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10 DISRUPTIVE TECHNOLOGY TRENDS IN ASIA

ARE YOU READY FOR THEM?

By JACK CHUA
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IN the past few decades, Asia has witnessed tremendous economic and technological growth. A rapidly growing middle class has fueled technological adoption and information consumption.

According to a 2015 McKinsey report for the Singapore Summit, Asia-Pacific has over 552 million consuming households living in urbanised settings, mainly centred in China, India and Indonesia.

The rapidly developing landscape has given rise to "disruptors" championed by tech companies across the continent like Alibaba, Tencent, Flipkart and Grab.

As the label implies, disruptive technologies are innovations that radically change the game, challenging the way things are done that they redefine the market.

In the beginning, Asian tech companies used to be seen as copiers of Western models developed by big players like Google, Apple, Amazon and Uber.

According to Edward Tse, author of *China's Disruptors*, this has changed dramatically as homegrown companies driven by innovative, competitive entrepreneurs have taken over the role of more cumbersome government-linked organisations.

This shift has led to a new generation of Asian tech companies that rival those from the United States (US) and Europe.

Let's look at some of the trends in disruptive technology across the region.

1 ONLINE SHOPPING AND VIRTUAL PAYMENT

The ability to buy and sell products online has changed the landscape of the retail industry.

More and more people who have internet access and a mobile device today prefer shopping online over visiting a brick-and-mortar store.

Most people may have already heard of Alibaba, Asian's biggest player in the industry.

Alibaba made headlines by having an initial public offering worth US$ 21.8 billion in 2014 – the largest the world had ever seen.

The company, founded by Jack Ma, originated as a business-to-business (B2B) online marketplace, then went on to launch Taobao as its consumer-to-consumer (C2C) arm.

This put the firm in fierce competition with eBay.

Ma did not follow the eBay route, predicting that the low popularity of credit cards in China and the charging of transaction fees would turn away Chinese users.

He and his team cobbled together their own easy-to-use free online payment system for Taobao – an innovation that, in 2006, drove its market share to 70%, sending its American competitor packing.

The payment method, known as Alipay, became his single greatest inspiration and now dominates 50% of China's online payment, spawning imitators throughout the region. Alibaba now expands its dominance globally.

In India, Flipkart dominates as an Amazon-like platform.

Sachin and Binny Bansal both worked at Amazon before founding their own US$ 2 billion unicorn, tailored to the Indian market.

Meanwhile, in Southeast Asia, Indonesia's Tokopedia has become a favourite free virtual marketplace for C2C commerce, worth US$ 1 billion.

The success of these endeavours resulted from their willingness to understand and adapt previous e-commerce models to the local setting.

2 AUTOMATED STORES

Despite the rise of online stores, physical ones can still be trendy with the right technology.

Imagine walking into a store with no shopkeepers or cashiers – only aisles of products, where you walk up to an item and scan its QR code to automatically make a purchase.

That is the experience companies like JD.com and Bingobox aim to provide with their fully-automated stores.

JD.com, a Beijing-based company, founded by Liu Qiangdong, aims to compete with Alibaba, and also leads in the bid to create a fleet of automated delivery drones that will drop your parcel right on your doorstep.

Meanwhile, Bingobox stores capitalise on the popularity of Alipay and WeChat to enable customers to purchase products without a cashier.

Why shop at a store when you can do it on the way to work?

Yihaodian, a company founded by Yu Gang, lets you walk into a subway station with walls covered in images of hundreds of grocery products.

All you have to do is scan the QR code and it will be delivered to your home.

Yihaodian's scan-and-buy supermarket earned it nearly US$ 2 billion a year within five years of its establishment in 2008.

3 ALL-IN-ONE SOCIAL MEDIA

In China, a messaging app reigns supreme – Tencent's WeChat.

The extraordinarily powerful app is often dubbed the "App for Everything".

Imagine WhatsApp, with some of the features of Facebook, Instagram, Google, Spotify, and even Uber, thrown in. The app has 980 million active users and counting.

It acts as a Facebook allowing you to share images and updates with friends and leave comments.

You can share music; like Google, it has news feed and search engine features.

For e-commerce, the app allows you to make bookings for restaurants, spas or other services; call a taxi; or make online payments via its built-in digital wallet.

With so many functionalities packed into one app, the large amount of data it collects have often raised security and privacy concerns – calling for government intervention to regulate or ban it.

However, its momentum has not been daunted by these concerns, as many enjoy the convenience of having every facet of their lives accessible via a single app.

4 AFFORDABLE MOBILE DEVICES

With the rise of smartphones and tablets, Apple's domination has given way to Asian products.

Since 2009, Samsung's introduction of the Galaxy line has spurred it to the top of the chart.

Samsung provides a less costly alternative to Apple's mobile devices.

Chinese brands like Huawei and Xiaomi are also pushing the boundaries of smartphone sales.

Xiaomi has developed an innovative business model that allows it to keep its devices extremely cheap. Its strategy was to provide affordable phones to a broader market, similar to Amazon.

Xiaomi's founder Lei Jun wanted to keep prices "rock-bottom", meaning, as low as the raw materials used to build them, stripped of additional costs like tooling, research and development (R&D), and shipping. All of that – without sacrificing quality.

How did it succeed when others, like Amazon Fire, had failed?

Xiaomi keeps cost down by offering phones mainly on online platforms.

For marketing, it relies on crowdsourcing – namely, word-of-mouth and social media, as an alternative to costly traditional methods.

In terms of R&D, Xiaomi's engineers develop features based on customer feedback.

Lei Jun recalled his experience working with Nokia and Motorola, who paid little attention to user feedback on major product issues.

He may have the last laugh after all as Xiaomi has overtaken the two former mobile phone empires.

Taking massive amounts of customer feedback into account, Xiaomi's R&D team releases updates for its operating system on a weekly basis.

Make a feature request, and you stand a chance of watching it come true by the following week.

The business model has garnered imitators among other tech companies, like Lenovo and Qihoo that have produced their own Xiaomi-like low-priced phones.

5 RENEWABLE ENERGY

As environmental awareness grows, more companies have innovated on alternatives to carbon fuels.

Since 2015, China has outstripped the US and European countries in the production of solar panels.

For instance, Trina Solar, a company based in Jiangsu with branches across US, Europe and Asia, has become the largest solar panel producer in the world, making it to the Fortune's top 100 fastest growing companies.

As of 2014, it has shipped solar powers that produces over 11GW of energy.

In India, wind power reigns, with ReNew Power, founded by Sumant Sinha in 2011.

Dissatisfied despite having a lucrative career in investment banking, he decided to leave New York and return to serve his home country.

Having worked as chief operating officer (COO) of Suzlon Energy, he started his own energy company after realising the potential of wind energy as the fastest growing source of energy in the nation.

ReNew started researching and building wind farms with high performance wind turbines across six Indian states.

These had a renewable energy capacity of 1GW, and eventually launched the company to unicorn status.

With wind and also solar energy under its belt, ReNew may soon venture into biomass and hydro energy as well.

6 RIDE-SHARING – THE NEW TAXIS

Ride-sharing companies have revolutionised public transportation. Grab, for example, has become a major force in Southeast Asia.

In CNBC's Top 50 disruptors of 2017, Grab ranks number four, having achieved a valuation of above US$ 10 billion.

It began in 2011 when Anthony Tan pitched a taxi-booking app at the Harvard Business Plan Competition.

The app, previously known as MyTeksi, had grown considerably, garnering US$ 2 billion in investments from Didi and SoftBank.

It launched GrabCar, which enables users to hire rides from licensed partners, rather than taxis. Customers responded favourably as it was an effective way to combat peak-hour shortages of public transportation.

The ride-hailing app now operates in 154 cities across eight countries in Southeast Asia. In Indonesia, Go-Jek made hailing bikes an efficient way to beat the extreme traffic congestion.

Replicating that success, Grab launched GrabBike in Vietnam, Indonesia and Thailand.

Grab has held its own against giants like Uber.

Its edge against international competitors include the ability to seamlessly pay online or via cash, a competitive pricing model, and a messaging app to aid communication between passengers and drivers with language translation features.

In addition, like Uber, Grab is also exploring artificial intelligence (AI) and self-driving cars.

7 THE METEORIC RISE OF ARTIFICIAL INTELLIGENCE

In October 2017, Sophia, a robot built by Hanson Robotics from Hong Kong made global news when "she" was granted citizenship by Saudi Arabia.

Sophia was designed to resemble and interact with humans.

Although the technology is far from taking over the human race as Elon Musk predicts, AI has been making strides in various industries.

China's tech giants Baidu and Huawei have teamed up in AI investment.

The alliance brings together the two companies' AI assets – Huawei's hiAI platform and Baidu Brain, which will result in the next generation of smartphones.

This will lead to higher quality and more widespread adoption of AI with the ability to recognise human speech, process visual data, and make recommendations of products and services.

The importance of AI for analysing Big Data is not lost to the tech giants.

In India, Flipkart has invested heavily in their "AI for India" programme, which will be used on the vast amount of customer behaviour data they have amassed over the decade.

In addition, we should also expect some jobs to be replaced by AI, like driving.

Investment in self-driving cars is often attributed to Tesla, Uber and Google, but Asian tech giants, like Baidu, Grab, Samsung, and Nissan have already jumped on the bandwagon.

In Singapore, we see one of the first practical application of autonomous vehicles on the streets.

NuTonomy, partnering with Grab, has worked with the local authorities to test out these cars on Singaporean roads.

This is only one of the initiatives by Singapore to make the island nation the next AI hub in Asia.

In China, industry leaders like Yitu Technologies have developed a facial recognition system that improves security.

Having a database of 1.8 billion faces, the AI can easily track down criminals and send a warning to authorities.

Such AI will become a staple for surveillance cameras and automated teller machines of the future.

8 3D PRINTING

Since the development of 3D printers, technophiles have embraced the revolutionary ability to create almost any three-dimensional object with the control of a computer.

The use of 3D printing has expanded as companies are creating affordable consumer-grade 3D printers to be mass-marketed. The technology has permeated to various fields including medicine, aviation, and even art.

In Beijing's Huairou district alone, roughly 300 companies have recruited engineers to work on the technology.

Among them is Beijing Tiertime Technology, the first Chinese exporter of 3D printers.

In Asia, China is the major growth driver of 3D printing, where the industry is expected to reach US$ 7.7 billion in output by 2020.

In Bangalore, start-ups like Global 3D Labs are experimenting with building the world's biggest 3D printers that can create whole storerooms full of furniture without the need for assembly.
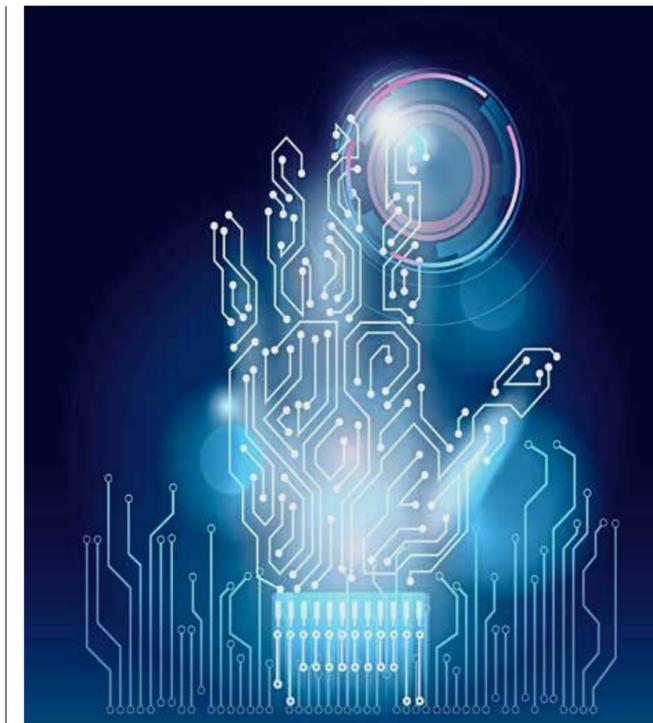
In medicine, Medprin Regenerative Medical Technologies has created ReDura – a membrane that protects brain surgery incisions from infection.

While in Japan, New Energy and Industrial Technology Development Organization (NEDO) devotes billions of yen into funding research in using 3D printing technology for generating human tissue, which will contribute to the treatment of diseases.

In addition, the aviation industry has also benefited.

Comac, for example, has manufactured its C919 planes with 3D-printed parts.

■ *Jack writes about the psychology of leadership. His interests span across various fields – from psychometrics (the science of measuring the human psyche), to developing software that improves people's lives. Share your thoughts about this article by emailing editor@leaderonomics.com*

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WORLD-CHANGING DISRUPTIVE INNOVATIONS

By SHANE CRAGUN, KATE SWEETMAN and PAUL GUSTAVSON
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IN our recent book *Reinvention*, we introduce the concept of global shockwaves.

We identify 20 global shockwaves (The Global Shockwave 20) which, over the last 35 years, have helped create the turbulent, global, and disruptive business environment in which we operate.

Shockwaves are like rogue waves that catch you off guard at the beach and create total chaos as you tumble from its effects.

In a Huffington Post blog by James Canton, he identified seven cutting edge innovations that he believes will change the world.

We agree these are potentially huge shockwaves that seem to be already locked and loaded and heading for our beachfronts.

As you glance through the list of seven, ponder on the effects these might have on your own career and organisation that you lead:

1. Crispr: Crispr is a gene-editing technology that allows for the changing out, editing in, and altering of genes.

It will end certain diseases, feed the planet, alter healthcare and human evolution, and even eliminate birth defects if commercialised.

In the 21st century, it is no longer good enough to simply survive shockwaves.

The best leaders and organisations are continually scanning the environment for potential disruptions.

2. SynBio: If engineering and biology married, they would be called SynBio (short for synthetic biology).

It is the construction of new biological parts, devices, systems, and the re-design of existing biological systems.

3. Blockchain: Blockchain is the technology behind Bit Coin, the leading crypto-currency that might be the future of money.

Blockchain could help in managing digital currencies and even larger economic planetary ecosystems.

4. IoT: When "things" wake up and become smart – aware of each other with the ability to communicate – we will have a different world.

We may have 20 billion connected things by 2020.

Smart things can monitor, sense, protect, transact, communicate, and share information that could enhance the quality of our lives (like smart cities).

5. Open AI: Artificial intelligence (AI) is so powerful in its potential that Elon Musk (chief executive officer and chief technology officer of Tesla Motors) has mused on its good, bad, and ugly possibilities.

Companies such as Apple, Microsoft, IBM, and Google have invested approximately USD10bil on its research and development.

6. Big Data Analytics: The data tsunami of video, social media, text, pictures, and geospatial information is threatening to overwhelm humans, let alone machines.

Big data science might transform every industry as the rise of the "predictive organisation" becomes reality.

7. Planet GeoEngineering: This science will address rising ocean levels, droughts, pollution increases and abrupt climate change.

Planet GeoEngineering could be more vital to the future of humanity than any other innovation.

They are capable of leveraging the energy from these disruptions and design their organisations accordingly. And they will build capabilities to actually accelerate results and leapfrog the competition.

These competencies will become highly sought-after among global leaders and organisations of all shapes and sizes.

Very few organisations currently have the capability to do this.

But the ability to simply "survive" massive disruption will soon be table stakes.

It will merely be the cost of conducting business.

Leaders that learn how to leverage disruption to their benefit – and accelerate important scorecard results and sustainable competitive advantages – will continue to be the market champions in the age of disruption.