



Australian
Human Rights
Commission

Human Rights and Technology Issues Paper

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Edward Santow
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Human Rights Commissioner



Foreword from the Australian Human Rights Commissioner

This Issues Paper marks the formal launch of the Australian Human Rights Commission's major project on human rights and technology (the Project).

New technology is changing us. It is changing how we relate; how we work; how we make decisions, big and small.

Facial recognition technology, Artificial Intelligence that predicts the future, neural network computing... these are no longer science fiction. These developments promise enormous economic and social benefits. But the scope and pace of change also pose profound challenges.

Technology should exist to serve humanity. Whether it does will depend on how it is deployed, by whom and to what end.

As new technology reshapes our world, we must seize the opportunities this presents to advance human rights by making Australia fairer and more inclusive. However, we must also be alive to, and guard against, the threat that new technology could worsen inequality and disadvantage.

In her 2017 Boyer lectures, Professor Genevieve Bell reflected on what it means to be human today. Too often we focus on single, technology-related issues – such as the increased use of facial-recognition technology – without reflecting on the broader context. She said:

[W]hat we have not seen is a broader debate about what they point to collectively. This absence presents an opportunity and an obligation.¹

Similarly, the Founder and Executive Chairman of the World Economic Forum, Professor Klaus Schwab, was the first to describe the rapid and pervasive growth in new technologies as a new industrial revolution. He said:

The world lacks a consistent, positive and common narrative that outlines the opportunities and challenges of the fourth industrial revolution, a narrative that is essential if we are to empower a diverse set of individuals and communities and avoid a popular backlash against the fundamental changes underway.²

This Project will explore the rapid rise of new technology and what it means for our human rights. The Project will:

1. identify the practical issues at stake
2. undertake research and public consultation on how best to respond to the human rights challenges and opportunities presented by new technology
3. develop a practical and innovative roadmap for reform.

The matters at the heart of this Project are complex. While the Commission remains solely responsible for the content produced in this Project, including this Issues Paper, the only way we can develop effective solutions is by working collaboratively with a broad range of stakeholders.

The Commission is particularly grateful to be working with our major partners in this Project: Australia's Department of Foreign Affairs and Trade; Herbert Smith Freehills; LexisNexis; and the University of Technology, Sydney (UTS). In addition, the Commission appreciates the support of other significant partners, especially the Digital Transformation Agency, Data61 and the World Economic Forum. The Commission also acknowledges the generosity of the members of the Project's Expert Reference Group, who provide strategic guidance and technical expertise.

This Issues Paper aims to assist all parts of the Australian community to engage with this Project. As Human Rights Commissioner, I warmly encourage you to participate in this consultation process.

A handwritten signature in blue ink that reads "Edward Santow". The signature is fluid and cursive, with the first letter of each name being capitalized and prominent.

Edward Santow
Human Rights Commissioner
July 2018

Major project partners and Expert Reference Group

The Australian Human Rights Commission is taking a collaborative approach in this Project. In addition to inviting input from the public and key stakeholders, the Commission is working cooperatively with a number of organisations. While the Commission is solely responsible for all material produced in this Project, this cooperation is invaluable.

The Commission has engaged four major project partner organisations. They are contributing expertise and some resources for this work. The Commission's major project partners are:

- The Australian Government's Department of Foreign Affairs and Trade
- Herbert Smith Freehills
- LexisNexis
- The University of Technology, Sydney (UTS).

In addition, the Commission has established an Expert Reference Group for this Project. The members of that group are generously providing their expertise pro bono. The members of the Expert Reference Group for this Project are:

- Amanda Alford, Director Policy and Advocacy, National Association of Community Legal Centres
- The Honourable Justice Margaret Beazley AO, President of the NSW Court of Appeal
- Professor Genevieve Bell, Distinguished Professor, Australian National University, Director of the 3A Institute, and Senior Fellow, Intel
- Dr Tobias Feakin, Australian Ambassador for Cyber Affairs
- Dr Alan Finkel AO, Chief Scientist of Australia
- Verity Firth, Executive Director, Social Justice, The University of Technology, Sydney (UTS)
- Peter Leonard, Principal, Data Synergies
- Brooke Massender, Head of Pro Bono, Herbert Smith Freehills and Peter Dunne, Partner, Herbert Smith Freehills
- Sean Murphy, Accessibility Software Engineer, Cisco
- Professor Toby Walsh, Scientia Professor of Artificial Intelligence, University of New South Wales, and Data61
- Myfanwy Wallwork, Executive Director, Emerging Markets, LexisNexis.



1 Introduction

Like any tool, technology can be used for good or ill. However, modern technology carries unprecedented potential on an individual and global scale. New technologies are already radically disrupting our social, governmental and economic systems.

Often the same, or similar, technologies can be used to help and to harm. For example:

- Artificial Intelligence (AI) is being used to treat previously terminal illness.³ Yet it can also entrench or exacerbate inequality when used as a tool of ‘predictive policing’.⁴
- New 3-D printing technology could soon enable an amputated limb to be replaced quickly and cheaply, by a highly-effective ‘printed’ prosthesis.⁵ Yet the same technology also can be used to ‘print’ a gun.⁶
- Blood can be transported by drone to the scene of an accident in time to save a life.⁷ Yet drones can also fire weapons⁸ and breach individual privacy.⁹

Led by the Australian Human Rights Commissioner, Edward Santow, the Human Rights & Technology Project (the Project) will analyse the social impact of technology, especially new and emerging technology, using a human rights framework. The Commission will facilitate, lead and guide the public conversation on how to protect and promote human rights in an era of unprecedented technological change.

This Issues Paper:

- sets out background information about human rights and new technology, asking which issues the Commission should concentrate on
- asks how Australia should regulate new technology, and what other measures should be taken to promote responsible innovation
- considers how AI is increasingly used in decision making, and asks how we can protect human rights in this context
- considers how we can promote more accessible technology, ensuring that people with disability experience the benefits of new technology
- asks how new technology affects specific groups, such as children, women and older people.

The Issues Paper will guide the first phase of the Commission’s in-depth and inclusive consultation. It can be used by the Australian community – including experts and decision-makers across industry, government, academia and civil society – to engage with the Project.

The Issues Paper starts a public consultation that will inform the Commission’s work. As the potential for new technology to help or harm is almost limitless, the first phase of consultation will assist in determining the central issues the Project will focus on.

Stakeholders are invited to express their views on any or all of the questions posed in this Issues Paper. A written submission may be made by 2 October 2018, and the Commission will also organise roundtable meetings and other consultation opportunities in the second half of 2018.

Following this consultation process, the Commission will develop innovative and practical recommendations to prioritise human rights in the design and regulation of new technologies.

The Commission will publish a Discussion Paper in early 2019, and this will include the Commission’s preliminary proposals for change. The Commission will then undertake a second phase of consultation to seek feedback on the proposals made in the Discussion Paper. A Final Report will be published by early 2020.

July 2018 Issues Paper: Background and questions Phase 1 consultation with key stakeholders	Early 2019 Discussion Paper: Proposed roadmap for responsible innovation Phase 2 consultation with key stakeholders	2019-2020 Final Report: Conclusions and final recommendations Implementation of proposed approach
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Throughout the Project, the Commission will also contribute to related inquiry and reform processes in Australia and internationally. Updates about the Project will be available at tech.humanrights.gov.au.



2 Background

2.1 The Australian Human Rights Commission and the Project

The Commission is established by the *Australian Human Rights Commission Act 1986* (Cth). It is Australia's national human rights institution. The Commission is independent and impartial. It has a number of functions which are, broadly speaking, directed towards the promotion and protection of human rights.

Since its establishment in 1986, the Commission has inquired into and reported on important human rights issues. The Commission frequently brings together diverse stakeholders from government, industry and civil society. As with other similar projects, the Commission aims to provide practical recommendations that can be implemented to help protect and promote human rights for everyone in Australia.

The Project will consider how law, policy, incentives and other measures can be used to promote human rights in a new era of technological development.¹⁰ An international conference on human rights and technology on 24 July 2018 in Sydney marks the formal launch of the Project and this accompanying Issues Paper.

The Issues Paper explores the rapid rise of new technology and how it affects the human rights of everyone in Australia. As noted above, this Project will focus on a limited number of issues so that the recommendations ultimately made by the Commission are practical and informed by in-depth research. However, this Project will likely identify a range of issues that warrant further investigation.

2.2 Other government and parliamentary processes

Like many jurisdictions overseas, Australia's federal, state and territory governments have rightly begun to grapple with specific aspects of what is frequently referred to as the Fourth Industrial Revolution.¹¹

Details of a number of concurrent government processes are outlined in the Appendix. Examples include:

- The Digital Economy Strategy, due to be launched by the Department of Innovation and Science in 2018. The Strategy will set out a roadmap for government, community and the private sector to make the most of the economic potential of the growing digital economy.¹²

- The Australian Government's commitment of almost \$30 million in the May 2018 budget to develop a 'Technology Roadmap, Standards Framework and a national AI Ethics Framework to identify global opportunities and guide future investments'.¹³
- An investigation by the Australian Competition and Consumer Commission (ACCC) into digital platforms and their impact on Australian journalism.¹⁴

As an independent statutory organisation, the Commission will engage with government, public and private stakeholders in order to provide an independent process and view on the opportunities and challenges for human rights protection and promotion. This will include contributing to, and building on, concurrent government initiatives detailed in the Appendix. The Commission is working closely with government and industry to ensure that the Project operates in a complementary way, avoiding duplication.



3 Human rights and technology

It has been suggested that new technology is changing what it means to be human.¹⁵ The late Stephen Hawking posited that AI could, in future, outperform and replace humans altogether.¹⁶ There are numerous examples of the convergence of technology with human beings, ranging from the extraordinary to the mundane. Whether it be deep-brain stimulation aiming to treat degenerative brain conditions,¹⁷ or robots that behave like us,¹⁸ it is increasingly difficult to draw a bright line between the physical and digital worlds.

The international human rights framework exists to ensure that, as the world around us changes, the fundamental dignity of individuals remains central.

Since the advent of the Universal Declaration of Human Rights 70 years ago, the modern human rights framework has proven adaptable to changing external events. And so our task is not to develop new human rights standards, but rather to apply the existing standards to address the technological challenges that confront us.

In this section, we briefly explain what human rights are; identify Australia's obligations to protect human rights; explore how human rights intersect with technology; and discuss what a human rights-based approach to technology might look like.

3.1 What are human rights?

Human rights reflect the idea that all humans are born free and equal in dignity and rights. We are all entitled to enjoy our human rights for one simple reason – that we are human. We possess rights regardless of our background, age, gender, sexual orientation, political opinion, religious belief or other status. Human rights are centred on the inherent dignity and value of each person, and they recognise humans' ability to make free choices about how to live.

While the roots of the human rights movement can be traced to ancient philosophical writings on natural law, the modern human rights framework has its origins in the formation of the United Nations (UN) in 1945. As Nation States came together to define a minimum set of norms and standards about the relationship between governments and citizens, human rights formed the cornerstone of their shared vision of international peace and security.¹⁹

The ‘international bill of human rights’ sets out a broad spectrum of rights. This comprises three key instruments: the Universal Declaration of Human Rights (UDHR);²⁰ the International Covenant on Civil and Political Rights (ICCPR);²¹ and the International Covenant on Economic, Social and Cultural Rights (ICESCR).²²

The human rights set out in these instruments are supplemented by a range of other international treaties that elaborate how these standards apply in particular circumstances and to particular groups of people. This includes treaties relating to discrimination against women, racial discrimination, the rights of people with disability and the rights of children, among other issues.

These international human rights treaties rarely refer expressly to the protection of human rights through technology. Instead, new technology provides a setting in which human rights are applied.

Table 1 below provides examples of how human rights and new technology can intersect. These examples show that new technology can advance or restrict human rights, and sometimes offers both possibilities at once.

Table 1: Examples of technology advancing and restricting human rights

Right to equality and non-discrimination

Articles 2 and 26, International Covenant on Civil and Political Rights (ICCPR)
Article 2, International Covenant on Economic, Social and Cultural Rights (ICESCR) and related provisions

- New technologies, particularly relating to health, education and related fields, can improve access to services and improve outcomes on a range of socio-economic indicators.
- The ability to collect and disaggregate data more easily, through the use of new technologies, can improve the targeting of programs and services and ensure equality of access for vulnerable groups.
- Unequal access to new technologies can exacerbate inequalities, especially where access is affected by factors such as socio-economic status, disability, age or geographical location.

Freedom of expression

Article 19, ICCPR

- New technologies can significantly aid freedom of expression by opening up communication options.
- New technologies can assist vulnerable groups by enabling new ways of documenting and communicating human rights abuses.
- Hate speech can be more readily disseminated.

Right to benefit from scientific progress

Article 15(1)(b), ICESCR

- New technologies can improve enjoyment of human rights such as access to food, health and education.
- Ensuring accessibility across all sectors of the community can be difficult.

Freedom from violence

Article 19, Convention on the Rights of the Child (CRC)²³

Article 2, Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW)²⁴

- Access to new technologies can provide greater protections from violence and abuse, and ability to document abuse, while also providing new settings for abuse to occur. Greater access to information and support through technology can make support for survivors of violence and abuse more affordable and accessible.

Accessibility

Article 4, Convention on the Rights of Persons with Disabilities (CRPD)²⁵

- New technologies can increase accessibility to services for people with disability.
- Reduced cost of services through affordability of new technology can promote equality for people with disability by ensuring progressive realisation is achieved faster and reasonable adjustments are more affordable.
- New technologies can increase barriers for people with disability if technology is not accessibly designed.

National security / counter-terrorism

Articles 6 and 20, ICCPR

- New technologies can increase government's capability to identify threats to national security.
- Use of such technologies for surveillance purposes can be overly broad and, without appropriate safeguards, can impinge unreasonably on the privacy and reputation of innocent people.

Right to privacy

Article 17, ICCPR

- The ease and power of distribution of information through new technologies can significantly impact the ability to protect one's privacy.
- Flow of data internationally, and from private and state actors, can make regulation of privacy more challenging (particularly in terms of providing effective remedies).
- It can be difficult to 'correct' or remove personal information once disseminated.
- The ease of disseminating and distorting information can lead to new forms of reputational damage and related harms.

Right to education

Article 13, ICESCR

- New technologies can assist in meeting the obligation to provide universal, free primary school education.
- Lack of access to technology can exacerbate inequality, based on factors such as age, disability, Indigenous status, and rural or remote location.

Access to information and safety for children

Articles 17 and 19, CRC

- Online environments create opportunities for greater access to information for children while also creating challenges to protect their wellbeing.
- New technologies provide different settings for harassment and bullying that are sometimes challenging to moderate.

Right to a fair trial and procedural fairness

Article 14, ICCPR

Article 5(a), International Convention on the Elimination of All Forms of Racial Discrimination (CERD)²⁶

- Use of AI to aid decision making can reduce bias or conversely re-affirm pre-existing bias in decision making, potentially impacting on procedural fairness and the right to a fair hearing.
- Of particular concern is the potential for racial bias to be reinforced through AI decision making tools (inconsistent with the right to equal treatment in the administration of justice).

3.2 What are governments' obligations to protect human rights?

International human rights law requires Nation States to respect, protect and fulfil human rights:

- The obligation to respect means that states must refrain from interfering with or curtailing the enjoyment of human rights. In other words, governments themselves must not breach human rights.
- The obligation to protect requires states to protect individuals and groups against human rights abuses. In other words, laws and other processes must provide protection against breaches of human rights by others.
- The obligation to fulfil means that states must take positive action to facilitate the enjoyment of basic human rights.

As set out in section 3.3 below, Australia has sought to fulfil its international human rights obligations through a combination of legislation, policy and institutional arrangements. This creates a set of domestic legal rights, obligations and accountability mechanisms, which apply to individuals as well as public and private organisations in Australia.

While international human rights law applies directly to Nation States, there is increasing acceptance that non-government actors also have a responsibility to protect human rights through their own actions.

For example, the UN Guiding Principles on Business and Human Rights require businesses to uphold international human rights law.²⁷ Principle 15 states:

In order to meet their responsibility to respect human rights, business enterprises should have in place policies and processes appropriate to their size and circumstances, including:

- (a) A policy commitment to meet their responsibility to respect human rights;
- (b) A human rights due diligence process to identify, prevent, mitigate and account for how they address their impact on human rights;
- (c) Processes to enable the remediation of any adverse human rights impacts they cause or to which they contribute.

3.3 How are human rights protected in Australia?

Human rights are protected in Australia in a number of ways.

- **First**, while Australia has no federal bill or charter of rights, a small number of rights are protected directly or indirectly in the Australian Constitution – most particularly, the right to freedom of political communication.²⁸
- **Second**, Australia has incorporated some of its human rights obligations into domestic legislation. In particular, federal law prohibits discrimination on the basis of race, disability, age, sex, sexual orientation, gender identity and some other grounds.²⁹ This legislation incorporates a number of Australia's human rights treaty obligations. Similarly, some elements of the right to privacy are protected by the *Privacy Act 1988* (Cth) (Privacy Act). There are also parallel state and territory laws that deal, in particular, with discrimination and privacy. Two jurisdictions, Victoria and the Australian Capital Territory, have statutory bills of rights.³⁰
- **Third**, the common law – sometimes known as judge-made law – protects a range of rights, including the principle of legality (which is central to the rule of law) and due process or procedural fairness, which aims to ensure people receive a fair hearing.³¹

- **Fourth**, some executive bodies are responsible for promoting adherence to human rights. The Commission has special responsibility for protecting human rights in Australia, including through a conciliation function (in respect of alleged breaches of federal human rights and anti-discrimination law), education and policy development.³² There are also specialist bodies that have regulatory and broader functions in respect of specific rights. These include the Office of the Australian Information Commissioner, which is responsible for privacy and freedom of information, and the Office of the eSafety Commissioner.³³
- **Fifth**, a number of parliamentary processes aim to protect human rights. In particular, when a new law is drafted, the relevant body (usually a government Minister) will be responsible for producing a statement of compatibility, which considers the draft law's impact on human rights. The Parliamentary Joint Committee on Human Rights scrutinises draft laws in order to advise the Australian Parliament on whether they are consistent with international human rights law.³⁴
- **Sixth**, the Australian Government participates in UN review processes that report on Australia's compliance with its human rights obligations. Some international bodies can hear complaints from a person in Australia that the Australian Government is in breach of its obligations under one of its treaty commitments. In addition, the UN appoints special rapporteurs and other mandate holders to report on human rights conditions in countries including Australia. These international processes generally make recommendations or findings that are not enforceable.
- **Finally**, all affected people and organisations in Australia – and especially civil society organisations – can and do engage with these mechanisms to protect human rights. For instance, through advocacy, civil society organisations can play an important role in policy and law formation; they can enforce legally-protected rights in the justice system; and they can participate in international processes.

3.4 Which human rights are affected by new technologies?

Technology has the potential to impact on a wide range of human rights – as set out in the examples in Table 1 above. In sections 6 and 7, this Issues Paper analyses the specific human rights implicated by, respectively, AI-informed decision making and disability accessibility. The remainder of this section provides a more general summary of some key human rights that are frequently engaged in respect of new technologies.

(a) The right to privacy

New technologies have spawned products and services that adapt to the particular preferences and other characteristics of the individuals they interact with. But this is only possible if the product or service 'understands' the individual it is relating with – something that requires the collection, storage, use and transfer of personal information.

This has created unprecedented demand for personal information – with unprecedented implications for the right to privacy. Where personal information is misused, the consequences can be grave. For example, individuals can be influenced or manipulated by targeted information on digital platforms.

Some research suggests that Australians are increasingly concerned about their online privacy, do not feel in control of their information online, are concerned about violations of privacy by corporations and government, want to know what social media companies do with their personal data, and disagree with targeting content for political purposes.³⁵

This includes large data breaches, such as those based on AI methodology where data collection influences search engine results, as well as direct advertising. It also includes the possibility of mass surveillance by government and/or the private sector.³⁶

(b) Security, safety and the right to life

New technology can enhance or threaten the human rights associated with our personal safety and security.

For example:

- Drones can be used to identify threats to a group of people, yet can also be deployed as weapons.³⁷
- The personal safety of individuals may be enhanced through the Internet of Things (IoT).³⁸ For instance, a person with diabetes can wear a patch that automatically monitors their blood glucose fluctuations and administers insulin when required. However, the IoT also presents platforms for cybercrime – abuse, exploitation, extremist manifestations, bullying, intimidation and threatening conduct.
- Blockchain technology can increase transparency and reliability of commercial and other transactions. But it also enables cryptocurrency, which can be a useful tool for criminal enterprises.³⁹

Some issues related to technology have a particular effect on certain groups. For example, while digital platforms, services and applications might specify a minimum age for their users, they generally cannot verify accurately whether their end-user is an adult or a child. As a result, most children are treated as adults when they use such technology and this can have potentially negative consequences for them.

(c) The right to non-discrimination and equal treatment

Technological innovations can affect societal inequality.⁴⁰ Equality may be considered across several domains, including: access to technology; processes embedded in technology; outcomes for individuals arising from technology; and the social, economic and physical distribution of beneficial and detrimental outcomes for communities resulting from technological advances.

Economic inequalities may emerge in the application of technology (for example, displacement of the labour force through robotics), and through market effects of technology (for example, displacement of small competitors, power concentration, price discrimination, value chain control).⁴¹ Economic inequality has consequences for individual and communal participation in social, cultural and political life.

Conversely, new technologies can reduce inequality and enable participation for those who have been traditionally excluded. For example, sustainable energy technologies can dramatically improve the lives of citizens in developing countries and ameliorate the impacts of climate change.

It is important also to consider equality of access to innovations – including availability, affordability and capacity-building. How can economically, socially and physically marginalised groups access innovations as they emerge? While different population groups are impacted by technology in a variety of ways, section 7 of this Issues Paper explores these issues in respect of one particular group – people with disability.

3.5 A human rights approach

This Issues Paper sets out a human rights approach to new technology. This is similar to, but in some ways different from, an ethical approach.

The ethical implications of new technology are increasingly being considered, including in the US, UK and Europe.⁴² While there are examples of ethical frameworks for specific technologies, such as the ethical standards developed by the Institute of Electrical and Electronic Engineers (IEEE),⁴³ New York University's AI Now Institute has noted:

[T]he tools that have been available to developers to contend with social and ethical questions have been relatively limited. ...[W]e have not yet developed ways to link the adherence to ethical guidelines to the ultimate impact of an AI system in the world.⁴⁴

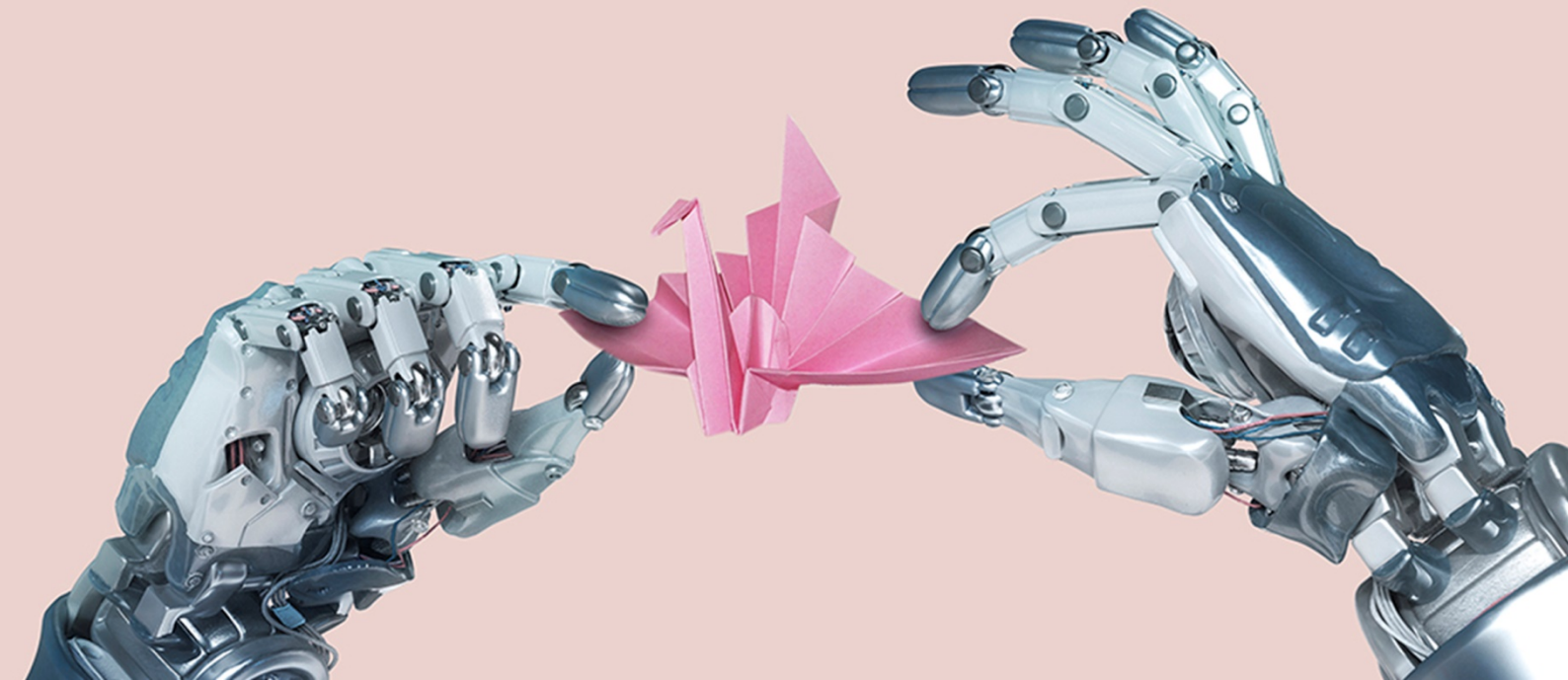
The UK House of Lords Select Committee on Artificial Intelligence 'commended' the increasing consideration given by private and public bodies to ethical matters in the context of AI, but it also emphasised the role for government to promote awareness and a consistent approach to these issues.⁴⁵

A technology ethicist generally would identify standards, values and responsibilities that support individuals to make 'good' decisions. However, the UK's Human Rights, Big Data and Technology Project has explained that while an ethical framework can incorporate some human rights, generally it will not involve 'a systematic approach from prevention to remedy or focus on the duty bearers and rights-holders'.⁴⁶

By contrast, a human rights approach provides 'a more substantive mechanism by which to identify, prevent and mitigate risk'.⁴⁷ It does this by turning concepts of rights and freedoms into effective policies, practices and practical realities. International human rights principles embody these fundamental values, and the human rights approach gives mechanisms and tools to realise them through implementation and accountabilities.

A common way of applying a human rights approach is via the '**PANEL** principles':

- **Participation.** People should be involved in decisions that affect their rights.
- **Accountability.** There should be monitoring of how people's rights are being affected, as well as remedies when things go wrong.
- **Non-discrimination and equality.** All forms of discrimination must be prohibited, prevented and eliminated. People who face the biggest barriers to realising their rights should be prioritised.
- **Empowerment.** Everyone should understand their rights, and be fully supported to take part in developing policy and practices which affect their lives.
- **Legality.** Approaches should be grounded in the legal rights that are set out in domestic and international laws.⁴⁸



4 Threats and opportunities arising from new technology

We need to set priorities for our response, and so it is critical to understand which forms of technology most urgently engage human rights.

The World Economic Forum highlighted 12 types of technology that merit close attention. As technologies continuously develop and expand, these 12 technology types generate new categories, processes, products and services; as well as new value chains and organisational structures.⁴⁹ They are:

- New computing technologies
- Blockchain and distributed ledger technologies
- The Internet of Things (IoT)
- AI and robotics
- Advanced materials
- Additive manufacturing and multidimensional printing
- Biotechnologies
- Neurotechnologies
- Virtual reality and augmented reality
- Energy capture, storage and transmission
- Geoengineering
- Space technologies.

4.1 The convergence of human rights and new technologies

New technologies are causing us to rethink our understanding of particular human rights. For example, there has been increasing attention to the implications of the internet, and its role in modern life, for freedom of expression. The former UN Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression said:

By vastly expanding the capacity of individuals to enjoy their right to freedom of opinion and expression, which is an 'enabler' of other human rights, the Internet boosts economic, social and political development, and contributes to the progress of humankind as a whole.⁵⁰

This leads some to claim that the right to freedom of expression includes a right of access to the internet.⁵¹

Similarly, the right to benefit from scientific progress in the ICESCR requires states to take steps to ensure the right of everyone ‘to enjoy the benefits of scientific progress and its applications’.⁵² The key components of the right include ‘access by everyone without discrimination to the benefits of science and its application’ and ‘participation of individuals and communities in decision making and the related right to information’.⁵³

The Special Rapporteur in the field of cultural rights has noted that, given the ‘enormous impact that scientific advances and technologies have on the daily lives of individuals’, the right must be read in conjunction with numerous other civil, political, economic and social rights, including freedom of expression and the right to participate in public affairs.⁵⁴ The right to enjoy the benefits of science may also be considered a prerequisite to the realisation of a number of other social, cultural and economic rights such as the right to food, health, water, housing, education and the emerging right to a clean and healthy environment.⁵⁵

While human rights treaties do not prescribe detailed rules in respect of technology, the UN Office of the High Commissioner for Human Rights (OHCHR) has acknowledged this is a growing area of importance. For example, the OHCHR published a set of human rights principles to guide data collection. They require consent and consultation with data holders, transparent and open collection practices and data disaggregation to ensure it can be used to identify and measure inequalities among population groups.⁵⁶

Some regional groupings are starting to address specific intersections between technology and human rights. For example, in 1997, the Council of Europe adopted the Oviedo Convention, which is the first such treaty to deal with ‘accelerating developments in biology and medicine’.⁵⁷ Article 1 sets out the Convention’s aim to:

protect the dignity and identity of all human beings and guarantee everyone, without discrimination, respect for their integrity and other rights and fundamental freedoms with regard to the application of biology and medicine.

In addition, public discourse about the social impact of technology often rests, explicitly or implicitly, on human rights concerns. When we discuss the manipulation of social media platforms to infiltrate and influence democratic elections,⁵⁸ or the use of an algorithm in a recruitment process that screens out people with mental illness,⁵⁹ these are human rights problems – raising issues of discrimination, fairness, due process and equality before the law.

New technologies do not inevitably threaten human rights, but the problem of dual affordances, or multiple uses, is particularly acute with new technologies. Many such tools can be used to protect and violate human rights. Virtual, augmented and mixed realities present countless positive educational and health opportunities, and yet may be used to manipulate people and propagate extremist messages.⁶⁰

There are unquestionably opportunities to advance human rights protections. Some NGOs are increasingly using new technologies to push for accountability for human rights violations. The American Civil Liberties Union (ACLU), for example, has developed the Mobile Justice app that allows users to record incidents of police misconduct and routine stops and searches, upload a report to the ACLU and seek advice on the legality of the conduct.⁶¹

Other organisations are using new technologies to remotely access data to record possible human rights violations in previously inaccessible areas. The Satellite Sentinel Project, for example, used DigitalGlobe's sub-one metre resolution imagery to corroborate anecdotal eyewitness accounts from the conflict zone in South Sudan, resulting in a number of reports documenting violence perpetrated against the civilian population by the Government of Sudan and the Republic of South Sudan.⁶²

Conversely, some governments have been accused of using such technologies to violate human rights. Earlier this year, a UN team investigating possible genocide of the Rohingya accused the Myanmar Government of using social media to disseminate misinformation regarding this persecuted Muslim minority.⁶³

Below we ask how to harness the potential of new technologies for human rights protection, while addressing the risk of misuse and ensuring accountability for use of these technologies.

4.2 The impact of technology on specific population groups

The impact of new technology is not experienced equally by all parts of the Australian community. Specific groups will feel both the positive and negative impacts of new technologies differently to other Australians.

In section 7, this Issues Paper considers the implications for people with disability. Other groups will also be particularly affected.

For example, new technology and online platforms present enormous opportunities to advance gender equality and are a powerful tool for women to increase their access to education and information, social connectedness and improve their economic security. However, women are also disproportionately the target of personal, sexual and gender-based cyber abuse.

A 2016 study found that 76% of women under 30 years of age, have reported experiencing online harassment, and almost half (47%) of all women had been targets.⁶⁴ Similarly, one in four lesbian, bisexual and transgender women report targeted sexual orientation harassment.⁶⁵ More recent research on the experiences of women in Australia found that, of those that had experienced online abuse and harassment, 42% of women said it was misogynistic or sexist in nature, and 20% said it had included threats of physical or sexual violence.⁶⁶

The social and economic consequences of widespread automation are also likely to be different for women than men, with significant implications for socio-economic equality and the global gender gap.⁶⁷ The disparity in global access to technology and the internet may also have detrimental consequences for women, particularly for future economic opportunities.⁶⁸

New technologies also bring particular opportunities and challenges for children. Children and young people are often the first to adapt to new technologies and their technological skills frequently surpass those of their parents or carers. However, there can be tension between the commercial imperatives that typically drive technological innovation and the human rights and wellbeing of children. In any event, children and young people in Australia commonly now spend a significant proportion of their daily lives online. This brings new risks for children and young people, including exploitation,⁶⁹ abuse, cyber-bullying⁷⁰ and breaches of privacy. While being alive to these risks, attention should also be directed towards realising the digital environment's potential to enhance a child's right to participation, education and information.

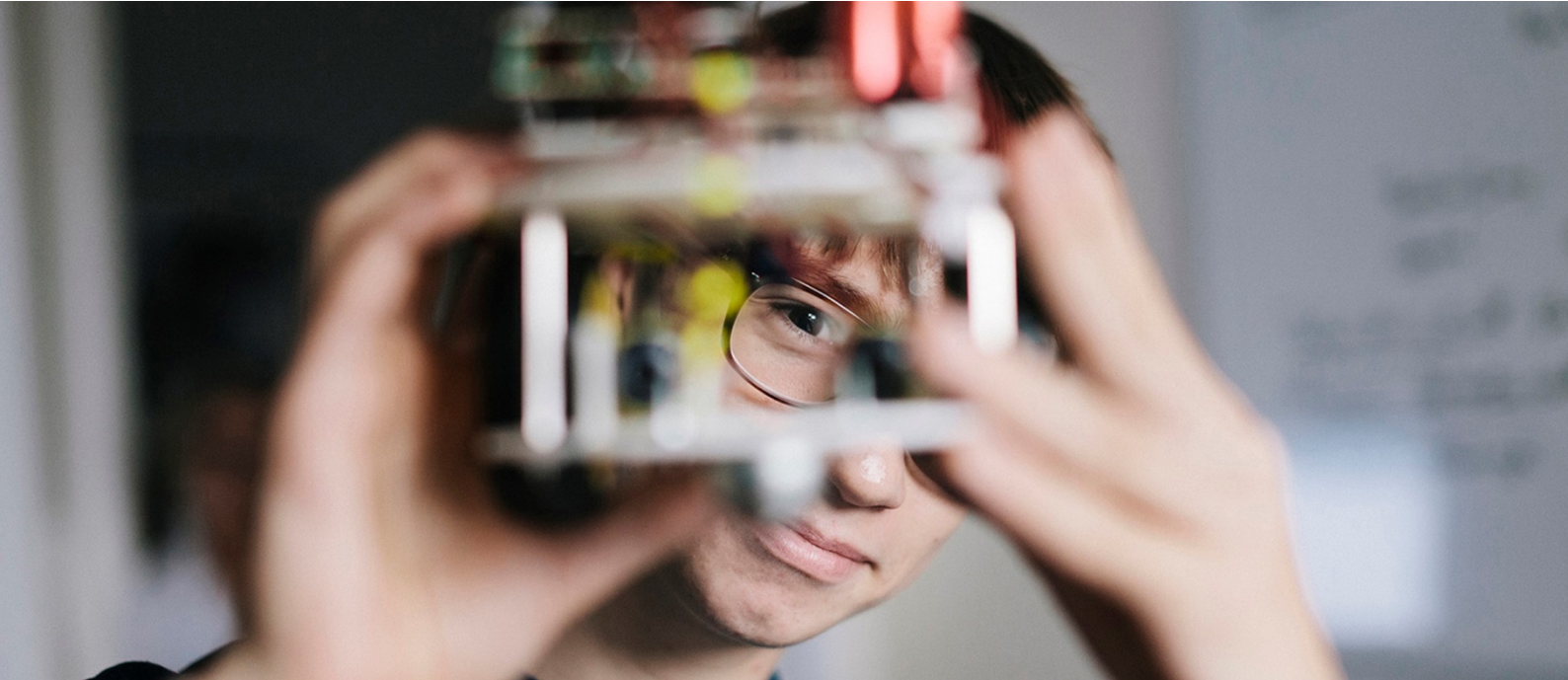
Some groups may be unable to benefit from the social advances being made by new technologies because they encounter barriers in accessing technology. People in low-income households experience the lowest rates of digital inclusion for all Australians, and people with no paid employment are also below the national average.⁷¹ Australians living in regional or rural areas experience lower digital inclusion rates than their counterparts living in the city,⁷² while Australians aged over 65 years are the least digitally-included age group.⁷³ As government services move increasingly online, this can pose especially acute problems for those Australians with limited internet access.

Aboriginal and Torres Strait Islander peoples also experience low rates of digital inclusion⁷⁴ and can have very specific concerns about particular dimensions of new technologies. For example, Facebook has a practice of ‘memorialising’ a user’s Facebook page after the company learns of the user’s death. Memorialisation often involves a carousel of the deceased person’s images being available, more or less publicly depending on the user’s privacy settings. To the extent that these images include photographs of the deceased person, this can raise particular problems, because under the laws and customs of some Aboriginal and Torres Strait Islander peoples it can be forbidden to share the image of a deceased person.⁷⁵

Control over the use and disclosure of big data is another example where new technology has specific implications for Aboriginal and Torres Strait Islander peoples. The concept of ‘data sovereignty’ over the data collected from and in relation to Aboriginal and Torres Strait Islander peoples has been recognised as central to the realisation of the right to self-determination.⁷⁶

Consultation questions

1. What types of technology raise particular human rights concerns? Which human rights are particularly implicated?
2. Noting that particular groups within the Australian community can experience new technology differently, what are the key issues regarding new technologies for these groups of people (such as children and young people; older people; women and girls; LGBTI people; people of culturally and linguistically diverse backgrounds; Aboriginal and Torres Strait Islander peoples)?



5 Reinventing regulation and oversight for new technologies

The term ‘regulation’ refers to processes that aim to moderate individual and organisational behaviour better to achieve identified objectives. In the simplest terms, regulation helps organise society, setting out the rules that everyone must abide by.

Irrespective of one’s view about the place of regulation generally in Australia, we need to consider how regulation can foster a form of technological innovation that is consistent with the values of our liberal democracy.

It should first be acknowledged that regulating technology is difficult, for reasons that include:

- the extraordinary pace of change in this area
- new technology is primarily developed by the private sector, and so efficiency and profit imperatives are influential in driving research and development
- technology can exclude, or be radically inclusive of, particular groups.

The public debate is moving from whether regulation is needed per se, to what form of regulation is most appropriate. For example, the CEO of Facebook, Mark Zuckerberg, recently said:

Our position is not that regulation is bad. I think the internet is so important in people’s lives, and it’s getting more important. The expectations on technology companies and internet companies are growing. I think the real question is, what is the right framework for this – not should there be one.⁷⁷

Similarly, Salesforce Chairman and CEO Marc Benioff called for urgent and proactive regulation of the technology industry, drawing analogies with the failure to regulate the banking and tobacco industries to prevent harm. He said, ‘The government needs to come in and point “True North”’.⁷⁸

In a recent report, the UN Special Rapporteur on freedom of expression identified the need to act urgently to put in place governance for platforms that rely on user-generated content. He said:

Despite taking steps to illuminate their rules and government interactions, the companies remain enigmatic regulators, establishing a kind of ‘platform law’ in which clarity, consistency, accountability and remedy are elusive.⁷⁹

In this section, we seek stakeholder views on the role of regulation and other measures to ensure that new technology protects and promotes human rights in Australia.

5.1 The role of legislation

The most obvious form of regulation is law. This form of regulation includes primary legislation, as well as subordinate or delegated legislation. Regulation can also refer to other instruments – such as rules, guidelines and principles – only some of which have legal force.⁸⁰

In addition to setting out rules, the law can also incentivise an activity, such as providing tax concessions to support the growth of small business.

There are numerous ways to regulate through law. For example, the Australian Law Reform Commission summarised Professor Julia Black’s influential taxonomy in its report, *For Your Information: Australian Privacy Law and Practice*:

- a ‘bright line rule’ contains a ‘single criterion of applicability’ which is a simple and clear approach but can fail to achieve a desired objective by being too rigid or too narrow;
- a ‘principle-based approach’ articulates ‘substantive objectives’ that are also simple to apply and give flexibility over time, but can be problematic if there is a dispute as to what each principle means and what it requires;
- and a ‘complex or detailed rule’ provides further detail, such as setting out conditions to be satisfied prior to any action taking place. This gives certainty but is complex and is likely to lead to gaps that may result ‘in scope for manipulation nor creative compliance’.⁸¹

Some see a strength of principles-based regulation as being its adaptability to changing circumstances.⁸² Given how rapidly technology is developing, principles-based regulation may be one regulatory response considered in this area.

An example of principles-based legislation is the Australian Privacy Principles. Contained in Schedule 1 of the Privacy Act, the Principles set out high-level rules on the handling, use and management of personal information. The Principles are intended to adapt to the particular circumstances of the variety of bodies that must comply with them, and to the changing technological environment.⁸³

In recommending a new form of regulatory oversight for data governance in the UK, the British Academy and The Royal Society called for

a renewed governance framework...to ensure trustworthiness and trust in the management and use of data as a whole. This need can be met through a set of high-level principles that would cut across any data governance attempt, helping to ensure confidence in the whole system. As effective data governance strongly resists a one-size-fits-all approach, grounding efforts in underlying principles will provide a source of clarity and of trust across application areas. These are not principles to fix definitively in law, but to visibly sit behind all attempts at data governance across sectors, from regulation to voluntary standards.⁸⁴

An approach relying on human rights principles could, for example, lead to steps to remove discriminatory bias in AI-informed decision making. These steps could require technology to be designed in order to be accessible for people with disability. It could also require a method of algorithm accountability to be made available to a person who has been adversely impacted by its operation.

Whichever forms of legislation are adopted, it is important to be particularly alive to the risk of unintended consequences in this area. For example, the Australian Government recently announced that it will compel technology companies, such as Google and Facebook, to provide Australian security agencies access to encrypted data for national security purposes.⁸⁵ If legislation is adopted, great care will need to be taken given the significant implications this proposal has for individuals' use of technology and the operation of private entities, as well as the impact on a number of human rights, including the right to privacy and freedom of expression and association.

5.2 Other regulatory approaches

Beyond conventional legislation, there is also scope for self- and co-regulatory approaches in this area. This can include accreditation systems, professional codes of ethics or, as outlined in section 7, standards for human rights compliant design.

The eSafety Commissioner, for example, is currently developing a safety by design framework to provide practical guidance to technology companies to ensure user safety is embedded from the earliest stages of product development. The principles will be embedded in children's rights and ensure that industry adopts 'tools to help children and young people navigate the online world in a safe way'.⁸⁶ Another example is Australia's National Statistical Service accreditation scheme that accredits agencies to act as 'Integrating Authorities' tasked with aggregating data sets.⁸⁷

Box 1 below provides an example of a 'trust mark' approach that has been proposed in respect of AI. While the relative merits of this sort of approach have been debated in other contexts,⁸⁸ it is a useful example of how a self-regulatory scheme could operate in this area.

Box 1: The Turing Stamp

The Chief Scientist of Australia, Dr Alan Finkel, has argued for a new type of regulatory approach to ensure public trust in the use of AI.

Dr Finkel has noted that the current legislative framework is limited in protecting against misuse of certain new technologies. The application of AI in the context of social media, for example, has exposed the limitations of current laws and highlighted the public interest in being protected from misuse.

One way to regulate AI would be to give consumers the ability to 'recognise and reward ethical conduct',⁸⁹ similar to the 'Fair Trade' mark or 'Australian Made' symbol.

Put simply, the 'Turing Stamp, named after the pioneering computer scientist of the 1940s, Alan Turing, would be the symbol that marks a vendor and product as bearers of the Turing Certificate, meaning they are worthy of trust'.⁹⁰

As currently proposed, the Stamp would be a voluntary measure, rewarding companies that act in accordance with their human rights obligations, for example: 'Done right, the costs of securing certification should be covered by increased sales, from customers willing to pay a premium'.⁹¹

The concept of regulation also encompasses oversight and monitoring bodies. There are a number of regulatory bodies that exist in all Australian jurisdictions. The functions and objectives of regulatory bodies vary widely, from advisory functions to the receipt of complaints, own-motion investigations and enforcement activities.

There is an increasing variety of approaches to regulating new technology in other jurisdictions. For example:

- The EU's General Data Protection Regulation (GDPR) imposes new data protection requirements, applying to all individuals and businesses operating in the EU and the European Economic Area. The GDPR harmonises data protection laws across the EU – for instance, requiring business to put in place measures to ensure compliance with privacy principles and mandating privacy impact assessments.⁹²
- In Japan, the Government's 'Robot Strategy' sets out a program of reform to establish a new legal system to effectively use robots and promote the development of different robotic systems, as well as deregulating to promote the development of the robotics industry.⁹³
- In Germany, legislation 'requires large social media companies to remove content inconsistent with specified local laws, with substantial penalties for non-compliance within very short timeframes'.⁹⁴
- In Estonia, laws are being prepared to give robots legal status; one proposal being considered would create a new legal term, 'robot-agent', that would be between the concept of a separate legal personality and an object that belongs to an individual.⁹⁵

In addition, other jurisdictions are starting to establish new bodies to lead, regulate or both. The UK Government, for example, is in the process of establishing a new Centre for Data Ethics and Innovation.⁹⁶

The idea of an Australian organisation to lead responsible innovation in one or more areas of new technology will be explored in a White Paper co-authored by the Australian Human Rights Commission and the World Economic Forum, due for release by early 2019.⁹⁷ This White Paper will be used as part of the Commission's consultation process in this Project.

Consultation questions

3. How should Australian law protect human rights in the development, use and application of new technologies? In particular:
 - (a) What gaps, if any, are there in this area of Australian law?
 - (b) What can we learn about the need for regulating new technologies, and the options for doing so, from international human rights law and the experiences of other countries?
 - (c) What principles should guide regulation in this area?
4. In addition to legislation, how should the Australian Government, the private sector and others protect and promote human rights in the development of new technology?



6 Artificial Intelligence, big data and decisions that affect human rights

This section considers how Artificial Intelligence (AI) is increasingly being used in a broad spectrum of decision making that engages people’s human rights. AI can be used to provide an input that a human decision maker can weigh up among other considerations – with the human ultimately deciding what weight (if any) to give to the AI-generated input. At the other end of the decision making spectrum, there is little or no human involvement in the decision, beyond acting on the AI-generated input.

In this Issues Paper, the term ‘AI-informed decision making’ refers to all decision making on this spectrum. Except as stated otherwise, AI-informed decision making refers to decisions that engage human rights. This section asks how we should protect human rights amid the rise of AI-informed decision making.

6.1 Understanding the core concepts

The Issues Paper contains a glossary of key terms, but some key terms are discussed in detail below.

(a) Artificial Intelligence

There is no universally accepted definition of AI.⁹⁸ Instead, AI is a convenient expression that refers to a computerised form of processing information that more closely resembles human thought than previous computers were ever capable of. That is, AI describes ‘the range of technologies exhibiting some characteristics of human intelligence’.⁹⁹

Historically, Alan Turing first considered intellectual competition between humans and machines in 1950.¹⁰⁰ Rapid developments in computing power and processes in recent decades have moved the idea of AI from science fiction to a dawning reality.¹⁰¹

There are two basic types of AI:

- ‘Narrow AI’ refers to today’s AI systems, which are capable of specific, relatively simple tasks – such as searching the internet or navigating a vehicle.
- ‘Artificial general intelligence’ is largely theoretical today. It would involve a form of AI that can accomplish sophisticated cognitive tasks on a breadth and variety similar to humans. It is difficult to determine when, if ever, artificial general intelligence will exist, but predictions tend to be between 2030-2100.¹⁰²

AI applications available today are examples of narrow AI, and this is the form of AI that this section refers to.

Narrow AI is being integrated into daily life. ‘Chatbots’ can help with simple banking tasks.¹⁰³ AI can use natural language processing to book a restaurant or haircut.¹⁰⁴ It is being developed to debate with us, using a machine learning algorithm and deep neural networks to present arguments and better inform public debate.¹⁰⁵ If properly implemented, such applications may provide significant benefits.

Yet AI can also threaten our political, judicial and social systems, with significant consequences for our rights and freedoms. Allegations that AI was used to manipulate voting in the recent US election are currently being considered by the United States Senate Committee on the Judiciary,¹⁰⁶ while concerns about the use of AI in autonomous weapons have prompted calls to ban ‘killer robots’.¹⁰⁷

In addition, AI’s latent potential remains enormous and it is thought to be still in its infancy. The recent surge in the global use of AI is driven by the combined factors of improved machine learning and algorithms, advances in computing power and its capacity to analyse big data.¹⁰⁸

(b) Machine learning, algorithms and big data

Sometimes seen as an example of AI, machine learning may be understood as a computing system ‘used to make predictions and conclusions on the basis of data’.¹⁰⁹ Machine learning can be used to modify an algorithm so that its task is performed better over time.¹¹⁰

An algorithm is a set of instructions programmed into a computing system. Algorithms are critical in autonomous computational systems, whether used in the real-time system activity itself, or in the learning and training of the system.

‘Big data’ refers to diverse sets of information, produced in very large volumes, and which can only be processed at high speeds by computers. The data collected can be analysed to understand trends and make critical predictions.

The ability to use big data effectively enables increasing:

- volumes of data to be managed
- variety of data sources
- velocity in making assessments
- veracity – in the sense that it enables more powerful capabilities to make predictions and other assessments
- value, where the capabilities of big data can be monetised.¹¹¹

(c) AI-informed decision making

AI-informed decision making is made possible where AI, including through machine learning, applies (and in some cases adjusts) algorithms to big datasets. It can be used in areas as diverse as assessing risk in policing,¹¹² to optimising hospital operations.¹¹³ This section of the Issues Paper focuses on the risks in this area, but it should be emphasised that AI-informed decision making offers the prospect of extraordinary improvements in humans' data analysis and, especially, in our predictive capabilities.

That said, today's AI-informed decision making is most reliable when applied to relatively simple rule-based calculations. It is far more difficult to use narrow AI to perform what is considered quintessentially human or subjective judgment, such as assessing whether a painting is beautiful or a joke is humorous.

6.2 AI-informed decision making and human rights

This part considers how AI-informed decision making engages human rights.

(a) Human dignity and human life

The growing integration of AI-informed decision making systems in everyday life is unprecedented. It raises ethical, moral and legal questions – for example, how we ensure accountability and balance competing interests.

A recent example is the death of a woman who was hit by an autonomous car at night after it failed to detect her walking across the road with her bicycle.¹¹⁴ International human rights law requires states to take steps to protect the right to life, such as through imposing criminal penalties for causing the death of another person. In this case, the human 'safety driver' did not appear to be following requisite procedure, but the incident raises important questions about how to apportion responsibility, and specifically legal liability, in such circumstances.

Conversely, some AI-informed decision making has an obvious social benefit. For example, the use of AI in medical diagnosis is significantly improving the accuracy of diagnosis and treatment of disease.¹¹⁵ Genome sequencing software and machine learning from genetic data sets, when integrated with clinical information, present a new frontier in how we approach public health.¹¹⁶ They also serve to protect and promote the right to the highest attainable standard of health and the right to life.¹¹⁷

(b) Fairness and non-discrimination

The challenge of balancing the convenience of AI-informed decision making and machine-learning technologies with various risks – such as entrenching gender bias¹¹⁸ and stereotyping¹¹⁹ – has only recently been identified. When considering bias, it is not only the operation of the algorithm that needs to be considered. Rather, choices made at every stage of development – for example, by software developers in designing and modelling their technology – will be embedded in any AI-informed decision making system.¹²⁰

Without humans to detect or correct these problems in autonomous systems, the impacts may go unnoticed and unaddressed, and result in harm.¹²¹ This can entrench social injustice in AI-informed decision making systems¹²² This injustice can reflect unintended or unconscious bias derived from the actions or values of people creating the technology, and in the limitations of the data used to train it. Box 2 below sets out a case study.

Box 2: AI in the United States criminal justice system

In 2016, ProPublica investigated the use of an algorithm, 'COMPAS', that assesses the risk of individuals committing a future crime. ProPublica claimed that COMPAS was biased against African Americans.¹²³

COMPAS was used by some United States judges when deciding:

- (a) whether a person charged with an offence should be released on bail pending their court hearing; and
- (b) how long a person convicted of an offence should be imprisoned.

COMPAS works by assigning defendants a score from 1 to 10 to indicate their likelihood of reoffending, based on more than 100 factors such as age, sex and criminal history. Notably, race is not a variable factor. The algorithm provided a prediction of reoffending by comparing information about an individual with a similar group of people based on a large data set within the criminal justice system.¹²⁴

ProPublica analysed approximately 5000 defendants who had been assigned a COMPAS score in a Florida County. It found that, of individuals who ultimately did not reoffend, African Americans were more than twice as likely as white defendants to be classified as medium or high risk.

Northpointe, the private company that developed the risk assessment tool, refused to disclose the details of its proprietary algorithm, but claimed the assessment was fair.¹²⁵

In July 2016, a defendant challenged the use of COMPAS in sentencing on the basis that it violates a defendant's right to due process because the proprietary nature of the tool means its scientific validity cannot be challenged. The Supreme Court of Wisconsin upheld the use of the tool as the sentencing judge had relied on other independent factors and the COMPAS risk assessment was not determinative. However, the Court cautioned judges using the tool to observe its limitations, including that the risk score works by identifying groups of high-risk offenders rather than a particular high-risk individual.¹²⁶

This example raises a number of questions of how we continue to protect human rights in the criminal justice system. Fairness is not a value that is easily incorporated into decision making that is informed or influenced by such algorithms. Some argue that an algorithm can never incorporate fairness into its operation.¹²⁷ The increasing use of predictive algorithms, along with the reliance on private companies in government decision making, has serious implications for individuals who are already likely to be marginalised and vulnerable.

Other examples of potentially unjust consequences from AI-informed decision making include:

- the use of algorithms to target advertising of job opportunities on the basis of age, gender or some other characteristic such that, for example, people over a certain age never become aware of the employment opportunity;¹²⁸
- a situation where AI-informed decision making resulted in some primary school teachers in a US school district losing their jobs based on a simplistic and ultimately inaccurate assessment of their performance;¹²⁹
- job-screening algorithms that exclude applicants with mental illness;¹³⁰
- risk-assessment algorithms that result in the police disproportionately targeting certain groups, such as young people and people from particular racial, ethnic or minority groups;¹³¹ and

- predictive policing tools that direct police to lower socio-economic areas, entrenching or even exacerbating the cycle of imprisonment and recidivism.¹³²

Ultimately, we may need to answer some difficult questions. For example, what sorts of mistakes are we willing to tolerate in an AI-informed decision making system? And how much more accurate, and less susceptible to prejudice, does such a system need to be – in comparison with a decision making system that relies only on humans – before we deem it to be suitable for use?

(c) Data, privacy and personal autonomy

The data individuals provide in return for services has led to the concentration of large data holdings. Some of those concentrations are in Australian companies; some are in a small number of large technology corporations operating principally overseas; and some are in governments here and overseas.

Government held data is sometimes said to be a ‘national resource’ – a term that recognises such data as a valuable asset that should be protected and shared, as appropriate, to stimulate innovation, improve service delivery and boost economies.¹³³ Australia’s Open Government Partnership,¹³⁴ together with other reforms such as those to the national data system,¹³⁵ aim to optimise the use of data as a national resource, improve transparency and drive innovation while maintaining trust through appropriate safeguards.

Alongside this, there is a growing recognition that Australia needs to improve the population’s collective data literacy.¹³⁶ This has prompted the establishment of data literacy,¹³⁷ and digital capability,¹³⁸ programs to help upskill the public sector, noting that these challenges are not limited to the public service.¹³⁹ Data scientists continue to be in short supply.¹⁴⁰

In this context, we need to consider issues such as:

- the choice an individual has about their personal data and who may access it, noting that millions of people exercise little control over their data¹⁴¹
- the connection of disparate data sets and the re-identification of previously anonymised data,¹⁴² as recently seen with Medicare data in Australia¹⁴³
- the past and partial characteristics of data along with the combination of data sets creating new, unregulated ones¹⁴⁴
- data custody and control, as distinct from data ownership,¹⁴⁵ and
- the adequacy of existing privacy and data protections in the age of big data.¹⁴⁶

(d) Related issues

These technologies can be applied outside of a decision making context in ways that engage human rights. There are other processes, beyond this Project, considering such issues.

Examples include:

- AI can be used to influence social media newsfeeds. It was alleged that some social media newsfeeds were manipulated during recent electoral processes in the UK and US. This engages a number of human rights. For example, because freedom of expression includes the free exchange of ideas and information, and therefore the right to seek out and receive information, the alleged manipulation and distortion of what electors receive as news could significantly affect their enjoyment of this right. More broadly, if such alleged activity were to happen at scale, it has the potential to undermine Western liberal-democratic systems.¹⁴⁷

- AI can be used to influence advertising and search engine results, as highlighted by the European Union Commissioner for Competition's fine against Google for favouring its own services over those offered by other providers.¹⁴⁸
- There has been growing public concern about the relationship between social media and news. In response, the ACCC is conducting an inquiry into the impact of digital search engines, social media platforms and other digital content platforms on the state of competition in media and advertising, in particular regarding the supply of news and journalistic content. The inquiry will investigate the implications for consumers, advertisers and media content creators and is due to report in mid-2019.¹⁴⁹

6.3 How should Australia protect human rights in this context?

AI-informed decision making can avoid many of the conventional forms of regulation for science and technology.¹⁵⁰

It is common for an algorithm to be opaque, in the sense that its operation is not usually apparent to anyone beyond the person or organisation responsible for deploying it. The dataset in respect of which the algorithm is deployed is often also not readily accessible. Even where the algorithm is made available, it would usually require specialised, technical expertise to understand how it works. Sometimes, even the person or organisation responsible for creating or using the algorithm will not fully understand how it arrives at a result – especially where machine-learning techniques are used.

As a result, it can be difficult or even impossible to ensure accountability for anyone who is affected by an AI-informed decision. For example, if a decision appears on its face to be discriminatory, because it appears to have a disproportionate negative effect on a particular ethnic group, it is necessary to assess the decision making process to determine whether in fact there was unlawful discrimination. However, if that decision making process is itself opaque – that is, if we cannot understand how an algorithm operates with respect to the relevant dataset – it may be impossible to determine whether an individual suffered unlawful discrimination.

This problem can manifest in two ways. First, a person who suspects discrimination may be unable to establish that fact even where it has occurred. Secondly, the lack of transparency of the decision making process may mean that discrimination affecting many people goes undetected.

Australia has started to grapple with these issues. For example, the Australian Technology and Science Growth Plan is funded to develop a national AI Ethical Framework,¹⁵¹ along with a Technology Roadmap and Standards Framework, to support business innovation in a range of sectors by identifying global opportunities and guiding future investments.

As explored in section 5 above, in Australia, human rights are protected by a combination of law, policy, public institutions and convention. Self- and co-regulation by organisations outside the public sector can promote adherence to human rights standards that go beyond the narrow confines of the law.

In determining how to ensure human rights are protected in AI-informed decision making, all of these avenues should be considered, including their inter-relationship.

(a) What is the role of ordinary legislation?

Primary legislation (ie, acts of parliament) is the main way of creating legal rules, penalties for wrong-doing and remedies for anyone who has suffered detriment. The democratic process means it is also the most transparent and consultative way of doing so.

However, primary legislation can be slow to adapt where the subject of regulation is changing fast. Central to the claim that we are living in the time of a new industrial revolution is the fact that the pace and scope of technological change are unprecedented. This presents a particular challenge for legislation in this area because:

- legislation must be general and it can be difficult to frame laws to address very specific, technical issues
- legislation is subject to democratic and political processes that can be time consuming and are not well suited for frequent revision
- our understanding of this new technology is growing faster than we have generally been able to legislate.

In addressing such problems, some have suggested principles-based legislation because it can provide the opportunity for a less rigid application of standards that also allows for greater flexibility over time.¹⁵²

Later in this section, various options are posited for self- and co-regulation. While these should be assessed on their own merits, it is important also to consider how such options might operate most effectively within the broader regulatory environment.

(b) How are other jurisdictions approaching this challenge?

While some initiatives establishing ethics codes have been instigated by industry partnering with non-profit organisations and academics, such as Open AI¹⁵³ and the Partnership on AI,¹⁵⁴ there are few nationally coordinated approaches. Examples of jurisdiction level initiatives to improve regulation in this area include:

- The European Commission's European Group on Ethics in Science and New Technologies has noted the urgent moral questions raised by the opaque nature of AI and speed of development.¹⁵⁵ It has called for a common, international ethical and legal framework for the design, production, use and governance of AI, robotics and autonomous systems.¹⁵⁶
- In December 2017, New York City established an 'Automated Decision Making Task Force' that will examine the use of AI through the lens of equity, fairness and accountability.¹⁵⁷ The Task Force will make recommendations regarding 'how information on agency automated decision systems may be shared with the public and how agencies may address instances where people are harmed by agency automated decision systems.'¹⁵⁸
- The UK's House of Lords Select Committee proposed an 'AI Code' in April 2018, to be developed across the public and private sectors, including the Centre for Data Ethics and Innovation, the AI Council and the Alan Turing Institute.¹⁵⁹ The Select Committee noted that such a code could provide the basis for statutory regulation, if and when that is deemed necessary. In the meantime, the Select Committee recommended that it include the requirement to have established ethical advisory boards in entities that are developing or using AI.

Coordination is necessary to ensure consistent rather than patchwork solutions that would heighten risk and undermine integrity. It is also important to consider how AI-informed decision making will impact society as a whole, including vulnerable and marginalised groups. The G7 is promoting inclusivity of social groups representing diverse, traditionally underrepresented populations in the development of more useful AI-informed decision making systems that will be more relevant to society as a whole.¹⁶⁰

Some jurisdictions are starting to regulate AI. For example, on 25 May 2018, the European Union's (EU) General Data Protection Regulation (GDPR) came into effect. The GDPR harmonises EU data protection and privacy law, and includes provisions relating to the transfer or export of personal data outside the EU – something that will influence how AI can be used on transnational datasets.¹⁶¹ Also relevant to AI-informed decision making is the GDPR's restriction on how decisions based on automated processes can be made, where they have significant effects on an individual.

There are also civil society led efforts to determine how best to regulate in this area. For example, in May 2018, a number of international NGOs, led by Amnesty International and Access Now, launched the *Toronto Declaration: Protecting the rights to equality and non-discrimination in machine learning systems*.¹⁶² The Declaration aims to apply existing international human rights requirements to the context of machine-learning, with a focus on equality, discrimination, inclusion, diversity and equity. The Future of Life Institute's 2017 conference attendees developed a set of 23 AI principles which have been signed by over 1200 AI/robotics researchers and over 2500 other stakeholders.¹⁶³ The principles cover AI issues ranging from research strategies and data rights, through to future issues including potential super-intelligence.

(c) Self-regulation, co-regulation and regulation by design

As noted above, system level biases in AI-informed decision making can result in racial, gender and other forms of discrimination. A biased result might not be apparent until a large number of AI-informed decisions are analysed and suggest a tendency to disadvantage a particular racial, gender or other group.

However, by the time a possible problem is diagnosed, the decision making system might already have caused considerable harm to any affected groups by, for example, systematically denying them home loans or insurance. Virginia Eubanks coined the term 'digital poorhouse' to refer to the risk of already vulnerable people being further disadvantaged by wholly or partially automated decision making processes, where there is very limited scope for benign human intervention.¹⁶⁴

Discovering bias, in a decision that has already been made, is often difficult. It involves careful analysis of an individual against a comparator group, ideally with a body of similar decisions for context.

However, once a biased or discriminatory decision has been made, many of its negative effects may never be fully rectified – even where the problem has been accurately and promptly found. Therefore, it is crucial that decision making systems are carefully scrutinised to mitigate, if not eliminate, the risk of bias before a decision is made in the real world.

To give an analogy: imagine a human judge, Justice X, who is prejudiced against young people and consistently gives harsher sentences to young people than to adults in equivalent circumstances. Our justice system should be able to identify every instance in which Justice X discriminates against a young person and it should take steps to address the problem. But it would be better if the system identified that Justice X was prone to making such discriminatory decisions and removed this judge from the courtroom. It would be better still if only people who did not act in such a discriminatory way were appointed judges.

While accountability mechanisms can try to address problems that arise from biased or discriminatory decisions, it is frequently the case that a person whose human rights have been violated cannot be fully restored to the position they were in before the violation occurred. Lasting negative consequences are common.

In a similar way, filtering out bias, and ensuring other human rights are protected, is important in designing and building AI-informed decision making systems.¹⁶⁵ As those systems become more common, this task assumes added urgency.¹⁶⁶

But how? Some have suggested ways of using self-regulation, co-regulation and design principles to achieve this aim. Examples include:

- As discussed in section 5 above, the Chief Scientist of Australia has suggested the creation of a voluntary trustmark for ethically compliant AI design. Akin to the 'Fairtrade' approach, a 'Turing Stamp' could be a means of assuring that an AI-powered product, service or application was developed according to standards that protect the basic human rights of affected people. This could help build trust for AI-powered tools that are safe, and discourage the adoption of unsafe tools.¹⁶⁷
- Algorithmic accountability mechanisms could analyse and remedy algorithmic distortions of competition, such as an 'Algorithm Review Board' as proposed by NewsCorp in its Issues Paper for the ACCC's inquiry into Digital Platforms.¹⁶⁸
- An 'Algorithmic Impact Assessment', which would involve public agencies being responsible for conducting a self-assessment of automated decision systems, evaluating the impacts on people and communities. It would involve meaningful external researcher review processes, disclosure to the public on decision systems and due process mechanisms for individuals or communities to challenge agency assessments.¹⁶⁹

As outlined in section 3 above, a human rights approach could practically and usefully provide the underpinning for such initiatives.

(d) The role of public and private institutions

The extraordinary potential to commercialise AI means that the private sector is establishing multi-disciplinary centres to explore these opportunities.

Earlier this year, for example, Google set up an AI research centre in France, with a team focusing on issues such as health, science, art and the environment. The research team 'will publish their research and open-source the code they produce, so that everyone can use these insights to solve their own problems, in their own way.'¹⁷⁰ Similarly, Samsung has opened AI research centres in the UK, Russia and Canada.¹⁷¹

Individual jurisdictions have also begun to establish domestic focused agencies. The UK Government, for example, announced in late 2017 that it would establish a new Centre for Data Ethics to promote the 'safe, ethical and ground-breaking innovation in AI and data driven technologies'. The Centre will 'work with government, regulators and industry to lay the foundations for AI adoption'.¹⁷² The UK will also join the World Economic Forum's global council, a body that focuses on the global implications of the widespread use of AI.¹⁷³

As noted above, the Commission and the World Economic Forum are working together to consider whether Australia needs an organisation to take a central role in promoting responsible innovation in AI and related technologies and, if so, how that organisation should operate.

Consultation questions

5. How well are human rights protected and promoted in AI-informed decision making? In particular, what are some practical examples of how AI-informed decision making can protect or threaten human rights?
6. How should Australian law protect human rights in respect of AI-informed decision making? In particular:
 - (a) What should be the overarching objectives of regulation in this area?
 - (b) What principles should be applied to achieve these objectives?
 - (c) Are there any gaps in how Australian law deals with this area? If so, what are they?
 - (d) What can we learn from how other countries are seeking to protect human rights in this area?
7. In addition to legislation, how should Australia protect human rights in AI-informed decision making? What role, if any, is there for:
 - (a) An organisation that takes a central role in promoting responsible innovation in AI-informed decision making?
 - (b) Self-regulatory or co-regulatory approaches?
 - (c) A 'regulation by design' approach?



7 Accessible technology

New technology is becoming integrated into almost every aspect of life. Technology is now central to our experience of daily activities including shopping, transport and accessing government services. Technology is also increasingly a part of activities that are central to our enjoyment of human rights.

It is crucial, therefore, that the whole community is able to access and use such technology. This principle is often referred to as 'accessibility'. Just as everyone should be able to access our education system, public transport and buildings, technology also should be accessible to all. If technology is increasingly the main gateway to participate in the core elements of individual and community life, this gateway must accommodate all members of the Australian community, regardless of their disability, race, religion, gender or other characteristic.

Accessibility focuses on the user experience of both inputting and consuming information, with the goal of removing barriers to technology services or goods. An example is where a person with a vision impairment uses voice recognition, a mouse, touch screen or keyboard to input information. To consume information, they may use text-to-speech (TTS), magnification or Braille.

As briefly outlined in section 4 above, the human rights impact of technology differs for different groups in the Australian community. Older Australians, for example, are more likely to experience barriers in accessing government services delivered online,¹⁷⁴ or will be subject to higher levels of monitoring of their health data, thereby increasing the risk of breach of privacy. Children and young people face fewer difficulties *using* technology, but will often be particularly vulnerable to the potential harm of new technology, such as a breach of privacy, or exploitation, made possible by the entrenched use of social platforms. In order to ensure that access to technology is universal, specific tools and approaches will need to be developed to address the issues new technologies raise for specific groups.

This section considers the specific barriers in accessing technology faced by people with disability. The central question of this section is: how do we ensure the technology that enables us to enjoy our basic human rights is itself available and accessible?

7.1 How people with disability experience technology

The prevalence of disability in Australia is almost 1 in 5 (18.3%).¹⁷⁵ Digital inclusion is one facet to understanding technology accessibility. It measures the degree of access and capacity to use the internet and digital platforms.¹⁷⁶ Australians with disability experience lower digital inclusion rates compared with those who do not have a disability.¹⁷⁷

The general problem was described in a 2017 parliamentary committee report:

While improvements have been made in the availability, affordability and accessibility of communications products and services for people with disability, there are concerns that there is 'still a long way to go before all Australians with disability have the essential connectivity to benefit from our digitally connected society'.¹⁷⁸

The Committee recorded concerns regarding barriers to access communications and digital information, including:

- lack of access to appropriate equipment and devices
- lack of awareness of mainstream or disability-specific options
- lack of internet connection generally and connection that supports high-bandwidth accessibility solutions
- affordability
- gaps in service delivery from the National Relay Service
- lack of accessible services arising from the procurement process
- touchscreen technology for persons who are blind or have a vision impairment
- exemptions from and reductions of captioning under the *Broadcasting Services Act 1992 (Cth)* (BSA)
- lack of standards and voluntary implementation of audio description.¹⁷⁹

Other technological advances, while providing some benefits to people with disability, also may present access barriers, including:

- automated household goods and services, and shopping
- business software and AI tools across project management, finance, human resources and ICT – impacting education and employment pathways for people with disability
- autonomous modes of transport and processes to access transport, eg driverless cars and automated passport processes at airports.

In addition, the Commission has previously reported on how inaccessible information and communications technologies can be a 'a major form of employment discrimination', because they impede workforce participation.¹⁸⁰

While there are significant challenges, the rapid development of new technologies has the potential to transform the lives of people with disability. As noted in Box 3 below, new technologies have the potential to enable people with disability to overcome historic barriers to inclusivity and fully enjoy their human rights.

Box 3: Accessible and assistive technologies for people with disability

Developers are creating technologies that improve participation and independence of people with disability. These developments ensure that people with disability have full enjoyment of their human rights as protected by the Convention on the Rights of Persons with Disabilities. Accessible technology underpins the CRPD's guiding principles that support the achievement of individual rights, such as the right to work. These principles include:

- respect for inherent dignity, individual autonomy including the freedom to make one's own choices, and independence of persons;
- non-discrimination;
- full and effective participation and inclusion in society;
- accessibility; and
- equality of opportunity.

Innovations, for example, that protect and promote the human rights of people with disability include:

- An intelligent home assistant can assist people with a variety of disabilities by operating household and daily tasks through speech and content recognition.¹⁸¹
- An app that allows a person to hold their smartphone camera to everyday objects, which are then described audibly. Designed for people who are blind or who have low vision, the app recognises people and describes their emotions, and identifies products in, for example, a supermarket.¹⁸²
- The engineering of a prosthetic limb that links the limb and the brain to alert the sensory cortex when pressure is applied – that is, a prosthetic limb that can *feel*.¹⁸³
- Mind-controlled wheelchairs to give independent movement to people with quadriplegia.¹⁸⁴

7.2 Current framework governing equal access to new technologies for people with disability

The rights of people with disability receive specific protection in the CRPD. A number of those rights, including accessibility in a range of contexts, are also incorporated in Australian law.

(a) International human rights law

The CRPD imposes general and specific obligations, including: accessibility; equality of opportunity; independence; and full and effective participation and inclusion in society for people with disability. The CRPD requires states parties to take appropriate measures to ensure persons with disabilities have

access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public, both in urban and in rural areas.¹⁸⁵

The CRPD also states that the right to freedom of expression includes 'provision of information to the public in accessible formats and technologies; facilitating the use of accessible modes of communication; and urging private entities and mass media to provide accessible information and services, including the internet.'¹⁸⁶

(b) Australian law

There are several Australian laws that aim to combat discrimination, and promote equality, for people with disability.

The most significant is the *Disability Discrimination Act 1992* (Cth) (DDA), which prohibits discrimination on the basis of disability in employment, education, accommodation and in the provision of goods, services or facilities. The DDA also requires reasonable adjustments to be made to enable a person with disability to access goods, services or facilities, unless this would cause 'unjustifiable hardship'.¹⁸⁷ In addition, the DDA enables the Minister to make Disability Standards that set out more detailed requirements about accessibility in a range of areas, such as education, buildings and public transport. State and territory laws also prohibit disability discrimination.¹⁸⁸

Some Australian laws deal more specifically with disability and technology. For example, the BSA regulates Australia's television broadcasters and authorises the Australian Communications and Media Authority (ACMA) to monitor and regulate the broadcasting, datacasting, internet and related industries.¹⁸⁹ The BSA outlines relevant industry codes and standards, including minimum requirements for broadcasters to caption television programs for people who are deaf or hearing impaired.

The *Telecommunications Act 1997* (Cth) authorises ACMA to make standards to regulate features in telecommunications that may be required by people with disability, including voluntary standards.¹⁹⁰ For example, one standard prescribes requirements for telephone headsets or keypads, and recommends design features that remove barriers to access for people with disability.¹⁹¹

Standards Australia (SA) is the nation's peak non-government standards organisation which develops and adopts internationally-aligned standards in Australia and represents the nation at the International Organisation for Standardisation (ISO).¹⁹² Australian Standards are voluntary and SA does not enforce or regulate standards. However federal, state and territory governments often incorporate them into legislation (for instance, they are incorporated in the Disability Standards referred to above).

(c) Government policy and coordination

The National Disability Strategy 2010–2020 (Disability Strategy) is a Council of Australian Governments (COAG) agreement to establish a plan for improving life for Australians with a disability and incorporate principles from the CRPD into national policy and practice.¹⁹³ Consistent with the stated principles underlying the National Disability Insurance Scheme (NDIS),¹⁹⁴ the first 'outcome' of the Disability Strategy is that people with disability live in accessible and well-designed communities with opportunity for full inclusion in social, economic, sporting and cultural life.

Policy directions for this outcome include increased participation in, and accessibility of, communication and information systems for the social, cultural, religious, recreational and sporting life of the community. The strategy has associated implementation plans and disability access and inclusion plans for federal, state and territory governments.

The Digital Transformation Agency (DTA) administers the Digital Service Standard, which ensures federal government digital services are simple, clear and fast.¹⁹⁵ Criterion Nine of the Standard provides that services are to be accessible to all users, regardless of their ability and environment. Government services are required to evidence usability testing of their digital platforms, including users with low-level digital skills, people with a disability, and people from diverse cultural and linguistic backgrounds. The Australian Government's design content guide outlines digital accessibility and inclusivity considerations for a range of population groups.¹⁹⁶

The Australian Government incorporated a new Australian Standard (adopted directly from a European Standard) in 2016 into its Commonwealth Procurement Rules.¹⁹⁷ The rule requires that all ICT goods and services procured by the Australian Government for government workplaces and employees, must be consistent with the Web Content Accessibility Guidelines (WCAG) 2.0 and accessible by employees with various disabilities.

(d) Guidelines and standards

There is a growing body of guidelines and standards that can promote access to technology. Some of this is known as ‘soft law’.

To date, particular attention has been given to access to the internet. For example, the WCAG aim to provide a single shared standard for web content accessibility for people with disability.¹⁹⁸ WCAG 2.1 was released in June 2018 and is an extension of the 2.0 version. It provides guidance on the design of website content that is accessible to a wider range of people with disability including: blindness and low vision; deafness and hearing loss; learning disabilities; cognitive limitations; limited movement; speech disabilities; and photosensitivity.¹⁹⁹

The Australian Government officially endorsed the WCAG 2.0 Guidelines in 2010, with the aim of ensuring all government website content conforms to accessibility standards for people with disability.²⁰⁰

Other international guidelines and standards include the following:

- The International Telecommunication Union (ITU), a United Nations body, develops technical standards to improve ICT access for underserved communities.
- The International Organization for Standardization (ISO) creates standards that provide requirements, specifications, guidelines or characteristics that help ensure materials, products, processes and services are fit for their purpose.²⁰¹ In addition to standards that directly cover accessible products (eg, PDF specifications that allow for greater accessibility), the ISO produces guides for addressing accessibility in standards.
- The International Electrotechnical Commission (IEC) produces international standards for ‘electrotechnology’ products, systems and services.²⁰²

7.3 Models of accessible and inclusive technology

An important way of making technology accessible to all is to consider how technology is designed.

‘Universal design’ refers to an accessible and inclusive approach to designing products and services, focusing especially on ensuring that people with disability, as well as others with specialised needs, are able to use those products and services. Applying universal design to technology means designing products, environments, programmes and services, so they can be used by all people, to the greatest extent possible, without the need for specialised or adapted features.²⁰³ ‘Inclusive design’ is a closely-related concept which is ‘design that considers the full range of human diversity with respect to ability, language, gender, age and other forms of human difference’.²⁰⁴ This section covers both the accessible and inclusive design concepts but does not attempt to distinguish between them.

Accessible and inclusive technology differs from ‘assistive technology’. Assistive technology is the overarching term for technology that is specifically designed to support a person with a disability perform a task. An example of an assistive technology is a screen reader, which can assist a person who is blind, or who has a vision impairment, to read the content of a website. Correctly implemented universal design supports assistance technology when required.

(a) Regulatory and compliance frameworks

The goal of accessible and inclusive technology is unlikely to be achieved by the law alone. For example, the US legal framework for promoting online access for people with disability has been described as the most robust and comprehensive in the world, and yet the law is insufficiently enforced to create online equality.²⁰⁵ An even stronger set of laws and clearer guidelines, if not widely enforced or implemented, also may not result in increased accessibility.²⁰⁶

A more holistic approach would incorporate, but not rely solely on, conventional legal protections. It could involve considering measures such as the following.

- **Voluntary industry measures to promote accessibility.** Such measures have advantages such as being led by industry participants that have a strong understanding of their own operating environments. They can also influence the behaviour of manufacturers through the procurement process. Voluntary measures may be supported by regulations which, for example, prescribe voluntary or mandatory codes, have reserve power to make a code mandatory, or can enforce compliance.²⁰⁷
- **Government standards and guidelines.** Article 9(2)(a) of the CRPD requires states to ‘develop, promulgate and monitor the implementation of minimum standards and guidelines for the accessibility of facilities and services open or provided to the public’. Such standards could apply the principles of universal design and pay particular attention to the needs of vulnerable groups such as older persons, children and persons with disabilities.²⁰⁸
- **Education and awareness raising.** Programs can be developed to educate and raise awareness within government and industry on the need for effective measures to enable the use of technology by people who encounter barriers to access.²⁰⁹ This could promote a comprehensive framework that addresses all aspects of accessibility and technological advances.²¹⁰
- **Procurement.** Procurement policies can set minimum accessible and inclusive technological features. Such policies can be either mandatory or aspirational, and tend to be a lever for change in large organisations and government.²¹¹
- **Oversight, monitoring and enforcement.** Careful consideration needs to be given to the institutional architecture that promotes accessible and inclusive technology. The public body or bodies responsible for implementing, monitoring and enforcing these aims and legal requirements need to be appropriately equipped to do so. In addition, the Commission and the World Economic Forum are co-authoring a separate consultation paper due for release by early 2019 that asks whether Australia needs an organisation to take a central role in promoting responsible innovation in AI and related technologies and, if so, how that organisation should operate.²¹²

Box 4: Principles for a regulatory framework

ITU and 3Gict proposed a set of guiding principles and steps for countries to set up an institutional framework for ICT accessibility for people with disability.²¹³ The principles may be applied to create a “light touch” regulatory framework that includes industry self-regulation and co-regulation, through to more traditional regulatory approaches that require the promulgation of regulations.²¹⁴ The steps involve:

1. revising existing policies/legislation/regulations to promote accessibility
2. consulting with relevant persons who encounter barriers to access on the development of revised regulations and establishing a committee on accessibility
3. making persons who face accessibility barriers aware of revised regulations
4. adopting accessibility technical and quality of service standards
5. adding and revising key legislation definitions to promote accessibility
6. amending the universal access/service legal and regulatory framework to include accessibility as an explicit goal of universal access/service and the universal access/service fund
7. ensuring that quality of service requirements take into account the specific needs of persons who encounter accessibility barriers and set quality of service standards for accessible services
8. revising legal frameworks for emergency communications to ensure emergency services are accessible for relevant persons
9. establishing clear targets and reporting annually on their implementation
10. amending legislation to refer to accessibility.

(b) Accessible design and development of new technology

The technology industry has approached accessibility and inclusivity in divergent ways. Some technology companies have been pioneers, making such objectives central to the design and development of services and products. Others have paid little or no attention to these aims. Even where accessibility is considered, the relevant features are often added after an initial non-accessible release of new technology, and are sometimes only available at an additional cost, causing delay and inequalities in access.²¹⁵

Unquestionably, there are significant challenges. For example, the pace of technological change means that an accessible product or service can quickly become obsolete as the surrounding technological environment advances.

In addressing such challenges, consideration could be given to:

- Inclusion of people with disability, and others who face accessibility barriers, in the design of technology, and in developing relevant technology standards.
- Working with those who develop relevant standards to help them understand the importance of accessibility.
- Using international forums, through the United Nations and elsewhere, to promote a common approach internationally to accessibility in technology.
- Training and equipping community and civil society organisations to take advantage of opportunities to use technology in an accessible, inclusive way.
- Examining university and other vocational curricula relating to technology, to ensure that accessibility principles are included.²¹⁶

- Leveraging existing industry bodies to promote, educate, develop certifications and encourage the adoption of universal and inclusive design.
- Industry including the requirement of accessibility skills for positions in design, development, testing, marketing and similar type jobs.

Consultation questions

8. What opportunities and challenges currently exist for people with disability accessing technology?
9. What should be the Australian Government's strategy in promoting accessible and innovative technology for people with disability? In particular:
 - (a) What, if any, changes to Australian law are needed to ensure new technology is accessible?
 - (b) What, if any, policy and other changes are needed in Australia to promote accessibility for new technology?
10. How can the private sector be encouraged or incentivised to develop and use accessible and inclusive technology, for example, through the use of universal design?



8 Consultation questions

For ease of reference, the questions posed in this Issues Paper are listed below.

1. What types of technology raise particular human rights concerns? Which human rights are particularly implicated?
2. Noting that particular groups within the Australian community can experience new technology differently, what are the key issues regarding new technologies for these groups of people (such as children and young people; older people; women and girls; LGBTI people; people of culturally and linguistically diverse backgrounds; Aboriginal and Torres Strait Islander peoples)?
3. How should Australian law protect human rights in the development, use and application of new technologies? In particular:
 - a) What gaps, if any, are there in this area of Australian law?
 - b) What can we learn about the need for regulating new technologies, and the options for doing so, from international human rights law and the experiences of other countries?
 - c) What principles should guide regulation in this area?
4. In addition to legislation, how should the Australian Government, the private sector and others protect and promote human rights in the development of new technology?
5. How well are human rights protected and promoted in AI-informed decision making? In particular, what are some practical examples of how AI-informed decision making can protect or threaten human rights?
6. How should Australian law protect human rights in respect of AI-informed decision making? In particular:
 - a) What should be the overarching objectives of regulation in this area?
 - b) What principles should be applied to achieve these objectives?
 - c) Are there any gaps in how Australian law deals with this area? If so, what are they?
 - d) What can we learn from how other countries are seeking to protect human rights in this area?

7. In addition to legislation, how should Australia protect human rights in AI-informed decision making? What role, if any, is there for:
 - a) An organisation that takes a central role in promoting responsible innovation in AI-informed decision making?
 - b) Self-regulatory or co-regulatory approaches?
 - c) A 'regulation by design' approach?
8. What opportunities and challenges currently exist for people with disability accessing technology?
9. What should be the Australian Government's strategy in promoting accessible technology for people with disability? In particular:
 - a) What, if any, changes to Australian law are needed to ensure new technology is accessible?
 - b) What, if any, policy and other changes are needed in Australia to promote accessibility for new technology?
10. How can the private sector be encouraged or incentivised to develop and use accessible and inclusive technology, for example, through the use of universal design?



9 Making a submission

The Commission would like to hear your views on the questions posed in this Issues Paper.

Written submissions may be formal or informal, and can address some or all of the consultation questions.

Written submissions must be received by **2 October 2018**. Submissions can be emailed to tech@humanrights.gov.au. The submission form and details on the submission process, as well as further information about the Human Rights and Technology Project, can be found at: <https://tech.humanrights.gov.au/>.

Please note that when making a submission, you are indicating that you have read and understood the Commission's Submission Policy available at <https://www.humanrights.gov.au/submission-policy>.

The information collected through the consultation process may be drawn upon, quoted or referred to in any Project documentation. The Commission also intends to publish submissions on the Project website, unless you state you do not wish the Commission to do so. If you would like your submission to be confidential and anonymous, please clearly state this when you make your submission.

To contact the Human Rights and Technology Project Team phone (02) 9284 9600 or email tech@humanrights.gov.au.



10 Glossary

Algorithm	An algorithm is a step-by-step procedure for solving a problem. It is used for calculation, data processing and automated reasoning. An algorithm can tell a computer what the author wants it to do, the computer then implements it, following each step, to accomplish the goal. ²¹⁷
Artificial Intelligence (AI)	Artificial Intelligence is the theory and development of computer systems that can do tasks that normally require human intelligence. This includes decision making, visual perception, speech recognition, learning and problem solving. ²¹⁸ Current AI systems are capable of specific tasks such as internet searches, translating text or driving a car.
Artificial General Intelligence (AGI)	Artificial General Intelligence is an emerging area of AI research and refers to the development of AI systems that would have cognitive function similar to humans in their ability to learn and think. This means they would be able to accomplish more sophisticated cognitive tasks than current AI systems. ²¹⁹
Assistive technology	Assistive technology, is the overarching term for technology that is specifically designed to support a person with a disability perform a task. An example of an assistive technology is a screen reader, which can assist a person who is blind, or who has a vision impairment, to read the content of a website. Correctly implemented universal design supports assistive technology when required. ²²⁰
Big Data	Big data refers to the diverse sets of information produced in large volumes and processed at high speeds using AI. Data collected is analysed to understand trends and make predictions. AI can automatically process and analyse millions of data-sets quickly and efficiently and give it meaning. ²²¹
Bitcoin	Bitcoin is a system of open source peer-to-peer software for the creation and exchange of a type of a digital currency that can be encrypted. This is known as a cryptocurrency. Bitcoin is the first such system to be fully functional. Bitcoin operates through a distributed ledger such as Blockchain. ²²²
Blockchain	Blockchain is the foundation of cryptocurrencies like Bitcoin. Blockchain is an ever-growing set of data or information blocks that is shared and can continuously be updated simultaneously. These blocks can be stored across the internet, cannot be controlled by a single entity and have no sole point of failure. ²²³

Chatbot	A Chatbot is a computer program that simulates human conversation through voice commands or text or both. For example, in banking, a limited bot may be used to ask the caller questions to understand their needs. However, the Chatbot cannot understand a request if the customer responds with a different answer. ²²⁴
Data sovereignty	Data sovereignty is the concept that information which has been converted and stored is subject to the laws of the country in which it is located. Within the context of Indigenous rights, data sovereignty recognises the rights of Indigenous peoples to govern the collection, ownership and application of their data. ²²⁵
Digital economy	Digital economy refers to economic and social activities that are supported by information and communications technologies. This includes purchasing goods and services, banking and accessing education or entertainment using the internet and connected devices like smart phones. The digital economy impacts all industries and business types and influences the way we interact with each other every day. ²²⁶
Fourth Industrial Revolution	The fourth industrial revolution refers to the fusion of technologies that blur the lines between physical, digital and biological spheres. This includes emerging technologies such as robotics, Artificial Intelligence, Blockchain, nanotechnology, The Internet of Things, and autonomous vehicles. Earlier phases of the industrial revolution are; phase one mechanised production with water and steam; phase two mass production with electricity; and phase three automated production with electronics and information technology. ²²⁷
Machine learning	Machine learning is an application of AI that enables computers to automatically learn and improve from experience without being explicitly programmed by a person. This is done by the computer collecting and using data to learn for themselves. For example, an email spam filter collecting data on known spam terminology and unknown email addresses, merging that information and making a prediction to identify and filter sources of spam. ²²⁸
The Internet of Things (IoT)	The Internet of Things refers to the ability of any device with an on and off switch to be connected to the internet and send and receive data. For example, on a personal level a coffee could brew when an alarm goes off, on a larger scale 'smart cities' could use devices to collect and analyse data to reduce waste and congestion. ²²⁹
Universal design	Universal design' refers to an accessible and inclusive approach to designing products and services, focusing on ensuring that people with disability, as well as others with specialised needs, are able to use those products and services. Applying universal design to technology means designing products, environments, programmes and services so they can be used by all people, to the greatest extent possible, without the need for specialised or adapted features. ²³⁰ Correctly implemented universal design supports assistive technology when required.

11 Appendix: Government innovation and data initiatives

Initiative	Agency	Indicative timeline	More information
<p>1. Digital Economy Strategy</p> <p>The Strategy will set out a roadmap for government, community and the private sector to make the most of the economic potential of the growing digital economy. Developing the Strategy included public consultations and opportunities to contribute via submissions and discussions.</p> <p>Evolving over time, the Strategy will cover how together the government, the private sector and the community can:</p> <ul style="list-style-type: none"> • drive productivity within existing industries • take advantage of the changes in our economy • open new sources of growth for the future • develop world-leading digital business capability for globally engaged, innovative, high-growth businesses of all sizes • drive a culture and mindset that supports lifelong learning, a global outlook, and help us respond to change • address Australia's varying digital skills and confidence levels to help everyone succeed in the digital economy. 	<p>Department of Industry, Innovation and Science</p>	<p>To be launched in 2018</p>	<p>https://industry.gov.au/innovation/Digital-Economy/Pages/default.aspx</p>
<p>2. Australian Technology and Science Growth Plan — building Australia's Artificial Intelligence capability to support business</p> <p>The Government will provide \$29.9 million over four years from 2018-19 to strengthen Australia's capability in Artificial Intelligence (AI) and Machine Learning (ML), supporting economic growth and the productivity of Australian businesses.</p> <p>This measure supports business innovation in sectors such as digital health, digital agriculture, energy, mining and cybersecurity, through:</p> <ul style="list-style-type: none"> • the provision of additional funding to the Cooperative Research Centres Program to support projects from AI and ML capabilities • funding for AI and ML-focused PhD scholarships and school-related learning to address skill gaps 	<p>Department of Industry, Innovation and Science Commonwealth Scientific and Industrial Research Organisation Department of Education and Training</p>	<p>Four years from 2018-19</p>	<p>https://industry.gov.au/innovation/InnovationPolicy/Documents/Government-Response-ISA-2030-Plan.pdf</p> <p>https://www.budget.gov.au/2018-19/content/bp2/download/bp2_combined.pdf</p>

Initiative	Agency	Indicative timeline	More information
<ul style="list-style-type: none"> the development of a Technology Roadmap, Standards Framework and a national AI Ethics Framework to identify global opportunities and guide future investments. 			
<p>3. Strengthening the national data system</p> <p>The Government will invest \$65 million to reform the Australian data system and introduce a range of reform measures in response to the Productivity Commission Data Availability and Use Inquiry. Three key features underpin the reforms:</p> <ul style="list-style-type: none"> A new Consumer Data Right will give citizens greater transparency and control over their own data. A National Data Commissioner will implement and oversee a simpler, more efficient data sharing and release framework. The National Data Commissioner will be the trusted overseer of the public data system. New legislative and governance arrangements will enable better use of data across the economy while ensuring appropriate safeguards are in place to protect sensitive information. 	Department of the Prime Minister and Cabinet	Four years from 2018-19	http://dataavailability.pmc.gov.au/sites/default/files/govt-response-pc-dau-inquiry.pdf
<p>4. Platforms for open data</p> <p>As part of the National Innovation and Science Agenda, Data61 is working with Commonwealth entities to improve the Australian Government's use, re-use and release of government held data.</p>	Department of the Prime Minister and Cabinet Data61	Round 4 commences 1 July 2018	https://www.pmc.gov.au/public-data/open-data/platforms-open-data
<p>5. Data fellowships</p> <p>The Data Fellowship is a competitive program to provide advanced data training to high performing Australian Public Service data specialists.</p>	Digital Transformation Agency Data61	Second round of fellowships announced 8 June 2018	https://beta.dta.gov.au/help-and-advice/learning-and-development/data-fellowship-program
<p>6. Deployment of Artificial Intelligence and what it presents for Australia</p> <p>The Australian Research Council's Linkage Program, Linkage Learned Academies Special Projects, awarded a project grant to the Australian Council of Learned Academies (ACOLA) to explore how digital technologies benefit Australia. This study is part of ACOLA's Horizon Scanning Program supporting Commonwealth Science</p>	Australian Council of Learned Academies	One year 2018-19	https://acola.org.au/wp/acola-receives-arc-funding-to-undertake-two-new-horizon-scanning-projects-on-ai-and-iot/

Initiative	Agency	Indicative timeline	More information
<p>Council priorities.</p> <p>AI is an identified priority for the Council. This study will explore the opportunities, risks and consequences of broad uptake and collate evidence on the economics, social perspectives, research capabilities and environmental impacts. The study's overarching key findings will be presented to inform government decisions and policy making over coming decades.</p>			
<p>7. Digital platforms inquiry</p> <p>The Treasurer, the Hon Scott Morrison MP, directed the ACCC in December 2017 to conduct an inquiry into digital platforms. The inquiry is examining the effect that digital search engines, social media platforms and other digital content aggregation platforms have on competition in media and advertising services markets.</p> <p>The inquiry includes public consultations and opportunities to contribute via submissions.</p> <p>The inquiry will look at the impact of digital platforms on the supply of news and journalistic content and the implications of this for media content creators, advertisers and consumers.</p>	<p>Australian Competition and Consumer Commission</p>	<p>Inquiry 2018 Final report 2019</p>	<p>https://www.accc.gov.au/focus-areas/inquiries/digital-platforms-inquiry</p>
<p>8. Cyber security strategy</p> <p>The Cyber Security Strategy sets out the Government's philosophy and program for meeting the dual challenges of the digital age - advancing and protecting Australia's interests online. The strategy establishes five themes of action for Australia's cyber security:</p> <ul style="list-style-type: none"> • A national cyber partnership • Strong cyber defences • Global responsibility and influence • Growth and innovation • A cyber smart nation 	<p>Department of the Prime Minister and Cabinet</p>	<p>2017 - 2020</p>	<p>https://cybersecuritystrategy.pmc.gov.au/index.html</p>

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