AI garage? — on kickstarting artificial intelligence

The NITI Aayog has published an ambitious discussion paper on kickstarting the artificial intelligence (AI) ecosystem in India. AI is the use of computers to mimic human cognitive processes for decision-making. The paper talks of powering five sectors — agriculture, education, health care, smart cities/infrastructure and transport — with AI. It highlights the potential for India to become an AI 'garage', or solutions provider, for 40% of the world. To pull this off, India would have to develop AI tools for a range of applications: reading cancer pathology reports, rerouting traffic in smart cities, telling farmers where to store their produce, and picking students at high risk of dropping out from school, among them. It is a tall order, but several countries have similar ambitions. The U.S., Japan and China have published their AI strategy documents and, importantly, put their money where their aspirations are. China, for example, plans to hand out a million dollars in subsidies to AI firms, as well as to run a five-year university programme for 500 teachers and 5,000 students. The NITI Aayog does not talk about how India's ambitions will be funded, but proposes an institutional structure to get things going. This structure includes a network of basic and applied research institutions, and a CERN-like multinational laboratory that would focus on global AI challenges.

These are lofty goals, but they beg the question: can India bring it to pass? In answer, the NITI Aayog offers a sombre note of caution. India hardly has any AI expertise today. The paper estimates that it has around 50 top-notch AI researchers, concentrated in elite institutions like the IITs. Further, only around 4% of Indian AI professionals are trained in emerging technologies such as deep learning. And while India does publish a lot, these publications aren't very impactful; India's H-index, a measure of how often its papers are cited, is behind 18 other countries. This is not encouraging, considering that returns on AI are not guaranteed. The technology has tripped up as often as it has delivered. Among successes, a recent study found that a Google neural network correctly identified cancerous skin lesions more often than expert dermatologists did. India, with its acute shortage of specialist doctors in rural areas, could benefit greatly from such a tool. On the other hand, studies have found that AI image-recognition technologies do badly at identifying some races, because the data used to train them over-represent other races. This highlights the importance of quality data in building smart AI tools; India lacks this in sectors such as agriculture and health. Where data exist, this is poorly annotated, making it unusable by AI systems. Despite these formidable challenges, the scope of NITI Aayog's paper must be lauded. The trick will be to follow it up with action, which will demand a strong buy-in from policymakers and substantial funds. The coming years will show if the country can manage this.

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