ICC policy statement on Artificial Intelligence

Artificial intelligence (AI) is an umbrella term, broadly understood to mean the science of making a machine appear to replicate intelligent behaviour. While variations of AI deployment have been recorded since the 1950s, today's increased and more accessible computational power through cloud services, connectivity, enhanced algorithms and the evolution of big data[1] are becoming core foundations and drivers of this technology. As with all technological innovations, while AI encapsulates tremendous opportunities for society, new challenges are also introduced.

To embrace AI as an accelerator for realising inclusive and sustainable economic growth, the International Chamber of Commerce (ICC) has prepared this policy statement to increase understanding among governments and business about how the technology works in practice, and the types of policy approaches necessary to support human-centric AI. ICC plans to use this resource as a launching board for developing business principles on AI to foster trust and accountability, while encouraging collaboration among relevant stakeholders to enable its broad adoption.

Defining "artificial intelligence"

As noted, Artificial intelligence (AI) can be broadly defined[2] as the capability of a machine to give the impression of intelligent behavior and perform tasks normally requiring human intelligence. Specifically, AI has the capability to think, reason, act, and adapt, based on learnings from past data, but there are many approaches to AI. One family of techniques is **machine learning,** which comprises algorithms[3] that can gain experience by learning from large amounts of data, without relying on explicit programming. Using machine learning, machines are starting to understand what they are seeing, reading, and hearing. **Deep learning** is one machine learning method which uses neural networks to learn from vast amounts of data. This could include text, language, images, video and enables image classification and language understanding. As a network processes data, connections between the parts of the network adjust, refining a machine's ability to interpret future data.[4] Deep learning has led to the fall in error rates in AI-driven image recognition.[5]

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[1] https://iccwbo.org/publication/icc-policy-primer-on-the-internet-of-everything/
[2] For example, other definitions include: https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/ead_safety_beneficence_v2.pdf
[3] Glossary: an algorithm is a sequence of instructions.
[4] For example, you feed a computer with millions of images about a car that are associated with the word and labelled as such. Once it is trained, the computer can recognise the picture of a car.
[5] Alternative models to deep learning also exist. They include attempts to work on causality rather than correlation, or minimizing the dependency on existing data.

Embracing AI for sustainable economic development

AI is a general purpose technology that holds the potential to increase productivity and build cost-effective, impactful solutions in numerous sectors. Its promise is that the knowledge gained from applying analytics and machine learning to the data available will enhance any decision-making process. AI can contribute additional insights, leading to better outcomes and improvements in every aspect of people's lives and the world around us. AI is perceived as a great transformer for both developed and developing economies. Research has estimated that AI can double annual economic growth rates by 2035 for developed countries[6]; in developing countries, the United Nations (UN) agencies have embraced AI as an accelerator for realising the 2030 Agenda for Sustainable Development.

The image offers a framework for considering how digital technology can be leveraged for sustainable economic development. The framework underscores the need for holistic policy approaches to ensure the necessary infrastructure, applications, services and user engagement are in place. For more information see: ICC policy statement on ICT, Policy and Sustainable Economic Development (2018)

Agriculture

Equipping traditional farm devices with AI technology and robotics can increase workers' safety and decrease negative environmental impacts, for example by automated and targeted pesticide applications. Higher productivity and overall lower cost of production in agriculture will benefit both producers and consumers, especially in the developing world.[7] Where help from veterinarians is scarce and reliance on livestock is high, AI can also support farmers to protect their animals from disease outbreaks. For example, an AI supported mobile app using real-time data from body sensors notifies farmers early on about health risks to livestock, giving them the chance and ability to prevent a wider outbreak.[8]

Energy

In the energy sector, utility companies that produce renewable energy are using AI services to better capture, analyse, and act on the information gathered across electrical grids. Through this technology, companies are now able to predict and respond to changes in demand. Data that fuels AI has enhanced the performance of existing infrastructure,

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[6] https://www.accenture.com/us-en/insight-artificial-intelligence-future-growth
[7] https://iq.intel.com/smart-farm-equipment-helps-feed-world/?_series=artificial-intelligence
[8] https://news.microsoft.com/apac/features/saving-farming-families-tech-one-cow-goat-buffalo-time/

2

reducing the need for expensive new projects. AI is helping to create more effective, reliable and autonomous grids, while enabling customers and the public sector to consume more renewable energy.[9]

Health

AI can improve access and treatment to healthcare.[10] For example, through machine learning, a deep learning algorithm has been trained to detect diabetic retinopathy (DR) - a medical condition in which damage occurs to the retina due to diabetes - by using over 128,000 images evaluated by ophthalmological experts. The performance of the algorithm was successfully tested on two different datasets totaling 12,000 images to see if it could successfully detect DR independently of the training dataset. The application of machine learning in diabetic retinopathy is a breakthrough in the fields of AI and healthcare. Automated diagnosis of DR with higher accuracy can assist hospitals in evaluating more patients and prioritising treatment.[11]

Global supply chains

With data from different stakeholders in the supply chain, AI can help businesses predict and regulate inventory, provide faster and cheaper shipping routes, and reduce disruptions. Customs administrations are planning to implement clearance systems powered by AI to improve risk management. For example, AI powered X-rays can identify high risk shipments.[12] AI can also be used for tariff compliance with the classification and verification of harmonsied system commodities using data and X-ray scans.[13]

Transportation and sustainable mobility

AI-enabled solutions in the mobility and transportation sectors could go a long way in making cities more sustainable.[14] In Estonia, the government is working on a full legal and cyber-risk management framework for using fully autonomous vehicles in regular road and traffic conditions.[15]

Fraud and cybersecurity

AI can support autonomous detection of malicious behavior, and corresponding alerting and response mechanisms, streamlining how major cybersecurity threats are countered. It can even be used to augment the development process by automating security testing before a product is released.[16] AI can also help to detect, investigate and prevent fraud, which has become a significant issue for many public and private organisations. Cybersecurity firms are

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[9] https://news.microsoft.com/2016/10/06/microsoft-and-agder-energi-collaborate-to-build-an-intelligent-grid-powered-by-an-intelligent-cloud/#sm.0000yfpfka16ceel0tmzlk1tv42xz
[10] https://code.fb.com/ai-research/facebook-and-nyu-school-of-medicine-launch-research-collaboration-to-improve-mri/)
[11] https://www.forbes.com/sites/stevebanker/2017/10/07/global-trade-is-powered-by-artificial-intelligence/#646689763d34
[12] https://www.forbes.com/sites/janakirammsv/2017/09/05/googles-research-in-artificial-intelligence-helps-in-preventing-blindness-caused-by-diabetes/#18f51f5a56e1
[13] http://www.wcoomd.org/~/media/wco/public/global/pdf/topics/research/research-paper-series/39_okazaki_big-data.pdf
[14] MARIE CHATARDOVÁ, President of the Economic and Social Council, GA/EF/3477-ECOSOC/6871, 11 OCTOBER 2017
[15] Sven Jürgenson, UNGA Second Committee Chairman, 11 October 2017, New York:
https://www.un.org/development/desa/en/news/intergovernmental-coordination/robot-sophia-joins-meeting.html
[16] https://blogs.microsoft.com/ai/ai-for-security-microsoft-security-risk-detection-makes-debut/

3

using AI to predict threats of network intrusion, thereby using data to protect data. This advances public security.[17]

AI Policy Framework

Along with current and anticipated benefits, AI's economic impact also holds some challenges. Often surrounding the role of humans, transparency, and inclusivity, these concerns are important for all stakeholders to recognise and share responsibility in addressing them.

Technical policy considerations

Infrastructure

Efficient, reliable and widely accessible broadband communication networks and services, data, software and hardware are the foundation for the digital economy.[18] Effective use and adoption of AI will increasingly rely on having a strong information communication technology (ICT) ecosystem which is capable of processing the large amounts of data needed to develop, improve and apply AI. Governments should address these needs by offering better incentives for infrastructure investment and deployment, e.g. by working towards a more consistent legal framework across borders.

While significant progress has been achieved and an additional 1 billion people have come online via the mobile internet since 2014, based on current trends, almost 50% of the world's population will still be offline by 2020 and 40% will still be offline by 2025.[19] Stakeholders must continue collective efforts to address digital divides, so that adoption of AI does not further exacerbate economic inequality across and within countries.

Connectivity and meaningful access

Broad adoption of AI will rely on populations having meaningful access to the technology. For instance, given the limited computing power of terminal devices, new technologies such as "edge computing" – processing infrastructure that exists close to the sources of data[20] – will be crucial for ensuring widespread access to AI. Governments should take a holistic policy approach that supports sustainable investment. This approach should consider all supporting layers of the ICT ecosystem, including infrastructure, applications and user engagement.[21] It is important for public policies to promote investment in next generation broadband technologies, to enable new applications and services that are bandwidth intensive and quality sensitive. To serve as an incentive for risky and long-term investments in fibre and 5G, policies must provide long-term legal certainty and should encourage rather than restrict the development of innovative products, services, and healthy digital ecosystems.

Cybersecurity

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[17] https://www.intel.com/content/www/us/en/analytics/ai-luminary-michelle-delaune-video.html
[18] https://read.oecd-ilibrary.org/science-and-technology/oecd-digital-economy-outlook-2017_9789264276284-en#page30
[19] https://www.gsmaintelligence.com/research/?file=c0bcc185be555f77478a8fdf986ea318&download
[20] https://www.ge.com/digital/blog/what-edge-computing
[21] As outlined in the ICC policy statement on ICT, Policy and Sustainable Economic Development (2017)

4

Positive, security-enhancing uses for AI should be considered in the context of the security threat, as it can automate the protection of data at a scale not possible before. While AI can enhance cybersecurity protection, like any technology, it can also be used for malicious purposes. The potential for AI to be used to perpetuate cyber attacks necessitates appropriate research funding and incentives to leverage AI technologies in a responsible manner.

To ensure security in AI applications (including data security), industry and governments should support development and use of global cybersecurity standards and related responsibilities.[22] AI products and services also introduce new threat vectors themselves, which require AI-specific principles of secure design. Policy developments surrounding AI should align with existing cybersecurity standards and facilitate the use of risk-based approaches.

Research and innovation

Policies should promote and make public funds available for AI research and development, including data sets and test laboratories to encourage further innovative AI applications. Governments and business should establish public-private partnerships to fund AI-powered flagship initiatives (for example cancer research, climate change, cybersecurity). Governments should encourage and support universities to collaborate with private companies in AI research and innovation development as well as human resource development.

Economic policy considerations

Data protection

AI innovation is built on high quality and diverse data sets – some of this "big data" may include personal data which raises data protection and privacy concerns. For the potential of AI to be realized, it is essential for people to trust that their personal information will be used in ways that are responsible and respectful, and that their data is safe. Risks can be mitigated by adaptable and secure software design. Companies should comply with relevant data protection rules and regulations and work towards recognised and applicable best practices. In addition self-regulatory efforts may be both a flexible and effective method for achieving data protection. Companies should ensure that personal data is appropriately secured as AI technology and services evolve and update the authorities about those developments.[23]

Governments and policymakers should assess how existing privacy rules can be applied in ways that would foster trust and global interoperability without stifling AI innovation. For example, governments can provide incentives for broader use of data de-identification techniques that substantially increase privacy protection, including broadly exempting use of such data to further the public good when coupled with administrative controls and commitments to not re-identify data. This would enable further continued innovation of responsible AI.

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[22] The National Institute of Standards and Technology (NIST) Cybersecurity Framework and ISO/IEC 27103 represent approaches to cross-sector baselines with proven effectiveness.

Moreover, governments and policymakers should aim to streamline existing tools and work towards globally consistent and interoperable policies to foster protection and build trust across all technologies and environments.

Data use and access

AI innovation will also be facilitated by the flow of data across borders. In this context, governments should ensure that all citizens and companies can realise the full potential of AI for innovation and economic growth, by implementing policies that facilitate adoption and the global movement of data.

To encourage AI access and development, governments need to encourage sharing of public and publicly-funded data, and making these data available for research and commercialisation uses. While protecting privacy, data sets of public bodies should be made publicly available. In particular, governments should boost open government data initiatives to make public sector data sets available in machine-readable formats. Guidance should be provided to startups and small and medium enterprises (SMEs) for reuse.

Some have argued that business data generated by companies across industries should be made more accessible. However, not all data are available to use. There are legitimate concerns related to data security, data protection and privacy, and intellectual property rights that need to be considered. Companies should not be obliged to share proprietary data, including data that entail business secrets, since this would discourage investments and adversely impact innovation. Commitments to strong data governance and policies around data use and sharing could serve to ease these concerns and encourage voluntary agreements.

Public sector as an early adopter

In order to advance public services and facilitate e-government initiatives, the public sector should remove barriers to early adoption of AI to advance public services and demonstrate the tangible benefits that AI application can bring to citizens. This will also enable further awareness and understanding of AI overall.

Encourage adoption of AI including by SMEs

Addressing bottlenecks and fostering AI adoption including by SMEs should be a priority. SMEs will benefit the most from digital skills development, the availability of public training data, and collaboration with larger companies and universities in research and innovation clusters.[24]

Open and competitive AI markets to encourage innovation and efficient business practices for all market players

Governments should promote open and competitive AI markets while encouraging innovation and efficient business practices for all market players. Non-prescriptive and flexible policy frameworks are essential to allow innovation to thrive while providing legal certainty, fostering investments in AI, and to addressing AI-related risks. Policymakers should not rush into

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[24] For example: Academy for start-ups and AI Academy

specific AI legislative initiatives, which could hinder the development of AI and create legal inconsistencies. Governments and policymakers should assess existing policy frameworks to see if they are fit to address AI and adapt existing legal frameworks rather than creating new AI specific laws. <mark>Any new regulations should address specific consumer harms in ways that are outcome-based, technology neutral and sector-specific.</mark>

Social/cultural policy considerations

Labour markets

AI can create challenges for inclusiveness and labour markets. Some have voiced concern that AI risks putting a strain on countries that lack investment capital, research and development and highly-skilled talent to take up new types of work.

AI will likely automate tasks, especially predictable and physical activities or data collection and processing. However, predictions by economists differ significantly on how many jobs and tasks could be automated through AI.[25] AI will also lead to the creation of new jobs, as experts will be needed to design, operate and effectively use AI systems. The nature of the impact of AI on jobs also has many dimensions. While some jobs and tasks may be automated, AI can also empower workers by improving human safety and taking over tasks that are too hard or too dangerous for people. For example AI software can be applied in some industries where the working conditions are hazardous to human workers (such as chemicals).[26]

To equip populations with the skills needed to take up future forms of work, governments will need to collaborate with the private sector to adapt education and training opportunities. Dedicated AI university studies and education combining AI with other disciplines should be established. Science, technology, engineering, and mathematics (also known as "STEM" skills) should be promoted since they are a good foundation for AI related jobs. Education courses should also train students holistically in the humanities and history, to better understand the cultures and contexts in which their technologies will be deployed. Uniquely human skills such as empathy, collaboration, critical and analytical thinking should be emphasized in training courses.

Government and business should implement policies and practices that support the up-skilling of the workforce. AI training materials should be made broadly available to employees, especially through popular massive open online courses (MOOCs), with content free of charge and instant access. Encouraging lifelong learning will also become increasingly important in a still emerging and dynamic AI environment. Business leaders need to invest more in human capital and put skills development front and centre of corporate strategy.

Governments should design and implement programs to help mitigate the social impacts of job transition and assist in helping people reskill and adapt. Attention should also be given to

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[25] A 2013 study from Oxford University claims that about 47% of total US employment could be affected by automation. A report from the Centre for European Economic Research on behalf of OECD predicts that up to 15% of jobs could be automated through AI. Arntz, Gregory and ZIerahn (2016) estimate that on average across the 21 OECD countries, 9% of jobs are automatable. McKinsey states that very few occupations, less than 5 percent, are candidates for full automation but almost every occupation has partial automation potential.
[26] http://allafrica.com/stories/201802280746.html

job areas less likely to be automated, and those overseeing direction and operation of AI systems. Political systems should also reflect on the structure of current social safety nets, and ensure technological advances do not engender social disintegration and exclusion.

Inclusiveness and diversity

Business should work with other stakeholders to ensure AI reflects diversity in race, gender, sexuality, social and cultural norms. Sourcing technical experts from diverse backgrounds can help make AI products, services and access more representative and inclusive by design.

AI tools that promote access for the elderly and those with disabilities should be given attention. AI is already supporting people with disabilities and senior citizens with sensorial, physical or cognitive impairments who are often excluded from mainstream information sources and services.[27] Business can work together with other stakeholders through capacity building initiatives, public-private research and development partnerships.

Trusted AI

Modern AI techniques use complex numerical and statistical functions. Their applications can raise ethical questions and legal challenges over transparency and the role of and impact upon humans. In particular, neural networks as used by deep learning, often offer low levels of reasoning or traceability to explain results. Algorithms and automated decision-making may raise concerns over loss of self-determination and human control. This can also raise questions about bias and accountability within AI systems, which underscores a need for ethical considerations.

Design and implementation of AI needs to be human-centric, taking into account established values. Use of AI and algorithms should be guided by ethical principles and timeless values and seek to avoid abusive conduct that would harm people. The objective of all stakeholders should be to collaborate in fostering trusted AI through, fair, transparent, safe, reliable, and accountable, responsible, use and development of AI technology.

Current research is being pursued to address correcting for bias, while gradually improving algorithmic visibility and privacy. Policymakers and industry need to increase efforts to educate people about AI. All relevant stakeholders should be involved in efforts to address AI-related risks, to build AI guiding principles and practice and obtain a broad understanding and social acceptance for AI.

Business should collaborate across sectors and geographies to establish good AI business practices that factor concerns and encourage development of AI technologies and systems that are trustworthy. Business should collaborate with other stakeholders in creating ethical frameworks that are transparent and accountable. These should inform AI research and deployment. Many industry groups are already working on ethical standards and good business practices in this area.[28] Self-regulatory frameworks can play a significant role in ensuring the development and enforcement of such standards. ICC has a track record of

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[27] https://gettecla.com/blogs/news/how-tecla-e-enhances-amazon-alexa-for-users-with-physical-disabilities
[28] IAF, Partnership on AI, IEEE Global Initiative, Open AI, to name a few examples.

developing global business codes and practices and is prepared to take a leading role in these efforts.[29]

Governance policy considerations

Multistakeholder approaches

While the opportunities and challenges that AI presents are complex and crosscutting, a key commonality is the need for deeper collaboration among relevant stakeholders. It is vital to ensure that policy approaches are holistic and oriented to the future if we are to truly understand how to reap the benefits of AI applications, and how to mitigate risk where appropriate. Multistakeholder collaboration is essential to build policy approaches with such characteristics.

For example, the business community is an important partner in boosting governments' understanding of AI and the necessary conditions to ensure AI innovation and deployment for the benefit of society.

Businesses invest at all layers of the ICT ecosystem, addressing needs on both supply and demand sides. The private sector plays a pivotal role in delivering a wide range of products and services that use and/or develop AI and deploying the infrastructure required. Business also contributes to encouraging access through capacity building and education initiatives by promoting innovation, public-private research and development partnerships with local communities.

To ensure well-informed policy approaches, it is also important to work with civil society and the technical community. For example, civil society can advise on societal and cultural factors within social groups that may impact or be impacted by the use of AI. The technical community lends its expertise by advising on technical capabilities of infrastructure and technology. This expertise is invaluable in considering how AI can be used, or how AI innovation might mitigate socio-economic challenges.

Governments should encourage informed and open dialogues among relevant stakeholders to ensure a common understanding of AI, to address concerns and to exploit economic and societal benefits.

Conclusion

ICC believes that only flexible, human-centric, globally compatible and market-driven policies will continue to fuel innovation and increase the societal and economic benefits of AI.

There is important ongoing work on AI such as: the Organisation for Economic Cooperation and Development (OECD) AI initiative, including the outcome of its conference on "AI: Intelligence Machines, Smart Policies" and its expert working group; the Institute of Electrical and Electronics Engineers (IEEE); the International Organisation for Standardisation (ISO) and the Partnership on AI (PAI).

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[29] For example ICC Code on Advertising and Marketing Communications

9

ICC will actively work with governments, academics, and civil society globally across organisations to shape the development of AI business principles in a way that can foster accountability and broad adoption.