The Economist INTELLIGENCE UNIT

TAILORED WITH TECHNOLOGY

Economic growth

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About the research and acknowledgements

Tailored with technology: Economic growth is the third in a series of papers from The Economist Intelligence Unit sponsored by ANZ. This report is based on the results of a survey of more than 750 executives across eight markets.

This paper was written by Chris Clague. Findings from the survey were supplemented with research and in-depth interviews with experts and executives. Our thanks are due to the following people, listed alphabetically by surname:

- **Simon Evenett**, professor of international trade and economic development, University of St Gallen
- **Gog Soon Joo**, chief futurist and chief skills officer, Skills Future Singapore
- **Andrew Hoad**, chief executive officer, Asia, DP World
- **Ritesh Kumar**, chief executive officer, Indonomics Consulting
- **Jayant Menon**, lead economist, Office of the chief economist and director general, Asian Development Bank
- **Yasunori Mochizuki**, fellow for IoT, robotics and smart cities, World Economic Forum

Executive summary

For centuries, advances in technology have sparked economic growth. Arguments have been made, however, that this millennia-long period of technological advancement, and attendant economic growth, may have come to an end--or could at least be in the midst of a prolonged pause. The questions now are whether all the "low-hanging fruit" of technological progress have been picked or, relatedly, if technology is reallocating resources instead of providing new growth.

Executives surveyed for this report are optimistic. Of 660 executives we surveyed across eight countries and three industry groupings, fifty-three percent responded that technology will be "much more important" to economic growth five years from now and 42% responded that it will be "more important." Only 3.5% answered that the impact of technology would be "about the same" and less than 1% answered it would be "less important."

Other findings from the research include:

- Not surprisingly, the fourth sector surveyed, technology, was the most optimistic, with 61% of executives answering that tech would be "much more important."
- At the market level, in Hong Kong just 31% of executives believe tech will be "much more important" in five years. On the other end of the spectrum was India, where 73% answered that tech will be "much more important."
- Executives from larger firms, which we define for the purposes of this study as having annual revenue of A$200mn and above (roughly US$137mn at current exchange rates), were more positive on the importance of tech to economic growth than were executives at smaller firms.
- When asked what their primary considerations are for selecting a technology partner, the two most-popular answers among the six options provided were "the company reputation" and evidence of "ongoing development and investment in the technology and/or platform." Both received 54% of responses.

Introduction

Advances in technology have long sparked economic growth. The first instance of this occurring is a matter of debate, but the domestication of plants and animals—agriculture, in other words—around 6000 BC is most often cited as the starting point. From there, we move through the Iron Age and the creation of durable tools (and weapons) to ships and steam engines, electricity, the computer age and the ICT revolution. Each one of these innovations, and the many other important ones that came between, created new capacity for production and the ability for individuals and eventually firms to trade across great distances, among various other benefits.

Arguments have been made, however, that this millennia-long period of technological advancement, and attendant economic growth, may have come to an end—or could at least be in the midst of a prolonged pause. One economist who espouses a version of this theory is Tyler Cowen, who has written in his books *The Great Stagnation* and *Average is Over* that the US, in particular, but many countries more generally, have already picked the "low-hanging fruit" of technological progress, leaving now only much more difficult forms of technology to develop for economic growth.

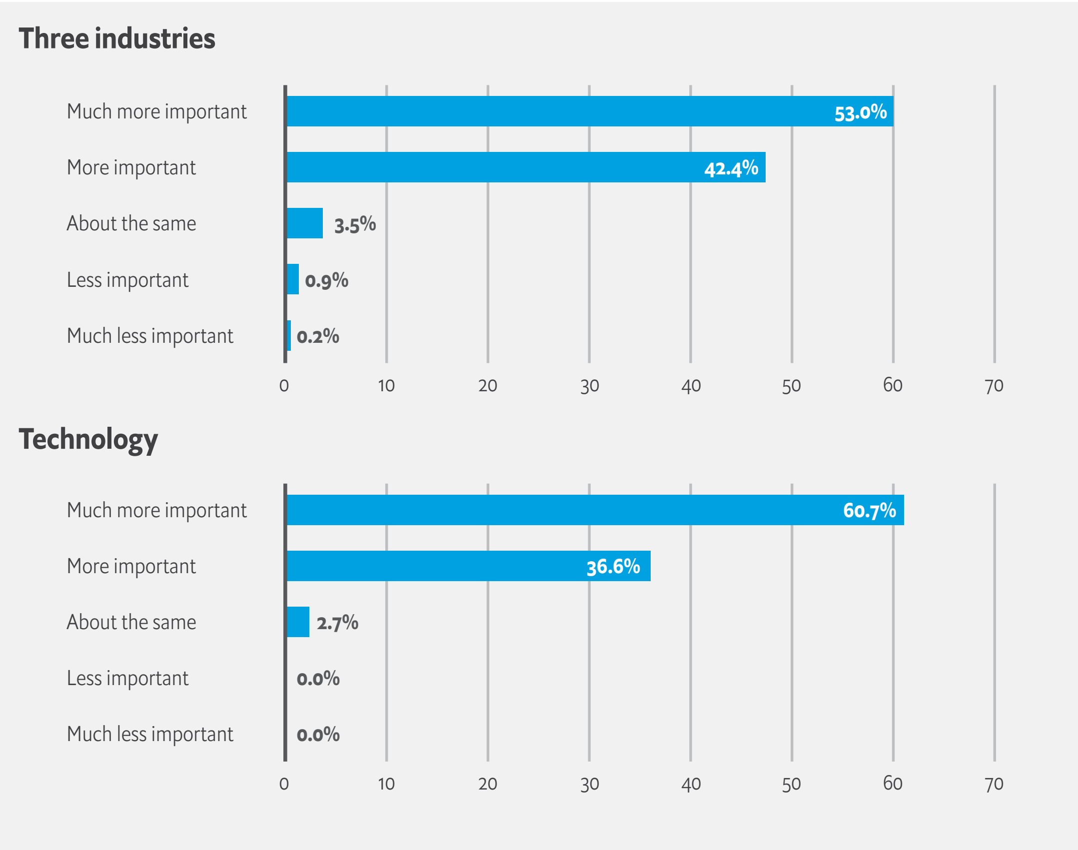
Another way to frame the issue is to ask whether technology is actually creating growth or just re-allocating resources within countries, between sectors and across the globe. "Is [technology] providing a growth change or just a level change?" asks Simon Evenett, professor of international trade and economic development at the University of St Gallen in Switzerland. The answer isn't clear, Mr Evenett says, and part of the reason we don't know is that we aren't measuring things correctly. Metrics like GDP, for example, were created in an era when manufacturing was the dominant source of output, but that hasn't been true in much of the developed world for decades.

The view from the corporate sector

Those concerns aside, executives surveyed for this report are more optimistic than Mr Cowen and others who share his concern. Of 660 executives we surveyed across eight countries and three industry groupings, fifty-three percent responded that technology will be “much more important” to economic growth five years from now and 42% responded that it will be ”more important.” Only 3.5% answered that the impact of technology would be “about the same” and less than 1% answered it would be “less important.”

There wasn’t significant variation, once technology is included, in response rates across the four industry groups. The technology industry was, not surprisingly, the most bullish on the relationship between tech and economic growth, with 61% of executives surveyed responding that tech would be “much more important” to economic growth five years from now. The average response rates from the other three industries--resources, energy and infrastructure; food, beverage and agriculture; and financial services--were all between 52 - 54%.

Figure 1. In your opinion, how important will technology be to global economic growth five years from now?



There were larger differences between some markets and by firm size (as measured by annual revenue). At the market level, there were two outliers. At the low end was Hong Kong, where just 31% of executives believe tech will be "much more important" in five years. On the other end of the spectrum was India, where 73% answered that tech will be "much more important" (see box below).

The difference was not quite as stark in terms of firm size but it was still appreciable.

Figure 2. Importance of technology by industry

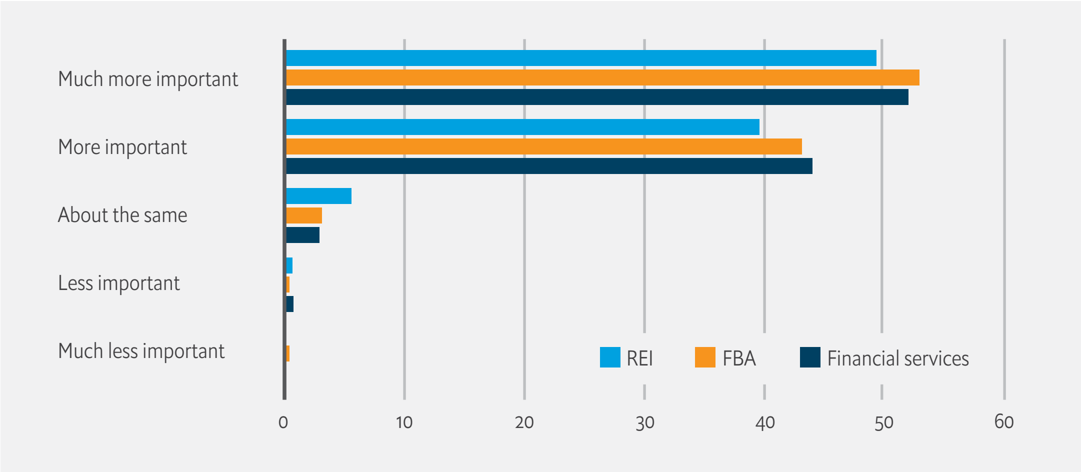
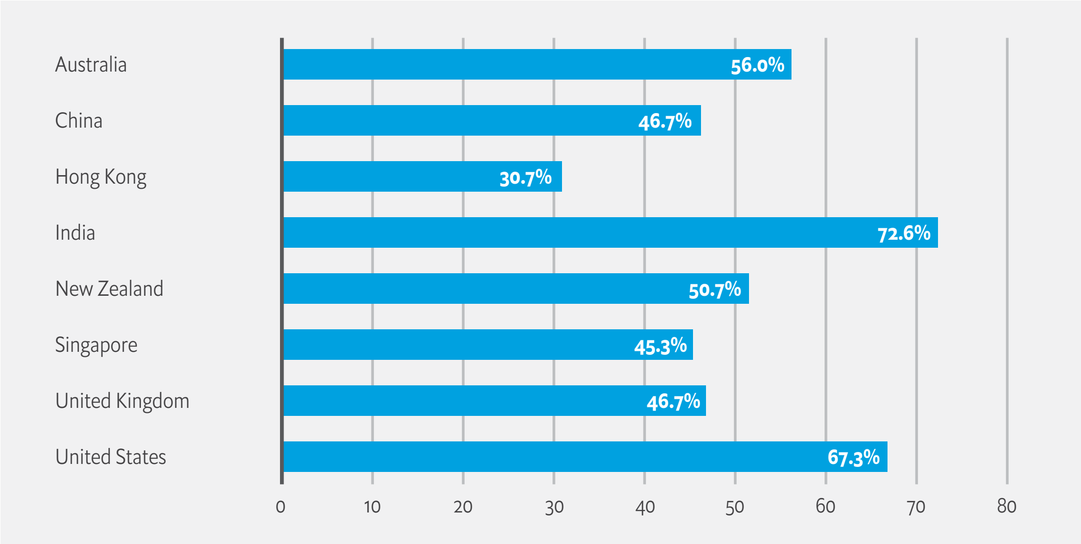


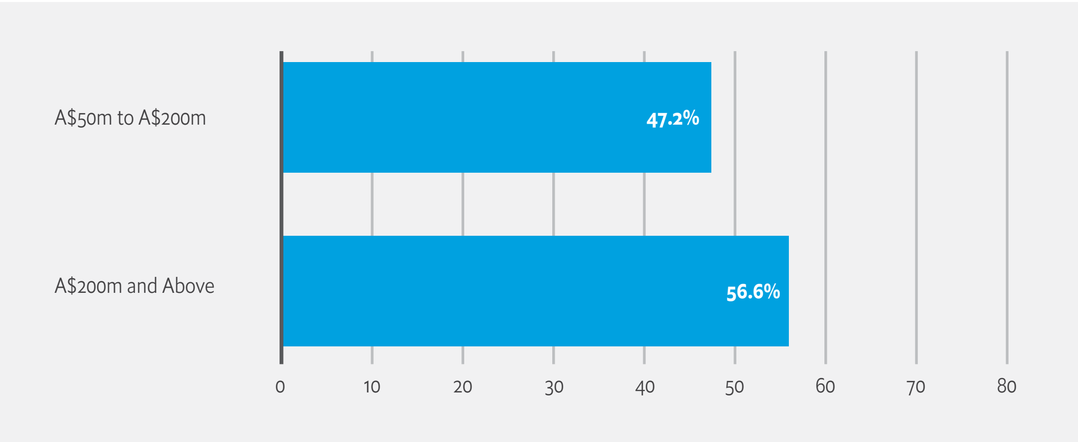
Figure 3. Importance of technology by market



Executives from larger firms, which we define for the purposes of this study as having annual revenue of A$200mn and above (roughly US$137mn at current exchange rates), were more positive on the importance of tech to economic growth than were executives at smaller firms.

This could be a product of the trend in some industries towards "winner-take-all" levels of concentration, which is enabled by the ability of larger firms to combine scale with new technologies to crowd out potential competitors and take a virtually monopolistic share of the market.[1]

Figure 4. Importance of technology by firm size



[1] https://fs.blog/2018/09/mental-model-winner-take-all/

Box 1: Optimism in India

So what explains the optimism in India? The rise of Indian tech giants like Infosys, and the position of Indian cities like Bangalore in the global tech ecosystem, are well-known and surely contribute to the optimism of Indian executives. But it goes beyond that, says Singh Ritesh Kumar, chief executive of Indonomics Consulting, and is related to two specific constraints that have long held back the Indian economy. The first, says Mr Kumar, is that "technology helps [firms] to overcome the limitations imposed by poor physical infrastructure" in the country. India consistently underperforms on global measures of the availability and quality of infrastructure, although it has been making improvements in recent years. To the extent that technology enables firms to circumvent poor roads and intermittent electricity makes it a vital resource.

The other constraint is in the area of regulation. The regulatory environment in India has improved since the days of the infamous "License Raj," the period lasting roughly from the end of second world war until the early 1990s when it could take years to gain approval for new businesses, if those approvals ever came at all. Regulations still remain cumbersome, especially in the manufacturing sector. But not so in tech, says Mr Kumar, which is another cause for optimism among Indian executives. "There are a number of reasons," says Mr Kumar, "but one of the main ones is that tech is difficult to regulate by its nature and that makes it difficult, in turn, for government officials to understand."

It's not a problem unique to India, to be sure. And for now, it appears to be a help to business rather than a hindrance, but as we've seen in recent years in Europe, the US and elsewhere, eventually it is one that needs to be solved.

[1] https://fs.blog/2018/09/mental-model-winner-take-all/

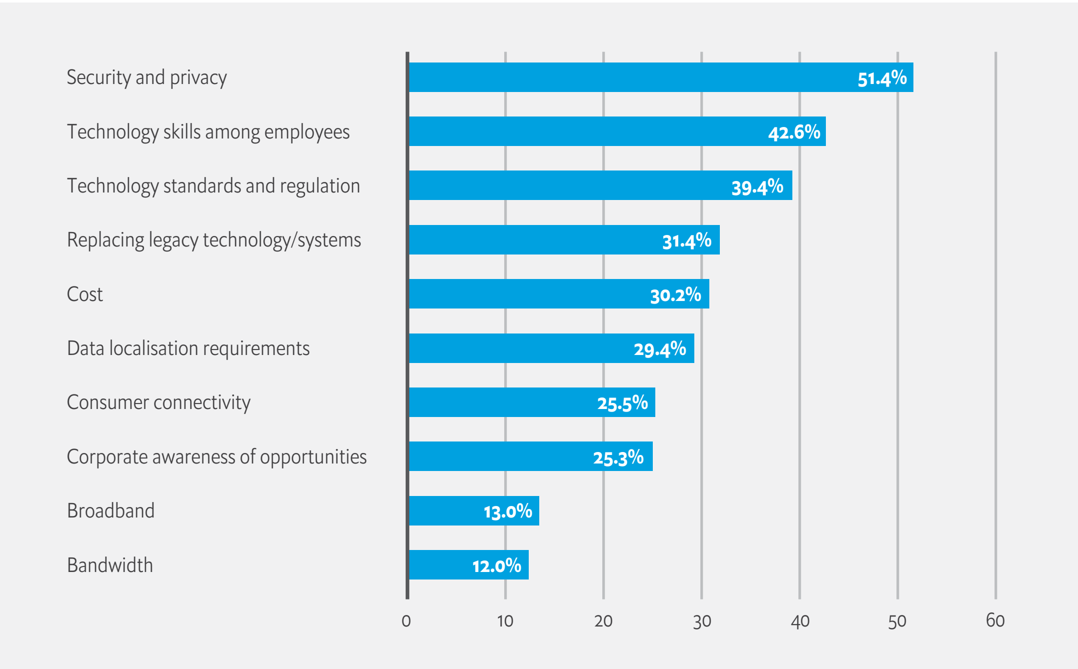
Risks on the supply side

The optimism among executives about the relationship between tech and economic growth is tempered by a host of potential constraints on the development and implementation of technologies. Three chief reasons stand out, according to our survey results: security and privacy, technology skills among employees and technology standards and regulations.

Security and privacy concerns, which was selected by 51% of respondents in the three sector groups and 53% of respondents in the technology sector survey, have come to the fore in recent years with a near-constant stream of reports about data breaches, the sale of personal data to 3rd parties by social media platforms and other service providers and revelations about government spying programs. Alone, each one of these would be sufficient to raise suspicion among consumers; together, they pose a significant threat to public attitudes about how and where they share their data. And without that data, many of the new technologies that could contribute to stronger economic growth would not be as useful.[3]

The skills gap is a burgeoning concern among corporates. Forty-two percent of executives

Figure 5. What are the greatest challenges to towards technology adoption in your country?



[3] See for example: https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data

surveyed selected it as being among the top three challenges to technology adoption. Ongoing education and re-skilling have been presented as solutions to disruptions in the labour market, and changes in the skills in demand, at least since the onset of hyper-globalisation that began in the 1990s. The track record of the public and private sector is so far at best mixed in this area, however.

> **“The skills gap is a burgeoning concern among corporates.**

And conditions are not getting any easier. The new skills in demand tend to be highly-technical in nature, requiring more time and effort to learn. On top of that, labour forces across the developed world are aging, some quite rapidly, and as Mr Evenett of St Gallen says, “Re-training 50 year-olds is not an easy task.”

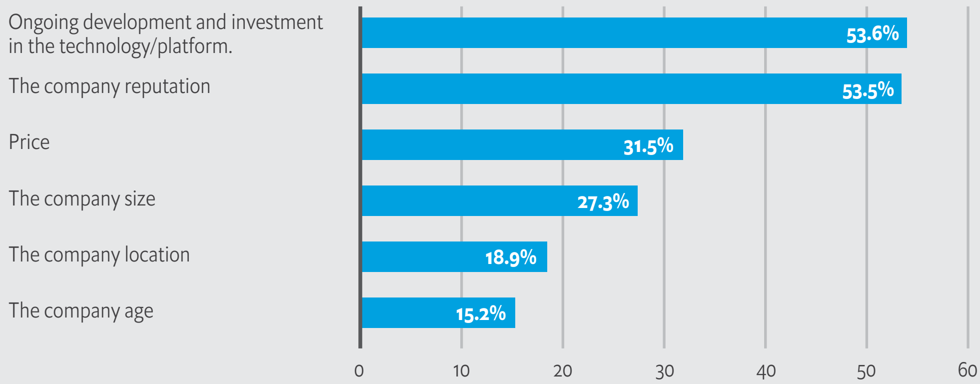
That does not make it impossible. Singapore, for one, has found some early success through its Skills Future Movement. Instituted in 2015, this programme is designed to help Singaporeans by offering credits they can use to enroll in a range of more than 20,000 courses. The courses are constantly changing. And they need to be, says Gog Soon Joo, chief futurist and chief skills officer for Skills Future Singapore, a statutory board under the nation’s Ministry of Education. “There is going to be a perpetual skills gap,” Ms Gog says, “and the question is how fast can we close it?”

Box II: Finding partners for growth

Even the largest companies lack the internal capabilities to develop and deploy new technologies. For this reason, most, if not all, look to create partnerships or joint ventures with external suppliers that do have these capabilities. Finding the right partner can be a difficult proposition, however. Corporate history is littered with failures in this regard and the complexity of new and emerging technologies raises the various risks involved even higher.

When asked what their primary considerations are for selecting a technology partner, the two most popular answers among the six options provided in our survey were "the company reputation" and evidence of "ongoing development and investment in the technology and/or platform." Both received 54% of responses; the age of the partner company (15%) and its location (19%) were the least of respondents' concerns, while the price of the service or goods (32%) and the size of the company (27%) fell in between.

Figure 6. What are your primary considerations when selecting a technology partner?



That size, age and location of tech firms are not a primary concern for executives shouldn't come as much of a surprise. The number of tech start-ups is increasing and diversifying in terms of geography, which means there are a lot of new companies in a lot of places they hadn't been before. Better connectivity also means co-location is less of an issue. This is good overall, but the sheer volume, variety and dispersion can make identifying viable prospective partners even more difficult.

One way firms searching for tech partners can go about this is to extend the scope of their outreach. There is an ingrained tendency for sectors to talk amongst themselves. Energy executives go to energy conferences, food and beverage executives go to food and beverage conferences, to cite just two of many examples. DP World, a global ports and logistics firm, has been successful in finding partners by breaking out of this habit. "Our executives go to events that are not in our specific area [of business]," says Andrew Hoad, the chief executive officer in Asia for DP World. "They talk about trade, of course, but at the same time they are exposed to different types of companies and different functions. This opens up opportunities we might not have seen otherwise."

[4] https://hbr.org/2018/11/how-the-geography-of-startups-and-innovation-is-changing

Concluding remarks: Technology and economic growth

The executives surveyed for this paper may very well be proven justified in their optimism about the ability of technology to propel economic growth now and in the years ahead. But that growth is unlikely to be in a straight line and it won't come without difficulties at the corporate, domestic and international levels.

"It [economic growth] will come," says Jayant Menon, lead economist in the office of the chief economist and the director general at the Asian Development Bank, "but the 'skills premium' will grow, too, and that has the potential to increase inequality both between and within countries." Mr Menon cites the development gap between Singapore and Cambodia as an example. "While it's narrowing now," he says, "without a change in policy and capabilities, it will increase."

That is a possibility everywhere, not just for one illustrative country pairing. In the first paper in the Tailored with Technology series, which covered technology and corporate growth, we noted artificial intelligence (AI) was selected by 31% of executives as one of the technologies most important to their business today. Indeed, AI is receiving an immense amount of attention and hype for its potential to transform entire industries, as well as society more broadly.[5] At the same time, experts are warning that the risks presented by AI are significant and could even outweigh the benefits.

We've been here before; the first industrial revolution was greeted with fear by many, as has every technological revolution that has come since. The question is whether this time will be different.[6]

[5] See for example our work on the impact of machine learning, a type of artificial intelligence: https://perspectives.eiu.com/sites/default/files/Risks_and_rewards_2018.2.7.pdf

[6] See Martin Ford's The Rise of the Robots: Technology and the threat of a jobless future and Kathy O'Neil's Weapons of Math Destruction: How big data increases inequality and threatens democracy.

The Economist INTELLIGENCE UNIT

LONDON

20 Cabot Square
London, E14 4QW
United Kingdom
Tel: (44.20) 7576 8000
Fax: (44.20) 7576 8500
Email: london@eiu.com

GENEVA

Rue de l'Athénée 32
1206 Geneva
Switzerland
Tel: (41) 22 566 2470
Fax: (41) 22 346 93 47
Email: geneva@eiu.com

NEW YORK

750 Third Avenue
5th Floor
New York, NY 10017
United States
Tel: (1.212) 554 0600
Fax: (1.212) 586 1181/2
Email: americas@eiu.com

DUBAI

Office 1301a
Aurora Tower
Dubai Media City
Dubai
Tel: (971) 4 433 4202
Fax: (971) 4 438 0224
Email: dubai@eiu.com

HONG KONG

1301
12 Taikoo Wan Road
Taikoo Shing
Hong Kong
Tel: (852) 2585 3888
Fax: (852) 2802 7638
Email: asia@eiu.com

SINGAPORE

8 Cross Street
#23-01 Manulife Tower
Singapore
048424
Tel: (65) 6534 5177
Fax: (65) 6534 5077
Email: asia@eiu.com