AI: Getting the plumbing right

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Last update: 18 February 2019

Artificial Intelligence (AI) is sometimes thought of as something esoteric, a shiny idea that may become real at some distant point in the future. But the reality is that although AI is developing globally at different rates, AI is already being integrated rapidly into the internal workings of governments, business, civil society, and more.

AI is used across sectors in many types of tasks. For example, it is used in the financial sector to perform complex research, such as analysing the spending habits of credit card users. In the health care sector, AI is used in image analysis to diagnose early stage cancers. Governments use AI applications such as biometric screening technologies in airports to verify passenger identity. It is likely that AI systems and technologies have already touched most peoples' lives in multiple ways, and will continue to grow.

In many ways, today's AI deployments are a lot like plumbing—they are an increasingly fundamental and essential part of the digital ecosystems we use and rely on today. Because AI is so central to the emerging digital economy, it is the subject of intensive policy debates. Stakeholders have meaningfully divergent views of what AI policy should focus on and look like, and it is as challenging as it is important to define policies that will protect all stakeholder interests in a balanced way.

While numerous policy principles are relevant and important to AI, three in particular resonate as especially important to focus on as we move forward into an AI-saturated world:

First, think about AI at a systems level. It is crucial to understand AI as a system, with analysis that considers the whole AI system and its complex interactions. Our challenge is to consider all of the tension points within AI systems and how they interact, and not just single out certain aspects for attention. For example, some AI policy discussions have primarily focused on how there must be transparency for the "black box," which is essentially the algorithm (or cluster of algorithms) that are performing the mathematical analysis fundamental to AI systems. However worthy this approach may be, the "black box" is just one part of

an AI system. There are many other aspects of AI systems, and each merits policy attention both on its own and in the context of the whole system.

Or consider the issue of AI inputs. AI analysis is a data-intensive discipline that requires abundant input ranging from raw data sets to algorithms to scores. Considerations regarding inputs include availability of data sets, sensitivity and confidentiality of data sets, accuracy, and intended use of the data. Ensuring appropriate availability of data is just as important as assessing the risks associated with using sensitive or confidential data, or data that may include bias. Input is just one of the many aspects of AI systems to pay attention to. Inputs also interact with the whole system: how do the inputs affect the algorithms and analysis? How do inputs affect uses of the final result of the AI system analysis? These are some of the essential questions that thinking at the systems level helps to raise.

Second, focus on human-centred values across AI systems. Fairness, dignity, privacy, and ethical use of AI systems: this is what human-centred values are all about. Does the system provide benefit to stakeholders, for instance? A human-centred approach means assessing for risks such as potential negative consequences on people's privacy or disparate economic impacts. Assessing the ethical possibilities and challenges of AI systems needs to be ongoing during the development, deployment, and use of AI systems.

Ensuring a just and fair transition for those impacted by AI in the world of work is an exemplar of applying human-centered values. AI systems can create benefits (new jobs) and risks (stoking joblessness by making some jobs obsolete). Governments and other stakeholders will need to encourage the development of new jobs and also prepare those at risk of losing their current livelihoods with education, training, and new skills. Applying an ongoing analysis of human-centered values to AI systems will help governments, business, and other stakeholders assess risks and benefits of AI deployments, and take timely corrective action when necessary.

Third, international co-operation in the development and use of ethical AI systems. It is to the benefit of all stakeholders to facilitate global co-operation regarding AI systems. Co-operative information sharing around technical and policy expertise is extremely important to facilitate healthy, trustworthy AI systems that benefit stakeholders and do not create harm. Co-operation among stakeholders is essential to ensure that AI systems adhere to high technical and ethical standards as they develop globally.

Getting policy around AI systems right is a pressing necessity now, as the "plumbing" of AI is being built and deployed across the globe. As with building a house, retrofitting the plumbing would be difficult later on. It is much better to get it done properly from the beginning.

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