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Speech It is customary for the British Prime Minister to come to the United Nations and pledge to advance our values and defend our rules, the rules of a peaceful world, from protecting freedom of navigation in the Gulf to persevering in the vital task of achieving a two-State solution to the conflict in the Middle East. And, of course, I am proud to do all of these things.

But no one can ignore a gathering force that is reshaping the future of every member of the General Assembly. There has been nothing like it in history. When I think of the great scientific revolutions of the past — print,

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controlled. That is not necessarily the case in the digital age.

You may keep secrets from your friends, from your parents, your children, your doctor, even your personal trainer, but it takes real effort to conceal your thoughts from Google. And if that is true today, in future there may be nowhere to hide. Smart cities will pullulate with sensors, all joined together by the Internet of Things, bollards communing invisibly with lampposts, so there is always a parking space for your electric car, so that no bin goes unemptied, no street unswept, and the urban environment is as antiseptic as a Zurich pharmacy.

But this technology could also be used to keep every citizen under round-the-clock surveillance. A future Alexa will pretend to take orders, but this Alexa will be watching you, clucking her tongue and stamping her foot. In future, voice connectivity will be in every room and almost every object; your mattress will monitor your nightmares; your fridge will beep for more cheese; your front door will sweep wide the moment you approach, like some silent butler; your smart meter will go hustling — of its own accord — for the cheapest electricity, and every one of them minutely transcribing your every habit in tiny electronic shorthand, stored not in their chips or their innards — nowhere you can find it, but in some great cloud of data that lowers ever more oppressively over the human race. A giant dark thundercloud is waiting to burst, and we have no control over how or when the precipitation will take place.

And every day that we tap on our phones or work on our iPads — as I see some of those present here are doing now — we not only leave our indelible spoor in the ether, but we are ourselves becoming a resource click by click, tap by tap. Just as the carboniferous period created the indescribable wealth, leaf by decaying leaf, of hydrocarbons, data is the crude oil of the modern economy.

We are now in an environment where we do not know who should own these new oil fields, we do not know who should have the rights or the title to these gushers of cash, and we do not know who decides how to use that data. Can these algorithms be trusted with our lives and hopes? Should the machines, and only the machines, decide whether or not we are eligible for a mortgage or insurance or what surgery or medicines we should receive? Are we doomed to a cold and heartless future in which computer says yes, or computer says no, with the grim finality of an emperor in the arena?

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extraordinary circumstances? How do we know that the machines have not been insidiously programmed to fool us or even to cheat us? We are already using all kinds of messaging services that offer instant communication at minimal cost. These same programmes and platforms could also be designed for real-time censorship of every conversation, with offending words automatically deleted; indeed, in some countries, this is happening today.

Digital authoritarianism is not, alas, the stuff of dystopian fantasy but of an emerging reality. The reason I am giving this speech today with its slightly gloomy proem is that the United Kingdom is one of the world's technology leaders, and I believe that Governments have been simply caught unawares by the unintended consequences of the Internet, a scientific breakthrough more far-reaching in its everyday psychological impact than any other invention since Gutenberg's. And when one considers how long it took for books to come into widespread circulation, the arrival of the Internet is far bigger than print. It is bigger than the atomic age, but it is like nuclear power in that it is capable of both good and harm. But of course it is not alone. As new technologies seem to race towards us from the far horizon, we strain our eyes as they come to make out whether they are for good or bad – friends or foes?

Artificial intelligence – what will it mean? Helpful robots washing and caring for an ageing population? Or pink-eyed terminators sent back from the future to cull the human race? What will synthetic biology stand for – restoring our livers and our eyes with miracle regeneration of the tissues, like some fantastic hangover cure? Or will it bring terrifying limbless chickens to our tables? Will nanotechnology help us to beat disease, or will it leave tiny robots to replicate in the crevices of our cells?

It is a trope as old as literature that any scientific advance is punished by the gods. When Prometheus brought fire to humankind in a tube of fennel, as you may remember, with his brother Epimetheus, Zeus punished him by chaining him to a Tartarean crag while his liver was pecked out – I did talk about a hangover cure – by an eagle. And every time his liver regrew, the eagle came back and pecked it again. This went on forever, a bit like the experience of Brexit in the United Kingdom, if some of our parliamentarians had their way.

In fact, it was a standard poetic practice to curse the protos heuretes, the

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and all sorts of disasters would never have happened.

It is a deep human instinct to be wary of any kind of technical progress. In 1829, they thought the human frame would not withstand the speeds attained by Stephenson's rocket. And there are today people today who are actually anti-science – a whole movement called the anti-vaxxers, who refuse to acknowledge the evidence that vaccinations have eradicated smallpox and who by their prejudices are actually endangering the very children they want to protect. I totally reject this anti-scientific pessimism.

I am profoundly optimistic about the ability of new technology to serve as a liberator and remake the world wondrously and benignly; indeed, in countless respects technology is already doing just that. Today, nanotechnology, as I mentioned earlier, is revolutionizing medicine by designing robots a fraction of the size of a red blood cell, capable of swimming through our bodies, dispensing medicine and attacking malignant cells like some Star Wars armada. Neural interface technology is producing a new generation of cochlear implants, allowing the gift of hearing to people who would not otherwise be able to hear the voices of their own children.

A London technology company has worked out how to help the blind to navigate more freely with nothing more than an app on their smartphones – new technologies, produced in Britain, helping the deaf to hear and the blind to see. We used to think that printing was something that you did to run off a boarding card; now a British company has used 3D printing to make an engine capable of blasting a rocket into space.

In African countries, millions of people without bank accounts can now transfer money using a simple app; they can buy solar energy and leap in one transaction from no electricity to green power. New advances are making renewable energy ever cheaper, aiding our common struggle against climate change. Our understanding of the natural world is being transformed by genome sequencing – the discovery of the very essence of life itself, the secret genetic code that animates the spirit of every living being and allows medical breakthroughs the likes of which we have never known. Treatments are tailored to the precise genetic makeup of the individual.

So far, we have discovered the secrets of less than 0.3 per cent of complex

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is how we design the emerging technologies behind these breakthroughs and which values inform their design that will shape the future of humankind. That is the point I wish to make tonight.

At stake is whether we bequeath an Orwellian world, designed for censorship, repression and control, or a world of emancipation, debate and learning, where technology threatens famine and disease but not our freedoms. Seven decades ago, the General Assembly adopted the Universal Declaration of Human Rights with no dissenting voices, uniting humankind for the first and perhaps only time behind one set of principles. Our joint declaration upholds the freedom of opinion and expression, the privacy of home and correspondence, and the right to seek and impart information and ideas. Unless we ensure that new technology reflects this spirit, I fear that our declaration will mean nothing and no longer hold. The mission of the United Kingdom and all who share our values must therefore be to ensure that emerging technologies are designed from the outset for freedom, openness and pluralism, with the right safeguards in place to protect our peoples.

Month by month, vital decisions are being taken in academic committees, company boardrooms and industry standards groups. They are writing the rulebooks of the future, making ethical judgements and choosing what will or will not be rendered possible. Together, we need to ensure that new advances reflect our values by design.

There is excellent work being done by the European Union, the Commonwealth and, of course, the United Nations, which has a vital role in ensuring that no country is excluded from the wonderful benefits of this technology and the industrial revolution it is bringing about. But we must continue to be more ambitious: we need to find the right balance between freedom and control, between innovation and regulation, and between private enterprise and Government oversight. We must insist that the ethical judgments inherent in the design of new technology are transparent to all and we must make our voices heard more loudly in the standards bodies that write the rules. Above all, we need to agree a common set of global principles to shape the norms and standards that will guide the development of emerging technology.

Here is the good news. I invite all present to a summit next year in London – a wonderful city where, by the way, it is not raining 94 per cent of the

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somehow rapidly recovered by a process that I am not quite sure was entirely fair. But in the United Kingdom, in London, we still have by far the biggest technology sector anywhere in Europe. We have every kind of technology – financial technology, biological technology, medical technology, nanotechnology, green technology – and perhaps half a million people working in technology alone. I hope to see everyone there as we seek to assemble the broadest possible coalition to take forward this vital task, building on all that the United Kingdom can contribute to this mission as a global leader in ethical and responsible technology.

If we master this challenge – and I have no doubt that we can – then we will not only safeguard our ideals, we will surmount the limits that once constrained humankind and conquer the perils that once ended so many lives. Together, we will vanquish killer diseases, eliminate famine, protect the environment and transform our cities. Success will depend, now as ever, on freedom, openness and pluralism, which is the formula that not only emancipates the human spirit, but also releases the boundless ingenuity and inventiveness of humankind, and which, above all, the United Kingdom will strive to preserve and advance.

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