ASIA

The Race to Harness AI Technology in Asia

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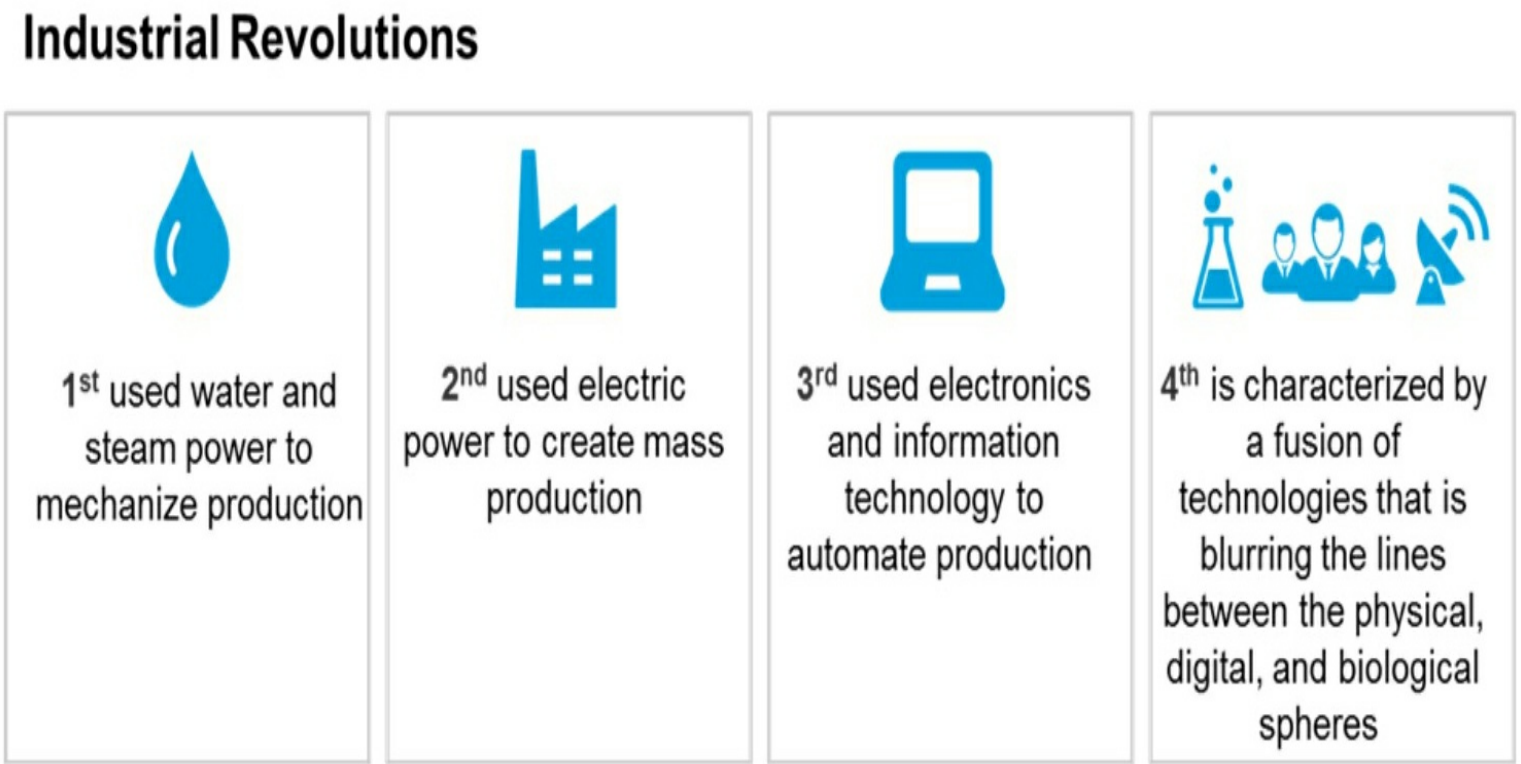
Artificial intelligence (AI) and automation present enormous investment opportunities, some in ways we don't even know yet. As the world adapts to technological advances, Franklin Templeton Emerging Markets Equity's Sukumar Rajah and Eric Mok think some promising developments in Asia could dictate the pace of change in the burgeoning AI market. Alongside this, they think infrastructure for new technology is likely to be just as significant if AI development is to truly thrive. They take a look at the implications for the region.

As the race to harness new technology heats up across the globe, we've already seen signs that Asia is at the forefront of integrating automation into our everyday lives.

Asia, generally perceived to be the "factory of the world," accounts for 65% of the world's total industrial robot usage in manufacturing.[1] In our view, such a sizable investment in robotics to power an already established industry signals that change is already underway. And with further technological developments on the horizon, we expect machines to take over even more aspects of manufacturing in the near future.

The advent of what some have dubbed the "fourth industrial revolution" builds upon the foundations of the last groundbreaking period of digitization to integrate technology into almost every aspect of our lives.



It won't just bring technological innovation, though. The current speed at which we discover breakthroughs is unprecedented, and we think that could provide ample opportunity for Asia to tap into the AI market, as we've already seen the region harness AI technology—at a faster pace than the rest of the world—through manufacturing across several industries.

Look Beyond the Software

In our view, some countries in Asia could be in a prime spot to take advantage of technological advancements. There's a common misconception that the region is a combination of low-cost exporters, cheap manufacturers and a place to outsource tasks.

In fact, some Asian economies have leapfrogged the structure commonly found in developed economies, since there's little sunk capital investment in legacy technology and infrastructure. This is particularly noticeable in China which has adopted mobile payment systems at a remarkable pace. For example, there's an expectation that payments made for a meal, an online order or to a taxi driver are done through a digital e-wallet.

Residents in rural areas in particular are able to take advantage of mobile-to-mobile payments, so there's no longer a need to make a concerted effort to visit a brick-and-mortar bank branch. The penetration of these types of digital systems is much higher than we've seen in the developed world. Interestingly, across the border in Hong Kong, payments are still largely cash or card-based.

Equally, we don't think some technological advances could happen without a physical support system in place. Current hardware and infrastructure support the technology of today. We believe future technology will require better hardware and infrastructure.

This includes better silicon chips. For example, for AI to power self-driving vehicles, better silicon chips need to be developed and manufactured to support autonomous systems.

We are particularly excited about the prospects for hardware players in the industry that are building and developing semiconductors and logic integrated circuits (IC) to meet increasing demand. It's one of the major downstream effects that we have on our radar, that will likely boost the major semiconductor industry in Taiwan, and China's newer industry to an extent.

Computing power, speed and memory, are also required to support AI. We think this could drive exponential increases in computing power that can process large amounts of data and algorithms. Some smartphones are already more powerful than a PC, and with more technology aimed at smartphone apps, we see this as an area for further development .

HOW ASIA IS PREPARING TO TURN SCIENCE FICTION INTO REALITY

- AI farming is set to transform agriculture in **Vietnam**. Smartphone apps connected to sensors can send alerts when the water level is too low in a specific area of land and can notify farmers of the type of fertilizer required. Smart systems have also been introduced to measure humidity in greenhouses. If there is too much moisture, the ventilators will automatically turn on to absorb moisture.
- **South Korea** could be well-placed in AI implementation—the country's internet infrastructure is already among the fastest in the world, following the government's bid to encourage an economic recovery following the 1997 Asian financial crisis. South Korea has launched a nationwide network for the IoT, a cheaper and power-efficient alternative to Wi-Fi on a network named the "long-range wide-area network" (LoRaWAN).
- **China** has a three-step strategic plan to become a world leader in AI by 2030. This involves keeping pace with leading AI technology, integrating AI across infrastructure, medicine, manufacturing and agriculture, and applying AI to national defense and social governance. This ambitious roadmap is in part to maneuver the country's path away from traditional export-driven manufacturing, and to move more in line with the consumer-driven economy we see today.

Riding the Wave of Machine Learning

An increase in the use of smart devices has created a global demand for the Internet of Things (IoT), which are networks that allow devices to be hyperconnected. But, we predict demand for AI technologies will outstrip IoT, robotics and virtual reality.

Historically the push to develop AI has come from the technology sector, but now other sectors are also harnessing AI to transform their own industries.

The health care sector, for example, is looking to use AI in a number of ways, including AI-assisted robotic surgery, earlier diagnoses through the use of algorithms and speedier analysis of images and scans.

Financial services, telecommunications and media entertainment companies have traditionally used software to tailor products to customers. We'd expect companies in these industries to utilize AI to process masses of customer data and predict customer needs.

On a larger scale, there's scope to monitor the world's environmental challenges, such as sustainability, pollution and climate change—via the use of AI-deploying devices to monitor fishing activities, reef mapping, and the pH level and temperature of the ocean.

Finally, we think the availability of 5G, the next generation of mobile internet connectivity, is important. Unlike its predecessor networks, 5G will represent something that's been purpose-built to facilitate and help implement new AI technology.

WHAT IS 5G?

5G is the fifth generation of wireless technology that's more responsive, handles more data and connects multiple devices simultaneously at faster speeds than currently possible.

The first generation, 1G, made wireless voice calls possible around 1982. Then came text and picture messaging after the launch of 2G. 3G in the 2000-2009 period saw the early days of video calling and mobile data, while the move to 4G made online streaming, gaming and video calls possible through faster data-transfer speeds.

4G mobile networks currently use radio waves. However, 5G speeds will be much faster as it will use a different frequency on the electromagnetic spectrum.

The Need For Infrastructure Support

Ultimately, technological advances in the AI space are exciting. However, we don't think AI can reach its full potential without a much-needed support system to drive innovation.

We've seen progressive technological developments made across the globe, but right now we think there needs to be more emphasis on infrastructure and hardware itself—and we think Asia might just have enough in its engine to power the developments required to harness AI technology.

Important Legal Information

All investments involve risks, including the possible loss of principal. Investments in foreign securities involve special risks including currency fluctuations, economic instability and political developments. Investments in emerging markets, of which frontier markets are a subset, involve heightened risks related to the same factors, in addition to those associated with these markets' smaller size, lesser liquidity and lack of established legal, political, business and social frameworks to support securities markets. Because these frameworks are typically even less developed in frontier markets, as well as various factors including the increased potential for extreme price volatility, illiquidity, trade barriers and exchange controls, the risks associated with emerging markets are magnified in frontier markets. Stock prices fluctuate, sometimes rapidly and dramatically, due to factors affecting individual companies, particular industries or sectors, or general market conditions.

1.Source: International Monetary Fund, "Invest in Robots and People in Asia," August 29, 2018.