It can be argued that digital technologies and
int

wealth larger than the aggregate of many na on
st

In 2020, we are s ll considered to be an era of "Ar ficial Narrow Intelligence" where the machine is trained to do a single ("narrow") task, such as *"recognise an object in an image".*
By 2040, we are expected to reach the era of "Ar ficial General Intelligence" where machines exhibit intelligence equivalent to humans.
By 2060, we are said to enter the era of "Ar ficial Super Intelligence" where machines will exceed the intelligence of humans. This will be a me where machines will learn quicker than they are being taught, and – if not managed well – will lead to the dreaded "AI Singularity" with machines poten ally superseding humans.[10, 11]

Robo cs and mechanical automa on are now a very established fields which have evolved into an interdisciplinary area of research and innovith mrq

Here, the op mum tra

Scenario #2 – Paperclip Paradox:
Marvin Minsky, the co founder of MIT's AI lab, has philosophised that an advanced artificial intelligence tasked to prove the Riemann hypothesis may choose to take over all of Earth's resources to construct supercomputers to assist attain its objective.[22] If the computer system had actually rather been configured to produce as many paper clips as possible, it would still choose to take all of Earth's resources to satisfy this very objective. Even though these two objectives are very different, both of them produce a convergent instrumental goal of taking over the planet's resources.

Nick Bostrom has perfected this conundrum through his paperclip example which shows the existential danger that AI might present to human beings when configured to pursue even seemingly harmless objectives:
"Suppose we have an AI whose only goal is to make as many paper clips as possible. The AI will realize quickly that it would be much better if there were no humans because humans might decide to switch it off. Because if humans do so, there would be fewer paper clips. Also, human bodies contain a lot of atoms that could be made into paper clips. The future that the AI would be trying to gear towards would be one in which there were a lot of paper clips but no humans."[23]

Whilst hypothetical examples, Minsky, Bostrom and many others have thus argued for the necessity of incorporating machine ethics into artificial intelligence design.[24] An important aspect here is the issue around the machines' ambitions of self

In addi on to above, there is the Global Partnership on AI (GPAI) that is supported by the Group of Seven (G7) as w

7. Recommendations on Governance & Policies

Given the emergence of quantum and advanced robotics, in addition to the accelerating capabilities of AI, we argue that above mentioned governance initiatives ought to be revisited and refocused. Indeed, any ethical and societal problems identified as part of the AI governance work will be accelerated with quantum technologies and amplified with advanced robotics. The consolidation and intersection of AI, quantum and robotics will lead to unpredictable emerging capabilities which could pose a hyper exponential threat to society with both man and machine able to weaponise for a highly asymmetric and potentially invisible warfare.

Not widely discussed but the visibility of these emerging capabilities is utmost important to anticipate these illegitimate

It is thus vital to counter the fragmenta on of exis ng technological, geopoli cal and regulatory regimes by enabling an e ec ve coordina on of the opportuni es and risks at global, regional and na onal levels. To address these mid and long term structural imbalances, the three main forces of market compe on, systema c compe on and technology determinism[36] that limit the e ec veness of governance need to be reconciled.

At the same me, the GDO should not be construed as a "Big Brother" of all tech. It must not jeopardise fundamental principles of ethics and human centredness. It should act as a high level observatory able to establish trends and causality. It should not micro manage but rather develop common principles through inclusive collabor ip

A challenge for above is the current poli cal populous and low trust environment within and among na ons. Technologies, such as Distributed Ledger Technologies (DLT), could prove pivotal here where one could imagine the GDO run as a Decentralised Autonomous Organiza on (DAO).[45] Whilst we imagine the GDO established, co governed and occasionally audited by humans, opera ons are represented by rules encoded as immutable computer programs that are transparent, controlled by the organisa on members and not influenced by a central en ty. Decision provenance and neutrality w.r.t.

established rules is thus guaranteed and can help overcome the current low trust environment.

In summary, the GDO ought to be chartered, permanent, fair and transparent, and have su cient opera onal means and execu ve mandates. It should be governed by principles of responsibility and human centredness; and rely on polycentric governance. It could be embedded into current policy mechanisms, such as the G20, or into emerging ones, such as the proposed CCGAI;[36] but its remit needs to be extended to a true global inclusiveness.

About the Author

Mischa Dohler is full Professor in Wireless Communica ons at King's College London, driving cross disciplinary research and innova on in technology, sciences and arts. He is a Fellow of the IEEE, the Royal Academy of Engineering, the Royal Society of Arts (RSA), the Ins tu on of Engineering and Technology (IET); and a Dis nguished Member of Harvard Square Leaders Excellence. He is a serial entrepreneur with 5 companies; composer and pianist with 5 albums on Spo fy/iTunes; and fluent in 6 languages. He acts as policy advisor on issues related to digital, skills and educa on. He has had ample coverage by na onal and interna onal nis s   d
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