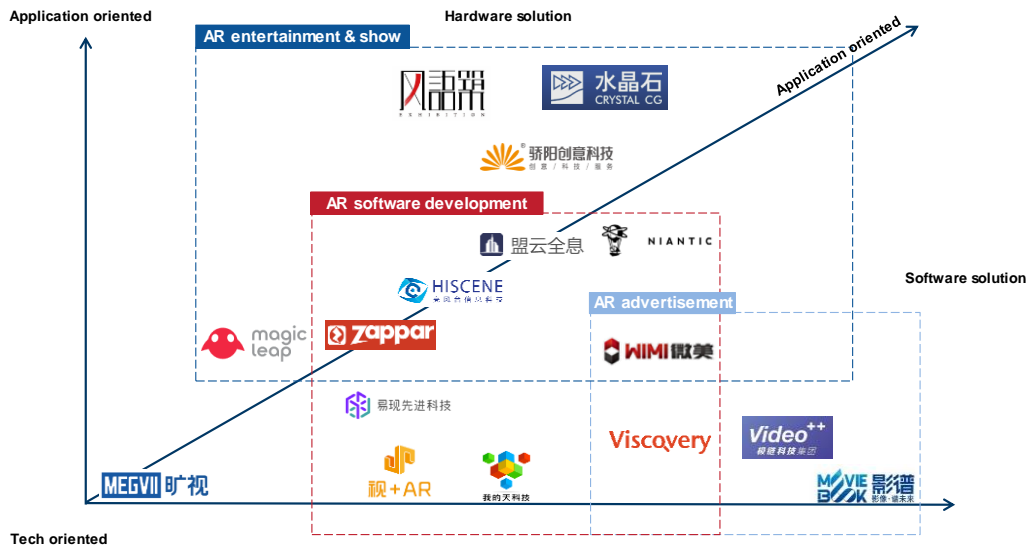




Augmented reality (AR)

Figure 1: AR competitive landscape



Source: AMTD Research

**AMTD comments:** After being launched by Niantic in 2016, Pokémon Go became very popular and has caught wide market’s attention on AR. Spun out of Alphabet in 2015, Niantic raised a new US\$245mn C funding round at a US\$4bn valuation in Jan 2019. Game has become a successful way of monetization for new AR technology. At the same time, some other AR companies are exploring new business models, which can be grouped into three categories, in our view: 1) Application software solution, such as Moivebook, Viscovery, which provides AR-based advertising services; 2) Software developer with hardware integration, such as Zappar, Hiscene, which develops apps and AR software tools; 3) System integration service, such as Fengyuzhu Exhibition, which applies AR in marketing events for clients.

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## News updates

5 Jul 2019

Cloud/SaaS

Kingdee

### Kingdee issued 1H19 profit warning

Kingdee, a leading Chinese ERP SaaS company, issued profit warning for 1H19 on 5 July. The interim net profit is expected to decline 30-40% YoY to RMB102mn-119mn, mainly due to the loss from strategic cloud-related investment. The company expects the total revenue will grow by 15-20% YoY with cloud business revenue growth at 50-60% YoY in 1H19. (Source: [Kingdee](#))

**AMTD comments:** According to the management, Kingdee will continue to invest heavily in Cloud Cosmic in both marketing and R&D. Given the rising expenses and macro economy slowing down, we expect the breakeven of its cloud business could delay to 2H20 or even later.

3 Jul 2019

Software

Broadcom

Symantec

### Broadcom in advanced talks to buy Symantec

According to Bloomberg, chipmaker Broadcom is in advanced talks to acquire cyber security firm Symantec. The two companies will probably reach an agreement within weeks. Symantec was once the leader in computer security, but has been suffering from management turnover and deteriorating earnings. Broadcom bought the U.S. software company CA at US\$18.9bn last year, and attempted to acquire Qualcomm, but failed. The deal, if succeeded, would extend Broadcom's reach into the profitable software business. (Source: [Bloomberg](#))

**AMTD comments:** Broadcom shares plummeted 16.8% the day after the announcement of the acquisition of CA last year, reflecting the worries of health of its core business. Now the situation is similar to Broadcom's CA acquisition one year ago. Given the weak fundamental of semiconductor business globally and stringent regulation on semiconductor M&A (Broadcom dropped Qualcomm bids last year), Broadcom showed again its determination of pushing into software business. Symantec is the world leading cyber security software company and has now faced challenges. Its enterprise business reported billings (Non-GAAP) declined by 24% YoY and consumer business reported billings (Non-GAAP) was down by 6% YoY last quarter.

2 Jul 2019

Materials

Japan

South Korea

### Japan tightened controls over exports of key materials to South Korea

Due to the dispute over wartime labor compensation, Japan tightened controls on exports to South Korea of fluorinated polyimide, hydrogen fluoride, and resist, the three key materials in high-tech products, from 4 July. Japanese suppliers need to seek approval for each contract, which will cost over 90 days, while chipmakers in South Korea usually only keep 1-2 months' worth of inventory in stock. Panels and semiconductors, the two key industries in South Korea, will be affected, and companies including Samsung and SK Hynix may suffer from the controls. (Source: [NikkeiAsianReview](#))

**AMTD comments:** At present, more than 90% of global production capacity of fluorinated polyimides, which is used for flexible OLEDs, and 70% of high-purity hydrogen fluoride, which is used for semiconductor, comes from Japan suppliers, such as Sumitomo Chemical. We expect that flexible OLED panel and chipper makers such as LG and Samsung may be forced to cut production if they are difficult to purchase more materials from Japanese suppliers.

27 Jun 2019

### SMIC to sell LFoundry at US\$113mn

Semiconductor

SMIC

SMIC announced that it entered an agreement to sell 70% of LFoundry's stake at US\$113mn to Wuxi Xichanweixin Semiconductor. The transaction is expected to complete by July 19, 2019. According to the company, it will record a gain of US\$77mn from this transaction. LFoundry, an Italian company, owns an advanced 8-inch production line as well as 110nm and 150nm technology portfolio. (Source: [SMIC](#))

**AMTD comments:** SMIC acquired LFoundry in June of 2016, aiming to expand its business into automotive sector and the international market. However, its decision to sell LFoundry in March this year showed the challenges SMIC has faced in realizing synergy and international expansion under a weak global semiconductor business environment.

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25 Jun 2019

### Led by smart speaker, global smart home devices market surged in 1Q19

Cloud/IoT

Amazon

Google

Global shipments for smart home devices reached 168.6mn in 1Q19, up 37.3% YoY, according to IDC. The growth was attributed to the growing acceptance of home connected devices, including smart TVs, smart speakers, and so on. Global smart speaker shipments (inclusive of smart displays) experienced its highest growth in 1Q19 with total shipments of 23.2mn, up 37.3% YoY. Amazon's shipments reached 5.1mn units in 1Q19, ranked first with a market share of 22%. Google maintained second place with 4.1mn units, followed by Alibaba, Baidu, and Xiaomi, the three China-based companies. IDC forecasted that the global smart home market will reach 840.7mn units in 2019 and grow to 1.46bn units by 2023 with a CAGR of 14.9%. (Source: [IDC](#))

**AMTD comments:** As voice portal, Smart speakers, Echo series (integrated with Amazon Alexa) and Google Home (integrated with Google Assistant), both can be connected to wake up and control a lot of IoT devices. However, the difference is that Google Assistant has better voice recognition capability and can make conversation more human-like by leveraging its AI technology, while Amazon Alexa opened its voice platform to third-party "Skill" developers and now can handle more diversified and complicated demand.

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3 Jul 2019

### LG to launch sales of world's first 8K OLED TV

Display

LG

LG Electronics has announced to start sales of the world's first 8K OLED TV (model 88Z9), with pre-orders for the 88-inch set starting first in South Korea, and will be available in North America and Europe in the third quarter of the year. The 88-inch TV employs an advanced panel with over 33mn self-emitting pixels to deliver an 8K Ultra HD resolution, 16 times the number of pixels in full HD and 4 times that of UHD. It is equipped with LG's α9 Gen 2 8K processor with improved processing capabilities and noise reduction. Samsung has also released 8K TVs which use QLED units rather than OLED ones. (Source: [LG](#))

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1 Jul 2019

### LG Innotek to be the sole supplier of ToF modules for new iPhones

Module

LG

Apple

According to Korean media, LG Innotek will become the exclusive 3D ToF camera modules supplier for Apple's new iPhone, which is to be released next year. The module mass production has already begun in February 2019. Time of Flight (ToF) technology is to map distance and establish 3D images by emitting a very short infrared light pulse and recording the return time. It could be used for gesture recognition, indoor navigation, AR/VR games, etc. LG Innotek is a major supplier for Apple of 3D camera sets. (Source: [thelec](#))

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1 Jul 2019

Smartphone

Xiaomi

### Xiaomi's logistic trademark "Xiaomi Express" has been approved

The trademark "Xiaomi Express" that Xiaomi applied for in August 2018 has gained approval from CNIPA. The trademark is now granted to provide services including parcel delivery and express services, as well as information transmission and telecommunication services. The trademark will expire on 20 June 2029. Previously in June, Xiaomi announced that it will provide a next-day delivery service covering over 150 cities in India, with a minimum charge of INR49 each time. (Source: [Sina](#))

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28 Jun 2019

Cloud/IaaS

Tencent

### Tencent Cloud won the bid for Changsha Super Brain project at RMB520mn

Tencent Cloud recently won the bid for Changsha City Super Brain Project with RMB520mn. Tencent will utilize its technology and resource strengths in cloud computing, big data, AI and IoT, to help Changsha government to build the cloud-powered data management system for government services such as medical services, medical insurances, culture and tourism. Tencent will offer three years' operation and maintenance services afterwards. It is the first landing of Tencent's "WeCity Future City" project, which provides solutions for digital government, urban governance, urban decision-making and industrial interconnection, through WeChat and mini-programs. (Source: [Sina](#))

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28 Jun 2019

ADAS

Toyota

Baidu

### Toyota to join Baidu's self-driving platform Apollo

Toyota will join the Apollo self-driving platform led by Baidu. Launched in 2017, Apollo is an open-source platform powered by machine learning that participants can use it to develop their own self-driving technologies. Toyota hopes to advance its own development of autonomous vehicles in China by the expertise from Apollo. In addition, Toyota may build an R&D center in Shanghai or Beijing to supplement its main facility in Jiangsu, and plans to establish relationship with more local partners to catch up in the China market. (Source: [NikkeiAsianReview](#))

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28 Jun 2019

Module

BOE

### BOE introduced new 20:1 strip OLED panel with 4K resolution

BOE revealed the world's first 20:1 strip OLED panel, with a size of 1,209x63mm. The panel supports 4K resolution (3840x160pixels), with its borders as narrow as 6.4x6.4x5.7x7.3mm. The OLED panel could work in outdoor conditions and almost any kinds of extreme weather, and has a low power consumption. It could be used in supermarkets shelves, advertising, as well as smart traffic display and toys. (Source: [Sina](#))

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27 Jun 2019

Module

Microchip

### Microchip released three new maXTouch touchscreen controllers

Microchip released three new maXTouch touchscreen controllers and optimization services, to solve the problems of electromagnetic interference (EMI) and electromagnetic compatibility (EMC) for developers of automotive touchscreens. The TD family of touch controllers adapts a new differential mutual signal acquisition method, significantly increasing the Signal-to-Noise Ratio (SNR). The technology enables the use of very thick glass or plastic cover lenses, and multi-finger thick gloved touch support up to the equivalence of 4.5 mm. Microchip targets applications in center stack displays and navigation systems, but the products are also suitable for industrial applications such as automation and manufacturing stations. (Source: [Microchip](#))

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27 Jun 2019

### Apple's CDO Jony Ive to leave Apple and launch his own firm

Apple

Apple's Chief Design Officer, Jony Ive will leave Apple by the end of 2019, after his 27 years' work in the company, and launch his own design firm LoveFrom next year. Apple said that it will remain a client of LoveFrom. The startup will focus on the fields of healthcare and wearable devices, said the designer. In Apple, Ive led a design team and participated in many iconic products, including iPhone, iPod, iMac and Apple Watch. (Source: [TechCrunch](#))

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27 Jun 2019

### JDI to receive US\$100mn investment from Apple

Module

JDI

Apple

Japan Display Inc (JDI) will receive a US\$100mn investment from Apple, its major customer. Apple accounts for 60% of JDI's sales. JDI has been suffering from Apple's shift away from LCD and experiencing a shortage of funds. In addition to the US\$100mn investment, Apple will move orders from Chinese suppliers to JDI to help its restructuring. Previously in May, Apple had agreed to extend JDI's repayment period for the JPY100bn loan regarding a new factory, halving its payments for each quarter. (Source: [Reuters](#))

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27 Jun 2019

### BOE to mass produce LCD screens with fingerprint sensor

Module

BOE

BOE unveiled an in-display optical fingerprint sensing solution for LCD recently, and would begin mass production of the LCD panels by the end of 2019. The breakthrough of the technology provides a new solution for lower-to-mid end smartphones. Besides, Fortsense and AUO announced to have successfully developed an LCD display with fingerprint scanner underneath in April and June, respectively, and planned to start volume production after the second half of the year. (Source: [Gadget](#))

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27 Jun 2019

### SK Hynix brought world's first 128-Layer 4D NAND into mass production

Semiconductor

SK Hynix

SK Hynix claimed that it has developed and begun mass production of the world's first 128-layer 1Tb TLC (1-terabit triple-level cell) 4D NAND flash memory. The chip is said to offer the highest vertical stacking in the industry, with more than 360 billion NAND cells, each of which stores 3 bits, per chip. The chip could improve profitability with 40% higher productivity and 60% better investment efficiency. SK Hynix will start shipping the 4D NAND flash in the second half of 2019, targeting high-capacity mobile and enterprise SSD market. (Source: [SKHynix](#))

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27 Jun 2019

### Hua Hong's ~~Semiconductor's~~ 3rd-Generation 90nm eFlash process platform achieved ~~into~~ mass production

Semiconductor

Hua Hong

Hua Hong Semiconductor has successfully brought its 3rd-generation 90nm eFlash process platform into mass production. The flash cell size is reduced by nearly 40% compared with the 2nd-generation technology, hitting a record low. In terms of reliability, the chip could realize 100,000 write/erase cycles and retain data for 25 years. The eFlash platform could support smart cards and security chip products such as SIM card and traffic card as well as diversified products such as microcontroller. (Source: [Huahonggrace](#))

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26 Jun 2019

### Sony released two 4K-resolution CMOS image sensors for security cameras

Component

Sony

Sony announced two new models of 4K-resolution CMOS image sensors, IMX415 and IMX485, targeting security camera market, in which it holds a market share of around 60%. The IMX415 stacked CMOS image sensor is the smallest of its kind worldwide with effective pixels of 8.46M, and has started sample shipment at JPY2,500 (excluding tax). The IMX485 back-illuminated CMOS image sensor could deliver outstanding low-light performance around 3.3 times that of conventional, and its sample shipment will start from July with a price of JPY10,000 (excluding tax). (Source: [Sony](#))

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26 Jun 2019

### OPPO revealed Under-Screen Camera, a new solution for full-screen display

Smartphone

OPPO

OPPO revealed the Under-Screen Camera, its brand new solution for full-screen display, in *MWC Shanghai 2019*. It features a customized camera module with transparent materials in the lens area that allow light to go through the screen and reach the camera. USC could support content display, selfie mode, face unlock and video calls. OPPO has developed algorithms enabling haze removal, HDR and white balance to improve image quality. (Source: [VentureBeat](#))

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25 Jun 2019

### Huawei got the first 5G network license in China

5G/Services

Huawei

Huawei's Mate20 X 5G has got the first 5G network license in China and is expected to launch in the third quarter. Huawei Mate 20 X 5G is equipped with Kirin 980 processor and Balong 5000 5G baseband. Balong 5000 is the first 7nm multi-mode 5G chipset, achieving industry-leading 5G speeds and supporting both SA and NSA architecture. Same as Mate 20 Pro, Huawei Mate 20 X 5G has 7.2" Samsung OLED display and triple rear camera setup of 40MP + 20MP + 8MP, and supports 40W SuperCharge 2.0. (Source: [Sina](#))

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As of the date the report is published, Brian Li holds financial interest in the securities of Amazon mentioned in the report.

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