' has in the past referred to, for example, the male head of the household, and over time married women (McGrath 2013; Editors of Encyclopaedia Britannica n.d.) and other previously subjugated individuals (National Constitution Center 2021) whose status had been akin to property. With expanding commerce, the corporate person was developed (Foys Solicitors 2019): an entity that could be held legally responsible for its actions.

As can be seen, though these constructs of person and property have been around for a while, the question of who or what is included in these categories reflects the values of the historical period (Box 4.1).

Just over half of survey respondents believe the impact of AI on their ability to live according to their values is positive (Figure 4.2). Looking ahead, as AI gets more intelligent, perceptive, and perhaps even sentient, it will be important that it operates in line with the criteria and parameters for legal and regulatory treatment in the context of evolving societal values.

> 'I fear sometimes in the future when AI is at its full capacity, whether the human being could be forced to conform to one set of values'. **ODG participant**

FIGURE 4.1: Ethical adoption of AI

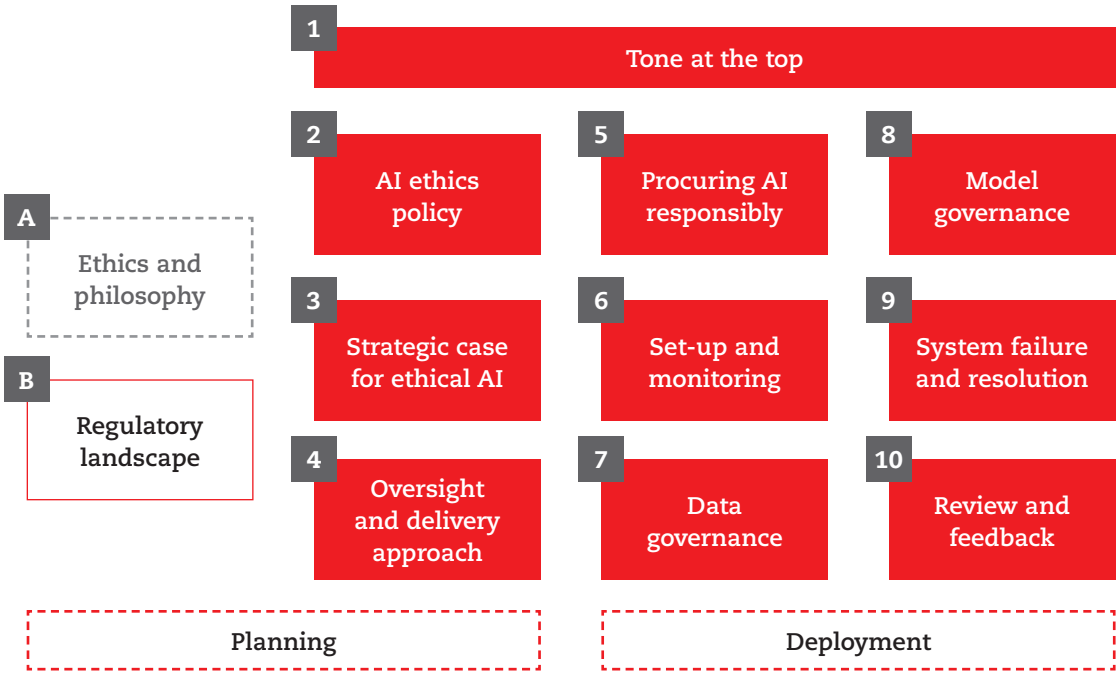
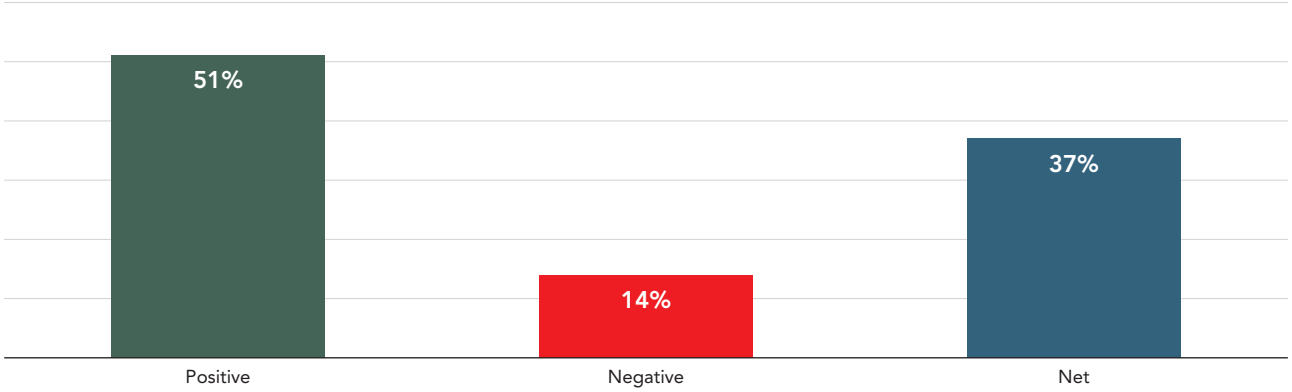


FIGURE 4.2: Impact of AI on my ability to live according to my values



Box 4.1: What is a person?

Assume one developed a close companion-like relationship with one's AI-enabled vacuum cleaner, gave it a name, and perhaps even became emotionally attached to it. It actions tasks proactively, cleans in advance of guests arriving by syncing to one's calendar, predicts lifestyle and hygiene habits that would be compatible with oneself, and responds to emotional moods such as by delaying a cleaning task because it senses one doesn't want to be disturbed.

Is there a blurring of lines between its being a piece of property and acquiring some person-like traits? What if instead of looking like a vacuum cleaner, it looked humanoid (Figure 4.3)? Would one be more disposed to accord it 'rights' – the preserve of a person, not a property?

FIGURE 4.3: Perceptions of property and personhood

HOW ALGORITHMS ARE DEVELOPED AND DEPLOYED IS THE NEW BATTLEGROUND OF IDEAS, CULTURES, AND VALUES.

How algorithms are developed and deployed is the new battleground of ideas, cultures, and values. Does the algorithm reflect what is true in some stand-alone way, loosely, akin to an objectivist philosophical view? Or does it reflect what I believe to be true? Loosely, closer to a more subjectivist philosophical view. Or does it reflect what should be, ie a desired state which is more normative in its approach (for a discussion of normative ethics see Fieser n.d.)? Some cultures tend to lean towards individualism and some towards collectivism (see FutureLearn n.d.) so how could differences in perception of right and wrong, or desired state, influence the development of algorithms? Ultimately, the rules of engagement must be clarified, and this process will be underpinned by learnings from philosophy as much as by technology.

Accountancy and other finance professionals, as members of a profession grounded in core global ethical principles, can rely on this as a starting point when dealing with the challenges posed by differing points of view. Ultimately, dealing with a specific situation, particularly if it hasn't been seen before, as is possible with AI, will require exercising judgement.

✓ **Ethics for accountancy and other finance professionals:** professional judgement cannot be replaced by a compliance-based checklist.

4.2 Regulatory landscape

Across the sample, only one in three (Figure 4.5) say they have considered the relevant regulatory requirements for AI use. A start has been made, though this will require further attention in the years ahead as regulators further clarify their approach to, and their expectations of, market participants (Figure 4.4).

ONLY ONE IN THREE SAY THEY HAVE CONSIDERED THE RELEVANT REGULATORY REQUIREMENTS FOR AI USE.

FIGURE 4.5: Survey responses to the statement: 'My organisation has considered the relevant regulatory requirements for AI use'

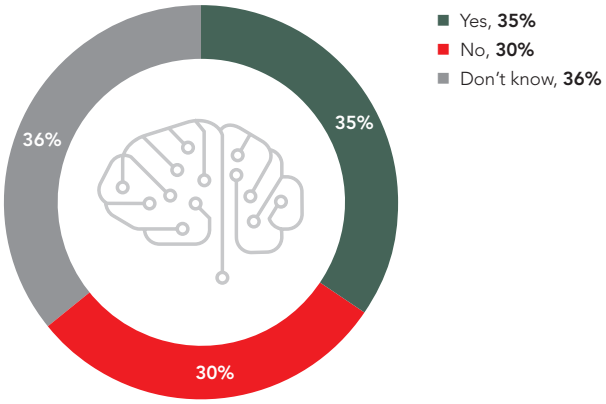
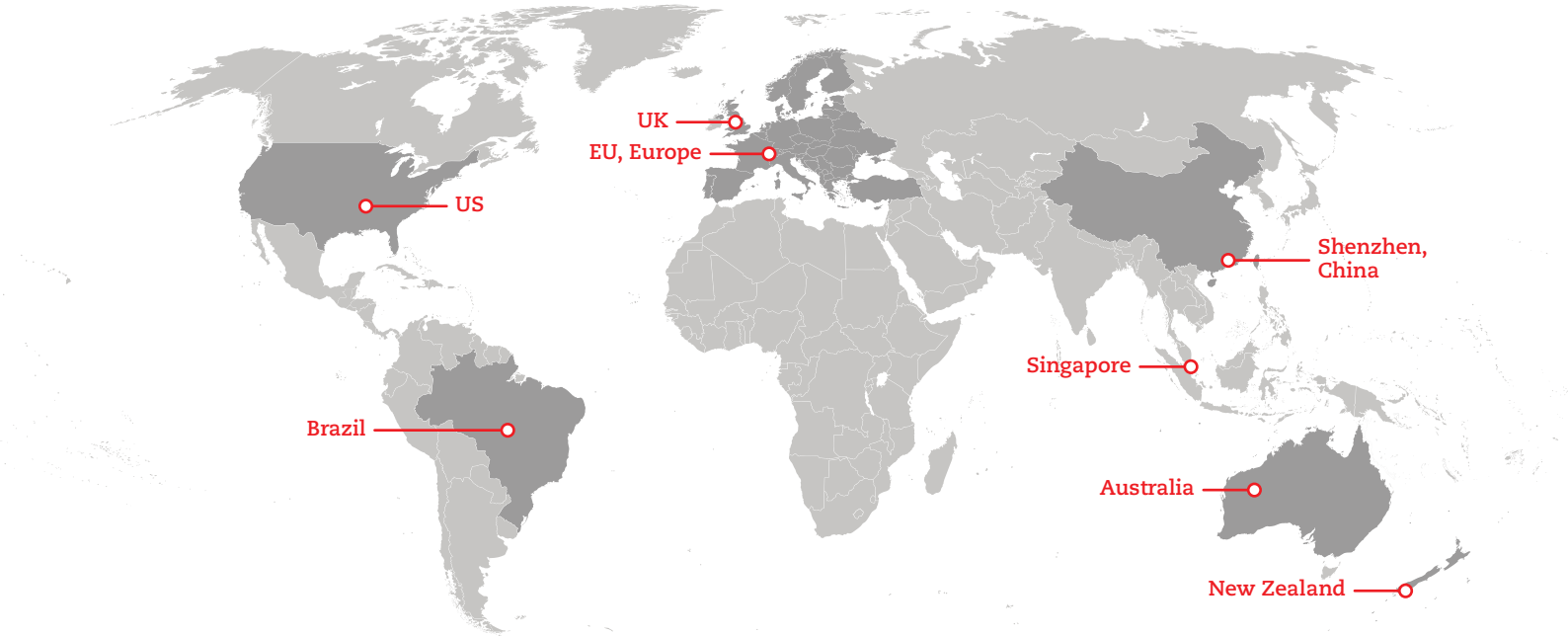


FIGURE 4.4: Approaches to AI governance around the world



EU, Europe (Apr, 2021)
The aim is to establish a framework that provides the legal certainty to facilitate innovation and investment in AI, while also safeguarding fundamental rights and ensuring that AI applications are used safely (Eur-Lex 2021; Norton Rose Fulbright 2021).

UK (Mar, 2021)
No AI-specific legislation. Laws must be technology agnostic to ensure that future technology will still be subject to an overarching legal framework. (DCMS n.d.).

Shenzhen, China (Jun, 2021)
Regulations on the Promotion of Artificial Intelligence Industry of Shenzhen Special Economic Zone. Artificial Intelligence in China: Shenzhen Releases First Local Regulations (Chipman Koty 2021; China Briefing 2021).

Australia (Jun, 2021)
Australia does not have specific laws regulating AI, big data or algorithmic decision making. However, the Australian government has issued its AI ethics framework (Australian Government n.d.).

US (Jan, 2021)
National AI Initiative Act became law in January 2021. Provides for a coordinated program across the entire Federal government to accelerate AI research and application for the nation's economic prosperity and national security (National Artificial Intelligence Initiative 2021).

Singapore (Jan, 2019)
Model AI Governance Framework. Introduced at World Economic Forum (WEF) in Davos in 2019, with updates a year later at the same event. (SG:D, IM and PDPC 2020).

New Zealand (Jul, 2020)
Algorithm Charter. Principles-based as opposed to a regulatory approach. Part of a wider ecosystem around responsible AI. Voluntary and aims to improve government transparency and accountability without stifling innovation or causing undue compliance burden (data.govt.nz 2021).

Brazil (Apr, 2021)
Aims to balance ethical use of the technology with boosting research and innovation in the sector (Mari 2021).

Across all respondents, 87% of those using AI have considered the regulatory requirements for doing so. Depending on the use case (Figure 4.6) this equates to 90% (of 319 respondents who use AI in audit and assurance), 87% (of 897 respondents using AI for accountancy and finance related tasks) and 84% (of 677 respondents using AI outside accountancy and finance).

- **International cooperation:** there is a lot of activity happening around the world and as a discussion paper from the Australian government notes, 'international coordination is crucial' (Australian Government 2020). The discussion paper cites how standards for electrical and industrial products required international coordination to make devices safe and functional across borders. Eventually, a version of this may apply to AI technologies globally and used 'off the shelf' in local jurisdictions.
- **Balancing innovation and regulation:** Work from the IEEE highlights the importance of ensuring that existing regulation, such as for privacy and data protection, is technology agnostic (ie principles based) (IEEE 2021). Materiality across various factors should also be considered, such as the extent of use of machine learning applications and automation, the severity and probability of financial and non-financial impact, and the level of human oversight needed.
- **A risk-based approach** as advocated by the EU (see Box 4.2) would provide a framework that can be implemented in organisations, though some question whether the safeguards are adequate (Skelton 2021). As our collective understanding progresses, accountancy and finance professionals can assist with feedback on how the intention translates into implementation.
- **Transparency with the public:** AI cannot just be 'done to' the public; people need a means of understanding what their officials are doing, particularly as it is their data powering the AI tools. The cities of Amsterdam and Helsinki have taken steps in this direction with the launch of a public register where citizens can see what AI is being deployed and how (AI-Regulation.com 2020). Feedback mechanisms to gauge public sentiment, such as questionnaires, focus groups, and having representatives of the public on some ethics committees may also be options aiding transparency.

> AI needs to be regulated…like with most things when there are laws/ guides then there are rules to adhere to. **ODG participant**

AI CANNOT JUST BE 'DONE TO' THE PUBLIC; PEOPLE NEED A MEANS OF UNDERSTANDING WHAT THEIR OFFICIALS ARE DOING, PARTICULARLY AS IT IS THEIR DATA POWERING THE AI TOOLS.

FIGURE 4.6: Proportion of respondents who have considered regulatory requirements for AI, by use case

Box 4.2 Risk-based approach to building trust in AI – view from the European Commission

In 2021 the Commission set out a legal framework for AI using a risk-based approach (European Commission 2021b).

AI systems that present a 'clear threat to the safety, livelihoods and rights of people will be banned' – for example 'toys using voice assistance encouraging dangerous behaviour of minors'. 'High risk' systems will be subject to 'strict obligations' such as 'high quality of the datasets feeding the system', 'detailed documentation' and 'appropriate human oversight'. Examples include 'critical infrastructure' such as transport, where errors can threaten lives; and 'educational and vocational training', which can affect the 'professional course of someone's life (e.g. scoring of exams)'. 'Limited risk' AI systems, such as chatbots, have 'specific transparency obligations'. And finally, 'minimal risk' is expected to apply to most AI systems, such as in video games or spam filters. The draft regulation 'does not intervene' for this category.

Accountancy and finance professionals should stay aware of the evolving regulatory landscape. As rules are crystallised in various jurisdictions, there will be a need for the profession to consider whether specific professional standards are needed to ensure/check compliance with AI regulation.

✓ **Ethics for accountancy and finance professionals:** Professional standards for compliance will change with the evolving regulatory landscape of AI.

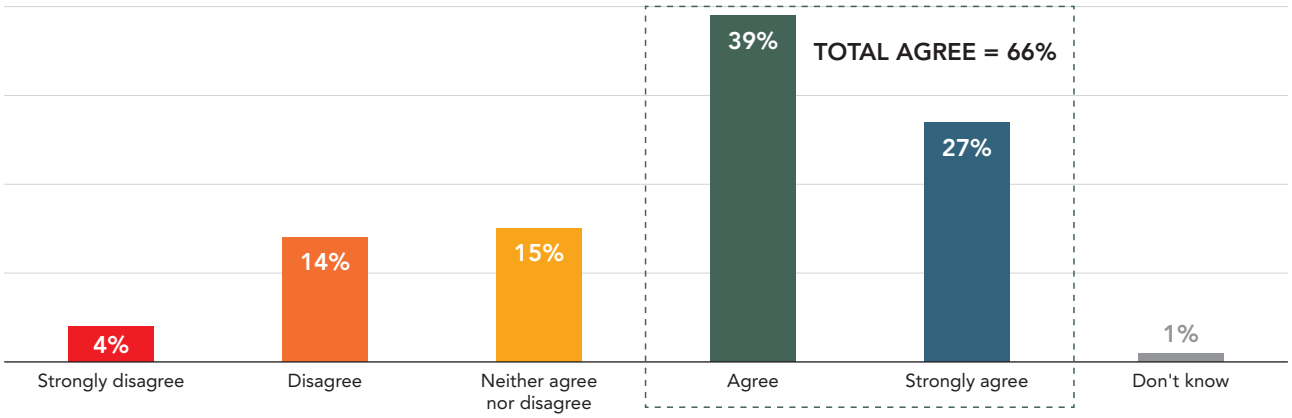
4.3 Tone at the top

Leaders must both lead by example and cascade the message that ethics isn't just a senior management conversation: it's everyone's responsibility. The survey (Figure 4.7) highlights that only two in three respondents believe that their leaders prioritise ethics as highly as profits. In a world seeking to move towards purpose-driven organisations where people and planet matter as much as profits, this finding suggests that more work is needed to embed ethics.

> 'The attitude toward AI from the CEO/Leadership team…is to sell anything remotely close to it for as much money as possible'. **ODG participant**

- **Organisational values:** Leaders have a responsibility for ensuring that the approach to AI is consistent with the values of the organisation more broadly.
- **Trust and transparency** require clear honest communication to employees, consumers, investors, and other stakeholders on where and how AI is being used. This means balanced easy-to-understand information that spells out AI use, its benefits, and risks, and how risks are being mitigated.
- **Diversity and inclusiveness** should be a core principle in AI products (ACCA 2021c). For example, consider how algorithms used for recruitment, even if by an external agency, are tested for bias. 'Bias' here includes indirect discrimination, where a protected characteristic (eg race) is not identified but decisions are influenced by other factors, say the location, proven to be highly correlated with that characteristic (CA ANZ 2021). Or consider how the use of AI affects jobs previously done by humans, and the need to manage change in a fair, inclusive manner.

FIGURE 4.7: Survey responses to the statement: 'Leaders in my organisation prioritise ethics as highly as generating profits'



'I think it depends on the top-down leadership approach towards AI adoption. Once the leadership is committed to transforming the organisation, opportunities keep arising day by day. We started using AI for forecasting, then RPA, Live Chat, Chatbot, and the journey continues at pace'. **ODG participant**

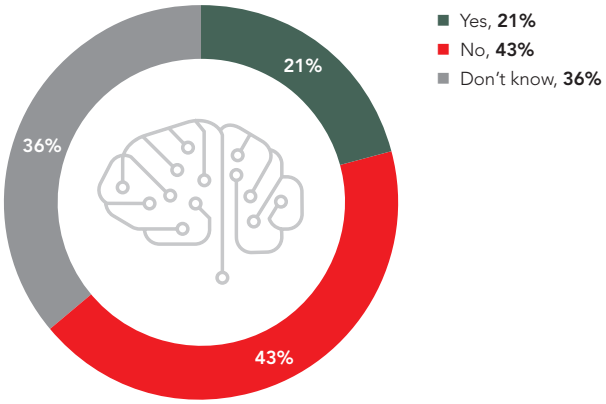
✓ **Ethics for accountancy and finance professionals:** Professional competence and due care obligation exists to ensure responsible AI adoption.

4.4 AI ethics policy

The last few years have seen intense global activity to establish some essential principles underlying an ethical approach to AI. While there are differences in nuance, they tend to agree on certain broad principles for a responsible AI system.

These can form the basis and starting point for defining AI ethics policies specific to a sector and an organisation. A summary of key elements distilled from various sources is shown in Figure 4.8 (Leslie 2019; OECD 2021; European Commission 2019; Australian Government n.d.; Microsoft n.d.; SG:D, IM and PDPC 2020; India AI n.d.; GPAI n.d.; Golbin and Axente 2021).

FIGURE 4.9: Survey responses to the statement: 'My organisation has implemented an ethical framework for AI use'



Organisations are in the early stages of considering the ethical implications, with one in five (Figure 4.9) reporting the implementation of an ethical framework for AI use. Across all respondents, 72% of those using AI have implemented an ethical framework for it in their organisation. Depending on the use case (Figure 4.10) this equates to 80% (of 319 respondents who use AI in audit and assurance), 73% (of 897 respondents using AI for accountancy and finance related tasks) and 68% (of 677 respondents using AI outside accountancy and finance).

FIGURE 4.8: Key components of an AI ethics policy

1. Fairness
- Avoid unfair bias and discrimination against individuals or groups
- Be inclusive and incorporate diverse perspectives in design and deployment

2. Accountability
- Provide clarity on who is responsible for the decision
- Provide a process for challenging a decision and seeking redress

3. Sustainability
- Human-centred AI supports flourishing of, and avoids harms to, individuals and societies
- Consider long-term impact on people and planet

4. Transparency
- Appropriate disclosures when AI is used
- Explain how a decision is reached

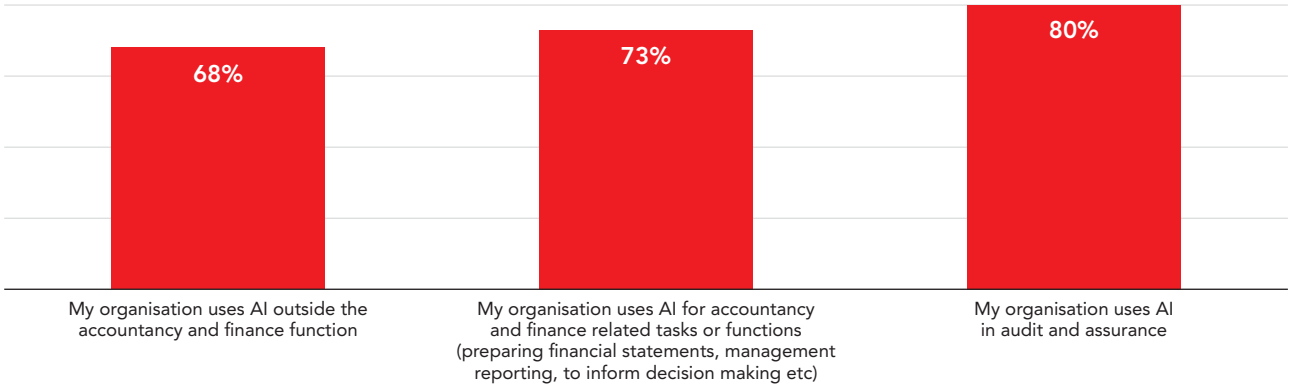
5. Human oversight
- Humans have visibility and ability to monitor
- Humans can step in and remedy if needed

6. Ethical use of data
- Embed data privacy and confidentiality mechanisms
- Consider the needs of subjects whose data is used by the AI system

7. Safety and robustness:
- Ensure security and reliable operation, as intended, through the life cycle
- AI should be resilient, with a fall-back plan for managing system failure

8. Standards and law
- Act within legal and regulatory requirements
- Ensure continuing compliance as AI regulation matures

FIGURE 4.10: Proportion of respondents whose organisations have implemented an ethical framework for AI, by use case



✓ **Ethics for accountancy and finance professionals:** There is a professional competence challenge in deploying AI applications without having considered and addressed the ethical implications.

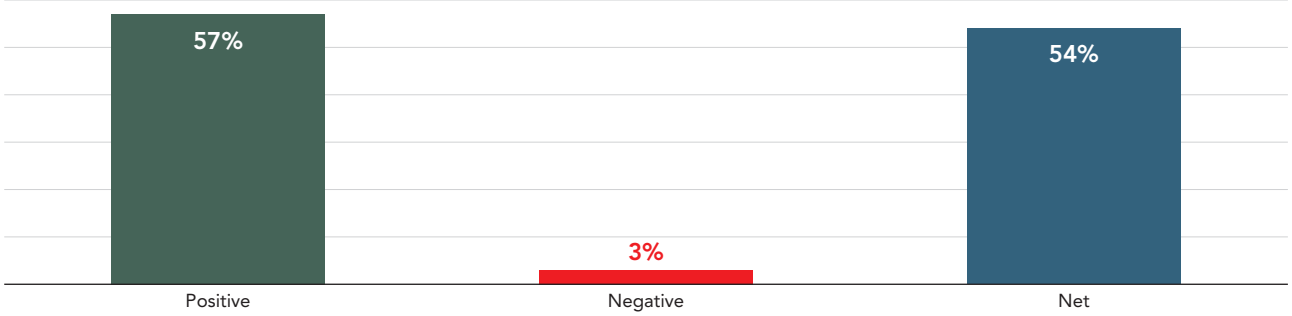
4.5 Strategic case for ethical AI

Strategically, a typical starting point is to consider where AI might add value. For example, more than half of respondents (Figure 4.11) believe AI can improve the integrity of financial information produced. But from here there are several questions about the specific aspects of the sourcing, analysis and consolidation of financial information that are best suited to an AI-based workflow. This is specific to each organisation and needs a clear business case for strategic fit, cost-benefit, and risks.

For an ethical and sustainable approach, the business case for AI implementation must consider long-term trends rather than seeking the latest tool simply for fear of missing out. This also means understanding both the total cost of ownership over time and long-term value, and how equitably benefits are accessible to stakeholders.

FOR AN ETHICAL AND SUSTAINABLE APPROACH, THE BUSINESS CASE FOR AI IMPLEMENTATION MUST CONSIDER LONG-TERM TRENDS RATHER THAN SEEKING THE LATEST TOOL SIMPLY FOR FEAR OF MISSING OUT

FIGURE 4.11: Responses to the question: What is the impact of using AI on the integrity of the financial information produced within your organisation?



Organisations may also want to incorporate lessons from long-term longitudinal studies beyond their own timelines, such as Stanford University's 100-year study, which intends to release an update every five years (Stanford University 2016).

Reputational damage from inappropriate design or deployment is an ethical risk. Clarity is needed about the role of the human, and the precise nature of the oversight. System complexity or lack of clarity on accountability for decisions can create ethical risks. Unintended consequences are also ethical concerns, given machine learning's ability to adapt its own operation by using new data over time.

'The organisation provides a customised server/storage business model to its customers, thereby reducing the cost for the customer and reducing waste of space and resources. We use AI-based reports to produce/pull data, which cuts the time by 70% compared with pulling the financial data manually'. **ODG participant**

✓ **Ethics for accountancy and finance professionals:** Objectivity is essential in recognising fully loaded costs and long-term value.

4.6 Oversight and delivery approach

Deployment of AI is a strategic decision and should not be seen purely from the perspective of an individual project delivered deep within a business unit. It may use data from various parts of the organisation and from external sources, and need coordination across siloes, spearheaded by senior leaders.

- **Job titles:** chief financial officers (CFOs) and finance leaders have an opportunity to leverage their sound ethical judgement alongside commercial and operational knowledge. The ethical deployment of AI will need checks and balances to ensure long-term value – an area where they can lead. There may be various stakeholders involved. Chief data officers (CDOs) look holistically at value from data assets while data protection officers (DPOs) consider data risks. New job titles are appearing, such as the chief AI officer (CAIO), responsible for spearheading a joined-up approach to AI across the organisation (Adams 2020). What matters is clarity on roles and responsibilities led by a senior (ideally C-suite) executive. There may also be an oversight board staffed by non-executives to provide an external independent perspective on important matters with ethical implications (Kang 2021).

'Finance leaders have a mix of strategic, financial, operational and governance skills that make them ideal for driving the adoption of ethical practices when using AI in their organisations'. **Karen Smith FCCA, Partner, IBM**

- **Cross-functional teams:** Further downstream, AI deployment will span roles within and outside technology, ranging from developers and data scientists to operations and business unit owners. Therefore, cross-functional teams with effective communication between technical and business staff are needed. In relation to this, it may be necessary to consider segregation of duties, such as between the developer designing an algorithm, and the staff member accountable for decisions taken using this algorithm.
- **Link to existing structures:** As always, the starting point is to map existing structures to AI needs because many skills, for example, internal communications, will need to be applied in a slightly different context. Given how new AI use will be for many organisations, there may be a case for setting up a central team, initially, to coordinate and provide AI-related expertise and support. Over time, decision making may become more decentralised.

AI IS A STRATEGIC DECISION AND SHOULD NOT BE SEEN PURELY FROM THE PERSPECTIVE OF AN INDIVIDUAL PROJECT DELIVERED DEEP WITHIN A BUSINESS UNIT. IT MAY USE DATA FROM VARIOUS PARTS OF THE ORGANISATION AND FROM EXTERNAL SOURCES, AND NEED COORDINATION ACROSS SILOES, SPEARHEADED BY SENIOR LEADERS.

- **Targeted support:** This may be provided by an ethics officer or a specific AI ethics officer. Ethics must be applied on a day-to-day basis when making rapid decisions, and everything cannot be resolved by a central officer, but such a person can provide specialist guidance, particularly for high-risk decisions. Another avenue is a whistle-blowing hotline for individuals to share ethics concerns related to AI or incorporating this facility into an existing whistle-blowing hotline. It has been suggested that AI could itself be used to receive whistle-blower inputs via a chatbot (Zouvia 2020). One side of the argument is that people don't feel judged when talking to a chatbot and are therefore free to share thoughts. Of course, it's a complex area, and it is debatable whether a bot can properly judge the seriousness and context of the user's comments.

> 'I run the organisation and am very interested in use of AI to make better managerial decisions'. **ODG participant**

✓ **Ethics for accountancy and finance professionals:** Professional competence and due care are essential in enabling appropriate oversight and delivery mechanisms.

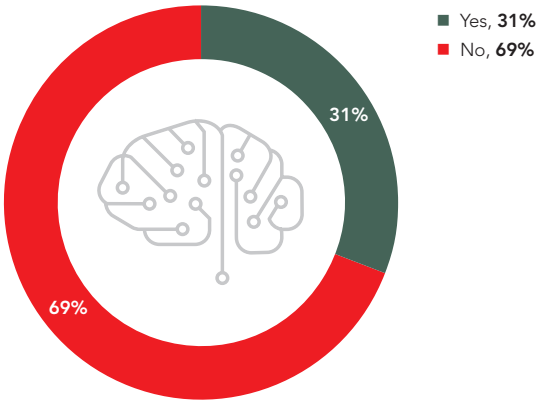
4.7 Procuring AI responsibly

Whether the AI adopted is provided by an external vendor or developed in-house, accountancy, finance, or business leaders will be bringing it into their organisation or department. They are not technology specialists directly involved with development, hence the discussion here is from a procurement perspective. While the assumption here is that an external vendor will be the supplier, many of the conceptual points apply even when sourcing from an internal development team.

- **'Buyer needs' versus 'vendor offer':** there is an asymmetry between the buyer's and vendor's AI knowledge. The risk is that buyers may be persuaded to adapt their requirements to what the vendor is offering. As a start, buyers would benefit from building knowledge about successful use cases relevant to them. Only about one-third of survey respondents were aware of AI use in their industry, so there is likely to be scope for building greater awareness (Figure 4.12).

- **Key partner dependency:** If the supplier needs to be changed, clarity is needed on how to manage the algorithm and, if needed, to continue using all or parts of it with a system supplied by a different vendor. Related to this is clarity on ownership of intellectual property (IP) – this may include the data and the model methodology, parameters and logic that have been refined during the use of the AI over time.

FIGURE 4.12: Survey responses to the statement: 'I am aware of AI use within my industry'



- **Responsible AI approach:** Many organisations are trialling AI and don't want to spend too much initially. The pressure on vendors to show quick results for board sign-off before proceeding further should not be allowed to create ethical conflicts. Accountancy and finance professionals should ensure that vendors align with the buyer's AI ethics policies and can demonstrate third-party review of their solutions where possible.
  - In procuring responsible AI solutions, government policies can be an enabler. An ACCA study on best-practice in procurement highlighted that 'Governments should adopt an e-Procurement system for the efficient management of the procurement process and publish reusable data from the system for monitoring and oversight' (Bleetman and Metcalfe 2020). The publishing of reusable data can help finance leaders to identify approved vendors who have taken ethical considerations into account. This can also be a way for smaller suppliers to demonstrate their ethical credentials.

Accountancy and finance professionals need to ensure they have the requisite knowledge and skills to inform the vendor about what they need – ie what business problem is the AI being acquired to fix or address? And they need to be able to assess and interrogate the vendor offer in that context.

✓ **Ethics for accountancy and finance professionals:** Professional competence and due care are essential in engaging with and interrogating the offer from AI vendors in the context of the business need.

4.8 Set-up and monitoring

Ethical issues can arise from a wide range of sources during initial set-up and operational monitoring.

- **Documentation:** One of the ethical challenges with an AI model is to ensure a sufficient understanding of what it is doing. Quality of documentation is key – how comprehensive it is, how regularly it is updated and how understandable it is for new individuals when there are staff changes and handovers. And in cross-functional teams some documentation may need to be accessed by non-technical business users. This requires embedding strong discipline in maintaining and revising document versions. There may also be value in exploring automated documentation applications to establish an end-to-end trail (see mljar n.d. and Pandey 2020 for examples, but please note that we make no representation on the efficacy of specific products).
- **Access controls:** There should be clarity on who has access to the training data and who can make any amends to it. More broadly, this extends to a tight monitoring of privileges and access rights for all data and systems; and across human and, if applicable, Bot accounts.
- **Transparency:** ethical behaviour requires making user-relevant information readily available in the public domain. Information on how individuals' data is being used should not be hidden behind lengthy contractual jargon and should be explained in plain lay-person terms. Finding information on whether a consumer can opt out should be made as simple as the user journey for attracting them initially.
- **Evaluations and audits:** conduct periodic process and ethics evaluations through an independent internal function and, if possible, use an external expert agency for scrutiny. Algorithmic Impact Assessment frameworks can provide a structured way of assessing the impact of AI systems (see eg Government of Canada 2021).

> 'I feel implementation won't be easy as the models will need to factor various control points, for instance to analyse the transactions in general ledger, bifurcate and label transactions in buckets as per the risk level to accurately determine which transactions are high risk and low risk'. **ODG participant**

✓ **Ethics for accountancy and finance professionals:** Professional competence and due care are essential in operationalising control and monitoring mechanisms.

> **ONE OF THE ETHICAL CHALLENGES WITH AN AI MODEL IS TO ENSURE A SUFFICIENT UNDERSTANDING OF WHAT IT IS DOING. QUALITY OF DOCUMENTATION IS KEY.**

4.9 Data governance

The ability of organisations to manage data effectively may well be the greatest determinant of their ability to derive value from AI in a responsible manner.

4.9.1 Data minimisation

- Adhere to the principle of collecting only the absolute minimum amount of data needed. Related to this are effective controls for data transfer between systems, to the Cloud and to external third parties. In general, the preference is to minimise moving data as it may create opportunities for a breach (Varsos et al. 2021), and the use of virtual or synthetic data to train models (Walsh 2021) may be part of the solution.
- Collecting as little data as possible may turn out to be like a digital equivalent of how we should have dealt with plastic from the 1950s. Just like data today, it was cheap and readily available but has now ended up polluting right down to the floor of our oceans. To avoid creating economies built on just collecting mountains of data, with the excessive energy use that implies, we need sustainable management of the amount of data collected.

> **ADHERE TO THE PRINCIPLE OF COLLECTING ONLY THE ABSOLUTE MINIMUM AMOUNT OF DATA NEEDED.**

4.9.2 Data confidentiality

- Dealing with personally identifiable information (PII) in a compliant way is an essential requirement. This includes informed consent, and for data subjects to have the right to withdraw that consent at a future date (withdrawal being no more difficult than initial provision of consent). It is also important to recognise

the risk of accidentally collecting PII, for example data used for transport routing and pricing algorithms is drawn from passenger data but shouldn't disclose names and seat numbers. Where needed, data must be truly anonymous, and not such that one can deduce personal details even if they're not explicitly provided.

- Looking ahead there may be value in exploring alternative approaches, such as 'differential privacy' approaches that focus on gaining insight from a top-down aggregate view of data without needing specific details about every record, ie individual, in the dataset that creates PII (Zhu 2018).

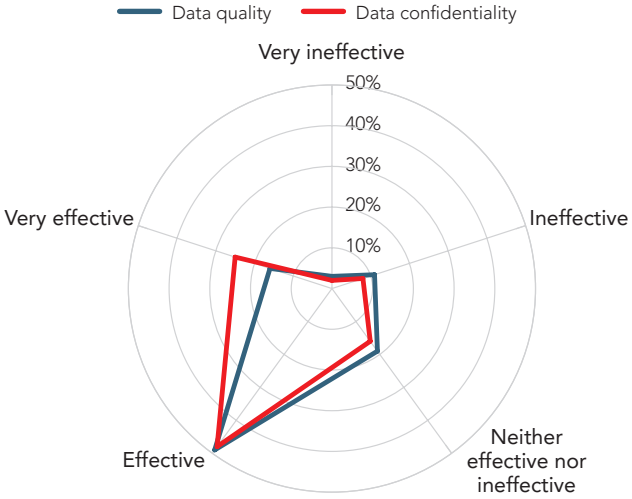
> 'We are using AI in Live Chat…[the] benefit is highly personalised service and to maximise organisational efficiencies. Data privacy is the biggest concern about using AI'. **ODG participant**

4.9.3 Data quality

- Data needs to be relevant to organisational objectives and have neither gaps nor errors. Ensuring that the model's decisions and the data they were based on are both accessible is relevant here (KPMG 2018). Periodic reviews as well as assigning 'super users' are broader mechanisms that are applicable here, for maintaining a check on who can use the data, and for what purposes.
- Maintaining inventories and glossaries of data is also important so stakeholders in different parts of an organisation have a common terminology and understanding of data assets. This is needed to create the much sought-after, but rarely achieved, 'golden source' of data (Nammalvar 2019). This enables sight of a clear data lineage, providing answers to potential regulator queries on where it has come from, and to support AI-driven value across siloes. There is increasing emphasis on improving AI, not by iteratively improving the model (the main approach so far) but by iteratively improving the data (Press 2021).

Survey results reveal that about half the respondents consider their organisations to be effective at maintaining both data quality and data confidentiality. But while 25% report that their organisations are 'very effective' at managing confidentiality only 16% claim this for data quality (Figure 4.13). Presumably the difference is linked to the compliance aspect of the former.

FIGURE 4.13: Responses to the question: 'To what extent is your organisation effective in managing data quality and confidentiality?'



Note: Excludes 'Don't know'

While there is some similarity in the overall picture of the level of effectiveness across quality and confidentiality, the two differ on where the challenges to effectiveness lie. For data quality (Figure 4.14) the core issue is the point when the data first enters the organisation. Poor quality of initial data collection has an understandably persistent effect on diluting quality throughout the life cycle. Making progress on better data quality during the collection stage will produce outsize benefits for organisations, both in ameliorating a pain-point and in securing downstream improvements.

On the other hand, for confidentiality, the biggest area of challenge reported was in the secure storage phase of the data life cycle (Figure 4.15). There are many considerations here, such as those arising when holding data that is sensitive or personally identifiable; the safety of data over time, even if it is no longer in active use;

MAKING PROGRESS ON BETTER DATA QUALITY DURING THE COLLECTION STAGE WILL PRODUCE OUTSIZE BENEFITS FOR ORGANISATIONS, BOTH IN AMELIORATING A PAIN-POINT AND IN SECURING DOWNSTREAM IMPROVEMENTS.

FIGURE 4.14: Responses to the question: 'For data quality, where are your organisation's biggest challenges within the data life cycle? [Select up to two.]'

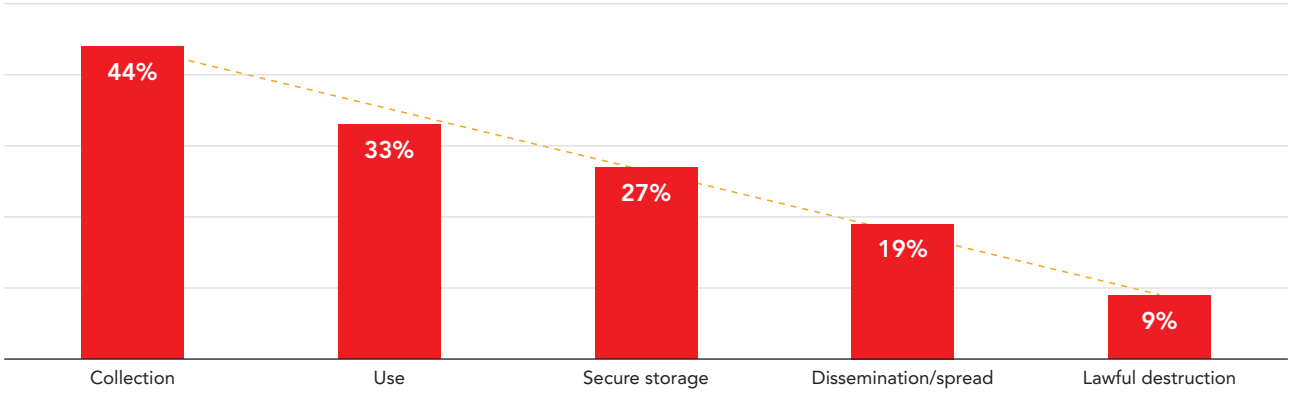
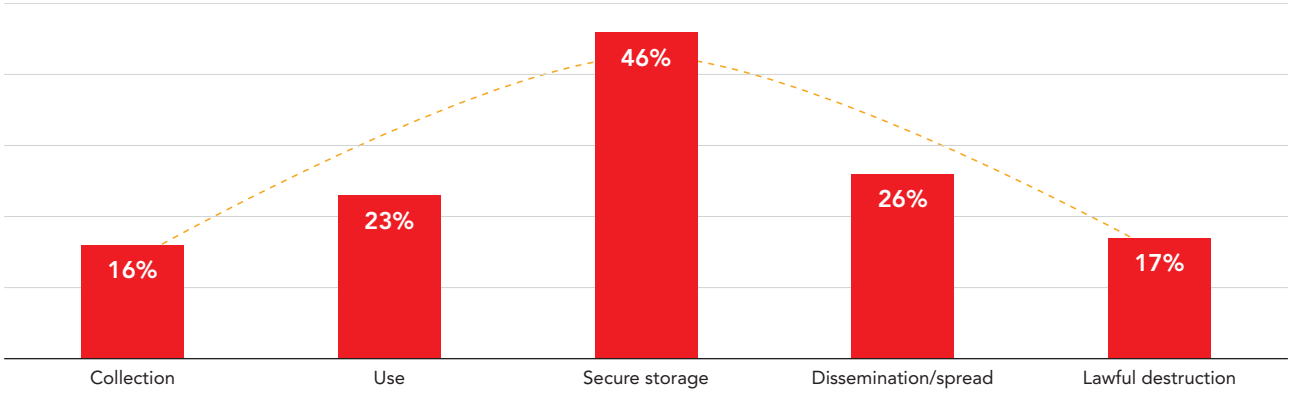


FIGURE 4.15: Responses to the question: 'For data confidentiality, where are your organisation's biggest challenges within the data life cycle? [Select up to two.]'



and having a reliable system for retrieving stored data. This is the phase when the data is held by the organisation without engaging with it in any way, such as at collection or dissemination. This may make it more challenging to ensure compliance, given the risk that the data could 'drop off the radar'.

✓ **Ethics for accountancy and finance professionals:** Confidentiality and professional standards are essential to ensure that data is handled in a compliant manner.

4.10 Model governance

- **User considerations for managing algorithmic bias:** Consider the case of using AI for CV parsing in recruitment. This is to get from the CV longlist to an initial shortlist of candidates for the first interview.
  - First, the hiring organisation may need to provide some of/all the training data. So, if historically the organisation has tended not to recruit certain demographics, this will be hardcoded into the algorithm, ie it may pre-emptively discriminate against candidates from those demographic groups. Because AI systems learn and adapt, the user may directly contribute to product development flaws. It may not be a case of just buying a product off the shelf with all product attributes being provided by the vendor.
  - Secondly, now assume the algorithm is trained using wider data sets, also adding anonymised training data across a range of organisations that the vendor has permission to use. If the hiring approach of the organisation, such as channels where it advertises its jobs, its brand perception and internal culture, all favour a certain

demographic, then there will be tendency for applications, and hence the good candidates, to come only from that demographic group. To put this differently – you will find only in places where you search. If you only search within a certain demographic, you will find good candidates only from within that demographic. And that will, over time, create a learning mechanism within the algorithm that reinforces this bias.

- Thirdly, there are indirect effects within bias to which the user needs to stay alert (CA ANZ 2021). The recruitment algorithm may not directly evidence bias on a protected characteristic such as gender. But it may statistically observe that those seeking part-time work tend not to be selected for the role. If most applicants seeking part-time work tend to be women, then it may be biased indirectly against women. Users will need to carefully evaluate the needs of the role and whether implicit biases are creeping into the assumptions underpinning the algorithm's decisions.

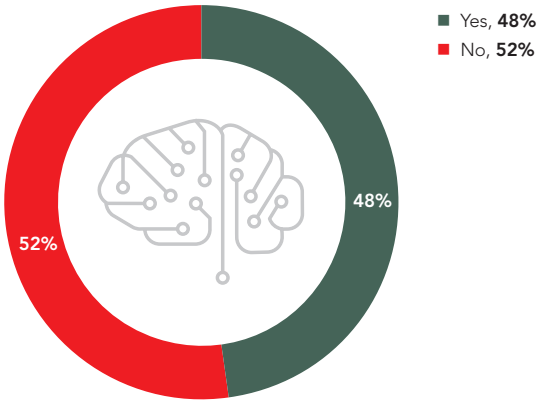
- **Effective partnering:** accountancy and finance professionals need to partner effectively with data scientists. While the latter will be responsible for the details of the model, important factors could be 'lost in translation' if the business context and domain expertise are not properly factored in. The data scientist may think about tuning a model and adjusting the weights of features to influence model outcomes. But they will need to understand that some mistakes are costlier than others, some errors have non-financial implications and some missed opportunities can have important strategic implications.
- **Model explainability:** the need to be able to explain how a model reached a decision (eg via a decision tree) to non-technical audiences is increasingly accepted (ACCA 2020d). In regulated industries such as banking, it may be necessary to explain, for example, why a certain customer was denied a loan or, more broadly to tackle the 'black-box' issue in more complex models where the human has limited understanding or visibility of what's happening. As the industry approaches in this area mature, the interaction of accountancy and business audiences with AI tools will probably increase.
- **Model drift:** even if the AI results are accurate today, this is not guaranteed to remain the case in the future. As new data is fed to the system and as external circumstances change, the model will drift away from delivering the intended results. This requires continuous monitoring and frequent adjustments.
- **Distributed delivery:** the operation of AI is fundamentally predicated on large amounts of data, often from a much wider source pool than previously used. Getting the best results may require sourcing data that is distributed across different parts of an organisation, or even lies outside the organisation. Federated learning means that it is now possible to use data that is locally held in edge devices, such as a mobile phone, outside the organisation and across the world, as opposed to needing all the data used in the model to be in one central location (Open Data Science 2020). These developments, while potentially improving model efficiency, also reinforce the need to consider ethical and governance factors.

Given the subtleties involved, it is helpful to understand at a high level how AI works, so that decisions and events aren't 'outsourced' to AI without recognising the role of human oversight and intervention. Survey responses (Figure 4.16) suggest improvement is needed here, with fewer than half of respondents reporting a basic understanding of how an algorithm works.

> 'If an organisation uses AI unethically, it would likely be hard to get them to admit it or be able to get access to find out…at the moment, once an AI algorithm has been built, I don't think it's very easy to take apart to find out how it's working'. **ODG participant**

YOU WILL FIND ONLY IN PLACES WHERE YOU SEARCH. IF YOU ONLY SEARCH WITHIN A CERTAIN DEMOGRAPHIC, YOU WILL FIND GOOD CANDIDATES ONLY FROM WITHIN THAT DEMOGRAPHIC.

FIGURE 4.16: Survey responses to the statement: 'I have a basic understanding of how an AI algorithm works'



✓ **Ethics for accountancy and finance professionals:** Professional competence and due care are essential in seeking information on what the AI system is doing, with integrity in not trying to outsource accountability to the algorithm.

4.11 System failure and resolution

- **Complaints and redress:** channels are needed to contest decisions and deal, for example, with dissatisfied customers. The role of whistle-blowing mechanisms (see section 4.6) is also important in this context, particularly given potentially lower familiarity with AI among those who are not at the front line. More generally, mechanisms for incident management, exceptions reporting, escalation and contingency planning all apply.
- **Securing the AI system:** fraud and unethical behaviour can take many forms, including data poisoning (Constantin 2021) and model evasion (Polyakov 2019), both of which work by corrupting the data that is used to train the AI model. Operational focus on securing models is intensifying and will be a consideration for mass adoption.

✓ **Ethics for accountancy and finance professionals:** Integrity is essential in setting up mechanisms for protection and redress in respect of wrongdoing.

4.12 Review and feedback

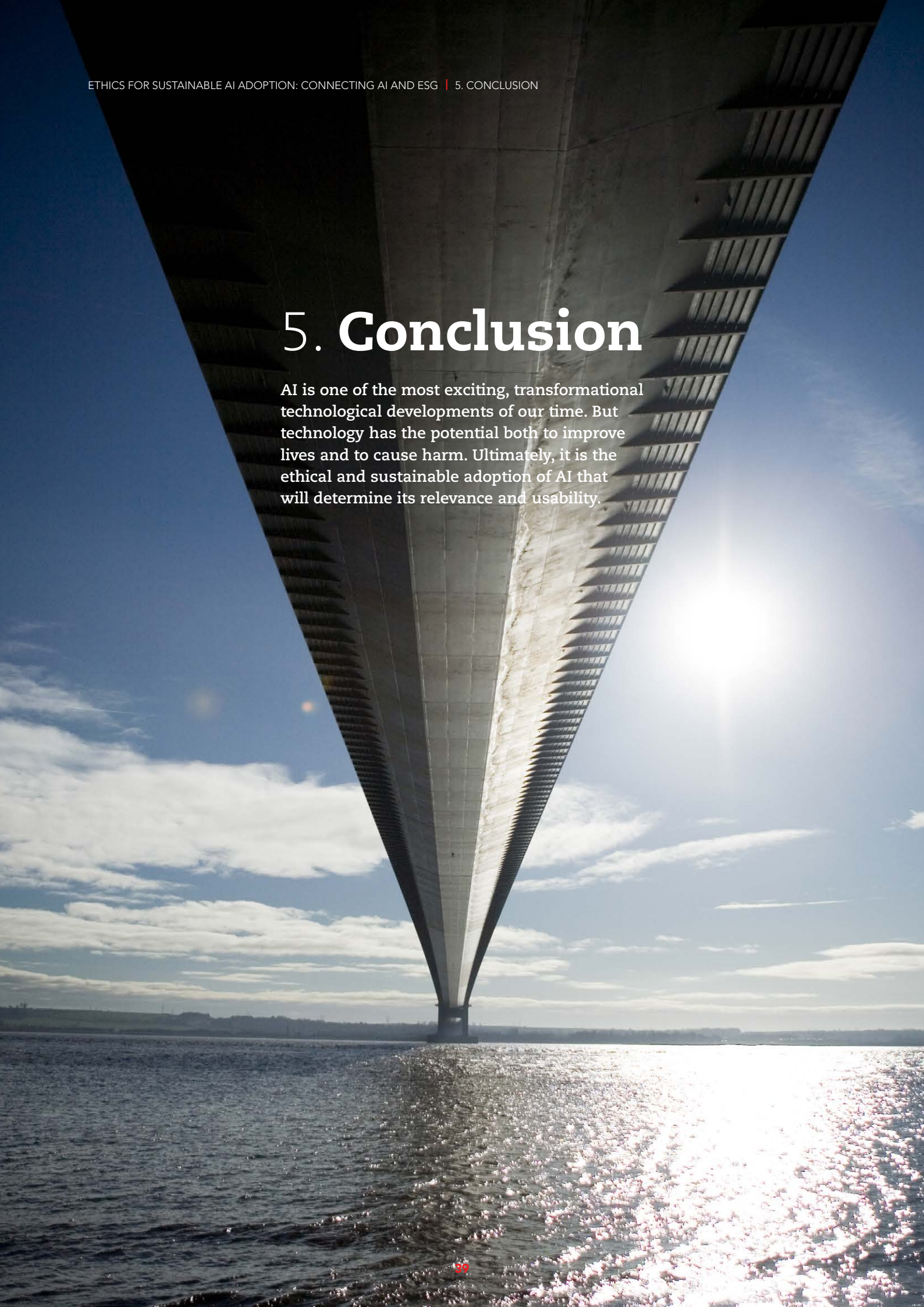
- **AI and ethics training:** training for employees in the ethical implications of deploying AI can take the form of in-house training or external certification. Importantly, there is a need for dispelling any notion that human judgement is not required – this is fundamental to making AI usable in organisations.
- **Lessons learned:** creating a record of key takeaways from the AI adoption journey can help to avoid repeating the same mistakes. For example, one interviewee highlighted their initial misconception that AI could be trained using junior employees in their organisation. But when they started, they found that the domain knowledge and contextual understanding needed to provide accurate inputs to the model corresponded more closely with a mid-level employee.

> CREATING A RECORD OF KEY TAKEAWAYS FROM THE AI ADOPTION JOURNEY CAN HELP TO AVOID REPEATING THE SAME MISTAKES.

Sense Time has established a case library of AI ethical risk factors to train AI product managers every six months based on global AI risk cases. We also check product risks and data risks regularly to optimise AI safety and prevent potential risks continuously.

✓ **Ethics for accountancy and finance professionals:** There is a professional competence-related obligation for continuous learning and development.

GIVEN THE SUBTLETIES INVOLVED, IT IS HELPFUL TO UNDERSTAND AT A HIGH LEVEL HOW AI WORKS, SO THAT DECISIONS AND EVENTS AREN'T 'OUTSOURCED' TO AI WITHOUT RECOGNISING THE ROLE OF HUMAN OVERSIGHT AND INTERVENTION.



5. Conclusion

AI is one of the most exciting, transformational technological developments of our time. But technology has the potential both to improve lives and to cause harm. Ultimately, it is the ethical and sustainable adoption of AI that will determine its relevance and usability.

Acknowledgements

1. **Alex Panait**, Financial Services Digital Innovation Director, PwC
2. **Ansgar Koene**, Global AI Ethics and Regulatory Leader, EY
3. **Brian Friedrich**, Board Member, IESBA
4. **Charles Radclyffe**, Partner, EthicsGrade
5. **Clement Chan**, Responsible AI Lead, PwC
6. **Dimitris Raftopoulos**, Senior Managing Consultant, Cognitive Process Transformation, IBM
7. **Jérôme Basdevant**, CTO, Datamaran
8. **Kam Leung**, Principal, IESBA
9. **Karen Smith**, Partner, IBM
10. **Lawrence Liew**, Director, AI Singapore
11. **Lutamyo Mtawali**, Sustainable Finance Lead, IBM
12. **Mahesh Hariharan**, Founder, Zupervise
13. **Mark Jansen**, Partner and Data Trust Services Leader, PwC
14. **Muhammad Fahad Riaz**, Founder and Managing Partner, Maglytic
15. **Oleg Torshin**, Responsible Computing, IBM
16. **Pavel Abdur-Rahman**, Partner, Data and Technology Transformation, IBM
17. **Sim Siew Shan**, CFO, AirAsia Berhad
18. **Thillai Raj**, Senior Technology Advisor, Wise AI Sdn Bhd
19. **Tian Feng**, Dean, Sense Time Intelligent Industry Research Institute

Appendices

1-page data summaries:

Regions:

1. Africa
2. Asia Pacific
3. Caribbean
4. Central & Eastern Europe
5. Middle East
6. North America
7. South Asia
8. Western Europe

Countries:

1. Australia
2. Bangladesh
3. China
4. Ghana
5. India
6. Ireland, Republic of
7. Kenya
8. Malaysia
9. Mauritius
10. New Zealand
11. Nigeria
12. Pakistan
13. Singapore
14. South Africa
15. Sri Lanka
16. Trinidad & Tobago
17. Uganda
18. UK
19. United Arab Emirates
20. Zambia
21. Zimbabwe

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’.

68%

LIVING WITH AI: *The impact of AI is positive/very positive on…*

52% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

45% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

54% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

57% My ability to live according to my values

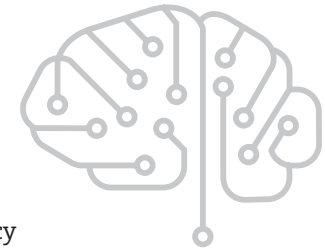
65% The overall standard of living in society

41% Levels of inequality within society

USING AI:

42%
I have a basic understanding of how an AI algorithm works

18%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)



8%
My organisation uses AI in audit and assurance

11%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

25%
My organisation has implemented an ethical framework for AI use

37%
My organisation has considered relevant regulatory requirements for AI use

72%
My organisation is effective/very effective in managing **DATA QUALITY**

76%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

39%	25%	31%	23%	10%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

17%	23%	45%	25%	15%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’.

66%

LIVING WITH AI: *The impact of AI is positive/very positive on…*

37% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

30% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

43% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

49% My ability to live according to my values

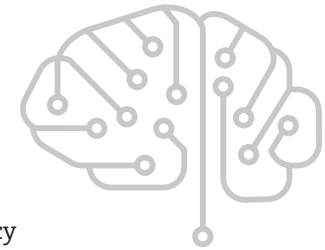
66% The overall standard of living in society

27% Levels of inequality within society

USING AI:

51%
I have a basic understanding of how an AI algorithm works

20%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)



5%
My organisation uses AI in audit and assurance

18%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

17%
My organisation has implemented an ethical framework for AI use

32%
My organisation has considered relevant regulatory requirements for AI use

55%
My organisation is effective/very effective in managing **DATA QUALITY**

65%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

47%	35%	29%	18%	8%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

16%	25%	48%	28%	15%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **47%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

30% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

27% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

34% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

36% My ability to live according to my values

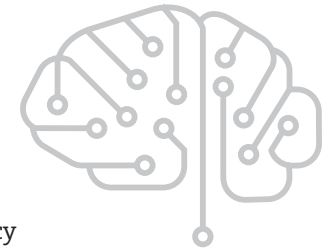
46% The overall standard of living in society

23% Levels of inequality within society

USING AI:

52%
I have a basic understanding of how an AI algorithm works

15%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)



3%
My organisation uses AI in audit and assurance

13%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

10%
My organisation has implemented an ethical framework for AI use

22%
My organisation has considered relevant regulatory requirements for AI use

59%
My organisation is effective/very effective in managing **DATA QUALITY**

62%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

41%	36%	29%	18%	7%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

19%	22%	42%	34%	11%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **66%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

43% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

36% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

48% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

52% My ability to live according to my values

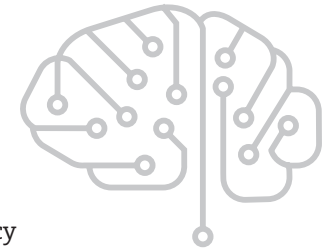
68% The overall standard of living in society

31% Levels of inequality within society

USING AI:

46%
I have a basic understanding of how an AI algorithm works

21%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)



6%
My organisation uses AI in audit and assurance

21%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

15%
My organisation has implemented an ethical framework for AI use

28%
My organisation has considered relevant regulatory requirements for AI use

71%
My organisation is effective/very effective in managing **DATA QUALITY**

77%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

46%	33%	20%	11%	9%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

14%	18%	41%	24%	16%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **59%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

52% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

39% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

56% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

59% My ability to live according to my values

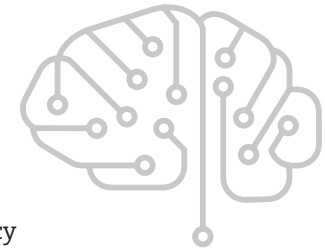
67% The overall standard of living in society

36% Levels of inequality within society

USING AI:

48%
I have a basic understanding of how an AI algorithm works

19%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)



7%
My organisation uses AI in audit and assurance

8%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

27%
My organisation has implemented an ethical framework for AI use

35%
My organisation has considered relevant regulatory requirements for AI use

68%
My organisation is effective/very effective in managing **DATA QUALITY**

73%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

37%	32%	34%	22%	10%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

18%	28%	45%	31%	16%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’.

82%

LIVING WITH AI: *The impact of AI is positive/very positive on…*

30% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

21% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

44% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

52% My ability to live according to my values

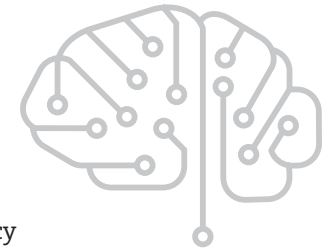
70% The overall standard of living in society

31% Levels of inequality within society

USING AI:

44%
I have a basic understanding of how an AI algorithm works

23%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)



9%
My organisation uses AI in audit and assurance

20%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

13%
My organisation has implemented an ethical framework for AI use

36%
My organisation has considered relevant regulatory requirements for AI use

67%
My organisation is effective/very effective in managing **DATA QUALITY**

71%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

47%	44%	11%	29%	5%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

18%	20%	40%	31%	18%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’.

68%

LIVING WITH AI: *The impact of AI is positive/very positive on…*

53% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

43% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

58% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

61% My ability to live according to my values

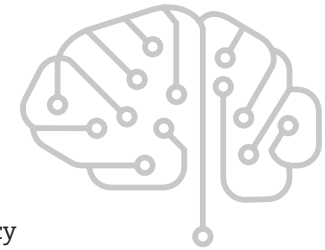
70% The overall standard of living in society

40% Levels of inequality within society

USING AI:

42%
I have a basic understanding of how an AI algorithm works

20%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)



11%
My organisation uses AI in audit and assurance

11%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

37%
My organisation has implemented an ethical framework for AI use

45%
My organisation has considered relevant regulatory requirements for AI use

73%
My organisation is effective/very effective in managing **DATA QUALITY**

77%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

40%	30%	34%	20%	9%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

13%	23%	50%	25%	18%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’.

64%

LIVING WITH AI: *The impact of AI is positive/very positive on…*

36% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

29% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

38% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

40% My ability to live according to my values

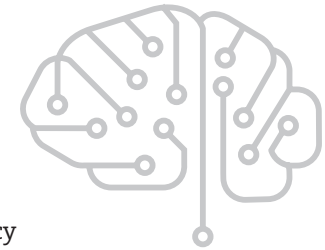
54% The overall standard of living in society

26% Levels of inequality within society

USING AI:

52%
I have a basic understanding of how an AI algorithm works

18%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)



6%
My organisation uses AI in audit and assurance

15%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

20%
My organisation has implemented an ethical framework for AI use

32%
My organisation has considered relevant regulatory requirements for AI use

68%
My organisation is effective/very effective in managing **DATA QUALITY**

81%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

45%	35%	20%	19%	8%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

15%	21%	40%	23%	22%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **72%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

28% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

21% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

36% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

38% My ability to live according to my values

62% The overall standard of living in society

19% Levels of inequality within society

USING AI:

58%
I have a basic understanding of how an AI algorithm works

22%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)

6%
My organisation uses AI in audit and assurance

21%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

13%
My organisation has implemented an ethical framework for AI use

33%
My organisation has considered relevant regulatory requirements for AI use

57%
My organisation is effective/very effective in managing **DATA QUALITY**

71%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

45%	32%	26%	19%	9%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

14%	21%	48%	28%	15%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **58%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

50% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

47% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

50% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

65% My ability to live according to my values

69% The overall standard of living in society

48% Levels of inequality within society

USING AI:

46%
I have a basic understanding of how an AI algorithm works

9%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)

2%
My organisation uses AI in audit and assurance

9%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

36%
My organisation has implemented an ethical framework for AI use

42%
My organisation has considered relevant regulatory requirements for AI use

76%
My organisation is effective/very effective in managing **DATA QUALITY**

67%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
52%	24%	42%	24%	18%

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
9%	27%	55%	33%	27%

CHINA

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **47%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

44% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

32% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

44% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

58% My ability to live according to my values

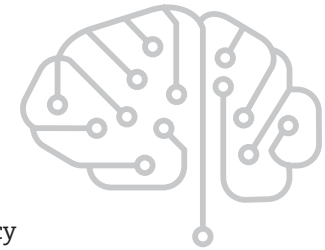
71% The overall standard of living in society

36% Levels of inequality within society

USING AI:

34%
I have a basic understanding of how an AI algorithm works

24%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)



6%
My organisation uses AI in audit and assurance

19%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

13%
My organisation has implemented an ethical framework for AI use

34%
My organisation has considered relevant regulatory requirements for AI use

48%
My organisation is effective/very effective in managing **DATA QUALITY**

57%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

39%	36%	40%	22%	11%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

16%	26%	49%	29%	23%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **85%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

55% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

49% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

53% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

58% My ability to live according to my values

61% The overall standard of living in society

45% Levels of inequality within society

USING AI:

39%
I have a basic understanding of how an AI algorithm works

18%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)

13%
My organisation uses AI in audit and assurance

11%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

15%
My organisation has implemented an ethical framework for AI use

22%
My organisation has considered relevant regulatory requirements for AI use

78%
My organisation is effective/very effective in managing **DATA QUALITY**

83%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

47%	39%	29%	15%	7%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

20%	37%	47%	20%	14%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **78%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

54% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

41% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

59% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

63% My ability to live according to my values

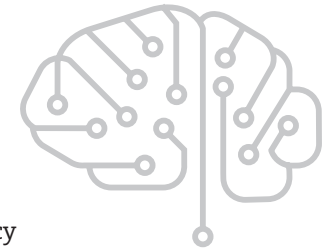
72% The overall standard of living in society

41% Levels of inequality within society

USING AI:

41%
I have a basic understanding of how an AI algorithm works

26%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)



18%
My organisation uses AI in audit and assurance

11%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

48%
My organisation has implemented an ethical framework for AI use

52%
My organisation has considered relevant regulatory requirements for AI use

84%
My organisation is effective/very effective in managing **DATA QUALITY**

85%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

37%	31%	28%	23%	9%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

11%	20%	48%	23%	20%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **67%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

37% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

30% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

36% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

45% My ability to live according to my values

63% The overall standard of living in society

28% Levels of inequality within society

USING AI:

48%
I have a basic understanding of how an AI algorithm works

16%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)

5%
My organisation uses AI in audit and assurance

10%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

15%
My organisation has implemented an ethical framework for AI use

30%
My organisation has considered relevant regulatory requirements for AI use

70%
My organisation is effective/very effective in managing **DATA QUALITY**

81%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

41%	46%	23%	19%	5%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

22%	14%	41%	22%	22%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’.

63%

LIVING WITH AI: *The impact of AI is positive/very positive on…*

55% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

36% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

56% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

57% My ability to live according to my values

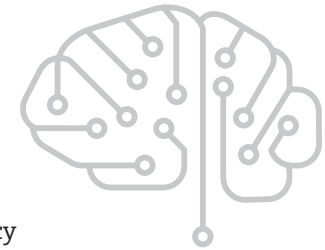
71% The overall standard of living in society

43% Levels of inequality within society

USING AI:

51%
I have a basic understanding of how an AI algorithm works

14%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)



10%
My organisation uses AI in audit and assurance

8%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

18%
My organisation has implemented an ethical framework for AI use

30%
My organisation has considered relevant regulatory requirements for AI use

61%
My organisation is effective/very effective in managing **DATA QUALITY**

70%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

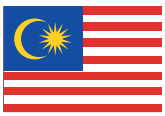
46%	28%	26%	39%	9%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

16%	26%	37%	33%	18%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’.

62%



LIVING WITH AI: *The impact of AI is positive/very positive on…*

51% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

43% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

54% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

63% My ability to live according to my values

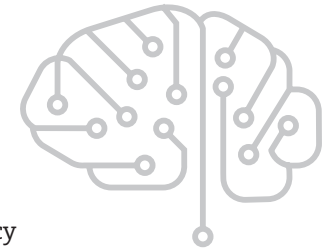
73% The overall standard of living in society

32% Levels of inequality within society

USING AI:

45%
I have a basic understanding of how an AI algorithm works

20%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)



5%
My organisation uses AI in audit and assurance

14%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

25%
My organisation has implemented an ethical framework for AI use

36%
My organisation has considered relevant regulatory requirements for AI use

55%
My organisation is effective/very effective in managing **DATA QUALITY**

64%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

50%	40%	35%	15%	7%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

22%	30%	51%	27%	14%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **63%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

48% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

45% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

49% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

57% My ability to live according to my values

67% The overall standard of living in society

33% Levels of inequality within society

USING AI:

39% I have a basic understanding of how an AI algorithm works

15% My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)

4% My organisation uses AI in audit and assurance

8% My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

32% My organisation has implemented an ethical framework for AI use

45% My organisation has considered relevant regulatory requirements for AI use

75% My organisation is effective/very effective in managing **DATA QUALITY**

77% My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
26%	32%	42%	13%	14%

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
23%	30%	44%	20%	15%

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **74%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

25% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

18% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

34% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

35% My ability to live according to my values

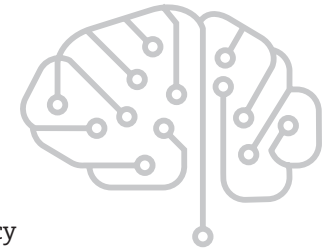
58% The overall standard of living in society

18% Levels of inequality within society

USING AI:

59%
I have a basic understanding of how an AI algorithm works

17%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)



5%
My organisation uses AI in audit and assurance

17%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

14%
My organisation has implemented an ethical framework for AI use

24%
My organisation has considered relevant regulatory requirements for AI use

56%
My organisation is effective/very effective in managing **DATA QUALITY**

65%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

52%	34%	18%	15%	5%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

11%	26%	45%	28%	12%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **68%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

57% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

49% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

63% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

65% My ability to live according to my values

71% The overall standard of living in society

43% Levels of inequality within society

USING AI:

48%
I have a basic understanding of how an AI algorithm works

18%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)

9%
My organisation uses AI in audit and assurance

18%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

25%
My organisation has implemented an ethical framework for AI use

45%
My organisation has considered relevant regulatory requirements for AI use

76%
My organisation is effective/very effective in managing **DATA QUALITY**

86%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
36%	21%	25%	22%	11%

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
21%	19%	26%	23%	13%

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **60%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

54% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

43% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

60% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

60% My ability to live according to my values

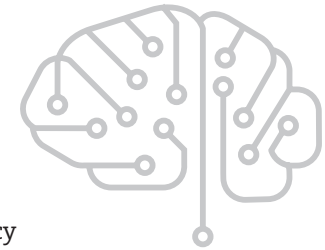
69% The overall standard of living in society

37% Levels of inequality within society

USING AI:

41%
I have a basic understanding of how an AI algorithm works

17%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)



8%
My organisation uses AI in audit and assurance

10%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

33%
My organisation has implemented an ethical framework for AI use

41%
My organisation has considered relevant regulatory requirements for AI use

67%
My organisation is effective/very effective in managing **DATA QUALITY**

73%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

39%	28%	31%	22%	9%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

13%	26%	50%	22%	17%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **55%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

42% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

41% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

48% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

59% My ability to live according to my values

74% The overall standard of living in society

34% Levels of inequality within society

USING AI:

45%
I have a basic understanding of how an AI algorithm works

19%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)

5%
My organisation uses AI in audit and assurance

16%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

30%
My organisation has implemented an ethical framework for AI use

43%
My organisation has considered relevant regulatory requirements for AI use

64%
My organisation is effective/very effective in managing **DATA QUALITY**

64%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
40%	37%	30%	21%	10%

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
14%	24%	48%	28%	14%

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’.

86%

LIVING WITH AI: *The impact of AI is positive/very positive on…*

49% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

28% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

55% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

51% My ability to live according to my values

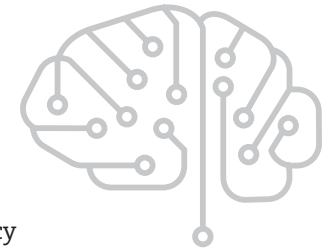
70% The overall standard of living in society

43% Levels of inequality within society

USING AI:

43%
I have a basic understanding of how an AI algorithm works

20%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)



8%
My organisation uses AI in audit and assurance

12%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

25%
My organisation has implemented an ethical framework for AI use

53%
My organisation has considered relevant regulatory requirements for AI use

73%
My organisation is effective/very effective in managing **DATA QUALITY**

76%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

35%	24%	24%	22%	10%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

14%	22%	43%	14%	20%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **69%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

45% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

42% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

51% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

58% My ability to live according to my values

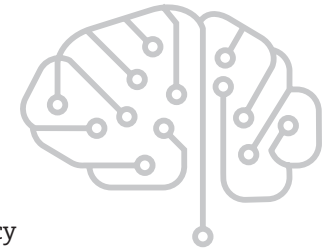
78% The overall standard of living in society

36% Levels of inequality within society

USING AI:

45%
I have a basic understanding of how an AI algorithm works

20%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)



7%
My organisation uses AI in audit and assurance

18%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

36%
My organisation has implemented an ethical framework for AI use

51%
My organisation has considered relevant regulatory requirements for AI use

82%
My organisation is effective/very effective in managing **DATA QUALITY**

69%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

44%	36%	36%	13%	10%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

15%	21%	56%	26%	13%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’.

46%

LIVING WITH AI: *The impact of AI is positive/very positive on…*

29% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

29% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

36% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

38% My ability to live according to my values

52% The overall standard of living in society

26% Levels of inequality within society

USING AI:

48%
I have a basic understanding of how an AI algorithm works

14%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)

3%
My organisation uses AI in audit and assurance

16%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

7%
My organisation has implemented an ethical framework for AI use

20%
My organisation has considered relevant regulatory requirements for AI use

54%
My organisation is effective/very effective in managing **DATA QUALITY**

66%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
32%	46%	27%	27%	2%

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
22%	32%	44%	34%	10%

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **73%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

54% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

41% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

46% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

61% My ability to live according to my values

66% The overall standard of living in society

33% Levels of inequality within society

USING AI:

46%
I have a basic understanding of how an AI algorithm works

22%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)

8%
My organisation uses AI in audit and assurance

16%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

12%
My organisation has implemented an ethical framework for AI use

33%
My organisation has considered relevant regulatory requirements for AI use

79%
My organisation is effective/very effective in managing **DATA QUALITY**

79%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
42%	24%	45%	18%	21%

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
27%	18%	48%	30%	15%

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **65%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

34% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

26% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

37% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

38% My ability to live according to my values

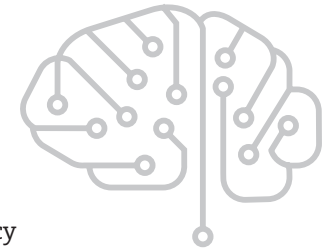
51% The overall standard of living in society

25% Levels of inequality within society

USING AI:

53%
I have a basic understanding of how an AI algorithm works

19%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)



5%
My organisation uses AI in audit and assurance

15%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

21%
My organisation has implemented an ethical framework for AI use

32%
My organisation has considered relevant regulatory requirements for AI use

68%
My organisation is effective/very effective in managing **DATA QUALITY**

81%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

47%	30%	20%	20%	9%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

13%	20%	40%	24%	23%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’.

68%

LIVING WITH AI: *The impact of AI is positive/very positive on…*

51% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

37% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

49% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

54% My ability to live according to my values

66% The overall standard of living in society

31% Levels of inequality within society

USING AI:

42%
I have a basic understanding of how an AI algorithm works

25%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)

4%
My organisation uses AI in audit and assurance

7%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

30%
My organisation has implemented an ethical framework for AI use

43%
My organisation has considered relevant regulatory requirements for AI use

73%
My organisation is effective/very effective in managing **DATA QUALITY**

81%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
38%	32%	27%	22%	11%

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
19%	25%	43%	25%	19%

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **64%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

50% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

47% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

50% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

52% My ability to live according to my values

60% The overall standard of living in society

41% Levels of inequality within society

USING AI:

51%
I have a basic understanding of how an AI algorithm works

18%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)

10%
My organisation uses AI in audit and assurance

8%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

28%
My organisation has implemented an ethical framework for AI use

38%
My organisation has considered relevant regulatory requirements for AI use

70%
My organisation is effective/very effective in managing **DATA QUALITY**

72%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

44%	17%	33%	25%	6%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

11%	16%	63%	28%	8%
Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction

‘I agree that leaders in my organisation prioritise ethics as highly as generating profits’. **60%**

LIVING WITH AI: *The impact of AI is positive/very positive on…*

53% My rights as an **INDIVIDUAL**
(eg safety and personal security, discriminatory treatment, lack of choice, lack of transparency)

50% My rights as a **CONSUMER**
(eg how my data is used by a company, discriminatory treatment, lack of transparency)

53% My rights as an **EMPLOYEE**
(eg fair and transparent hiring and remuneration practices)

57% My ability to live according to my values

59% The overall standard of living in society

43% Levels of inequality within society

USING AI:

38%
I have a basic understanding of how an AI algorithm works

22%
My organisation uses AI for accountancy and finance related tasks or functions
(eg preparing financial statements, management reporting, to inform decision making etc)

11%
My organisation uses AI in audit and assurance

10%
My organisation uses AI outside of the accountancy and finance function

GOVERNING AI:

29%
My organisation has implemented an ethical framework for AI use

38%
My organisation has considered relevant regulatory requirements for AI use

69%
My organisation is effective/very effective in managing **DATA QUALITY**

70%
My organisation is effective/very effective in managing **DATA CONFIDENTIALITY**

DATA QUALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
38%	23%	20%	31%	10%

DATA CONFIDENTIALITY – My organisation’s biggest challenge within the data life cycle is:

Collection	Use	Secure storage	Dissemination/Spread	Lawful destruction
12%	13%	42%	30%	20%

References

ACCA (2019), *Machine Learning: More Science than Fiction* <https://www.accaglobal.com/gb/en/professional-insights/technology/machine-learning.html>, accessed 20 July 2021.

ACCA (2020a), 'ACCA Publishes its Commitments to Delivering the UN Sustainable Development Goals' [online press release], December <https://www.accaglobal.com/gb/en/news/2020/december/ACCA-UNSDGs-Commitments-Dec2020.html>, accessed 19 July 2021.

ACCA (2020b), *Meaningful Work for the Digital Professional* <https://www.accaglobal.com/ie/en/professional-insights/technology/Meaningful_Work_Digital_Professional.html>, accessed 20 July 2021.

ACCA (2020c), *Ethics in a COVID-19 World* <https://www.accaglobal.com/gb/en/technical-activities/technical-resources-search/2020/october/ethics-covid19-world.html>, accessed 21 July 2021.

ACCA (2020d), *Explainable AI: Putting the User at the Core* <https://www.accaglobal.com/gb/en/professional-insights/technology/Explainable_AI.html>, accessed 22 July 2021.

ACCA (2021a), 'Machine learning with Python for finance professionals' [website enrolment portal] <https://www.edx.org/course/machine-learning-with-python-for-finance-professionals>, accessed 26 July 2021.

ACCA (2021b), *Coding: As a Professional Accountant, Why You Should Be Interested*, Downloadable from <https://www.accaglobal.com/gb/en/technical-activities/technical-resources-search/2021/july/coding-as-a-prof-accountant.html>, accessed 26 July 2021.

ACCA (2021c), *Leading Inclusion* <https://www.accaglobal.com/my/en/professional-insights/global-profession/diversity_inclusion.html>, accessed 22 July 2021.

ACCA (n.d.a), 'Machine learning: An Introduction for Finance Professionals' [website course overview] <https://www.accaglobal.com/gb/en/member/discover/events/global/e-learning/digital-technology/machine-learning.html>, accessed 26 July 2021.

ACCA (n.d.b), 'Growing your Emotional Superpower: Overview' [website introduction to webinar, with link to webinar] <https://www.accaglobal.com/lk/en/member/discover/events/global/e-learning/leadership-and-management/grow-your-emotion-superpower.html>, accessed 21 July 2021.

Adams, C.A.., Alhamood, A., He, X., Tian, J., Wang, L. and Wang, Y. (2021), *The Double Materiality Concept: Application and Issues* <https://www.globalreporting.org/media/jrbntbyv/griwhitepaper-publications.pdf>, accessed 21 July 2021.

Adams, R.D. (2020), 'Chief AI Officer: Executives Discuss the Role, Pitfalls and Business Philosophy' [website article], *TechRepublic*, 8 June <https://www.techrepublic.com/article/chief-ai-officer-executives-discuss-the-role-pitfalls-and-business-philosophy/>, accessed 22 July 2021.

AI-Regulation.com (2020), 'Amsterdam and Helsinki Launch Algorithm and AI Register' [website article], 13 October <https://ai-regulation.com/amsterdam-and-helsinki-launch-algorithm-and-ai-register/>, accessed 21 July 2021.

Amodei, D, Hernandez, D. Sastry, G., Clark, J. Brockman, G. and Sutskever, I. (2018), 'AI and Compute' [website article], 16 May <https://openai.com/blog/ai-and-compute/>, accessed 20 July 2021.

Australian Government (Department of Industry, Science, Energy and Resources) (n.d.), 'Australia's Artificial Intelligence Ethics Framework' [website] <https://www.industry.gov.au/data-and-publications/australias-artificial-intelligence-ethics-framework/australias-ai-ethics-principles#:~:text=Principles%20at%20a%20glance&text=Fairness%3A%20AI%20systems%20should%20be,ensure%20the%20security%20of%20data.k>, accessed 22 July 2021.

Australian Government (Department of Industry, Science, Energy and Resources) (2020), *An AI Action Plan for all Australians: A Call for Views* <https://consult.industry.gov.au/digital-economy/ai-action-plan/supporting_documents/AIDiscussionPaper.pdf>, accessed 22 July 2021.

Bleetman, R, and Metcalf, A. (2020), *New Models of Public Procurement: A Tool for Sustainable Recovery*. Downloadable from <https://www.accaglobal.com/uk/en/professional-insights/pro-accountants-the-future/New_models_public_procurement.html>, accessed 22 July 2021.

Byford, B. and Gunkel, D (2020), 'Robot Rights with David Gunkel' [podcast], 20 October. Available from <https://www.machine-ethics.net/podcast/robot-rights-with-david-gunkel>, accessed 21 July 2021.

Calace, D. (2020), 'Double and Dynamic: Understanding the Changing Perspectives on Materiality' [blog], *Value Reporting Foundation*, 2 September <https://www.sasb.org/blog/double-and-dynamic-understanding-the-changing-perspectives-on-materiality/>, accessed 21 July 2021.

Cambridge University Press (2021), *Cambridge Dictionary*, 'Ethic.s' [online dictionary entry] <https://dictionary.cambridge.org/dictionary/english/ethics>, accessed 3 June 2021.

CDP (n.d.), 'Cities, States and Regions Data' [via website portal] <https://www.cdp.net/en/data>, accessed 21 July 2021.

Chartered Accountants Australia and New Zealand (2018) *Machines can learn, but what will we teach them? Ethical considerations around artificial intelligence and machine learning*, 3 August <https://www.charteredaccountantsanz.com//media/746d9bb465154cbb891f147eacde869d.ashx>.

Chartered Accountants Australia and New Zealand (2021). *Give it a nudge: Behavioural insights into an ethical workplace*, 3 August 2021 <https://www.charteredaccountantsanz.com/news-and-analysis/insights/research-and-insights/give-it-a-nudge-behavioural-insights-into-an-ethical-workplace>.

Chipman Koty, A. (2021), 'Artificial Intelligence in China: Shenzhen Releases First Local Regulations', *China Briefing* 29 July <https://www.china-briefing.com/news/artificial-intelligence-china-shenzhen-first-local-ai-regulations-key-areas-coverage/#:~:text=The%20Regulations%20include%20measures%20to,AI%20for%20present%20day>, accessed 12 August 2021.

Constantin, L. (2021), 'How Data Poisoning Attacks Corrupt Machine Learning Models' [website article], 12 April <https://www.csoonline.com/article/3613932/how-data-poisoning-attacks-corrupt-machine-learning-models.html>, accessed 23 July 2021.

data.govt.nz (2021), 'Algorithm Charter for Aotearoa New Zealand' <https://www.data.govt.nz/toolkit/data-ethics/government-algorithm-transparency-and-accountability/algorithm-charter/>, accessed 21 July 2021.

DCMS (Department for Culture, Media and Sport (UK)) (n.d.) 'Our 10 Tech Priorities' [website] <https://dcms.shorthandstories.com/Our-Ten-Tech-Priorities/index.html>, accessed 21 July 2021.

Doyle, K. (2021), 'IBM's Peters Calls for Responsible Computing in #ITWebcloud2021 Keynote' [website article], *ITWeb*, 24 February <https://www.itweb.co.za/content/mYZRXM9aw86MOgA8>, accessed 20 July 2021.

Dykes, J. (2020), 'The Carbon Footprint of AI and Cloud Computing' [online article], *Geographical*, November <https://geographical.co.uk/nature/energy/item/3876-the-carbon-footprint-of-ai-and-cloud-computing/>, accessed 20 July 2021.

Editors of Encyclopaedia Britannica (n.d.), 'Coverture' [online article] <https://www.britannica.com/topic/coverture>, accessed 21 July 2021

Eur-Lex (2021), *Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts COM/2021/206 final*, Downloadable from <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1623335154975&uri=CELEX%3A52021PC0206>, accessed 21 July 2021.

European Commission (2019). *Ethics Guidelines for Trustworthy AI.* Downloadable from <https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai>, accessed 22 July 2021.

European Commission (2021a), 'Screening of Websites for "Greenwashing": Half of Green Claims Lack Evidence' [online press release], 28 January <https://ec.europa.eu/commission/presscorner/detail/en/IP_21_269>, accessed 21 July 2021

European Commission (2021b), 'Europe Fit for the Digital Age: Commission Proposes New Rules and Actions for Excellence and Trust in Artificial Intelligence' [website article], April <https://ec.europa.eu/commission/presscorner/detail/en/ip_21_1682>, accessed 21 July 2021

Fieser, J. (n.d.). 'Ethics' in 'Internet Encyclopaedia of Philosophy' [website article] <https://iep.utm.edu/ethics/>, accessed 21 July 2021.

Foys Solicitors (2019), 'Understanding the Notion of a Corporate Personality' [website article], 27 February <https://www.foys.co.uk/news/business-law/understanding-the-notion-of-a-corporate-personality/>, accessed 21 July 2021.

Golbin, I. and Axente, M.L. (2021), '9 Ethical AI Principles for Organizations to Follow' [website article], 23 June <https://www.weforum.org/agenda/2021/06/ethical-principles-for-ai/>, accessed 22 July 2021.

Government of Canada (2021), 'Algorithmic Impact Assessment Tool' [website resource], April <https://www.canada.ca/en/government/system/digital-government/digital-government-innovations/responsible-use-ai/algorithmic-impact-assessment.html>, accessed 26 July 2021.

GPAI (Global Partnership on Artificial Intelligence) (n.d.), Home page <https://gpai.ai/about/>, accessed 22 July 2021.

HM Government (UK) (2021), 'UK Enshrines New Target in Law to Slash Emissions by 78% by 2035' [online press release], 20 April <https://www.gov.uk/government/news/uk-enshrines-new-target-in-law-to-slash-emissions-by-78-by-2035#:~:text=Through%20its%20presidency%20of%20the,for%20cutting%20emissions%20by%202030>, accessed 21 July 2021.

IDC (2020), 'IDC's Global Datasphere Forecast Shows Continued Steady Growth in the Creation and Consumption of Data' [website article], 8 May <https://www.idc.com/getdoc.jsp?containerId=prUS46286020>, accessed 20 July 2021.

IEEE (Institute of Electrical and Electronics Engineers)(2020), *The IEEE Trusted Data and Artificial Intelligence Systems (AIS) Playbook for Financial Services*, version 1 <https://standards.ieee.org/industry-connections/ais-finance-playbook.html>, accessed 26 July 2021.

IESBA (2016), *Responding to Non-compliance with Laws and Regulations*. Downloadable from <https://www.ethicsboard.org/focus-areas/responding-non-compliance-laws-and-regulations>, accessed 20 July 2021.

IFAC (International Federation of Accountants) (2020), *2020 Handbook of the International Code of Ethics for Professional Accountants*. Downloadable from <https://www.ethicsboard.org/international-code-ethics-professional-accountants>, accessed 20 July 2021.

India AI (n.d.), 'Ethics and Human Rights' [website text] <https://indiaai.gov.in/ai-standards/ethics-and-human-rights/>, accessed 22 July 2021.

Kalluri, P. (2020), 'Don't Ask if Artificial Intelligence is Good or Fair, Ask how it Shifts Power' [online article], *Nature*, 7 July <https://www.nature.com/articles/d41586-020-02003-2>, accessed 21 July 2021.

Kang, C. (2021), 'What is the Facebook Oversight Board? [online article], *New York Times* <https://www.nytimes.com/2021/05/05/technology/What-Is-the-Facebook-Oversight-Board.html/>, accessed 22 July 2021.

KPMG (2018), *AI Risk and Controls Matrix* <https://assets.kpmg/content/dam/kpmg/uk/pdf/2018/09/ai-risk-and-controls-matrix.pdf>, accessed 22 July 2021.

Leslie, D. (2019), *Understanding Artificial Intelligence Ethics and Safety: A Guide for the Responsible Design and Implementation of AI Systems in the Public Sector.* The Alan Turing Institute <https://www.turing.ac.uk/sites/default/files/2019-08/understanding_artificial_intelligence_ethics_and_safety.pdf>, accessed 22 July 2021.

Mari, A. (2021), 'Brazil Publishes National Artificial Intelligence Strategy' [website article], 12 April <https://www.zdnet.com/article/brazil-publishes-national-artificial-intelligence-strategy/>, accessed 22 July 2021.

Marr, B. (2019) 'What is Unstructured Data and Why is it so Important for Businesses? An Easy Explanation for Anyone' [online article], *Forbes*, 16 October <https://www.forbes.com/sites/bernardmarr/2019/10/16/what-is-unstructured-data-and-why-is-it-so-important-to-businesses-an-easy-explanation-for-anyone/?sh=17e9c01315f6>, accessed 20 July 2021.

McGrath, E. (2013), 'The Married Women's Property Act 1882 and its Relevance Today' [website article] <https://www.ringroselaw.co.uk/2016/08/02/18055/>, accessed 21 July 2021

Metz, R. (2021), 'This $5 billion Insurance Company Likes to Talk Up its AI. Now it's in a Mess over It' [website article], *CNN Business*, 27 May <https://amp-cnn-com.cdn.ampproject.org/c/s/amp.cnn.com/cnn/2021/05/27/tech/lemonade-ai-insurance/index.html>, accessed 21 July 2021.

Microsoft (n.d.), 'Microsoft AI Principles' [website text] <https://www.microsoft.com/en-us/ai/responsible-ai?activetab=pivot1%3aprimaryr6/>, accessed 22 July 2021.

Ministry for the Environment (NZ) (2021), 'Mandatory Climate-Related Disclosures' [website article], April <https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/mandatory-climate-related-financial-disclosures/>, accessed 21 July 2021.

mljar (n.d.), 'Automated Machine Learning: Automatic Documentation' [vendor website] <https://mljar.com/automated-machine-learning/automatic-documentation/>, accessed 22 July 2021.

Nammalvar, A. (2019), 'What is "Golden Source" of Data?' [website article], *Dummy Data*, 21 December <https://databasics4all.wordpress.com/2019/12/21/what-is-golden-source-of-data/>, accessed 22 July 2021.

National Artificial Intelligence Initiative (2021), Untitled home page <https://www.ai.gov/>, accessed 21 July 2021.

National Constitution Center (US) (2021), '13th Amendment: Abolition of Slavery' [website article] <https://constitutioncenter.org/interactive-constitution/amendment/amendment-xiii#:~:text=Neither%20slavery%20nor%20involuntary%20servitude,place%20subject%20to%20their%20jurisdiction/>, accessed 21 July 2021.

National Grid Group plc (2021), 'What is Net Zero?' [website article] <https://www.nationalgrid.com/stories/energy-explained/what-is-net-zero>, accessed 21 July 2021

Norton Rose Fulbright (2021), 'EU Proposes New Artificial Intelligence Regulation' [website article], April <https://www.nortonrosefulbright.com/en/knowledge/publications/fdfc4c27/eu-to-propose-new-artificial-intelligence-regulation>, accessed 21 July 2021.

OECD (2021), 'What Are the OECD Principles on AI?' [website article] <https://www.oecd.org/going-digital/ai/principles/>, accessed 22 July 2021.

Open Data Science (2020), 'What is Federated Learning?'. [website article] <https://medium.com/ODSC/what-is-federated-learning-99c7fc9bc4f5/>, accessed 22 July 2021.

Overby, S. (2020), AI vs Automation: 6 Ways to Spot Fake AI [website article], The Enterprisers Project, 26 March <https://enterprisersproject.com/article/2020/3/ai-vs-automation-6-ways-spot-fake-ai>, accessed 21 July 2021.

Pandey, P. (2020), 'Automate your Model Documentation Using H20 AutoDoc' [website article], 20 November <https://towardsdatascience.com/automate-your-model-documentation-using-h2o-autodoc-46ce82701a4d>, accessed 22 July 2021.

Polyakov, A. (2019), 'How to Attack Machine learning (Evasion, Poisoning, Inference, Trojans, Backdoors' [website article], 6 August <https://towardsdatascience.com/how-to-attack-machine-learning-evasion-poisoning-inference-trojans-backdoors-a7cb5832595c>, accessed 22 July 2021.

Press, G. (2021), 'Andrew Ng Launches a Campaign for Data-Centric AI' [online article]. *Forbes*, 16 June <https://www.forbes.com/sites/gilpress/2021/06/16/andrew-ng-launches-a-campaign-for-data-centric-ai/amp//>, accessed 22 July 2021.

Quach, K. (2020), 'Fly me to the Moon…Carbon Footprint for Training GPT3 same as Driving to our Satellite and Back' [website article], *The Register*, 4 November <https://www.theregister.com/2020/11/04/gpt3_carbon_footprint_estimate/>, accessed 20 July 2021.

Saran, C. (2019), 'Stanford University Finds that AI is Outpacing Moore's Law' [online article], *Computer Weekly*, 12 December, <https://www.computerweekly.com/news/252475371/Stanford-University-finds-that-AI-is-outpacing-Moores-Law/>, accessed 20 July 2021.

Scassa, T. (2021), 'Privacy in the Precision Economy: The Rise of AI-Enabled Surveillance during the Pandemic' [website article], Centre for International Governance Innovation, 8 June <https://www.cigionline.org/articles/privacy-in-the-precision-economy-the-rise-of-ai-enabled-workplace-surveillance-during-the-pandemic/>, accessed 21 July 2021.

Seal, A. (2019), 'How Will AI Revolutionize Data Center Cooling' [blog article], [blog article] 26 March, VXCHNGE <https://www.vxchnge.com/blog/ai-data-center-cooling>, accessed 20 July 2021.

Sen. K. (2020), 'Five Ways Coronavirus is Deepening Global Inequality' [website article], 18 August <https://theconversation.com/five-ways-coronavirus-is-deepening-global-inequality-144621>, accessed 21 July 2021.

SG:D, IM and PDPC (2020), *Model Artificial Intelligence Governance Framework*, 2nd edn. <https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf>, accessed 22 July 2021.

Skelton, S.K. (2021),'Europe's Proposed AI Regulation Falls Short on Protecting Rights' [online article], *Computer Weekly*, 14 June <https://www-computerweekly-com.cdn.ampproject.org/c/s/www.computerweekly.com/feature/Europes-proposed-AI-regulation-falls-short-on-protecting-rights?amp=1>, accessed 21 July 2021.

Sloane, M. (2020), 'Participation-washing Could Be the Next Dangerous Fad in Machine Learning' [online article], *MIT Technology Review*. 25 August <https://www.technologyreview.com/2020/08/25/1007589/participation-washing-ai-trends-opinion-machine-learning/>, accessed 21 July 2021.

Stanford University (2016), *Artificial Intelligence and Life in 2030: One Hundred Year Study on Artificial Intelligence; Report of the 2015 Study Panel* <https://ai100.stanford.edu/sites/g/files/sbiybj9861/f/ai100report10032016fnl_singles.pdf/>, accessed 22 July 2021.

Varsos, K., McConachie, N., Hess, S. and Murray, E. (2021), 'Why Less is More in Data Migration' [online article], *MIT Sloan Management Review*, 20 April <https://sloanreview.mit.edu/article/why-less-is-more-in-data-migration/>, accessed 22 July 2021.

Vinuesa, R., Azizpour, H., Leite, I., Balaam, M., Dignum, V., Domisch, S. and Nerini, F.F. (2020), 'The Role of Artificial Intelligence in Achieving the Sustainable Development Goals', *Nature Communications*, 11(1): 1–10.

Wakefield, J. (2021), 'Ghost Workers Demand to Be Seen and Heard' [website article], *BBC News*, 28 March <https://www.bbc.co.uk/news/technology-56414491>, accessed 21 July 2021.

Walsh, B. (2021), 'Training Artificial Intelligence through Synthetic Data' [website article], 13 March <https://www.axios.com/training-ai-synthetic-data-11b168f8-0c47-4380-b734-d3995883847f.html>, accessed 22 July 2021.

Zhu, T. (2018), 'What is Differential Privacy and How Can it Protect your Data?' [online article], *The Conversation*, 18 March <https://theconversation.com/explainer-what-is-differential-privacy-and-how-can-it-protect-your-data-90686>, accessed 22 July 2021.

Ziprecruiter (2019), 'The Ziprecruiter Future of Work Report' [archived website article] <https://www.ziprecruiter.com/blog/future-of-work-report-2019/>, accessed 21 July 2021.

Zouvia, K. (2020), *Artificial Intelligence and Whistleblowing: Can AI be Useful for Whistleblowing Purposes?* <http://ceur-ws.org/Vol-2844/ethics9.pdf>, accessed 22 July 2021.

PI-AI-ETHICS

ACCA The Adelphi 1/11 John Adam Street London WC2N 6AU United Kingdom / +44 (0)20 7059 5000 / **www.accaglobal.com**