

The digital economy and fourth industrial revolution

By William Ball - Senior Equity Analyst

Until now, most companies have been able to achieve competitive advantage from embracing technological trends that are already underway. However, the world is changing and this approach is no longer viable in order to stay ahead. Technology and data driven transformation have become a critical issue for almost every industry. Business and operating models are changing as companies develop and adopt new technologies. This is not just with a growth mind-set, but also to avoid being left behind or even becoming obsolete. Welcome to the fourth industrial revolution!

The digital economy, a new frontier

The global digital economy is rapidly evolving, with the velocity of change driven by the vast quantities of data that we can collect, use and analyse. According to the World Economic Forum "In the past 30 years, \$1 put towards digital technology investment increased GDP by \$20, whereas \$1 put towards non-digital investment increased GDP by only \$3. By 2025, nearly a quarter of global GDP is estimated to come from digital technologies such as artificial intelligence and cloud computing."

Data is everywhere and some are calling it the "new oil" in that, if it's used effectively, it enables companies to grow and flourish. Data is the fuel for technology and is therefore having a profound impact on our lives. The advancement in technology over the past decade has been remarkable, whether it's electronic payments, mobile phones that are more akin to handheld computers, autonomous cars, the cloud, automation or the promise of artificial intelligence. Technology is playing an ever important role in our lives from the way we interact and communicate (WhatsApp, Instagram, Facebook) to how we consume entertainment (Netflix/Streaming), order a taxi (Uber) or experience healthcare through advancements such as robotic assisted surgeries.

To frame it a different way, if you add all the entire written works of the human race, in all languages, from the beginning of recorded history, that would amount to around 50 petabytes of data. Google processes about 20 petabytes of data every day. Furthermore, as Yuval Noah Harari in Homo Deus comments: "Soon, books will be able to read you while you read them. If Kindle is upgraded with face recognition and biometric sensors, it can know what made you laugh, what made you sad and what made you angry." That's quite a remarkable advancement in technology.

As companies are turning to digital technologies, they are re-evaluating their operations and how they do business. Big data and analytics will be central to everything - from product development, supply-chains to the customer experience. Think of the profound benefit using big data could have on healthcare and science, from diagnostics linked to smartphones to being able to reduce the time it takes to develop life changing therapies. Cars that are connected to the outside world will give rise to opportunities for disruptors in the fields of self-navigation, electronic payments, in-car entertainment and cloud computing, to name but a few. According to McKinsey, "Companies that are digital leaders in their sectors have faster revenue growth and higher productivity than their less-digitalised peers. Their profits and margins can increase three times as fast."

Major technology trends in the 2020s

Deloitte categorise three all-encompassing technology trends over the next decade and beyond*:

1. Cognitive technology aims to mimic human brains through pattern recognition (machine learning), linguistic interaction between humans and computers (natural language processing) and automating repetitive tasks (robotic process automation). Artificial intelligence is only in its infancy and very early stages of adoption, but machine learning is already being used to enhance the customer experience by personalising product recommendations. And the retail giant, Amazon, has harnessed the power of natural language processing quite unlike any other, with Alexa. Alexa can deduce what a person means, and not just the words they say. Amazon says, "In short, it is what enables voice technology like Alexa to infer that you're probably asking for a local weather forecast when you ask, Alexa, what's it like outside?"

2. Blockchain is a decentralised database (ledger) of every transaction that has taken place within the chain. This database is shared across a network of computers. Once a record has been added to the chain it is very difficult to

change, as each chain contains a unique code called a hash. The advent of blockchain technology has the potential to impact every industry. For example, it can help companies know the status and condition of every product in their supply chain. It can protect customers and companies from financial crime, or it can help healthcare providers securely access and share personal health data.

3. Digital reality is a type of technology that digitally simulates reality in one way or another across most of the senses. Systems are mostly visually based, but the field is evolving into other technologies such as haptics (kinaesthetic communication). Digital reality is being used to enhance the consumer experience, from gaming and brand engagement, to industry applications. For example, virtual reality is being used for training employees on the processes required in a manufacturing line, while augmented reality (which overlays digitally created content into the user's real-world environment) is being used by machinery-based industries for real-time maintenance, by retail for visual searches, hyper-personalisation and seamless omni-channel functionality, and by the healthcare industry for 3D visualisation of CT and MR images.

What this means for investors

The pace of technological advancement is being dubbed the fourth industrial revolution. The convergence of these different technologies, as well as the advent of 5G and the so-called 'internet of things', could transform our lives in ways that are currently impossible to imagine. Technology advancements will accelerate dramatically over the next five to ten years, bringing endless opportunity to invest in new and exciting ventures. At the same time, it will make some businesses (and possibly entire industries) obsolete, making careful analysis imperative for all investment decisions.

*Deloitte Insights - Tech Trends 2019, Beyond the digital frontier.

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