ARTIFICIAL INTELLIGENCE:

CONSUMER EXPERIENCES
IN NEW TECHNOLOGY

RESEARCH REPORT
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EXECUTIVE SUMMARY

This study researched both consumer experiences of artificial intelligence (AI) and opinion from expert stakeholders. The consumer research carried out in Australia, India and Japan aimed to get a sense of peoples' understanding of the way in which AI enabled services shape their consumer journeys and experiences, and consumer outcomes.

Consumers show firm enthusiasm and appreciation of what AI enabled technologies can do, giving them independence, entertainment and motivation in convenient and interesting ways. However, as participants had the chance to better think about the role of AI facilitated services in their lives, they identified a variety of possible negative outcomes and challenges.

There was confusion over who is behind things, and how data is used. There was a desire for more clarity and control, and frustration at how hard it was to take individual responsibility for potential problems, or get recourse if things went wrong. Other downsides included: getting distracted and unfocused; having less real contact with family and friends; overshopping; and feeling like a part of a machine, and somehow less human.

However, the interest and enthusiasm for AI enabled services meant that whenever downsides were articulated, there was a corresponding appetite for improving them. There was a feeling that AI could work a lot better for people's real needs and to meet real opportunities - and people have lots of ideas for how it could work better.

The research with expert participants from the three markets and beyond had many common connections with the consumer research, but had a deeper focus on collective issues such as discrimination against particular groups, and the impact of concentrations of AI knowledge and product development in a small number of companies.

All stated the need to enable growth and innovation at the same time as protecting people from risk but there was no agreement on how to do this. There were differences of opinion on which regulatory framework would be required, the value of education, and whether most of the risks raised could be dealt with by existing regulation. Suggestions were made for how existing regulatory concepts of accountability, transparency and harm could be repurposed for an AI enabled age.

Structural and organisational issues were cited as challenges to creating useful frameworks for AI enabled technology. There was a concern that policy makers may not understand the technologies they are legislating about, what their real effects are, or how to make a good, effective intervention. Correspondingly, the lack of understanding from AI designers of the national, cultural, social and ethical impacts of AI technology on consumers was a major concern. People felt the profile of those leading AI delivery was too narrow, risking unintended consequences for people.

On a practical level, new multi-national frameworks for responding to the challenges and opportunities of AI are needed to address the cross-border nature of the technology. This is not a new concept for digital technologies, however given the yet unknown impact of AI across consumer and other sectors, the need to bring in wider perspectives was seen as critical.

ABOUT THIS PROJECT

Consumers International is the global membership organisation for consumer groups across the world. We work on issues that impact consumers in the digital era including e-commerce, data privacy and security, the internet of things, affordability and access. We want consumers to get the best out of the digital economy and society without having to compromise on quality, care and fair treatment.

DEVELOPING FORESIGHT ON THE IMPACT OF ARTIFICIAL INTELLIGENCE FOR CONSUMERS

The use of artificial intelligence (AI) enabled technology in consumer products and services is the subject of much discussion, research and forecasting. For AI enthusiasts, the broader application of this emerging technology will make life easier for everyone, while providing an improved level of service to consumers and lower cost, frictionless interactions. However, such hopes are accompanied by concerns around transparency, concentration of power and the reinforcing of discrimination against certain groups of consumers. As AI enabled products and services spread and the market matures, there is a need to assess not just current consumer experience but what kind of future actions and behaviours will be required to protect consumers from potential risks and detriment and thus build participation and growth. To date there has not been a great deal of direct consumer research to inform these discussions.

The aim of this project is to generate foresight, by identifying new insights from consumer research undertaken in three markets in Asia Pacific – India, Japan and Australia – in December 2018. These research results have been analysed alongside stakeholder views on the current and future experience of AI enabled technology, gleaned from 15 interviews carried out between December 2018 and February 2019. This new insight will lead to a better understanding of how consumers feel about living in an increasingly AI-led world, and help us to understand how the technologies can deliver the best possible outcomes, in an environment that enables everyone to address both current and potential challenges and risks.

The project is sponsored by Google Asia Pacific as an important tool to evaluate how consumers and stakeholders view the benefits and foreseeable risks of AI technology, and how AI developers can improve the consumer experience. Independent research was commissioned by Consumers International who also wrote this report.

THIS REPORT

This report contains a summary of new findings from IPSOS Global's participatory research with families and individuals in India, Australia and Japan, and summarises insights from interviews with expert stakeholders from the region. A roundtable was also held in March 2019 to present the research and work with the group to understand how AI enabled technology can deliver the best possible outcomes for consumers, whilst recognising and mitigating against potential challenges and risks.

INTRODUCTION

WHAT DO WE MEAN BY ARTIFICIAL INTELLIGENCE?

There are different definitions of artificial intelligence which could be creating confusion which could prevent effective understanding of its significance. Experts from all types of organisations were wary that the term was being used by the media, marketers, venture capitalists and companies in a way that was not conducive to a constructive dialogue:

> **"The hype doesn't help here. Famous personalities make statements in the press about what AI can do, in the next 5 – 10 years...this is overblown by them and the media which creates a perfect storm of low understanding"**
> Business, Global

> **"We are worried that there is widespread overstating of the abilities of AI. Making them appear more 'magic' than they really are."**
> Consumer organization, US

The direct consumer research also found there was very little common language for describing the technology, or the feelings they have about the impact of AI in their day to day lives. Most agreed it was not 'one technology' like mobile phone technology but 'one kind of technology'.

A WORKING DEFINITION FOR THIS RESEARCH

There are wider differences in opinion on whether the focus should be on how the actual technology works, or on the impact it has – regardless of what precise piece of technology lies behind it. For this research input to meet its aim, it was important not to get involved in lengthy debates about the attributes of particular technologies and instead focus on understanding the impact of this set of technologies on consumers now and in the future.

Whilst AI conjures up some specific applications in areas such as defence or policing, for consumer applications, the term AI has become one of those terms that people use to denote a wide range of different things.

The report uses the term 'AI-enabled services' or AI-led services to cover this concept of AI, pulling in the wide range of technologies under the definition above. The broad definition used by Accenture is thus helpful here:

> **"Artificial Intelligence is a collection of advanced technologies that allow machines to sense, comprehend, act and learn"**

REGIONAL DIFFERENCES AND SIMILARITIES

Although not the focus of this study, the interviews and consumer research shed some light on specific national and cultural attitudes to AI enabled services and the way issues could be addressed at a company and policy level. It is not possible to sketch out a definitive digital character of a country from this type of research as opinions are based on very particular experience, but some interesting insights emerged.

STAGE OF THE AI JOURNEY

India is the most heterogenous market studied, with both a tech-savvy middle and upper class, and large areas of unconnected populations. The high number of new users means many are encountering quite sophisticated, personalized technology for the first time.

Some interviewees felt that new users could be so enamored by the benefits of AI and mobile technology that they would be less worried about things like privacy implications.[1] The direct consumer research reflected this – with the independence and empowerment delivered by technology bringing much enthusiasm and positivity, and little questioning of what was going on behind the scenes and why. However, some see being at a different stage in the journey as an advantage:

"In India, we know the issues and we have the opportunity to leapfrog certain legal and ethical hurdles. We have the opportunity to ensure low caste, women, poor don't have to face them. With more introspection on what went wrong in the West, we have a better opportunity to use AI social good."
Technology research organisation, India

Of course, in high income countries stark differences in uptake of consumer digital technology exist, with affordability and language all impacting on access and usage.

DIFFERENT UNDERSTANDINGS OF INTELLIGENCE AND ARTIFICIAL INTELLIGENCE ACROSS CULTURES

There are interesting issues relating to different ideas of 'human-ness' ie what it means to be human across regions. Western culture has an individualistic tradition, with a strong focus on the perfectibility of the individual. Other cultures are more collective, resulting in different understandings of what is meant by 'intelligence'. For example, seeing 'intelligence' as much more of a collective thing might mean a focus on the value of AI in finding crowdsourced patterns and decisions, rather than on the value of a 'super-human' individual like a genius playing chess, or a highly trained surgeon. This is significant as it will influence the perspective on artificial 'intelligence' which could influence the way that it is applied in society, and thus the framework around it.[2]

THE QUESTION OF 'IMPORTED' AI

Some interviewees felt that AI was something being imported by foreign companies.[3] This was also related to comments from consumers who felt their specific needs were not being met:

"I would like to see more technology products tailored to the Japanese ethos, but also ones that suit their lifestyle better."
Ura, 36, Tokyo

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1 Business, Global

2 Global research organisation
3 Consumer organisation, India

The importing of AI enabled services may cause problems for practical application where local differences (such as dialect recognition) are not taken into account, and on a wider level of trust. These regional differences show that despite the knowledge and expertise that has gone into designing and implementing AI technology, there is a lot that is unknown.

"AI works in one society, may not apply directly to another society. I would not trust AI that is developed in one country for another country. You have to retrain with local data. This is what is unique about AI – it requires specific, local knowledge and data in specific domains."

Non-profit AI innovation centre, India

"Discrimination by postcode doesn't apply so clearly here... in the US there are neighbourhoods with distinct demographics. In India it's different. There are fancy houses of the super-rich right next to slums. The inequality is so stark and open - so using post code as a proxy doesn't work here."

Technology research organisation, India

And there was a much broader question to consider around re-investing value in the countries where AI enabled services are rolled out:

"Are the systems that are currently operating mainly about value creation or are they focused on value appropriation? If the providers of digital services are from Silicon Valley, is it just richer production for an offshore firm which has no obligation to invest in the country where the production is happening?"

Consumer organisation, Australia

AI OPPORTUNITIES AND POTENTIAL

AI has the potential to deliver many consumer benefits, some directly experienced, others hidden and operating in the background. AI can be used to reduce the costs of service provision and therefore prices, make them easier and more intuitive to access and use, add new functions and features, and enhance and enrich existing services (by, for example, increased relevance and personalisation).

The types of AI-enabled services and products mentioned by consumers and experts shows that a wide range of types of technology make up what people perceive as AI. The specific detail of what a technology actually does or doesn't do was not foremost in consumers or experts' explorations and understanding.

Consumer experience of AI falls into three broad categories. The first category is where much of the experience is directly provided by the workings of some form of artificial intelligence. Examples include being able to talk to devices such as personal assistants, search digital pictures by key word, or automatically translate text into another language. Looking to the future, there is much room for innovation here. Self-driving cars (or 'autonomous vehicles') are a much-talked about example.

Or friendly, furry robots that help elderly people who live alone feel less lonely - and which also keep an eye on them to make sure they are active and healthy.

The second category is where AI is being used behind the scenes to shape what the consumer experiences, but where the workings of this shaping process are not visible to the consumer. The classic examples here is the information that search or social media services serve up to users based on their profiles and previous behaviours, and services that recommend what to watch or purchase next. The third category is where AI is being used in the 'backroom' to improve the way the service is provided. For example, a wide range of AI applications are being used in manufacturing to cut the costs of production (using robots for example), to improve the quality of the products that are made, or cut costs in other ways (for example, via better maintenance of plant and machinery). The hidden, indirect benefit for consumers is, potentially, both lower prices and improved quality.
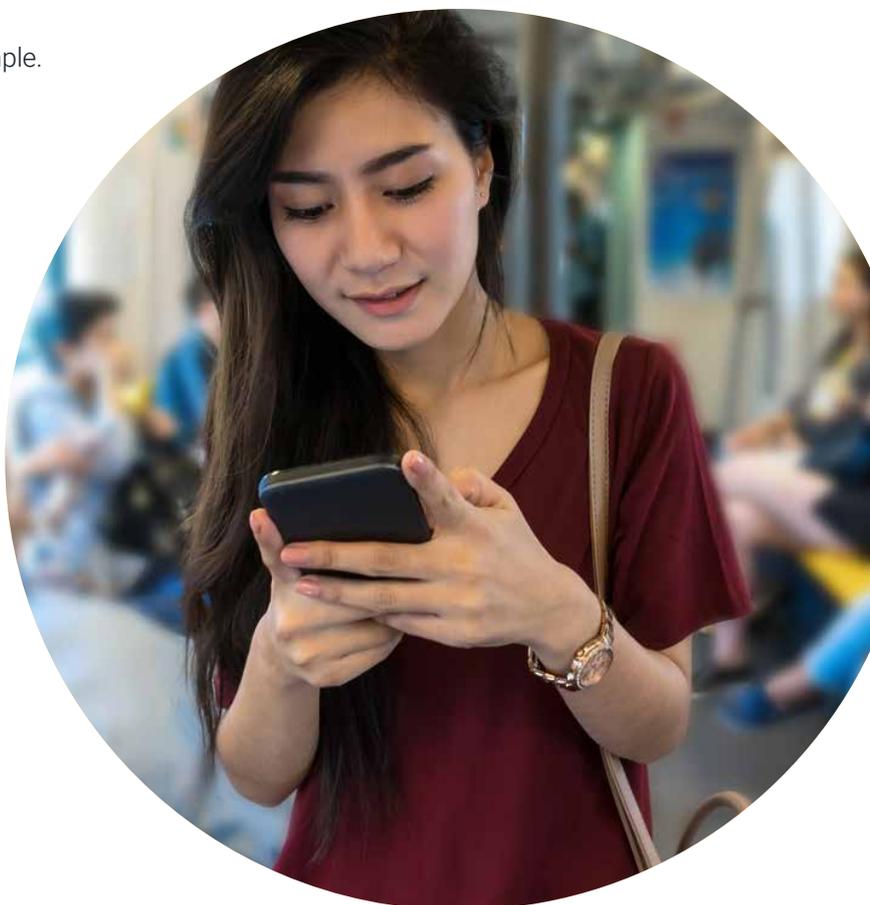
WHAT AI ENABLED SERVICES DO PEOPLE USE NOW OR IMAGINE FOR THE FUTURE?

	Health	Mobility	Financial services	Digital, online services	Home, personal, housing	Retail and leisure	Government, law and public services
Voice recognition and natural language processing		Mapping devices acting on voice instructions	Chat bots. Automated management of customer service. Voice recognition for identification	Chat bots. Automated management of customer service. Translation services.	Personal assistants. Devices acting on voice instructions Talking toys Elderly care robots Childcare robots	Chat bots. Automated management of customer service, eg hotels or hospitality or checkouts.	Voice recognition for identification
Image recognition	Use of images for enhanced or remote diagnostics	Object recognition for traffic management. Autonomous vehicles	Biometric identity systems for security clearance	Biometric identity systems	Housework robots eg robot vacuum cleaners	Biometric identity systems including age verification	Biometric identity systems for passports, citizenship and access to services
Pattern recognition	Personal health monitoring Disease diagnostics Treatment adherence	Autonomous vehicles	Personalised financial advice Fraudulent activity checking	Devices that adapt to user habits. Safe website checking.	Sleep, fitness trackers. Lifestyle, diary trackers		Predictive policing Low cost legal expert advice systems
Offering options and making decisions	Treatment recommendations Health insurance eligibility, premiums	Autonomous vehicles	Credit and insurance applications: premiums, eligibility, exclusions, conditions	Real time dynamic content serving Targeting of ads, promotions etc	Rating risk levels and credit worthiness of renters, house buyers Automated switching services.		Assessing benefit entitlement

HOW THE RESEARCH WAS DONE

This study researched both consumer experiences and opinion from regulators, business, consumer organisations, market researchers and academics. Understanding the opportunities, issues and risks for consumers alongside expert insight into underlying causes and potential future implications, will help all of us achieve the best environment for AI enabled services for consumers.

CONSUMER RESEARCH: UNCOVERING ATTITUDES AND UNDERSTANDING EXPERIENCES

The consumer research aimed to get a sense of peoples' understanding of the way in which AI enabled services shapes their consumer journeys and experiences, and consumer outcomes. Other objectives were to understand whether consumers can identify the specific 'AI' elements of products and services, or whether they were hidden and implicit in their experience. Given the range of markets, the research also wanted to understand if there culturally specific attitudes to AI in each of the three markets.

METHODOLOGY: UNDERSTANDING THE LIVED EXPERIENCE

The process of exploring the consumer experience of AI enabled technologies is not always straightforward. It can be hard to disentangle the influence of AI versus other factors such as new devices, the issues concerning data collection, privacy and people's rights in consumer markets. The overlap and linkages between goods, services and borderless digital environments are familiar, yet relatively new and can be challenging to reflect on.

However, understanding the subtleties and nuances of the changing consumer experience can be done through a 'phenomenological' approach which investigates the 'lived experience' of consumers – their inner lives, the outside world, and social interactions and how they make sense of them.

Ethnographic (or participatory) research is one way to apply this approach. Ethnography researchers observe people's daily routines to understand what they do, where they go and, importantly, what is driving their behaviour. They observe a normal day with participants while they interact with others and aim to get a cultural understanding of their behaviour. It is particularly useful for understanding something like the consumer experience with AI enabled technology, as it allows participants the time and space to think about new technological concepts, activities and their reactions in an open and exploratory environment.

EXPERT RESEARCH: THE OPPORTUNITIES AND CHALLENGES OF AI FOR CONSUMERS COLLECTIVELY AND INDIVIDUALLY

The consumer research was complemented by interviews with experts in consumer issues, technology and AI to give more consideration to the breadth of AI and its current, and future application. Fourteen 45-60 minute semi-structured interviews were carried with: consumer representatives, academics, market researchers, businesses and regulators at the national and international level.[4] As far as possible, a cross section of sectors were chosen with a balance of interviewees from Japan, Australia and India, supplemented by some experts outside of those countries who were able to give a global view.

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4 Confirming business interviewees was particularly challenging and to date only two have been completed, however further results will be included in the version of this report that follows the roundtable.

RESEARCH FINDINGS: CONSUMER EXPERIENCES OF AI

1. THE VALUE AND BENEFITS OF AI ENABLED SERVICES

There was an overwhelming sense amongst consumers that AI enabled consumer services gave them more independence, stimulation and motivation. This could be through finding new music and films, aiding a healthy lifestyle through step trackers, or enabling easier travel with personalised maps. Services were regarded as helpful, convenient and exciting, and as a positive part of their lives for the following reasons:

DISCOVERY AND PERSONALISED RECOMMENDATIONS

Curated services enrich consumer experiences by bringing their attention to enjoyable, new experiences that they may not otherwise have come across, such as on music streaming sites:

"Every suggestion they make hits the nail on the head. I recently discovered an artist called Jack Stavoretti because I was listening to Lou Reed and I was bingeing on that."
James, 28, Australia

There was also much comment about the way in which personalised recommendations also enhanced the shopping experience.

"I was surfing 1 Carat Lane5 for some jewellery then Bluestone came up with pop-ups on my Facebook. AI was responding to my requirement!....I don't think advertising is excessive, we enjoy this window shopping also. I like it!"
Radhika, 36, India

Similarly, Laura, 30 from Sydney, found that she was clicking more on recommendations for shopping and in this way found more niche brands that met her interests in caring for her child with an eye toward environmental responsibility.

HEALTH AND WELLBEING

Many people in the study used AI-enabled fitness devices. Tina (30, Australia) was a keen advocate of her device as it can inform her of whether she was getting enough REM sleep and the extent to which she was grinding her teeth at night. She felt this offered her *"an idea of what's going on and what to do about it, such as take more magnesium"*.

INDEPENDENCE AND EMPOWERMENT

There was a sense among many we spoke to in India that AI facilitated services offered the opportunity for greater independence and empowerment particularly for women, as they no longer had to rely on others for information or decisions.

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5 a major online Indian jewellery site

"Google Maps has given me independence. I don't have to ask anyone now...I'm a little scared to ask unknown people as a girl. It's not safe, especially at night – this has been a big change in Delhi. I'm happy to be tracked by Google for this reason too."

Neha, 26, India

AI enabled services have also increased the degree to which Indian women in the study were able to take some control of the household budget.[6] Personalised online shopping recommendations and adverts meant that:

"It is me who can buy the cheapest and most economical things. I used to have to go the Big Bazaar (with family members) and now I just buy online."

Barka, 39, India

THE VALUE AND BENEFITS OF AI ENABLED SERVICES: A WIDER PERSPECTIVE

The expert participants also mentioned a wide array of products of great value, including ideas for new services such as business to consumer professional services such as legal advice and facial recognition age verification, as well as home and personal care support services such as elderly or childcare help. Other future use cases mentioned included driverless cars and even the transformation of the way housing is built and managed. Meeting the needs of marginalised or disadvantaged groups was flagged *"wonderful examples of AI innovation in disability services".*[7]

"There are opportunities for AI to help us address human needs that are not being met, such as loneliness. New use cases emerging in elder care are moving towards use of online and bots... it sort of replaces a diary: tell a nightlight about your day."

Global research agency

There was not a great difference in the products in use in different markets – suggesting that higher income participants are using similar types of technology regardless of nationality. Home assistants, health trackers, online shopping recommendations and mapping devices were used in all markets. Japan stood out for pointing out the appeal of 'robot' style consumer services and products:

"Many people think about the AI dog 'AIBO' when they think about AI consumer products... many Japanese people love human-like-robot or animated characters."

Consumer organisation, Japan

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6 This is typically a woman's job in India, but a wife often defers some purchase decisions to the husband and a mother-in-law who resides in the same household

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7 Consumer organisation, Australia

The diverse backgrounds of the expert participants showed some different perspectives on current and future use cases and the sheer scale, and potential transformation that AI technology could bring – such as radically transforming health outcomes.[8] AI enabled delivery can also lower costs for high priced services like legal advice, insurance and credit and open up access to more people.

Applying AI technology behind-the-scenes to help consumers was seen to have positive potential. AI is already widely used in checking for fraudulent patterns in financial transactions or to block unsafe websites and apps but could also be used to audit and monitor product safety issues before they reach consumers.

However, already when discussing existing and new use cases, the tension between the potential for great benefits and unintended consequences for consumers. This theme is strong throughout all of the consumer and expert research.

"With AI there are potentially incredible benefits and incredible risks. Ultimately it's about how the tech is used and governed. The notion that it is either 'good' or 'bad' is very misguided. For example, the extent to which AI can drive personalisation is neither good nor bad. It can be very beneficial, and very harmful."

Consumer organisation, Australia

Using AI applications to determine eligibility and access to services is a good example of how personalisation can have beneficial or negative impacts. On the one hand there are services such as age verification which use AI technology in a camera to estimate the age of a person and thus decide whether they can access a service or product.[9]

But others raised concerns about using AI enabled services to determine eligibility for things like state benefits or for privately delivered services such as home rentals. Concerns stem from the data being used in a way that causes detriment to people who fit a particular profile.

For example, in Australia, there are rental market apps that make decisions on the most desirable person to rent a place based on various attributes and data associations.

"When should a business be able to charge differentially, or even deny service?... I think for essential services - housing, energy - data shouldn't be used to deny service. But it does, for example in private rental markets. People with an indigenous background find it much harder to get a rental property."

Consumer organisation, Australia

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8   The Centre for Internet and Society in India's AI programme has mapped the use of AI in India with a view to developing legal and ethical recommendations. They have produced case studies in health care, manufacturing, banking and finance and AI in governance - e.g. law enforcement, public service delivery, defence. These are available at: https://cis-india.org/internet-governance/blog/artificial-intelligence-in-india-a-compendium

9   Yoti's camera can estimate the age of a person in 2 seconds with accuracy of about 3.5 years. This service is being used in US and UK supermarkets, but could also be used online for accessing adult content. If a person looks to be within a certain range then further checking is required. The image is immediately deleted, meaning that the learning is retained but the personal information in the form of a person's image is not.

2. PRESSURE TO BE PART OF THE DOMINANT TRENDS

There is a strong sense enthusiasm for new technology in general and this appears to drive uptake. It is difficult to disentangle the degree to which this is enthusiasm for new technology and new devices or the AI enabled services themselves. The influence of social norms around digital use were referenced by participants in all markets, suggesting that the adoption of AI enabled services are at least in part, supported by the need for social approval.

> **"My friends have them (smart TVs) and I want to keep up with them... my friend has a brand new smart TV and has people come over and watch Netflix... I would like to do that."**
> Chris, 36, Australia

Barkha talked about the ways in which AI enabled services meant she was watching shows that gave her something in common with younger friends, which made her feel young and cool. This was also the case with Kishimoto (33, Tokyo), who was excited to have her running mileage automatically posted on Facebook, as it would impress her friends.

Some differences in culture were reflected in this study too. Japan has a more hierarchical culture, with behaviours frequently being guided by older or higher status individuals. For example, Kishimoto's husband had purchased the Google Home device as his Vice President at work had purchased one. This meant that he had a good topic of conversation with the VP on his next visit. Similarly, Muramatsu's son had an Apple Watch because his mother had told him to buy it - but he did not actually use it.

Across the markets researched, there was a sense of needing to 'keep up'. Indeed, in Japan one participant apologised for 'being analogue' in the way she printed off her recipes from her app in order to keep notes on how they preferred to amend them.

PRESSURE TO BE PART OF THE DOMINANT TRENDS: A WIDER PERSPECTIVE

For the expert participants, this theme was addressed from the perspective of what happens to those consumers who are not part of the dominant trend of digital. The impact of the widespread application of dominant digital trends on those without access was still a major issue and was important for one commentator from India:

> **"Even people who are not voluntarily coming online are being affected by the rise of digitisation. Banks have developed many digital products.... People are being asked to use the new digital services but if the only support system is the branch itself they have nowhere to go if they have a problem."**
> Technology research organisation, India

The priority put on access to technology without consideration of other social, economic and human rights issues which may then slow the progress of access also relates to this theme. Recent court judgements on India's Aadhaar digital identity scheme illustrates this. The Indian Government did not want to make privacy a fundamental right on the basis that poor people would value an identity system that could accelerate inclusion over such a right. But the high court judgement disagreed and declared privacy as a fundamental right – regardless of economic status.

> **"They argued that 'privacy is a rich man's concept': But when you make that argument you are basically saying you are going to deny poor people a sense of dignity because they are poor."**
> Non-profit AI innovation organisation, India

Framing the challenge as a trade off, for example by arguing that 'access is more important than discrimination' risked diluting constitutional and consumer protections.

3. FINDING CLARITY AND QUESTIONING CONTROL

Across the consumer research, the participants often flagged that their use of AI enabled services was their choice and responsibility.

"We are in control, we are choosing, nothing is forced."
Barkha, India

Similarly, Aditi (28, Delhi) in reference to personalised advertising and recommendations said, *"It's up to you if you are open or ignore."* However, over the course of the research interviews, concerns and questions arose for most people.

CONCERN AND LACK OF CLARITY ABOUT DATA USE

But alongside this, there was also a great deal of concern about the way their personal data was being collected and used. As James put it: *"It's a constant sense of being monitored, [it feels like] like the Matrix sometimes"*. Chris too talked about the way in which the lack of transparency annoyed him which meant: *"I don't know what I am 100% into; I am making guesses and assumptions."*

Neha talked about the way she was happy to share data but:

"I feel I need to know what data is taken and what isn't. I feel helpless as an individual. I feel like more control will be taken away from me further in the future."

There were also many conversations about how data is collected and what is done with it, characterised by a lack of clarity and confusion. Mistaken understanding for how data collection works resulted in a wide range of ways in which people would act to take control, despite an awareness that these may not actually be effective. Chris, for example, would not log in to Google Maps to confirm his location *"So they don't know where I am"*.

CREEPINESS

There were many references to 'it' and 'they' which seemed to reference an intelligent capability that was aware of their behaviours. For example, one participant said, *"They must know where I am, where I live…it must know."* This sense of a third party having privileged access to their lives was frequently considered *"a bit scary"* or *"creepy"*. Oogushi (45, Tokyo) initially appears to be relaxed about data sharing, but he talks about the way it *"creeped him out"* when Facebook was checking his identity in pictures uploaded by his friends that had not yet been tagged.

LACK OF EFFECTIVE CONTROL

However, alongside this, we saw that participants were often struggling to work out how to effectively control the way they engaged with technology. At times people were frustrated by the perceived lack of control that they have. Aditi, for example, said,

"We don't have any choice as if we don't sign up to the T&Cs then we cannot use them…I sometimes don't want to give my permission, but I have to… but I am not very comfortable."

Nicola (52, Sydney) said, *"We try and tread a middle ground but, in reality, the things we can do are little."* She went onto say that… *"I am generally ignoring the risks, we are letting it happen."*

FINDING CLARITY AND QUESTIONING CONTROL: A WIDER PERSPECTIVE

The 'black box' nature of AI which contributes to this lack of clarity and control felt by consumers was raised by several of the expert participants, with one saying that *"the highest risk is always when you don't know what you don't know."* [10]

In some senses the issues are the same as many other consumer issue - relating to transparency, accountability, fairness. But that it was the black box nature of the computer programming that adds a critical new ingredient, especially when it is *"pretending to be an objective neutral arbitrator"*, and where there is increasing reliance on these sorts of systems.[11]

The role that data collection, sharing and use plays in AI enabled technology was a high priority for expert participants. Some saw it as the 'fuel' of AI or even more strongly, that AI was actually *"just fancy way of doing things with data. It turns up the volume on things that are already happening, giving different expressions to issues that already exist."* [12] If this is the case then the well known problems that consumers have with understanding, controlling and having agency over what happens with their data in individual digital products and services (and also across the whole digital system) will also be amplified. Which goes some way to explaining the concerns of consumers in the research.

As soon as data is mentioned, transparency and control are not far behind, with a strong sense that it is difficult for consumers themselves or bodies outside of the companies delivering AI enabled services to have any control (or accountability) without greater transparency about what is actually going on. Companies were equally aware of the challenges and were working on improvements:

"How do you get an AI algorithm to explain the decisions it has made so that a user of a product can understand it? This is an area where we need to make a lot more progress."
Business, Global

But the definition of transparency as just providing information on how particular elements of products work was questioned. For one thing, it could be counter-intuitive as information remedies (such as cookie notices or terms and conditions) are widely accepted to be limited in providing understanding and control for consumers:

"I think the core question is the extent to which consumers actually have agency – can they act on the information they are provided with?"
Consumer organisation, Australia

10 Non profit AI innovation organisation, India
11 Consumer organisation, USA
12 Consumer organisation, Australia

4. THE DOWNSIDES OF THE AI-ENABLED EXPERIENCE

Participants identified a variety of possible detrimental outcomes from their use of AI empowered services, even though overall, they were more rather than less positive about their AI enabled experiences. The benefits of AI enabled services are tangible and direct, and more simply stated by participants, the downsides are less tangible and more indirect. Over the course of the interviews, as participants had the chance to better think about the role of AI facilitated services in their lives, they gradually made linkages with less desirable outcomes.[13]

We found that there was little common language for feelings about the 'downsides' as these are new types of experiences where people's agency is being affected in new, unfamiliar ways. For example, using your smartphone to send a message, then seeing a notification to check social media or a news alert is something that can happen without a person consciously thinking about and naming. Phrases like 'screen time' and 'distraction' might be used to capture this general sense but there is not a common language to articulate what is happening.

OVER-SHOPPING AND OUT OF CONTROL DECISIONS?

An example of the way in which the use of AI empowered services and detrimental outcomes was perhaps tenuously linked in participants' minds was shopping. Barkha and her friend were talking about their shopping habits in the context of personalised advertising and recommendations:

"Sometimes you don't want to shop but you shop...we have become awful with our shopping habits, we buy even when we don't want to. And then we get rid of perfectly good clothes...There's too much impulse shopping, something pops us and attracts you and you end up buying it."

"It suddenly came up and I bought it... I realised I really didn't need it. I was actually searching for 3M car polish on Amazon."
Achintey, 27, Delhi talking about an LED lighting system for cars

The impact of personalised advertising on children was a concern particularly for parents:

"I'm fine [with personalised advertising] but I'd be concerned about my kids. They're strongly influenced by things. My daughter is very fond of books and if she was shown books again and again online then it would be very bad as she'll be out of control."
Radhika, 36, Delhi

Many participants made reference to what they considered to be addictive or problematic behaviour, either in themselves or others as a function of AI enabled services. Radhika mentioned the way in which social media was driving shopping pressure:

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13 Please note, more attention is given to the linkages made to concerns or downsides because they were more subtle and are generally less understood in research/public debate and not because they outweighed the positives.

"Some of my friends are fond of new dresses every time. Because they need a new one to post a picture on Facebook! This kind of behaviour is really common. I don't have this kind of a problem personally but I feel like this is actually a big problem."

Barkha talks about the way none of her behaviour is *"forced"* but that *"Other people say I am addicted."* She goes on to say *"We cannot live without mobile phones. Before I never felt there was a lack, now if you are without for a day, you go mad."* Despite the advantages conferred by increased shopping using AI enabled services, there seemed at times to be a wistfulness for the 'offline' experience:

"Sometimes I feel like when I get done with shopping or clothes online, then I visit M-Block Market (an up-scale shopping market). I feel like there is so much I missed out on! Sometimes offline shopping is better than online shopping."

Radhaka, 36, Delhi

DRIVING BEHAVIOUR AS AN END IN ITSELF

A different sort of detriment was the way in which AI enabled services became an end in themselves rather than as a means to facilitate behaviours as they were intended. Fitness devices are a good example of this. Chris has a 'step tracker' that he uses competitively with friends (to see who got the most steps over the course of a day). He will often do short walks to add to his daily score which he quite enjoys. However, he also feels that *"…sometimes when I get up and don't have my phone then I think they are wasted steps."* He went on to say later, *"I feel it is actually controlling me a little."* Similarly, Nicola's husband talked about the way in which the use of Strava (a fitness tracking app) could lead to the feeling that if an activity wasn't recorded, it did not happen. He says:

"You have to remind yourself that you are not doing it for the social media posts but for the benefits."

Nicola also talked about the way she found herself walking around in the kitchen to increase her number of steps, *"instead of going to bed"*.

DISTRACTION

Others were concerned about the way AI enabled services ended up distracting them from things that they feel they ought to be doing. Barkha talked about the way she enjoyed watching things on her mobile phone with her headphones on. She did this as she *"wanted to be alone, for it to be me time"*. We see her doing this while her children are doing their homework and then later, when talking with her friend, she laments that

"My two daughters' biggest problem is that I am not listening to them."

Elsewhere she talks about the need for scheduling her life to be able to watch entertainment on Netflix but then relaying how this meant she was not sleeping properly to the extent that she fell asleep in an Uber. Similarly, Aditi talked about the impact that watching Netflix has on her life *"We may sit to watch an entire season which may (take) hours. It disturbs my other activities and we ignore the other things we were meant to do."*

LESS REAL CONTACT

There were also some references to the way in which AI enabled services seemed to increase social isolation. Aditi thought this was the case and talked about the way in which previously, when it was a friend's birthday she would probably phone them, but now with Facebook notifications, instead of calling she would now message over the platform. Murumatsu talked about the ways they have been using Google Calendar as a family which means that they are no longer needing to communicate, as the information they need is readily available. The downside is that *"there are no more what-are-you-doing-tomorrow conversations"* which seems to close down the degree of contact they are having with each other.

THE JOY OF MAKING MISTAKES

"Everything feels like it's curated in a Netflix style. I get that I am being monitored for a curated shopping experience…it feels like I am treated as a bunch of data rather than a human being. It's exhausting!"

James, 28, Sydney

The need for data extraction to support AI enabled services was often cited as a downside, and there was a generalised anxiety concerning the way in which AI enabled services may impact our human experiences. Nakamura wondered aloud if too much AI means we may stop functioning properly as humans. What if, she asks, in the future she and others like her will no longer know how to ask people for directions in the street? James talks about the way having a manicured shopping list or retail experience *"takes the human error out of life"*. He says,

"I want to watch a show I might hate. I think f*ing up and making mistakes is good for life. To have everything advised and sold to you, in a way, can be exhausting. I'd like to have a few more errors rather than have everything manicured."**

Oogushi spoke about the importance of his daughter reading a book once a month as he was concerned that if she is always on her phone being 'fed information' then she may not learn how to develop a sense of imagination or an ability to guess at what might happen next. Achintey considers that although AI enabled services do not shape our decisions, *"it may influence you a little… people are not pushed into anything [but] if you get influenced by tempting things and you don't have control of your mind, you'll fall into the trench."* He added that:

"At times your mind has to fight the AI. It's all about your decision-making power and the experience you have."

THE DOWNSIDES OF THE AI-ENABLED EXPERIENCE: A WIDER PERSPECTIVE

The longer term impact of the lack of agency felt by consumers was a theme some of our experts picked up on:

"With AI it could get as extreme as the system knowing what you need before you do. But when you get to that domain, things get more tricky - what is the boundary between knowing what you want and you being manipulated by it? Those questions and risks are real."

Non-profit AI innovation organisation, India

However, most of the expert participants put issues relating to bias and discrimination at the forefront. These were not covered by consumer participants, the collective impact of AI enabled decision making would not be immediately apparent through their experience and it is hard to identify what you are not seeing or accessing. Discussions covered specific examples of unfairness for consumers based on their race, gender or socioeconomic group where data about them is used to deny a service, such as the Australian AI enabled rental app that made it harder for people in from an indigenous background finding it to get a property.[14]

Other concerns about bias were rooted in state delivered services, which could be replicated in consumer services:

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14 Consumer organisation, Australia

"Law enforcement agencies might have a lot of data about drug dealing in black areas, but hardly any data about drug dealing among privileged, white frat boys. These agencies then focus their law enforcement efforts on the black areas."

Global market research agency

Some felt using AI better by improvements in training data or processes could offset examples like this. However, this still leaves bigger questions about whether greater use of AI was creating more systemic unfairness such as the imbalance of power between individuals and tech giants and who benefits from the rewards of data use.

Participants were also mindful of not exacerbating existing bias or barriers to accessing essential consumer services such as credit, which were pertinent for one participant from India.

"There have been problems with credit rating scores in the West. But in India, some people are arguing that even if in many cases there is some sort of bias, it's more important to get them into the system at all: at least they are getting some sort of credit rating. However, if the credit score is flawed, they're not getting a fair hearing. So it is compounding a social inequalities that exist in the first place."

Technology research centre, India

Others were cautious about the focus on bias and transparency of systems as they are being used right now as being far too narrow and that it could be a distraction from harder questions:

"Even the critique of AI policy in a sense accepts these premises and focuses on bias and transparency of systems as they are used now, rather than power and ownership, both legitimising solutionism and diverting the blame for what are sociological problems onto technology."

Consumer organisation, India

As mentioned earlier, there was a reluctance to label AI enabled technology as either good or bad, and some discussion about how certain applications could be viewed as having both fair or unfair outcomes at the same time.

This is reflected in the question of whether differential pricing or treatment might also be a fairer way of delivery also came up, with most agreeing that this was where decision making frameworks, evidence and governance systems could be helpful to navigate through the opportunities and risks.

"Is it OK to charge more for a flight… because you can pay more? Should we accept and recognise that many services there are differential costs (it costs more to serve some people than others) and that therefore, in one way or another, differential pricing might be fair?"

Consumer organisation, Australia

CAN WE DRAW A LINE?

A recurring theme was the concept of a 'line' that divides the appropriate and useful application of AI enabled technologies from more uncomfortable, risky applications. It seemed that in many ways that a shared understanding of such a line would help in decision making on how best to apply AI enabled consumer technology. For example, it felt more straightforward when used to solve specific problems like object recognition in traffic management or consumer services that follow a particular template:

"If it is serious and AI can do it better, faster and more precisely than humans then it is an opportunity. It has been the same as every technology. Machines make car parts and tailor clothes better, faster and more precisely than humans. That's why we get machines to do these tasks. AI is no different."

Non-profit AI innovation organisation

"There are some areas where people find it easier to understand and accept: when a machine is good at things humans are not good at - e.g counting cars on motorway, or finding patterns... When you talk about it in other areas - financial, criminal justice - people get progressively less happy. And where it strays into taking on an affective emotional capacity, people resist."

Global research organisation

Some thought the 'line' could be drawn based on the nature of the service. This might be about whether a service is a defined as an essential utility like energy, finance or housing. In these cases, there may be detriment to particular groups if they are not able to engage effectively with an automated version of that service, or where automation may make it much more difficult for everyone to say make a complaint, or get redress. Or the line could be based on the extent to which a service engages on more complex or emotional aspects of an individual – a harder concept to define but one that we might think of in terms of 'how much does this impact what it is that makes me human?'.

"If a service can be templatised, automation is fine. But as soon as it gets complex and emotional then it's different. Automated services can make complaints harder."

Consumer organisation, Australia

The consumer participants did not mention 'ethics' explicitly but their discussions of 'human-ness' and autonomy feel closely related to this idea of the thing that makes us distinct as humans.

5. RAISING CONCERNS AND GETTING REDRESS

There is widespread confusion about recourse concerning AI enabled services. The notion that one could complain or even obtain an explanation for what is considered to be a problem often seems far from our participants' minds. Nicola and her daughter shared the way in which Google Maps was directing them to a location they knew well via an expensive toll road and joked the map was *"sponsored by the M2"* but they used an alternative navigation service rather than taking up the matter with Google. Similarly, Gautum felt that:

"[Google Maps] can really mislead you.....I had to go the Rohini Court... it took me to Rohini and told me to turn left. I cross checked with someone else and they told me I should have turned the other way but I listened to the map and it completely misled me.....I got so angry with app...it betrays me a lot so I never rely on it 100%."

In other instances where our participants were seeing things they were unhappy about there was equally little, if any, sense of the possibility they may seek redress for their concerns. For example, Barkha was concerned about some of the recommendations that her daughter was seeing that she felt were inappropriate for a fourteen-year-old. But at no point in this did she voice the possibility of raising this with anyone.

Part of the problem seems to be the sense of 'inevitability' of technology having its own trajectory and as such there is a limit to how it can be changed. A number of participants, including [Nicola's husband] suggested that the options were binary; *"You are either all in or all out"* he said, implicitly indicating that there was little to be done to make it less binary. Failing to be in then meant that you would be *"off-grid"*.

"I don't feel like I can change anything. We can't live without Facebook or online shopping now. I'd feel equally helpless if these things were taken away from me."
Neha, 26, Delhi

In addition, as we mentioned earlier, the downsides of AI enabled services are less tangible and more indirect than the upsides. Our observation is that there are often unspoken concerns but the participants are not very confident in articulating what these are. This means that much of the concern tends to focus on more tangible aspects of the AI eco-system such as data extraction, data sharing and privacy. Finally, the social pressure that drives adoption of these services may also be curtailing the likelihood of seeking redress.

There were occasions when participants did raise the possibility of redress but there was little, if any, expectation of the success. This was perhaps reflected by Chris who said he would only complain about something 'major' as he would not want to complain about 'every little thing', indicating a perception that the barriers to seeking redress were high. And in any case, who would you go to seek redress? Nicole's husband asked:

"Say we all got riled up about Facebook,[15] what do we do about it? Write to the local member [of parliament]? What are they going to do?"

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15 In reference to the Cambridge Analytica scandal

RAISING CONCERNS AND GETTING REDRESS: A WIDER PERSPECTIVE

Expert participants agreed with the consumer sentiment that there was a lack of recourse to redress that only becomes apparent when something goes wrong and made the link to the wider issue of accountability.

Some of this was down to a lack of clarity on who delivers services, for example in India, many government services are being delivered by private companies because the Government does not have the capacity to roll out full-fledged programmes using technology. If the Government is delivering a service that undertakes public function, fundamental human rights regarding say bias and discrimination apply and any breaches could be challenged in court. However:

"If the private sector is rolling out a service and something who goes wrong, who does the consumer approach? There is no clear answer on this yet."

Technology research organisation, India

Sometimes the difficulty in gaining redress may be down to the automated nature of the service itself which might take away the human contact and thus be harder to engage with if something went wrong.[16] This was raised as an issue for consumers in both highly developed digital markets, and emerging digital markets where human contact was being minimized.

The sentiment in the consumer research that the companies are too big to complain to or about, was addressed from a different angle by the expert participants. Many agreed the companies were too big and had too much power, although they did not observe that this had a direct impact on making a complaint.
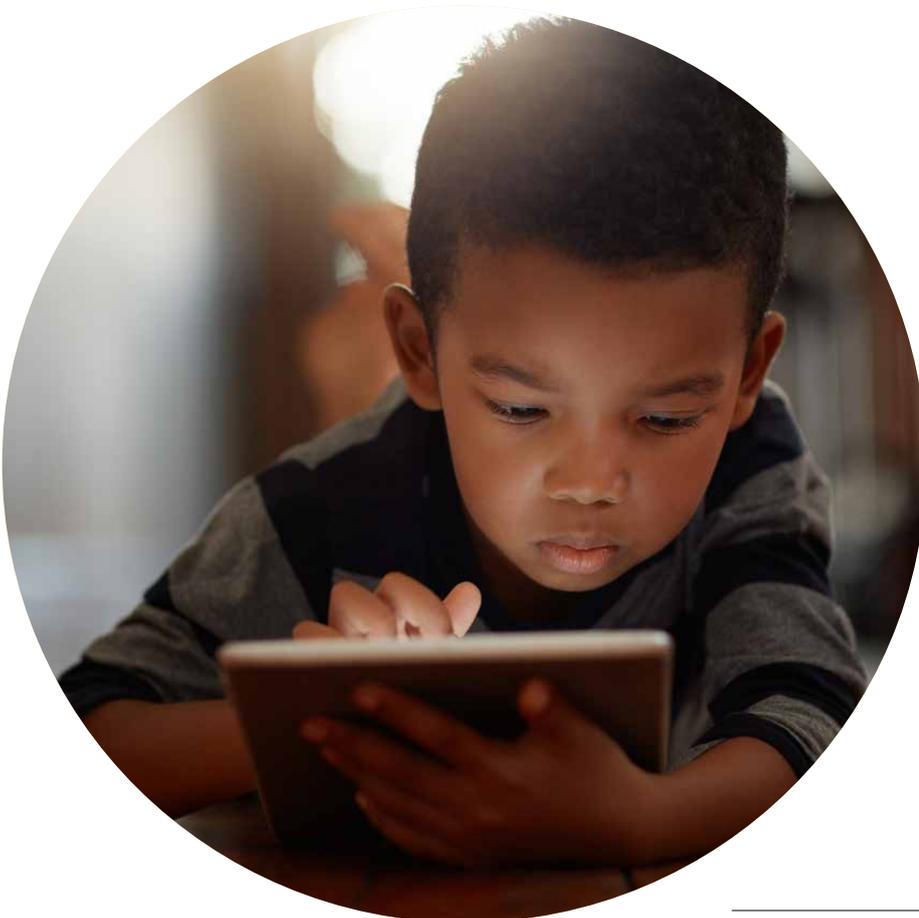
16 Consumer organisation, Australia

6. THINGS CAN GET BETTER

There was a great deal of interest and enthusiasm for AI enabled services, this meant that whenever downsides were articulated, there was a corresponding appetite for improving them. There was a feeling that AI could work a lot better for people's real needs and to meet real opportunities - and no shortage of ideas for how they could work better.

In Japan, in particular, there was a desire for these services to better fit with the way they currently live their lives. Muramatsu (50, Tokyo) spoke about the way she wanted it to *"run a bath when I am on the way home or tell me there is a package to pick up"*. We observed the way in which when they were cooking they struggled to set a timer using their Google Home devices. They persevered but ended up setting three timers and then having to make a judgement concerning which they should use. Tina talked about the way in which her fitness device system required her to adapt to its shortcomings as it failed to properly meet her needs. This was not all that unusual. Guatam felt that Alexa was 'tricky to adopt' as it couldn't take multiple commands at a time or understand their accents.

There was a sense that the personalisation aspect of AI enabled services could be improved. We frequently saw examples of the way in which participants were disappointed by the quality of personalisation, whether this was Kishimoto frustrated that her Manga app was not offering better recommendations, Barkha's teenage daughter saying that her book app 'does not know her well enough yet' for effective recommendations.

Related to this is a widespread irritation of irrelevant advertising particularly adverts that continue long after a purchase has been made. Ura hoped that AI enabled services will be more intelligent in future, going 'beyond the keyboard' and have the ability to identify that she has already gone on holiday instead of continuing to promote the same resort.

Another issue where participants were keen to see enhancements was concerning what we might call 'context sensitivity'. This is when activity they have been conducting in one area is transferred to a different one, resulting in sensitivities. An example of this is Kishimoto who talked about how, when she worked in a beauty salon, the customer mailings were dispatched in brown envelopes which offered discretion.

She said, *"Internet sites don't have that attention, as your information appears in an advert."*

She told the story of a friend of hers who didn't want anyone to know about a particular purchase (especially a man), but it resulted in an embarrassing list appearing in her recommendations. She said,

"AI cannot understand what is embarrassing shopping or not."

This was similar to Barkha and her friend who complained about the way that buying lingerie online results in having adverts pop up on Facebook which was 'very bad'.

A related 'context sensitivity' topic is identifying when and where people want to have personalisation at all. James, for example, talks about the way in which he wants personalised recommendations when it comes to music and entertainment but not in other aspects of his life;

"I can feel disempowered if I feel all my decisions are made for me. Spotify frees up my time. But for other things I don't want to be second guessed as I feel I am losing control."

Finally, whilst many people like recommendations, there can also be a sense in which these fail to reflect an individual's changing preferences. As Radhika said:

"If they can do one thing to improve things, if they show products that are from the customer's taste after reading their history, then you can come up with 1 or 2 new things within these choices. If a customer wants to change their taste, then the person can move to that product... Like these are according to your taste, and then again 2 or 3 new things."

This is similar to Tina who felt that too often with Netflix she would look through the recommendations and is disappointed. She says:

"I have no idea how to correct the profile they came up with. I could wipe it away and start again but I have never bothered to. I just use the search to find recommendations from friends."

Overall, there was a sense that people do have the capacity to imagine that AI enabled consumer services could be better when they were given the opportunity to explore these ideas

THINGS CAN GET BETTER: A WIDER PERSPECTIVE

Expert participants had the same appetite and enthusiasm for finding solutions to some of the challenges of AI-enabled services as consumers. In some cases could even see how challenges could be looked at from a positive angle, such as using AI as a lever to bring to the surface and address broader issues such as in built systemic biases in society:

"The rise of AI is an opportunity to really point up ethical problems in society now: the information asymmetries, the imbalances of power."
Global Market Research Agency

Others were positive that given the journey of rapid digital development that humankind has been on for the last 20 or so years, there is currently more awareness of issues and how to deal with them:

"We have enough intelligence and knowledge for people to make the right policies. We know risks are coming and dangers are there, and we have to figure out ways of figuring out negatives without disrupting growth... I think we can handle it."

Those working in technology were also optimistic about its ability to help address some of the problems it creates such as bias and discrimination:

"But we are solving problems that were considered impossible five years ago. And I think we can do that with bias and discrimination. It's more that so far we haven't paid enough attention to it. I do think we can have good solutions in place and solve them."

Business, Global

"While people often keep their biases and prejudices even after repeated experiences, AI can change. It can be retrained. That is good news."

Non-profit AI innovation centre, India

FINDING THE REAL NEEDS AND REAL OPPORTUNITIES

Many people mentioned the purpose of any AI enabled product or service as being key to its success and legitimacy or meaning. Wadwhani AI's[17] goal is to apply the power of AI for social good to solve tough problems, and have thought a lot about what is the real need and the real opportunity that AI is trying to meet. Their reflections are useful, despite not working directly in consumer applications.

They have found their biggest challenge is figuring out what they should do and who they should work with to discover a problem. Their experience of applying AI to the challenge of eradicating TB began with assuming that automating screening would have the biggest impact, but found that human error in taking samples made a tech solution to the subsequent screening less impactful. In the end, they discovered the most effective intervention they could make was to develop AI to help predict which patients are mostly likely to not adhere to the treatment programme so that those working on the ground can focus on making sure they do. This problem identification could only come from working

collaboratively with those close to delivery and not trying to fit technological solutions where they are not effective. They concluded that *"even if the problem is important and AI can solve it, the solution won't go very far ... if it doesn't fit into processes that currently exist. We have to learn how to tie it up with how things are being done."*

This interviewee's insight and learning into the importance of working with stakeholders to find the best way to apply technology may have come from a healthcare application, but the principle of shaping technology with a diverse range of people to address real needs and real opportunities also applies for consumer use cases.

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17 https://www.wadhwaniai.org/

A COMPLEX AND MULTI-FACETED CONSUMER EXPERIENCE:

THEMES FROM THE CONSUMER RESEARCH

As explained in the introduction to the research design (see page 9), the consumer experience of AI is complex and multi-faceted. It be can be hard to disentangle the influence of AI versus other factors such as new devices, the issues concerning data collection and privacy, or how it links to other aspects of their lives such as independence, agency, needs and preferences.

The ethnographic research methodology used offered an opportunity to tease out the way in which AI itself is influencing the processes that are happening in consumer decision-making. In some instances this provokes uncomfortable realisations or an inability to express their concerns and feelings.

Overarching, contextual theme: humans as 'objects' versus humans as 'subjects'

Humans can be seen as 'objects' that are measurable, predictable and fully knowable, assuming the right tools are used. This, it can be argued, is the way in which AI operates, indeed perhaps this is the only way in which anything other than another living being can operate. Alternatively, humans can be seen as subjects – that is, sentient beings with consciousness, free will and unpredictable intentionality. The degree to which these different perspectives can be separated out has been much debated for centuries and as such it is unlikely that the matter will be resolved in this research. The tension between these perspectives provides context for the other five themes characterising what the researchers found about the current consumer relationship with AI enabled services:

Learned helplessness: There is a significant absence of consumer understanding concerning the way in which AI is shaping their consumer experiences. Given that humans are often driven by a quest for meaning, understanding and a mastery of their environment, this inevitably generates a wide range of 'folk theories' or rumours but typically no resolution – for example, not logging onto different social media sites on the same device to avoid identification. The inability to gain any closure on these questions can lead to a sense of inevitability or helplessness particularly when seeking recourse. There is nowhere to turn when they feel uncomfortable with what the technology is inviting into their homes and they have difficulty naming the threat.

Creepiness: AI necessarily requires a huge amount of data in order to operate effectively. The level of data 'harvesting' and the way data is stored and then used creates widespread concerns. Whilst the concept of privacy is a complex one to explore with consumers, the notion that they can be 'fully-read-objects', often when they have not given their explicit permission – is a matter of concern to many.
For some applications, some of the people interviewed like what data gathering could deliver in terms of finding music and deals, but are also concerned when they felt data collection was undermining their agency and privacy.

Static: Given the way in which AI considers humans in an object-oriented way, it can feel somewhat 'static' so there is a jarring between the dynamic fluidity of peoples' lives and what AI can actually deliver. Given that humans are also 'subjects', with a side to us that is rich, unpredictable and idiosyncratic it is surely no surprise that much of the time AI broadly works but there are instances when it is uncomfortable, and could be better attuned to the changing nature of what people need over time.

Metricised: AI seems, at times to generate an almost alternative reality with 'metrification' of people's lives, creating a new set of consumer motivations, anxieties and potential for dysfunction. A broad theme is emerging that consumers are working to fit with AI – trying to shape themselves from 'subjects' to 'objects' in order to use this new tool. Of course, this is what we have always done with new technology. But the scale and intimacy of AI is something new. There are cases in the research, some direct and others indirect, where this metrification moves from being helpful to unhelpful. For example, making up an expected daily steps quota by pacing around the kitchen before going to bed.

Liminality: Consumers are caught in a liminal space of trying to understand if the way they are being understood by AI is who they actually are, because it has calculated things better than they can, or whether in fact AI has got it wrong. In a way, consumers themselves are unsure if, despite feeling like 'subjects', they are in fact 'objects' and as such technology can know them better than themselves and should therefore defer to the options as presented to them. This tension causes a wide range of anxiety and confusion. For example, taking the route the map suggests even though they know it is wrong.

ACHIEVING THE BEST OF AI ENABLED SERVICES FOR CONSUMERS

THEMES FROM THE EXPERT RESEARCH AND ROUNDTABLE PARTICIPATION

Unpacking and understanding both the positives and the concerns of consumers will be important for companies who want to produce trusted, quality and useful AI products and services that meet or exceed consumers' expectations. It is also important for those designing internal and external responses: from policy frameworks to regulatory options or new practices.

This section focuses on the expert participants' views on the current state of organisational and policy responses to AI enabled technology, and what needs to change in the future. These insights and ideas for further action are drawn from research interviews and from participation in the multistakeholder workshop.

MULTISTAKEHOLDER ROUNDTABLE

Consumers International held a roundtable in March 2019 with consumer organisations, civil society groups, academics and business from Singapore, India, Hong Kong, Japan and Australia. The purpose of the roundtable was to present the research and work with the group to understand how AI enabled technology can deliver the best possible outcomes for consumers, whilst recognising and mitigating against potential challenges and risks. The ethnographic research created three short films showing consumers interactions and attitudes towards AI enabled technology which were shown at the roundtable.

Further reflections on the insights from the films helped to build a shared understanding of the benefits and challenges of AI enabled products and services for consumers individually and collectively. Participants then worked together to group these actionable insights, using these as a basis to understand the main areas where progress needs to be made.

THE NEED FOR BALANCE

Participants reflected generally on how the risks and opportunities of new technologies have been addressed to date - including the concern that policy makers may not understand the technologies they are legislating about, what their real effects are, or how to make a good, effective intervention. Many keenly felt the predicament of *"how to free up growth while having controls for limiting risk"* but while there was an appetite to achieve this balance, there was no agreement on how to do this.

"Significant mismatch between industry practice and consumer expectations results in very heavy handed regulation. That's not good for anyone. Everyone needs to be vigilant… so that these new technologies are developed and applied in lines with the expectations and values of the community."

Consumer organisation, Australia

MOVING FORWARD: MAXIMISING OPPORTUNITIES AND MINIMISING RISKS FOR CONSUMERS IN AI ENABLED SERVICES

Establishing a multistakeholder, global strategy for consumers and AI is not only a new challenge but one that requires collaboration with a broad range of stakeholders, a broad range of actions across a number of different themes.

Consumers International is at the start of its journey to work with others to ensure opportunities in AI enabled services are maximised for consumers, and risks and detriment minimised. The framework below therefore, is not intended to be a comprehensive strategy, but shows the main areas where participants agreed progress is needed, and thus where our initial focus should be.

To make progress on maximising opportunities and minimising risks for consumers in AI enabled services we need to do the following things in the following areas:

1 Opening the black box	2 Enabling agency and control
Understand the purpose of, and the most effective application, of concepts of accountability, redress, transparency and explainability to get the best outcomes for consumers.	Understand the implications of 'tech lock-in'. Understand how best to give consumers meaningful control over how they use AI enabled services, and options for if they do not wish to. Understand how consumers can have a wider choice of provider from a diverse, mixed marketplace for AI enabled services.
3 Regulatory approaches	**4 Defining AI**
Understand how existing regulation can be applied more effectively and test new methods of regulatory practice. Understand where existing regulatory concepts no longer work for an AI-enabled environment and may need adaptation. Learn from past regulation of digital to understand what will work best for AI.	Create a shared, clear understanding of AI in the consumer context and a shared understanding of risks and implications. Understand the reality of AI and not be distracted by exaggerated claims Understand the different cultural contexts for how AI is developed and applied.
5 Creating new structures	**6 Building AI literacy**
Create trusted, multistakeholder expert institutions that can help shape governance of AI. Understand how company culture and employee profile impacts on design and delivery of AI, and how to ensure it is more diverse and open to scrutiny.	Understand that everyone has a stake in how AI is designed and deployed and therefore learn how to build relevant capacity for consumers, policy makers, technologists, designers and companies.

The reasons why these focus areas were prioritised as important are set out overleaf. The research participants had many ideas as to what could be done under these headings, which are summarised as suggested points in each section.

1. OPENING THE BLACK BOX

ACCOUNTABILITY

Accountability is a richer notion of transparency – it ensures that if something goes wrong there is appropriate recourse. In order to identify that your rights have actually been violated, a person would need to know the basis of that decision, something which is very difficult in an opaque, algorithmic decision making process. Who developers of AI are accountable to is also key, which then helps to define whether accountability frameworks should be set and monitored at the public policy level or other. Accountability can be to the individual user of a particular device or service, or it can go wider:

"**Accountability needs to be to the public and community. The Government's role is to make sure that algorithms are operating in a way that is meeting the laws and regulations of that country, that the innovation that is being delivered is with consent and in line with community values and expectations.**"

Consumer organisation, Australia

TRANSPARENCY AND EXPLAINABILITY

Whilst accountability was seen as key, the question of whether it could be enabled or achieved through transparency or something much more radical was a disputed point. The purpose of transparency needed to be clear and this would guide the mechanism by which it is implemented. For example:

- Transparency to standard setting bodies or testing bodies, so that algorithms could be tested for fairness and bias would require the development of protocols and descriptors of algorithms, and the development of 'testable' algorithms. However, challenge for companies in being public about their intellectual property was acknowledged.
- Transparency to regulators could then require the use of audits, public reports, or any method that enables them to access information into what is going on.

- Transparency to consumers and the role of information asymmetries.

Policies to force greater levels of transparency was important particularly because of information asymmetries with regard to what companies know, and what consumers know. However, the limitations of directly providing transparency at an individual level through pop-up notifications for example, was acknowledged or more strongly challenged:

"**Transparency to whom, for what purpose? If all it does is result in individuals being given 10,000 word privacy policies then it's not much use at all.**"

Consumer organisation, Australia

A couple of commentators saw the history of transparency in digital policy as a cause for optimism, for example the expensive technical hurdle faced by telecoms companies in producing itemised bills when mobile phones were first introduced:

"**In Australia around 30% of total cost of roll-out went into solving that problem…. The companies accepted they couldn't just send you a bill and not explain how they arrived at that figure. They accepted they had to make that investment, the principle was normalized. By contrast not nearly as much resource going into explainability of decisions made by data points. It is difficult, but not that difficult. Tech companies have to make a similar sort of investment in these things. We are not looking for perfection but we can address the problems.**"

Government agency, Australia

MOVING FORWARD:

Under the focus area of *'Opening the black box'* the research showed there was a need to understand the purpose of, and the most effective application of, the concepts of accountability, redress, transparency and explainability to get the best outcomes for consumers.

Some actions that might be explored include:

- Define the things that are to be held accountable for and who should be held to account
- Establish how they can be held to account: public documentation, guidelines developed from regulations
- Establish who has the role of holding to account and ensure effectively resourced to do so: government, civil society, pressure groups
- Establish processes for the review and challenge automated decisions, through for example a consumer 'right to free review'
- Clearly define the purpose of transparency in order to guide the mechanism by which it is implemented.
- Develop protocols and descriptors of algorithms to enable them to be tested for fairness and bias
- Force greater transparency from companies and investment in mechanisms to explain activity to consumers
- Explore how to show consumers that something has been developed fairly, eg explaining adversarial testing
- Understand what information is important to consumers and how best to give them this information.
- Explore potential for standards processes to create standardised information that would make it easier for third parties or auditors to compare/analyse.
- Introduce a 'duty to explain', if delivered via AI then it must be able to give as good an explanation as a human (parallel to Turing test)

2. ENABLING AGENCY AND CONTROL

Participants felt the 'all in or all out' nature of technologies increasingly driven by AI captured the problem of a lack of agency. Consumers can find themselves in a situation where if they don't like what is going on their choices are limited to resigning themselves to continued use or withdrawing from a service altogether. Granular options for setting data controls are increasingly available, but given our knowledge of human behavioural tendencies, may not provide the type of choice and agency required by consumers.

Participants also identified the social pressures to stay engaged in new technology, and the sense that people thus become reliant on AI enabled technology at the same time as having doubts about its impact now and in the future. This 'tech lock-in' is a new phenomena not well understood but one that has implications for policies designed to enable choice and movement.

CONCENTRATIONS OF POWER

Many participants felt that AI tended to create concentrations of power, which lead to monopolistic behaviour and too much unmediated influence with policy makers. They felt competition and new entrants needed to be encouraged. An interesting point on how to define monopolies in the digital economy and society was raised by a former national regulator:

"We need to see the potential of AI and in that context we may have to re-discuss the definition of a monopoly. Current definitions of monopoly are based on markets for specific products. But data has different characteristics. What is new today is that every consumer now is using applications and services on the internet for free. They're not paying for these services, the counterpart being that they are giving up their data.

We need to have new thinking about competition law - we need to have debate on these issues. Too easy to say 'they have a monopoly. It is bad'. But we need new rules that keep existing services for free and that protect people at the same time... it is an interesting moment in that we are testing different frameworks."

Former regulator, Japan and OECD

MOVING FORWARD:

Under the focus area of *'Enabling agency and control'* the research showed there was a need to understand how best to give consumers meaningful control over how they use AI enabled services, and options for if they do not wish to. There was also a need to understand how consumers can have a wider choice of provider from a diverse, mixed marketplace for AI enabled services.

Some actions that might be explored include:

- Establish a multistakeholder process to understand and define what consumers mean by choice, agency and control in digital economy and society and what the experience of 'tech lock-in' means for policy making
- Rights to data portability that enabled consumers to get hold of their data and transfer it to other services
- New rules about data sharing between companies to even the playing field
- Further exploration of the nature of competition and potential for detriment in AI environments

3. REGULATORY APPROACHES

Some felt issues such as bias and discrimination could be dealt with by existing regulation, the problem being that it is currently either being interpreted laxly or not being implemented. In some cases, applying concepts from other fields such as human rights to the consumer experience could address an issue such as discrimination. In other cases, participants felt existing consumer law was adequate but was not being applied or enforced.

"The best case is to make regulations that empower agencies to act. For example, Congress to empower the FTC to make rules. We need more agency action, because regulation is slow."

Consumer organisation, USA

Some though, felt that particular existing concepts needed more development or adaptation to be useful for creating a useful framework for the application of AI in consumer technologies. For example the concept of 'harm'. There was a sense that looking for 'harm' in terms of material – damage or loss of money did not translate into AI world. Getting something into legislation often requires defining a specific, measurable harm. For things like a self-driving car this is obvious. But, as the consumer research showed, the lack of a shared language for this can make it very difficult to pin down in AI environments - for example, how to define the negative experience of being continually creeped out, or of having ones' choices of film or music narrowed:

"A world full of bots. Nothing hugely dramatic in any one place but just lots and lots of irritating crap all round; a thinner experience where consumers' individual experience is not as rich. Yes, this may not be a life and death issue but it is still what people experience."

Global market research agency

INDUSTRY INITIATIVES VS HARD RULES

Company efforts to lead on responsible AI such as Mozilla's work on algorithmic accountability, and Microsoft's work on the ethical use of AI were singled out by consumer groups, as well as multistakeholder initiatives like the 'Safe Face Pledge'. Only a handful were mentioned by participants which potentially suggests a lack of awareness of other industry or multistakeholder initiatives. However most were critical of things like self-regulation and consumer education, with the feeling that such responses had reached their limits and that for something with such a significant impact as AI, a braver or more innovative approach was needed:

"Consumer education is a nonsense. Why educate when you can just get companies to stop doing bad things? Relying on better business practices brings very limited benefit. Self-regulation never works, except where a brand's reputation is directly on the line. If it's a commercial model, won't change without legislation/regulation"
Consumer organisation, Australia

"Considering the oppressive and the emancipatory potential of AI systems it becomes our task to critique both the social relations it is premised on and provide an alternative imagination for AI."
Consumer organisation, India

A more innovative policy approach would rely on understanding how decisions about tech application were made which were felt to be closely related to company culture, the way AI is understood and the way that decisions on what is developed and how is concentrated in a small number of large companies' hands. It is the responsibility of policy makers to design the governance of the system, and to establish the nature and contents of regulatory toolbox based on challenging questions around where value is created and who benefits.

LIMITATIONS OF THE ETHICS DISCOURSE

Bringing ethics into making decisions on how and where AI makes choices has been a major topic when thinking about implementing AI in the fields of defence or justice. Through the research, the issue of ethics in the consumer context was raised a few times. While the airing of ethical issues was welcome, it was seen by some as crowding out other useful concepts that could be applied to AI policy frameworks such as: duty of care; product liability or consumer protection. The notion that most issues in AI enabled technology were related to ethical decision making, and could thus be addressed through the development of shared ethical principles and codes was challenged. It was felt that the term was being used in a limited way by tech companies that did not translate into guidance, or reflect the existing robust approach to ethics such as international human rights law which provides established, normative content.

MOVING FORWARD:

Under the focus area of *'Regulatory approaches'* the research showed there was a need to understand how existing regulation can be applied more effectively, alongside testing new ways of regulatory practice. Understand where existing regulatory concepts no longer work for an AI-enabled environment and may need adaptation. Learning from past regulation of digital to understand what will work best for AI was also important - particularly in terms of the limits of self-regulation and information remedies.

Some actions that might be explored include:

- Carry out regulatory gap analysis to understand where new action is required at national/international level
- Empower agencies to act within their remit
- Investment in international dialogues to learn from each other how to create the right sort of regulation
- Develop a better understanding of education and information remedies
- Establishing a regulatory hierarchy for AI applications based on risk and coverage
- Develop a regulatory toolbox for AI
- Develop a better understanding of the efficacy of ethical guidelines are being used as a tool to guide decision making in consumer AI

4. DEFINING AI

Almost everyone found the way the term AI was applied confusing, and that this lack of clarity was making it hard to engage in a constructive dialogue on how best to manage the opportunities and risks of AI. Many felt there were myths around what AI was actually capable of, plus a lack of a neutral measure of how to model the likelihood and severity of predicted risks.

Added to this, different cultures have different ideas of both what it means to be human, and what is meant by intelligence. This is significant as it will influence the perspective on artificial 'intelligence' which could influence the way that it is applied in society, and thus the framework around it (see page 6). The regional differences and the stages of the AI journey that different countries are at must be reflected in multinational dialogues on AI. This is important given that many participants felt that AI was something that was being imported into their societies by foreign companies (see page 6).

MOVING FORWARD:

Under the focus area of *'Defining AI'* the research showed there was a need to create a shared, clear understanding of AI in the consumer context and a shared understanding of risks and implications. A need to understand the reality of AI and not be distracted by exaggerated claims and a need to understand the different cultural contexts for how AI is developed and applied.

Some actions that might be explored include:

- Establish an international multistakeholder process to agree an effective and useful definition of AI in the consumer context
- Establish institutions or processes to provide fact checking/verification of claims for AI capabilities
- Establish central, national organization that would be a source of respected expertise on AI and would establish a neutral framework for modelling and measuring the risk and impact of AI on consumers (this could be a function of the body suggested in *'Creating new structures'*)

5. CREATING NEW STRUCTURES

ORGANISATIONAL RELATIONS

Some pointed to governments being too reliant on large technology companies for national investment and technological expertise, and those companies presenting AI as a force only for good that requires no intervention. This links back to the need to improve AI literacy for all -including policy makers.

"Companies are selling "AI solutions" to problems where neither what constitutes AI nor whether these problems are technological in nature is debated as fiercely as it should, if only to prevent unforeseen consequences."

Consumer organisation, India

"In Japan, large ministries are trying very hard to create a big business opportunities and profit for companies and they protect AI industries. But still they do not think about consumers' side at all. And it is a very sad story that the Consumer Agency in Japan has no idea about protecting consumers from risks of AI."

Consumer organisation, Japan

INSTITUTIONS

One commentator called for a central, national organization that would be a source of respected expertise on AI, that could have both regulatory functions but also takes intellectual leadership, an idea being taken forward in the UK and France. The need for effective international forums that crossed national boundaries and were able to provide international perspectives and initiatives. Investing more in dialogues that would help create the right sort of regulation was also important. Shared principles are important here, a set proposed by a participant included: human-centric, education, privacy, security, fair competition, fairness, accountability and transparency and innovation.

COMPANY CULTURE AND EMPLOYEE PROFILE

Some interviewees placed a high degree of emphasis on the normative context of company decision-making, in other words what people assume to be acceptable or not. These norms were also linked to employment practices, if employees come from a very restricted group of people how can they do anything but reinforce the assumptions of that group?

"Almost invariably, software developers getting the jobs in tech firms come from a different caste to the people who might be using the service. Often, because of their backgrounds they just don't 'see' that there might be an issue…"

Consumer organisation, India

"We are thinking of proposing a requirement that any company providing services to diverse consumer segments… should also be required to have a diverse employment base in the creation of products and services."

Consumer organisation, USA

MOVING FORWARD:

Under the focus area of *'Creating new structures'* the research showed there was a need to create trusted, multistakeholder expert institutions that can help shape governance of AI. The need to understand how company culture and employee profile impacts on design and delivery of AI and how to ensure it is more diverse and open to scrutiny is also important.

Some actions that might be explored include:

- Establish an AI ombudsman for consumer redress
- Developing a set of shared, global principles for AI
- International forums to provide international perspectives and initiatives
- Establishing central, national organization that would be a source of respected expertise on AI, that could have both regulatory functions, and that can work with equivalents across borders
- Policies to promote or encourage a more diverse workforce

6. BUILDING AI LITERACY

Some participants pointed to the lack of capacity in regulatory bodies, enforcement agencies and consumer groups:

"There is an issue about the skillsets of regulators, trading standards bodies and even within the consumer organisations we have dealt with who may have many years of experience dealing with toasters and perhaps financial services but are struggling to keep pace with regulation and other approaches that are ready."

Startup business, Global

"I should also stress the education part here. In many cases even some of these groups that are fairly vocal don't necessarily understand the state of the art."

Business, Global

The skills, knowledge and background of the majority of people involved in developing and designing AI enabled services is also important here. A more diverse employee base may in itself impact on the priorities of designers, but creating design processes, or bringing in a broad range of stakeholders at different stages to prioritise and support the consideration of the breadth of risks and opportunities could also help:

"Absolutely at the first beginning of the process of making products or creating new services. At the design stage the fundamental policy should be discussed. I think consumer organizations should work together with companies, researchers and test-lab at every stage of producing AI products."

Consumer organisation, Japan

MOVING FORWARD:

Under the focus area of *'Building AI literacy'* the research showed there was a need to understand that everyone has a stake in how AI is designed and deployed and therefore learn how to build relevant capacity for consumers, policy makers, technologists, designers and companies.

Some actions that might be explored include:

- AI literacy programme: for anyone involved in AI development and use such as policy makers, designers, investors etc.
- Increase or change institutional skills levels
- Work with universities and leadership programmes to develop capacity building in AI
- Clear, neutral information on risks and implications for consumers (provided by expert bodies as suggested in *'Creating new structures'*)
- Development of design protocols and guidance, and testing frameworks for designers of AI, link to the algorithmic impact assessments outlined in *'Opening up the black box'*
- Develop applications of 'human rights by design' into AI products and services using multistakeholder processes, involving lawyers, engineers, consumer groups.
- Ensure there is a diverse mix of skills required in design process, for example require engineers and technologists to take humanities courses to understand holistic impact of technology they design

CONCLUSION: COLLABORATION AND CO-OPERATION WITH A WIDER RANGE OF VOICES

One thing that every expert participant agreed was the need for more cross national and cross sectoral co-operation.

"No discipline has a uniquely appropriate solution."
Consumer organisation, Australia

"It does a service to the entire ecosystem when everyone collaborates"
International Standards Organisation

"If we can bring together companies, researchers in academia, consumers, privacy advocates and so on to the table we will be able to come up with ways forward"
Global business

On a practical level, new multi-national frameworks for responding to the challenges and opportunities of AI are needed to address the cross-border nature of the technology. This is not a new concept for digital technologies, however for AI some felt the additional, greater need to bring in wider perspectives. One participant was optimistic about the value of this approach:

"You have to create a community of experts that are capable of making these decisions. We need greater convergence of technical and social, moral education.

This is probably fundamental. We need to get more people asking these questions at early stages. We need more forums and committees with power. Humans have done this before with other challenges."
Non-profit AI innovation centre, India

NEXT STEPS:

The research showed an appetite to work together across sectors to address the challenges and opportunities identified in the six areas. Consumers International is currently building a Change Network to bring together the consumer movement with leaders from government, business and academia to address the most pressing issues for consumers in the digital economy and society.

Working together increases the potential to identify and catalyse solutions that will lead to real and meaningful change, putting consumers at the heart of digital developments including AI. If you would like to be part of this network please see Consumers International's website for more details.