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Mr Edward Santow
Human Rights Commissioner
Australian Human Rights Commission
GPO Box 5218
SYDNEY NSW 2001

By email: tech@humanrights.gov.au

Dear Mr. Santow:

RE: Public Consultation on *Human Rights and Technology Issues Paper*

Thank you for the opportunity to comment on the Australian Human Rights Commission's (AHRC) *Human Rights and Technology Issues Paper*. Adobe is grateful for the opportunity to provide feedback on these important matters. We are engaged in similar discussions with policy makers around the world, including the US and the UK. In this submission, Adobe will address Consultation Questions 5, 6, 7, 8 and 9 and discuss the issues of ethics in artificial intelligence (AI) and inclusive design and accessibility.¹

Ethics & Artificial Intelligence

A key dynamic that Adobe believes is missing from public discourse on artificial intelligence is the role of human creativity in driving and facilitating the growth of artificial intelligence. We are dedicated to putting humanity before technology in any of our endeavors, and in a business context, our mission quite simply is to 'serve the creator and respect the consumer'.

A study undertaken in the US, UK and Germany by Pfeiffer Consulting found that rather than being afraid of Artificial Intelligence, the majority of creative professionals are excited about the possibilities of artificial intelligence to enhance and complement digital creativity.² Global President, Chair and CEO of Adobe Shantanu Narayen has explained that because machines are unable to mimic human creative ability, the rise of machine learning provides the opportunity for creative professionals to free up time which might otherwise be consumed by other tasks.

"Machine learning is going to change every single aspect of technology, but no machine will be able to mimic the creative ability of the human mind".³

Adobe's artificial intelligence machine learning framework, Adobe Sensei, is already helping artists to improve their 3D designs, increase the efficiency of animation, edit photos, detect when photos have been manipulated, and remix music.⁴ In order to truly harness this capability however, is to "future proof" the next generation of students and workers is to ensure they learn, are familiar with, and can demonstrate proficiency in the AI tools of tomorrow.

¹ *Human Rights and Technology Issues Paper*, Australian Human Rights Commission, 2018, [link](#), pp. 44 - 45

² Giselle Abramovich, "Technology and Creativity Go Hand in Hand: Study", *CMO by Adobe*, 11 October 2018, [link](#).

³ "Amplifying human creativity with artificial intelligence", Adobe, 2018, [link](#).

⁴ "Amplifying human creativity with artificial intelligence", Adobe, 2018, [link](#).

Adobe acknowledges that proponents of AI have a responsibility to ensure that ethical considerations are embedded into the development of artificial intelligence.⁵ Within our Adobe Ethics Council, we develop guidelines and best practices for AI and consistently strive to understand at the very earliest stages of our product development how our AI tools could impact our customers and society more broadly.

A key element of producing ethical AI is working to neutralise bias. All humans have innate biases, and as a result those algorithms which are developed by humans can reflect those biases. However, this process starts with the people involved. Algorithms can reflect the gender, race, age, location, professional and income biases of its developers. It is the responsibility of software companies, and those companies working in technology, to ensure software design incorporates diversity by ensuring their *workforce* is diverse in order to counter these counter-productive influences.⁶

Among the goals and ethical values that Adobe holds dear in the AI space is ensuring that we:

1. Work with datasets that represent society as a whole
2. Create systems that don't amplify stereotypes
3. Audit our findings to verify that we have captured the intended diversity
4. Communicate our process
5. Ensure that teams have varied backgrounds

One underappreciated aspect is how AI may be used to *encourage* ethical behaviour. Adobe Senior Research Scientist Vlad Morariu has been studying ways to use artificial intelligence to detect photograph manipulation. Morariu and his team successfully trained a neural network to identify three common image alteration techniques: splicing, copy-move and removal. Once trained, the AI was able to successfully undertake in a matter of seconds a detection process which would take a human several hours. This can be valuable in investigating criminal activity. Morariu is now looking at incorporating additional modification techniques and believes the technology could have broader applications for audio and visual recordings.⁷

In short, our main two calls to action on AI are: 1) encouraging governments and schools to nurture a workforce with agility to prepare for the jobs of the future; and 2) Challenging ourselves as well as the technology ecosystem to strive for embedding AI responsibly into customer solutions.

Inclusive Design & Accessibility

A key initiative within Adobe is the Inclusive Design Team, which is headed up by Seattle-based Matt May. May says that including inclusive design tools for Adobe's customers is allowing them to "design

⁵ "Artificial Intelligence: Friend or Foe?" *Adobe Blog*, 5 May 2018, [link](#).

⁶ "Are humans making AI Biased?" *Adobe Blog*, 4 September 2018, [link](#).

⁷ "Spotting image manipulation with AI", *Adobe Blog*, 22 June 2018, [link](#).

for our future selves." May contends that because different users have different needs, it is important to acknowledge there is no single perfect accessible final result. May suggests accessibility is ultimately a design issue. On inclusive design, May explains "design is not engineering, and you can't 'certify' designers the way you can products. The creative phases of product design are too abstract to pin down that way. What they need to do is create some kind of incentive to build it right from the start."

One important learning from Adobe's experience is that inclusive design is in *everyone's* interest. Our view, which is broadly consistent with that of the Commission, is that *inclusive design* is "design that considers the full range of human diversity with respect to ability, language, culture, gender, age and other forms of human difference".⁸ A key concern is the dearth of instructional materials in inclusive design. That is why Adobe has established a designated portal on our website with detail information concerning exclusive design for each of our products. Adobe is committed to ensuring its products are available in accessible format and to continually improving the accessibility of our offering.⁹

In order to further our inclusive design work in Australia, Adobe has established a partnership with the social enterprise Centre for Inclusive Design (CFID), as well as Microsoft and PricewaterhouseCoopers (PwC). Adobe acknowledges that our partner organisations share our passion for considering user diversity into the design process. We are presently undertaking a study in Australia, to be released in 2019, that will assess the economic impact of incorporating inclusive design thinking into Australian organisations. Our goal in working with our partners is to find new ways to deliver innovation and customer experience in Australia that truly reflects our diverse world.¹⁰

I hope that this submission proves useful for the Commission's deliberations. Adobe would welcome the opportunity to provide further information on any relevant matter which might arise during the inquiry process and we would be happy to meet with you to discuss further. We would also be pleased to host further stakeholder discussions with the technology community in 2019.

Please don't hesitate to contact me or our Director for Government Relations Jennifer Mulveny at mulveny@adobe.com.

Yours sincerely,



Suzanne Steele
Managing Director, Australia-New Zealand
Adobe Inc.

⁸ Matt May, "The same but different: breaking down accessibility, universality and inclusion in design", *Adobe Blog*, 2 February 2018, [link](#).

⁹ For more information see *Engaging experiences for all users*, Adobe, accessed: 7 November 2018, [link](#).

¹⁰ "Adobe Symposium 2018 kicks off in Sydney today!" *B&T Magazine*, 15 August 2018, [link](#).