



Message from the NSTF Executive Director

Not the last word on AI

Finally, the Christmas holidays have arrived! While some will be staying right where they are due to the tough economic climate and the relative quiet, over the holidays, of the places where they live, many will be travelling to be with family, and some will be heading for the coast, or for the mountains. International Mountain Day happens to be this week (on 11 December) and is an opportunity to celebrate mountains and create awareness of their importance and preservation. See our [media release](#) explaining the International Day and promoting South Africa's stunningly beautiful mountain ranges.

The science community in South Africa ended the year on a high note with the Science Forum South Africa (SFSA) held in Pretoria from 6 to 8 December. Thousands converged on the CSIR ICC, including visitors from other countries in Africa and overseas, to take the opportunity to network in person, and deliberate on burning issues. Burning, of course including climate change.

Your South African SET stakeholder's forum, NSTF, was there of course and actively participating alongside the many NSTF member organisations. We held our third engagement around the Pitfalls of Artificial Intelligence (AI) in the form of a thematic session including Prof Fulufhelo Nelwamondo (the CEO of NRF), Dr Rasigan Maharajh (TUT) and Mr Vinesh Maharaj of Price-Waterhouse-Coopers (PwC). It is important to hear from scientists with expertise in the fields of information technology, academics in the social sciences who understand the broader context, as well as businesspeople who can put the issues into perspective with a practical understanding of the economy and marketplace. We thus had very diverse presentations, and too little time to unpack the contents and implications of these.

Prof Nelwamondo spoke on 'From Pitfalls to winter: Getting ready for the next Artificial Intelligence winter ahead'. He explained the hype cycles of AI technology, pointing out that we are in the third such cycle which hasn't peaked yet. The implication is that everyone is excited and fearful of the new technology, as is typical of the introduction of any new technology. He said that the 'boom' times of a hype cycle are characterised by overpromotion and underdelivery. Prof Nelwamondo suggested that there should be investment in people, institutions and infrastructure, and that such investment cannot disappoint even if AI should not live up to its promises.

It remains to be seen what will happen in the case of AI technologies. The first AI 'peak' was in about 1968. I have read some of the famous science fiction writer Isaac Asimov's novels. He was imagining worlds and technologies beyond people's wildest dreams in the 1960s, including interplanetary and time-travel. The latter are still beyond our reach, but Asimov described worlds with total surveillance of all individuals (as have other science fiction writers, notably George Orwell). Total surveillance requires AI, and science fiction has come true as it is now implemented in other parts of the world for governments to know as much as possible about every citizen. In South Africa, AI is applied for security purposes in the private sector, and concerns have often been expressed about the impact on individual privacy as well as problems with the biases caused by the data that AI has access to. AI therefore has much wider implications than the extent to which it makes laborious tasks more efficient.

In Israel, AI was already deployed some years ago, to identify targets to bomb with precision. In the current war, it seems Israel bombs Gaza indiscriminately, with precision. See: [The Gospel: Israel turns to a new AI system in the Gaza war | Israel-Palestine conflict | Al Jazeera](#). AI is not assisting it to

make intelligent decisions that consider international agreements, political astuteness and human rights. It is a tragic object lesson on how not to use AI. AI is technology, and value-free in itself, but like all technologies, it is deployed by humans who choose to adhere to respected and agreed values, or not, as the case may be.

Dr Rasigan Maharajh explained, “people generally regard development as a trade-off between efficiency and equality”. This is a strong but misguided argument, according to him. Rapid technological development leads to uneven socio-economic development in poor countries, as there is inequality to begin with. In a capitalist system it is inevitable that a minority with access to the technology will use it to become even more privileged and powerful.

It would seem that the concept of ‘leapfrogging’ is therefore problematic, in the sense that certain sections of developing countries keep up with the latest in technological development while social and economic development for the population generally lags far behind. I surmise that South Africa is a good example of this. We have small pockets of technological development and innovation, which can even compete with the best in the world, while the great majority of the population does not even benefit from the second industrial revolution (characterised by electricity).

Mr Vinesh Maharaj from PwC had a much more optimistic take on AI as he spoke about manufacturing. He said it empowers people. Every job in manufacturing creates three other jobs, and no technology can replace people entirely. Technology becomes safer, as AI picks up failures and mistakes through big data analytics. Maintenance becomes more effective, as AI alerts the need for maintenance before there is a failure. AI means that new jobs will appear, that will be more meaningful and higher paid. New technologies will add trillions to global GDP.

Having heard the good, the bad and the ugly about AI, the NSTF will unpack the workings and implications of 4IR technologies further, in 2024. It is our theme for the year, and a Special Annual Theme Award is being made in July for research, development and innovation in 4IR technologies.

With that, I wish all readers of the NSTF eNews, all NSTF members, and NSTF-South32 Awards participants a very blessed and safe holiday season!

The opinions expressed above are those of the Executive Director, Ms Jansie Niehaus, and do not necessarily reflect the views of the [Executive Committee](#) or [members](#) of the NSTF.