



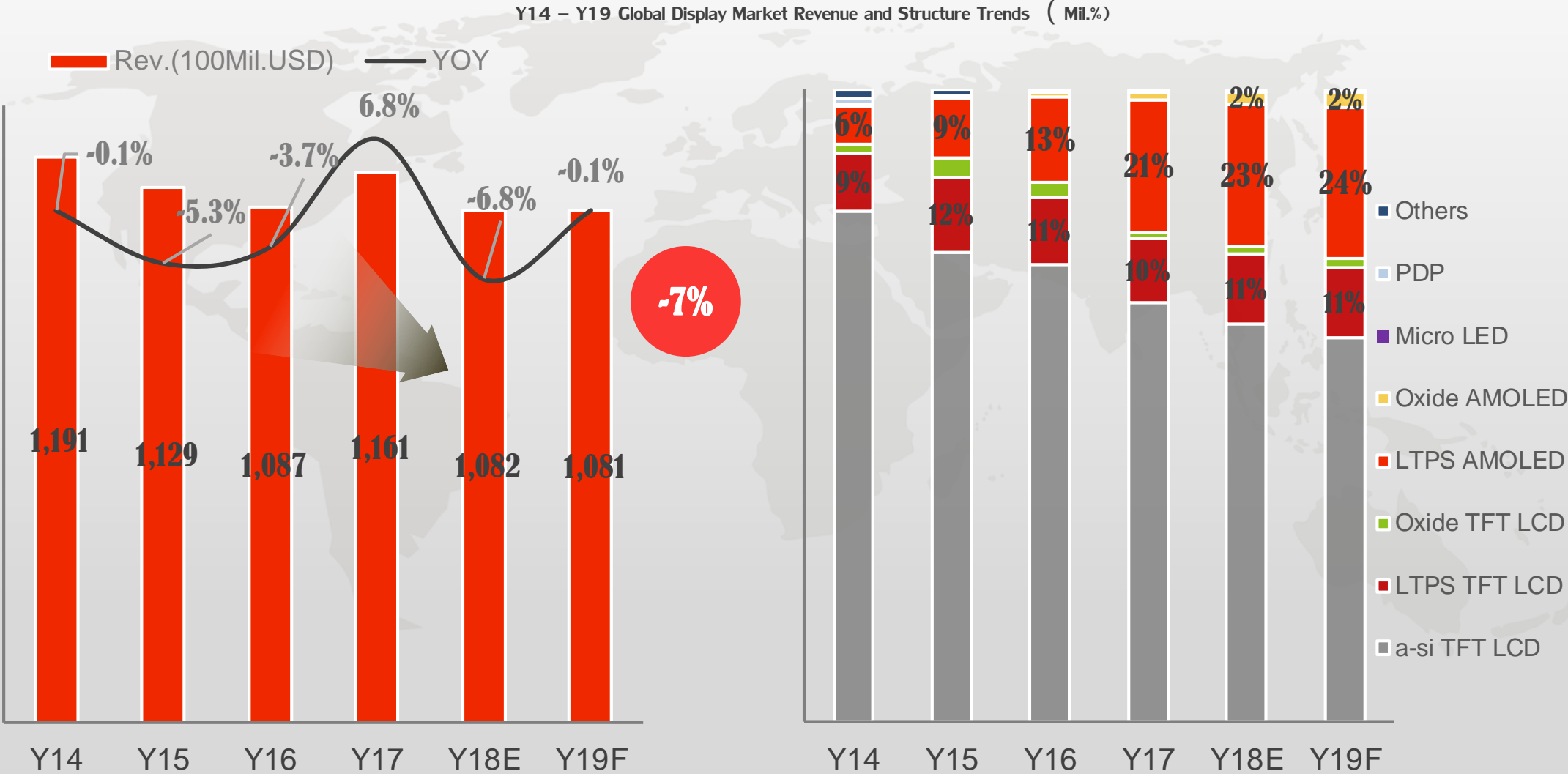
# 全球显示产业六大发展趋势

Sigmaintell 2019.6

# 目录

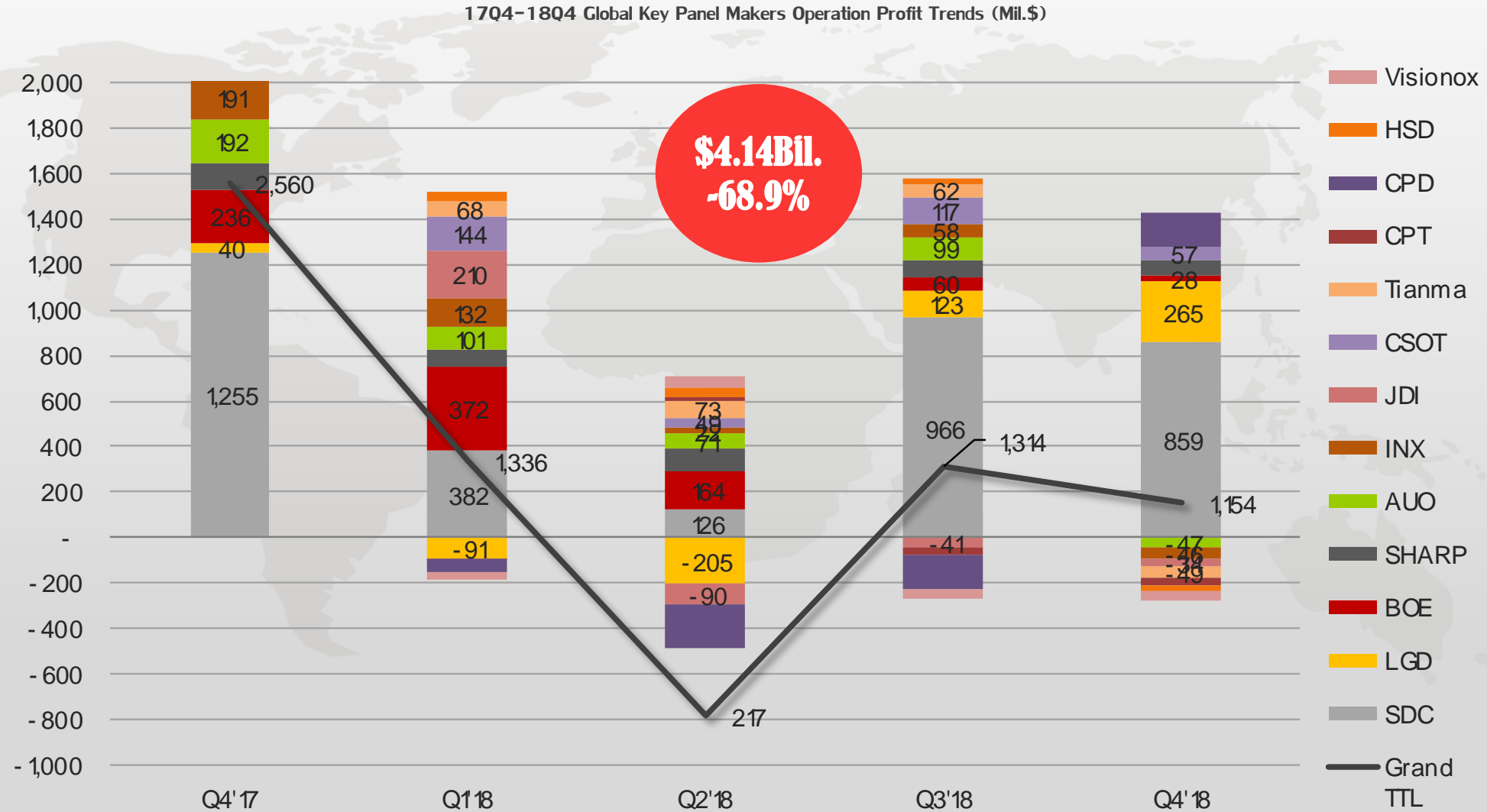


# 1<sup>st</sup>. Display industry is eager on technological innovation



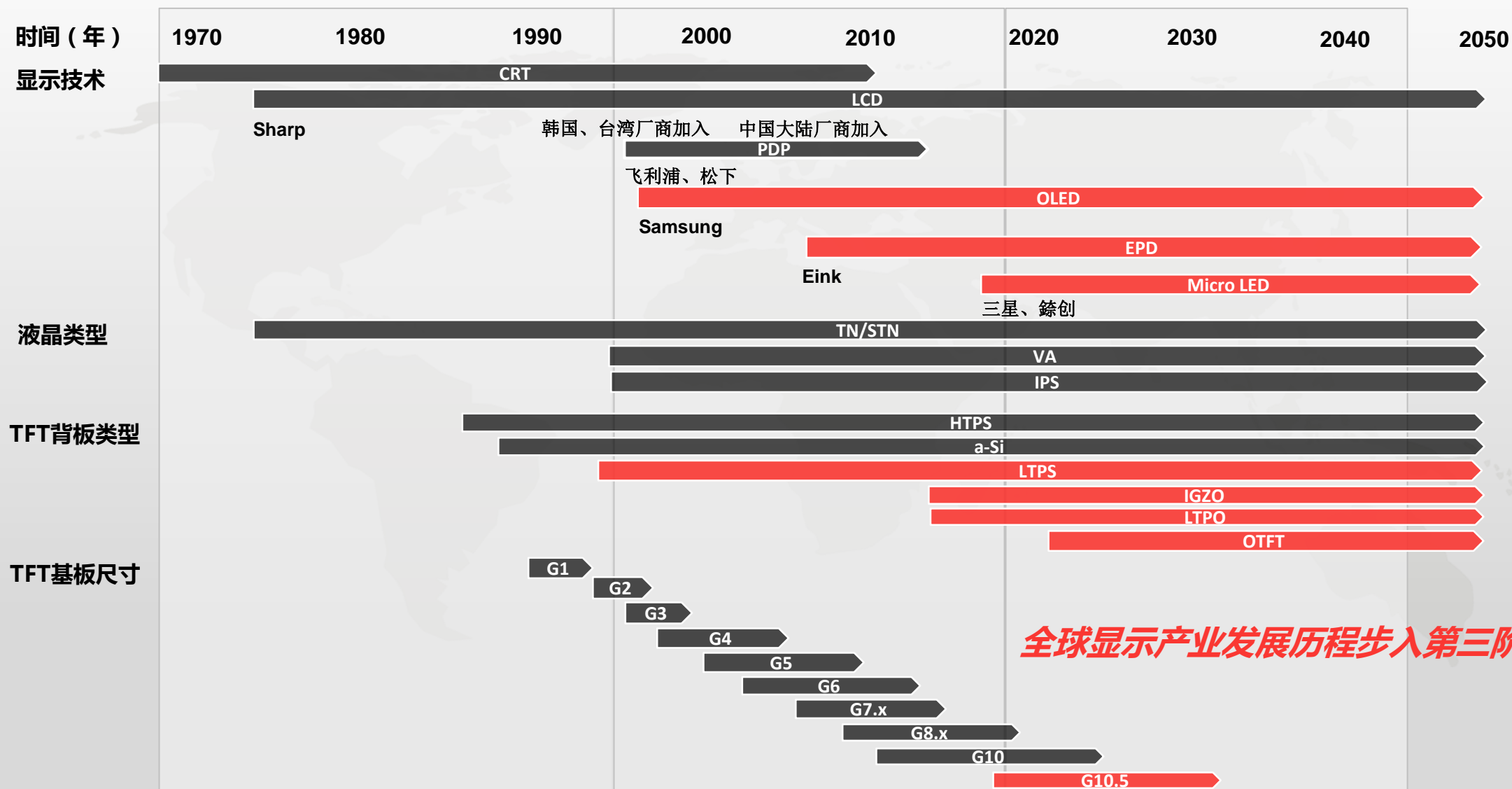
Source : Sigmaintell

# 1<sup>st</sup>. Display industry is eager on technological innovation



Source : Sigmaintell

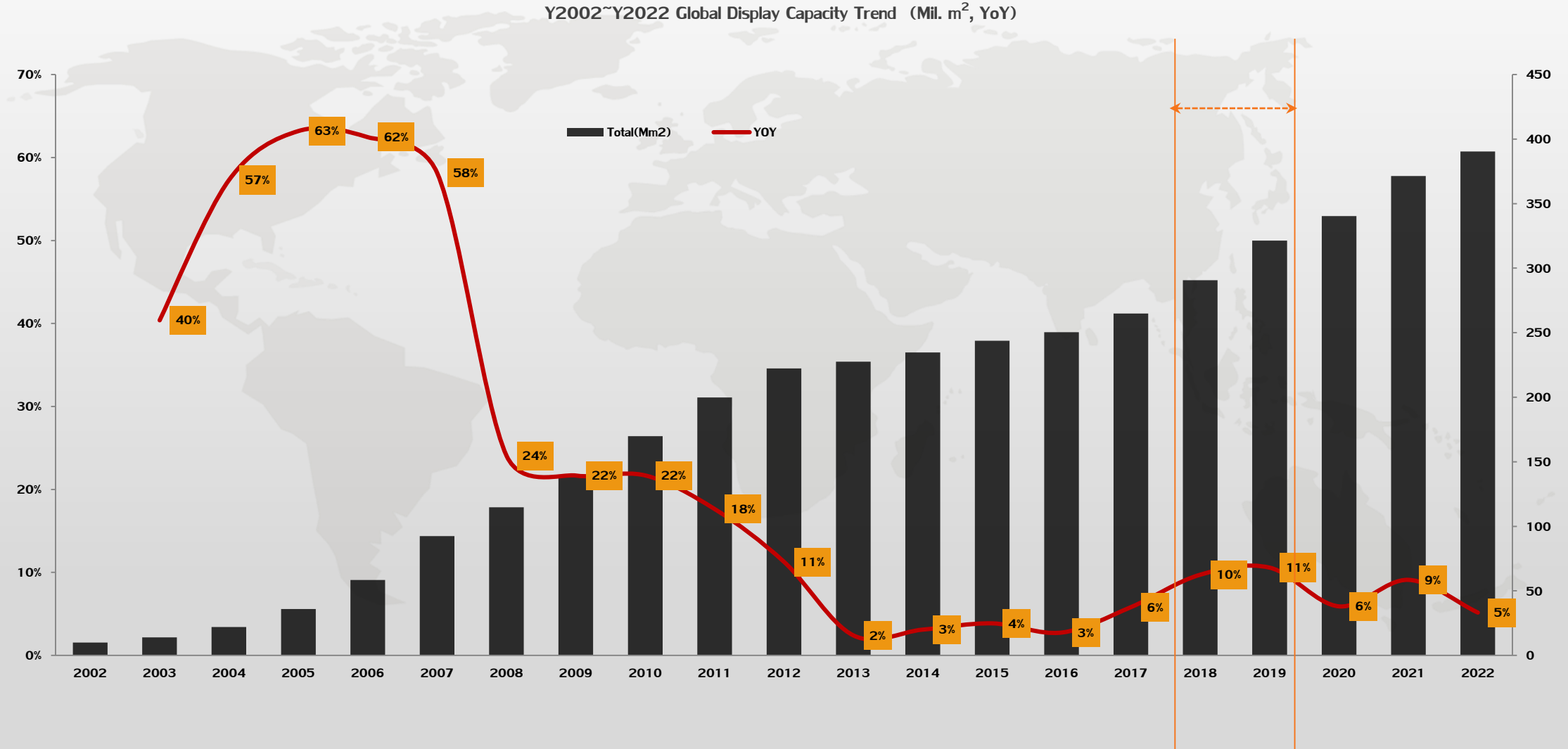
# Display industry entering 3<sup>rd</sup>. stage



全球显示产业发展历程步入第三阶段

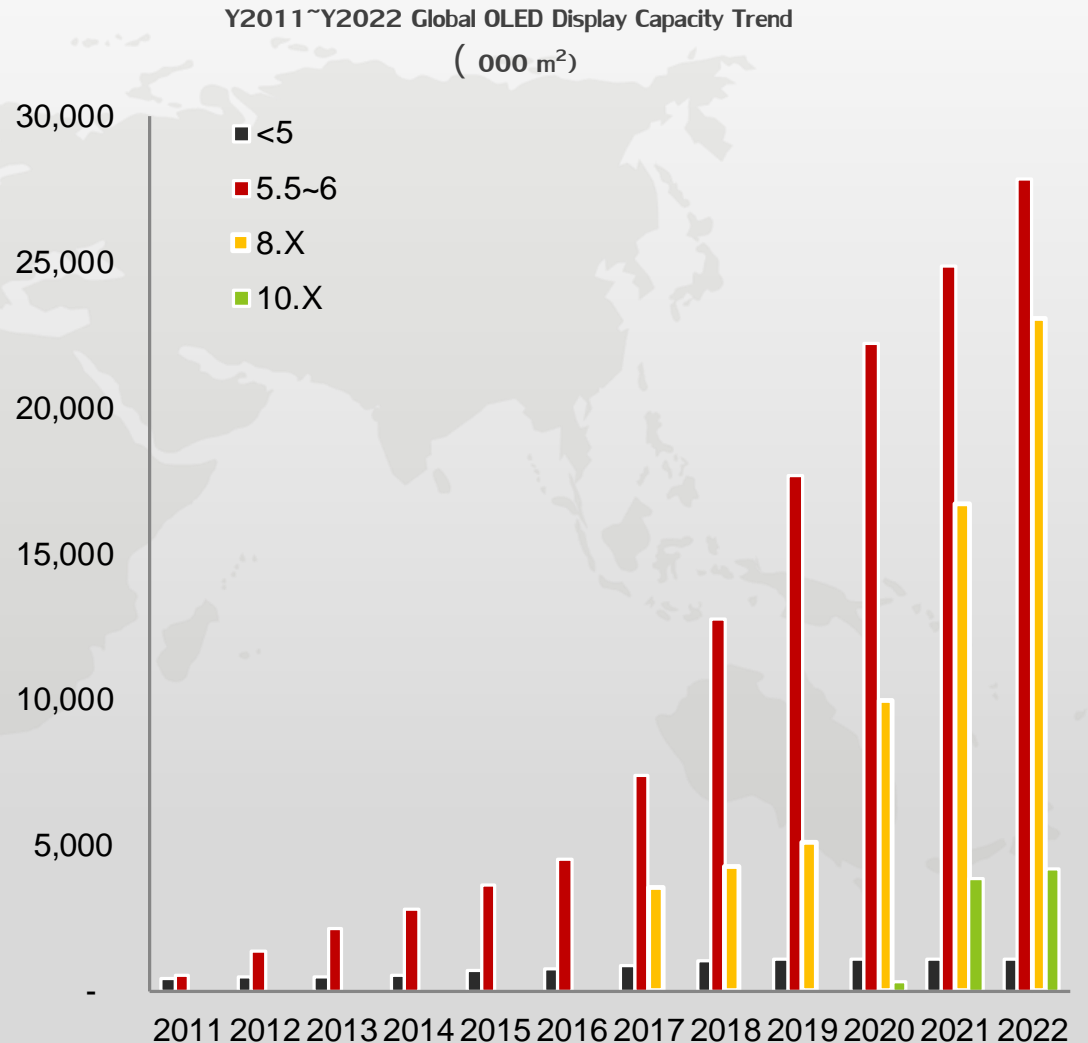
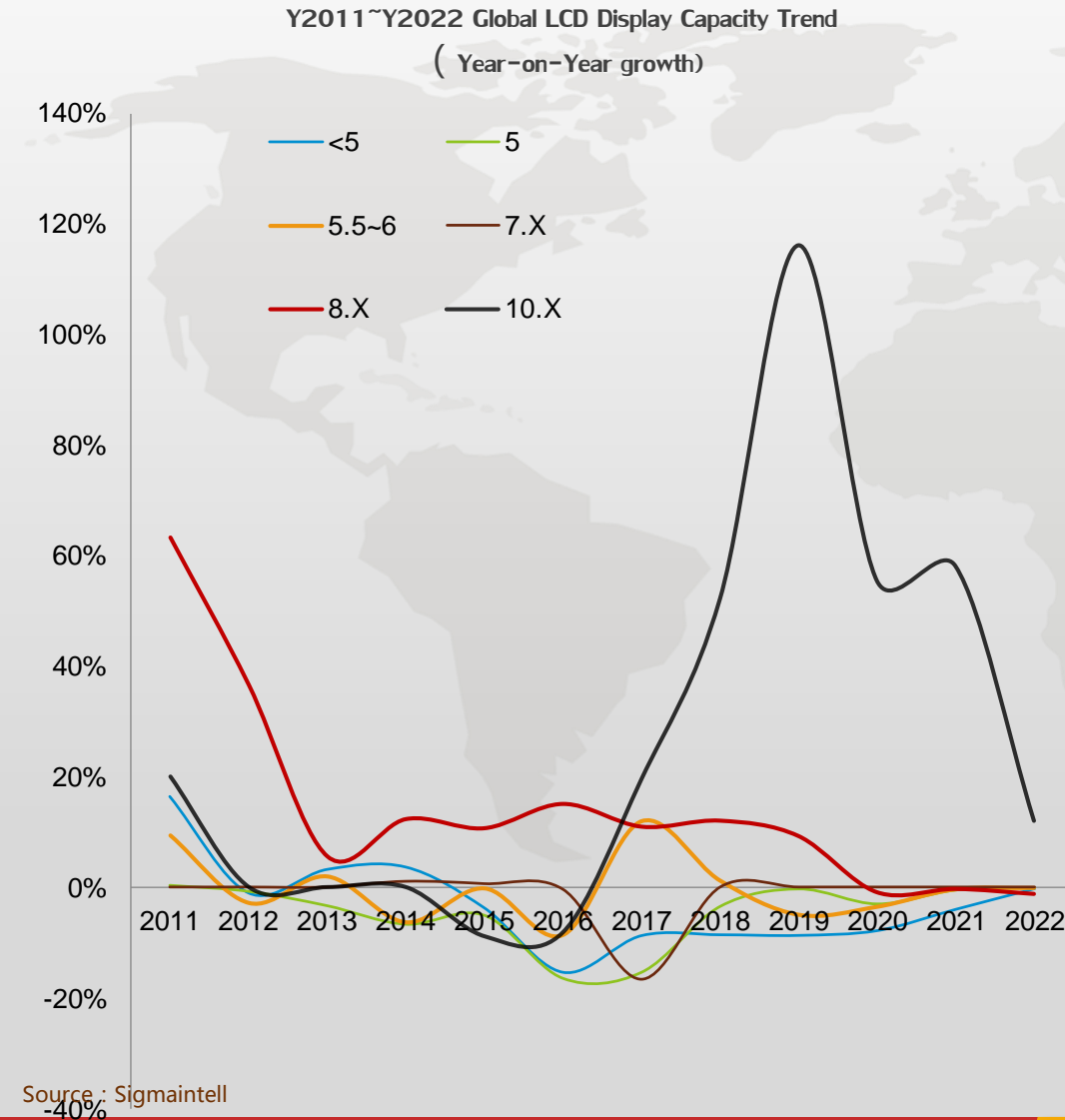
Source : Nikkei BP, Sigmaintell

## 2<sup>nd</sup>. Capacity&technology upgrades play key role in the coming years



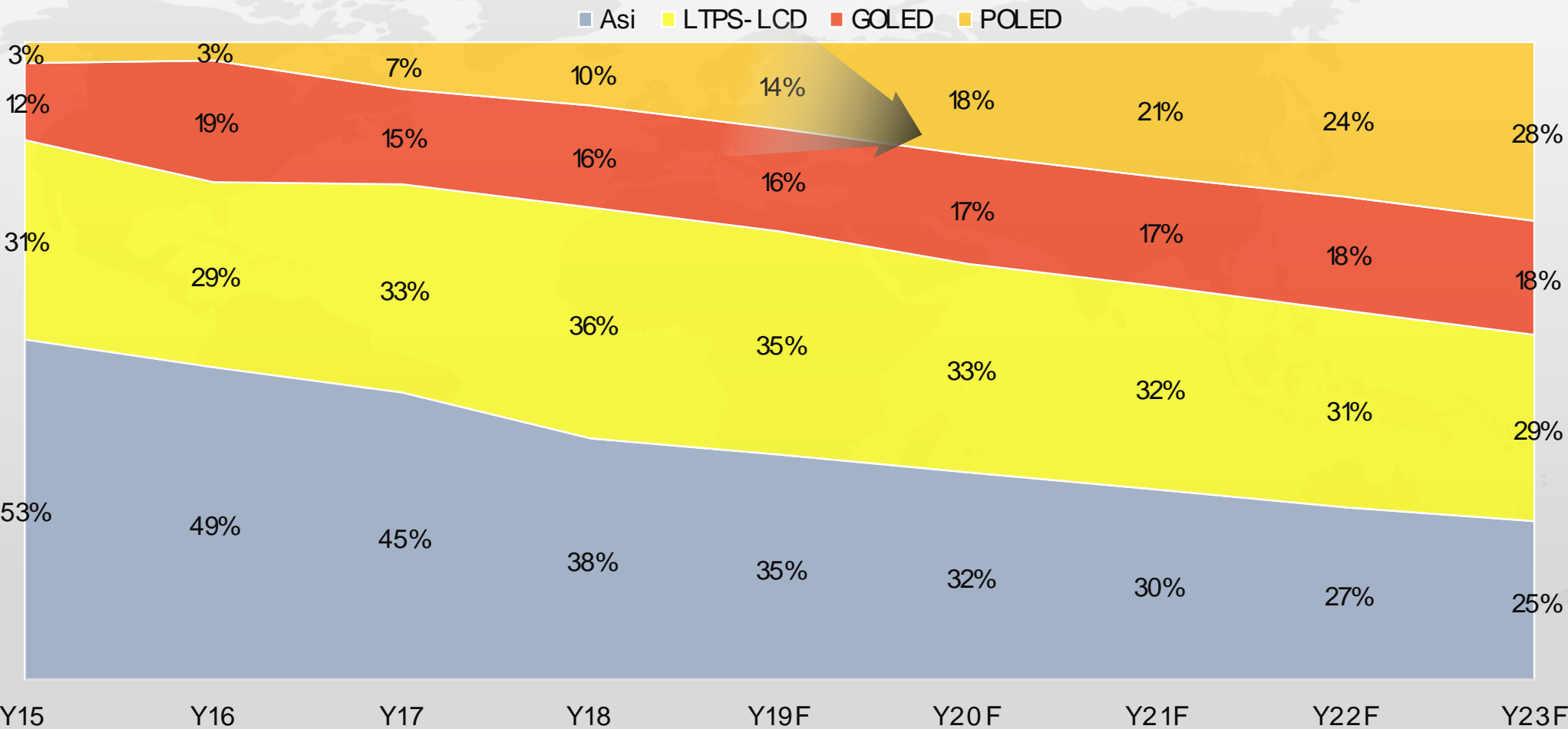
Source : Sigmaintell

## 2<sup>nd</sup>. Capacity&technology upgrades play key role in the coming years



## 2<sup>nd</sup>. Capacity&technology upgrades play key role in the coming years

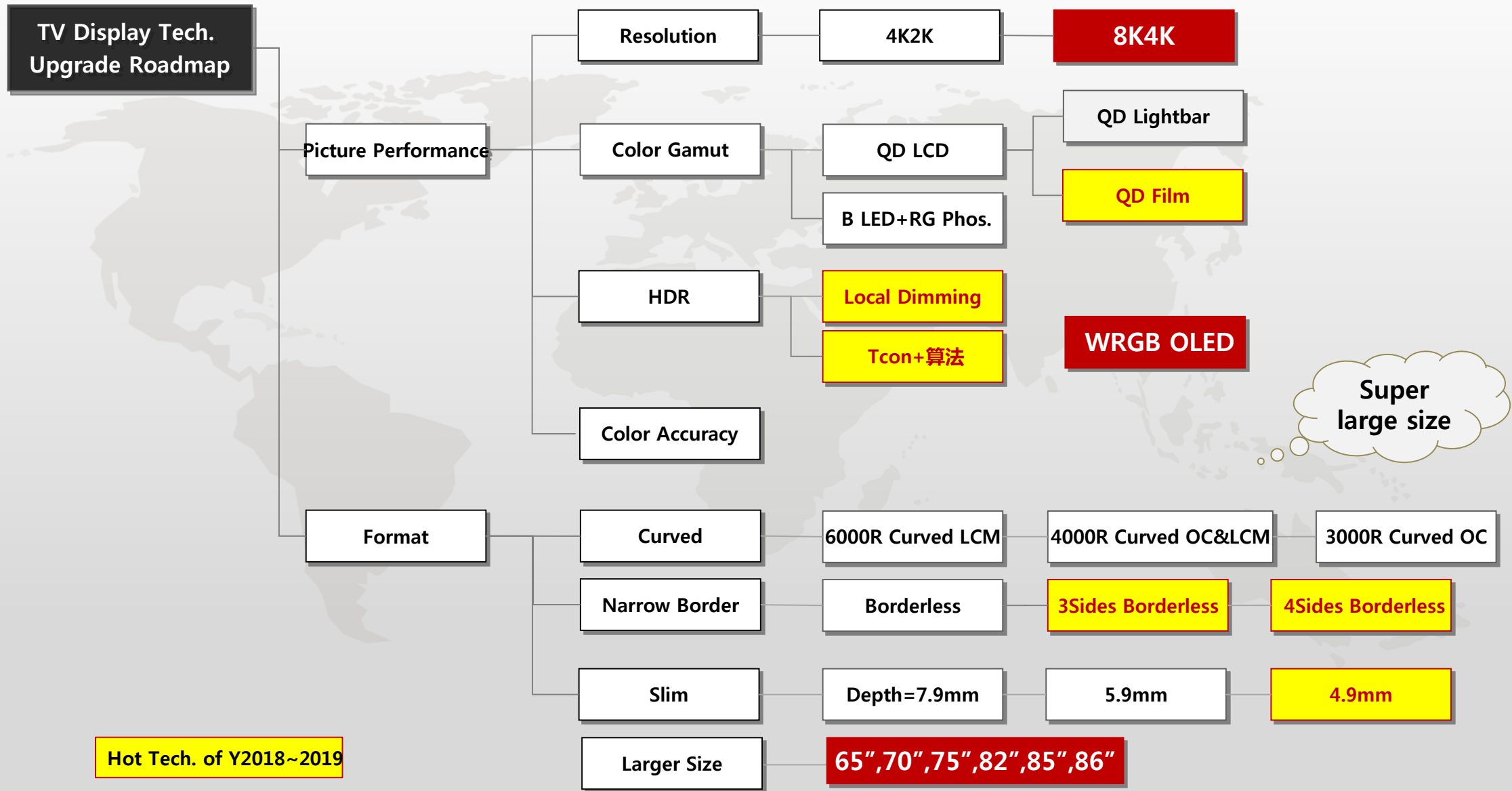
Y2015- Y2023 Worldwide Smartphone Panel Type Trend Forecasts



Source : Sigmaintell



# 3rd. Bigger size&8K will gain sustainable grow



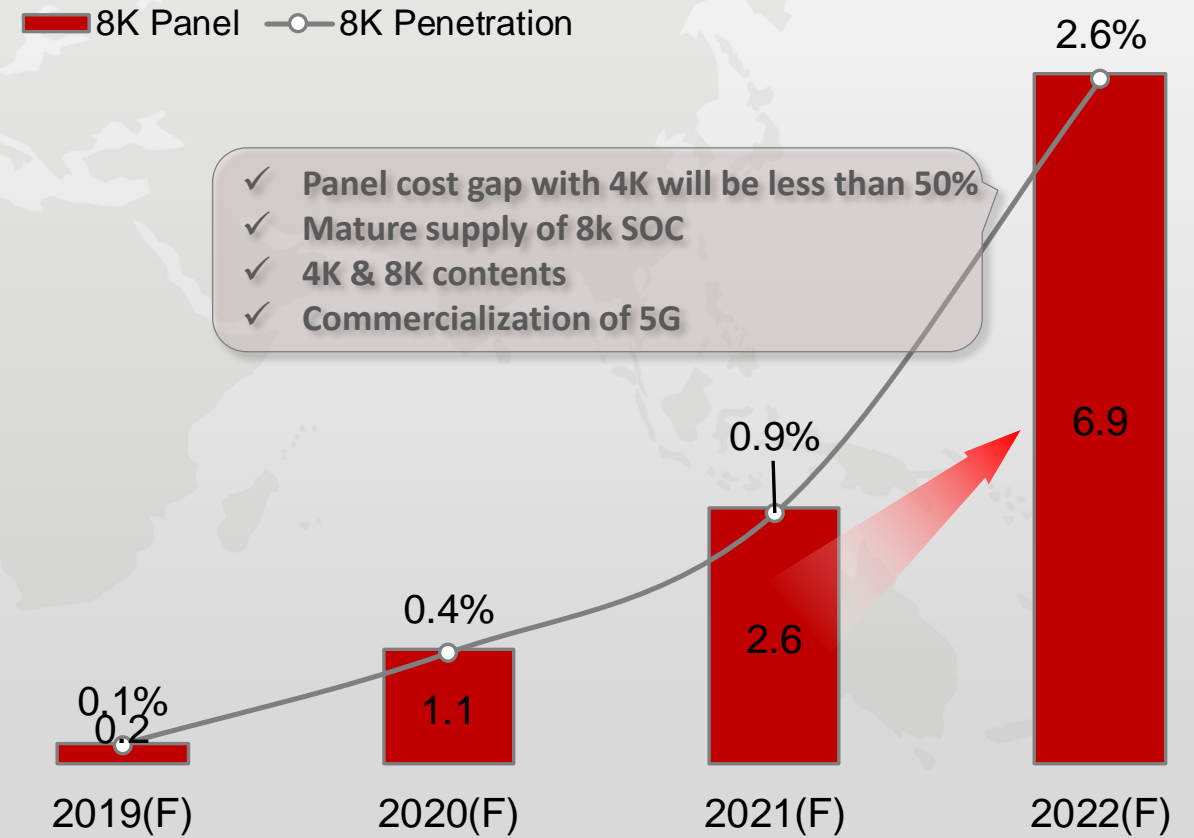
Source : Sigmaintell

### 3<sup>rd</sup>. Bigger size&8K will gain sustainable grow

Panel makers 8K products layout  
( Unit: Mil,% )

	65"	70"	75"	80"	82"	85"	98"	100"	110"	Remark
LGD										Sample , Q2'19 MP
SDC										MP
INX										Sample , Q2'19 MP
AUO										MP
BOE										Sample , Q2'19 MP
CSOT										Sample , Q3'19 MP
CEC										Sample
Sharp										MP

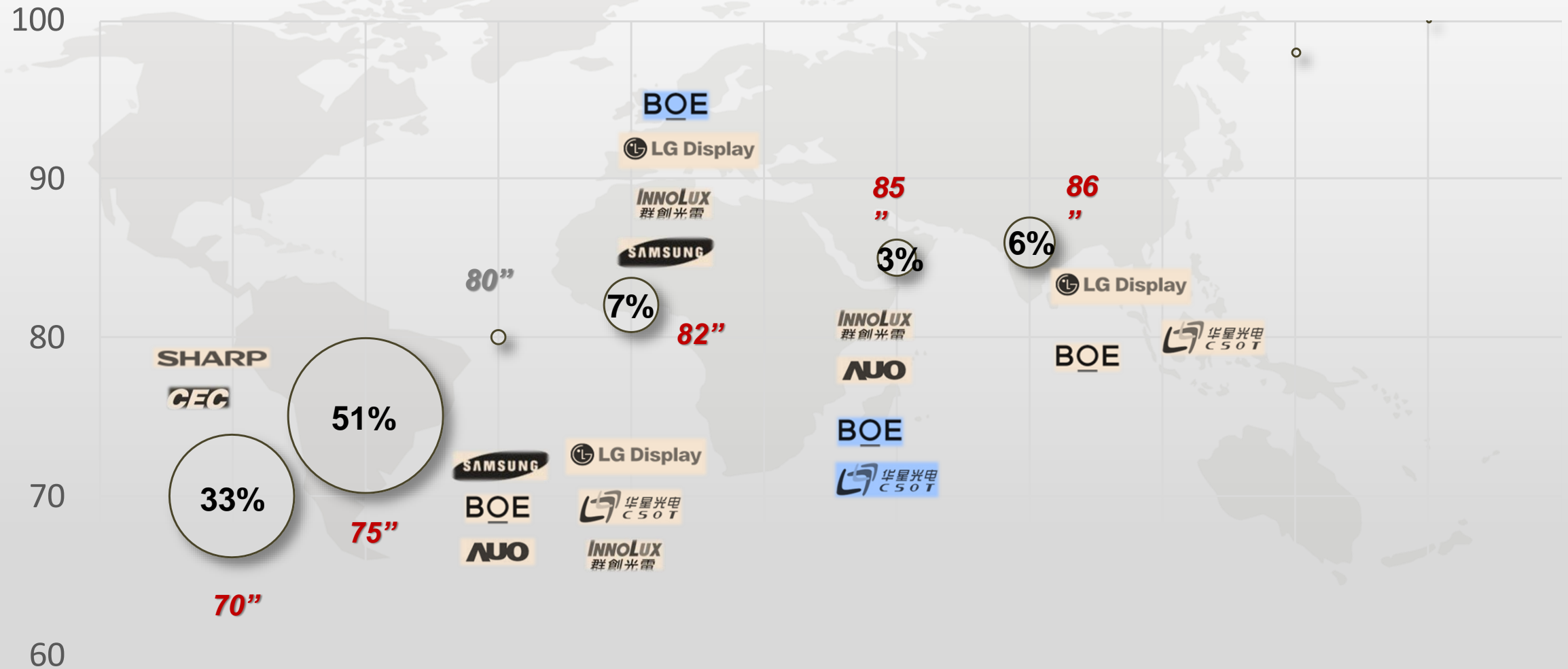
Y2019~2022 8K TV panel penetration trend  
( Unit: Mil,% )



Data source: Sigmaintell

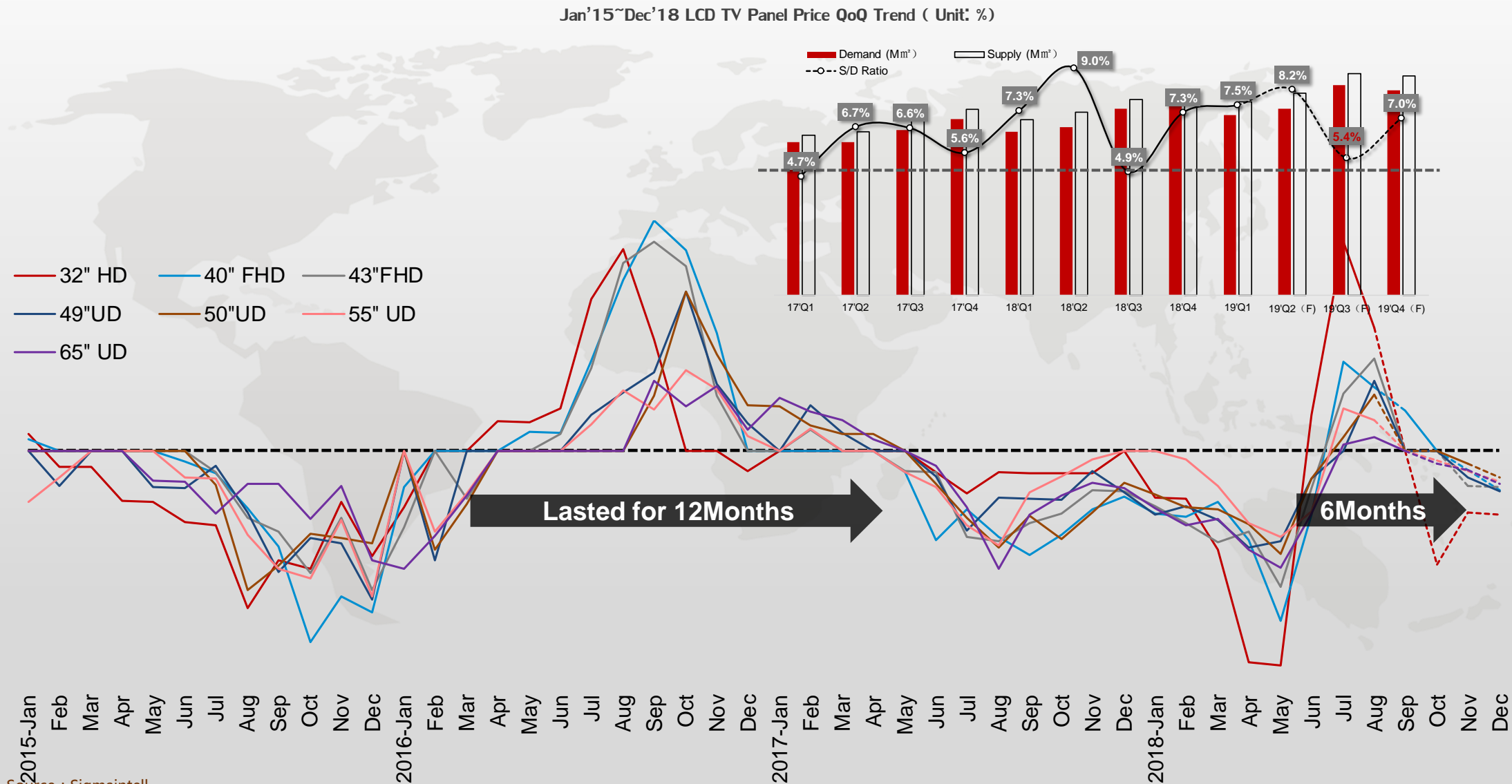
### 3rd. Bigger size&8K will gain sustainable grow

**> 65 "Large size LCD panel layout in 2019 (Unit : % )**



Data source: Sigmaintell

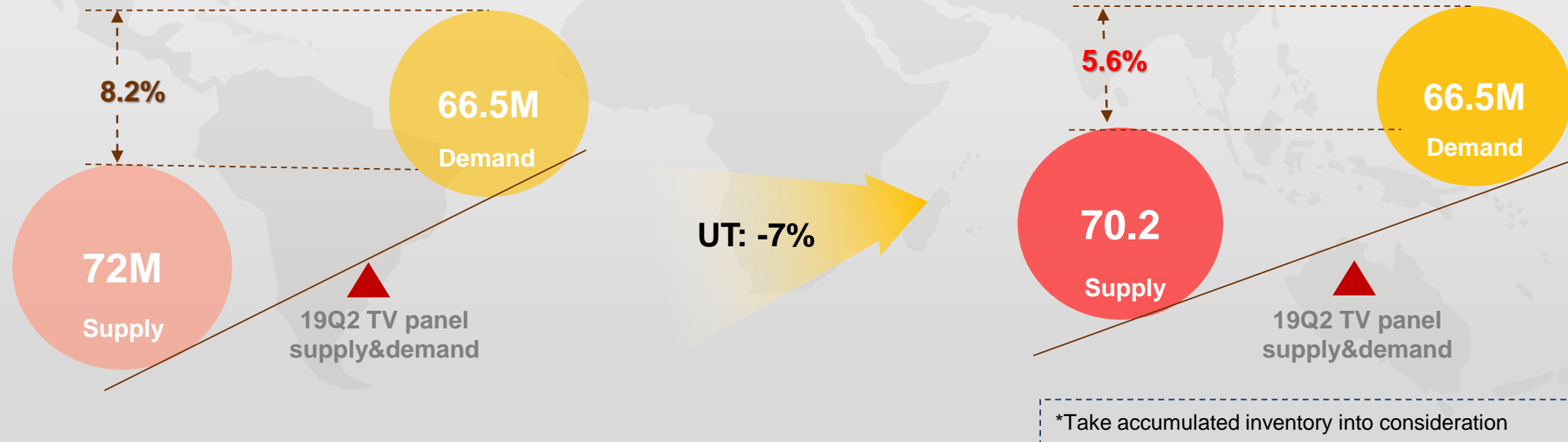
# 4<sup>th</sup>. Cystal cycle broke, supply control is more and more important



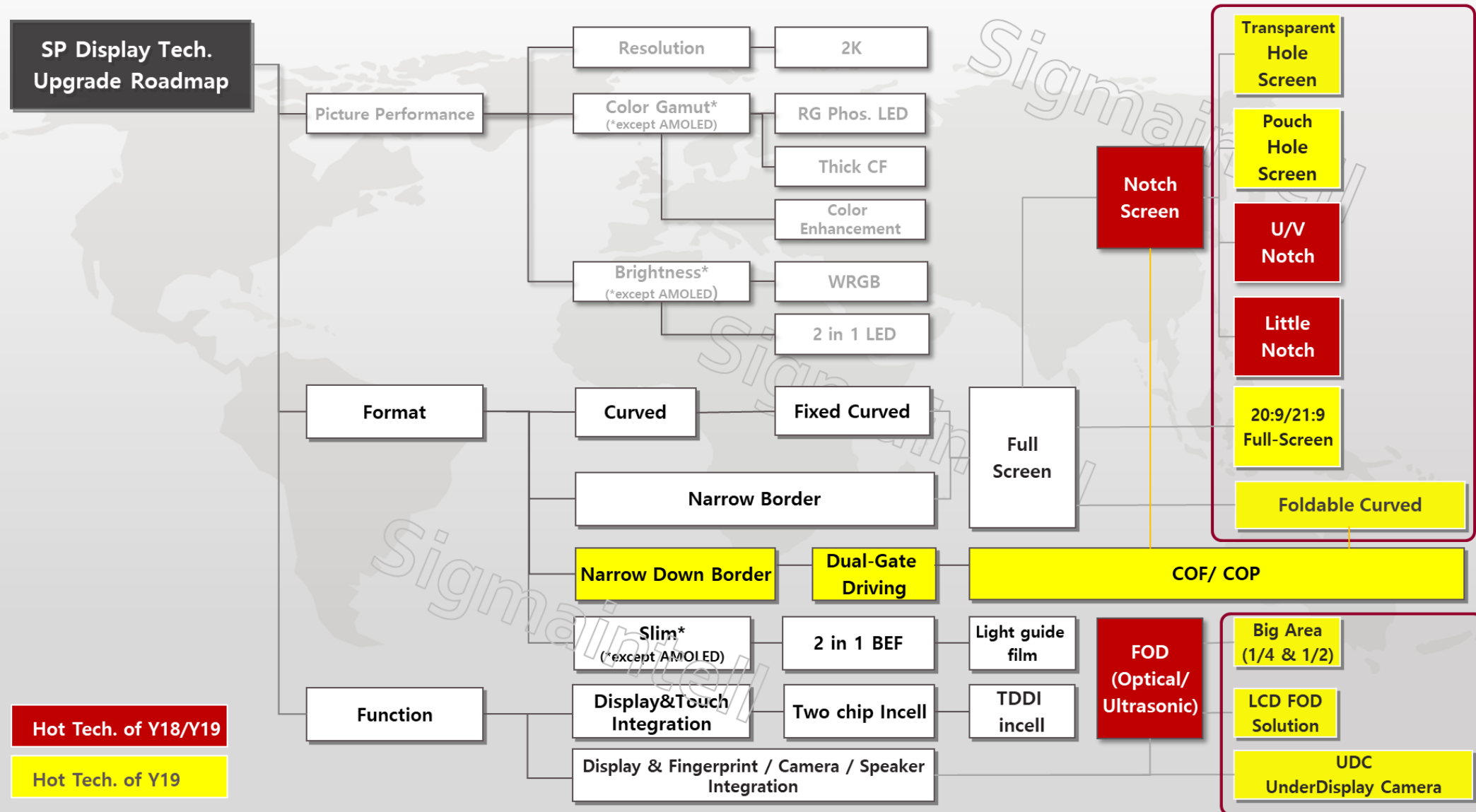
Source : Sigmaintell

## 4<sup>th</sup>. Crystal cycle broke, supply control is more and more important

- TV Panel price decreased again in Q2'19, with slightly and very short time price up during Mar.~Apr., the panel makers profit is still suffering loss, supply control is important.
- According to *Sigmaintell Supply&demand model*, if panel makers can decrease utilization by 7% in Q2, market supply&demand would return to balance (balance line is around 5%).



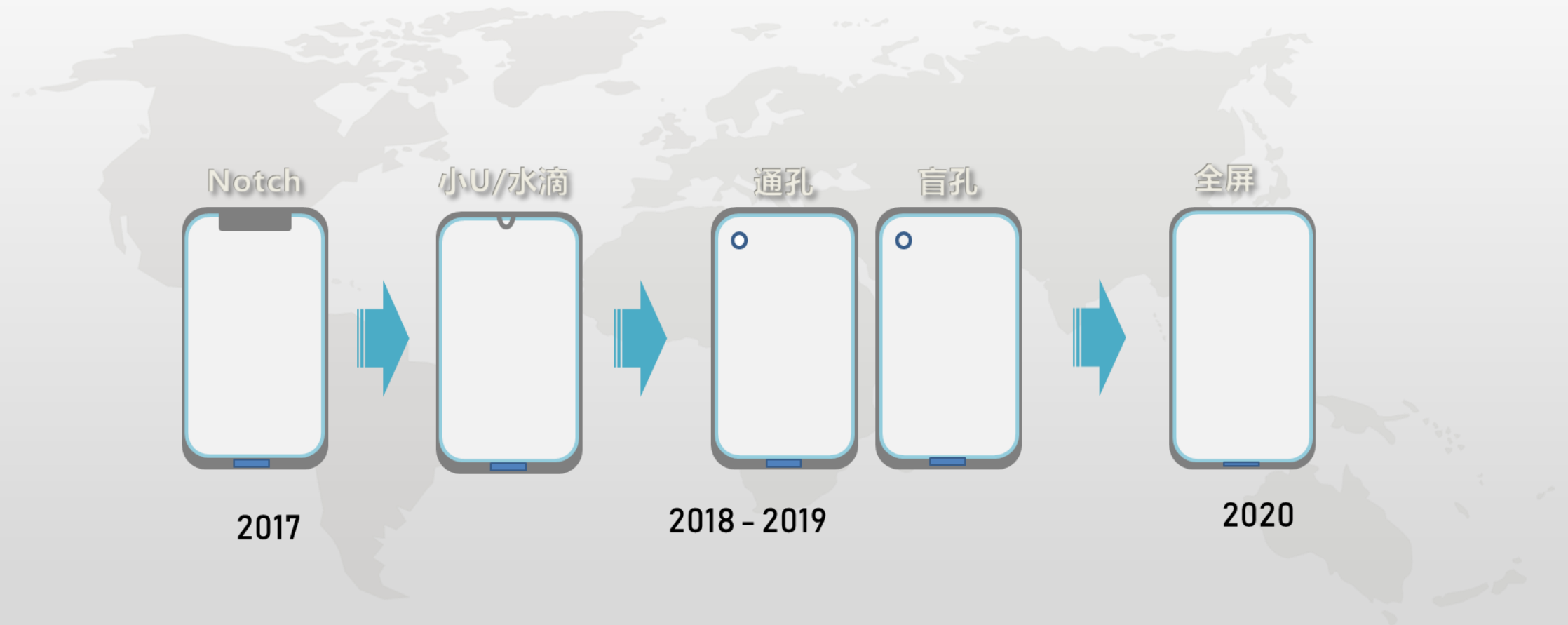
# 5<sup>th</sup>. FOD&UDC is coming, sensor integrated in Display will be mainstream



Hot Tech. of Y18/Y19

Hot Tech. of Y19

## 5<sup>th</sup>. FOD&UDC is coming, sensor integrated in Display will be mainstream



# 5<sup>th</sup>. FOD&UDC is coming, sensor integrated in Display will be mainstream

Huawei		
Honor Series	Capacitive	Goodix/Silead
Huawei Changxiang Series	( coating )	
Honor V Series	Capacitive	Goodix/FPC
Huawei P Series	(Glass)	
Huawei Mate Series	UD (Optical)	Goodix/Synaptics

VIVO		
V Series	UD (Optical)	Goodix
Z Series		
X Series		
NEX Series	Rear (Capacitive) (Glass)	Goodix/FPC
Z Series		
V Series		
X Series		
Y Series		

Xiaomi		
Mi Series	UD (Optical)	Goodix
Mix Series		
Mi Series		Goodix/FPC
Max Series	Rear (Capacitive)	
RedMi Note Sereis		
RedMi Sereis		

OPPO		
K Series	UD (Optical)	Goodix/Silead
R Series		
Find Series		
F Series	Rear (Capacitive) (Glass)	Goodix/FPC
A Series		
R Series		
Realme Series		
Realme Series		

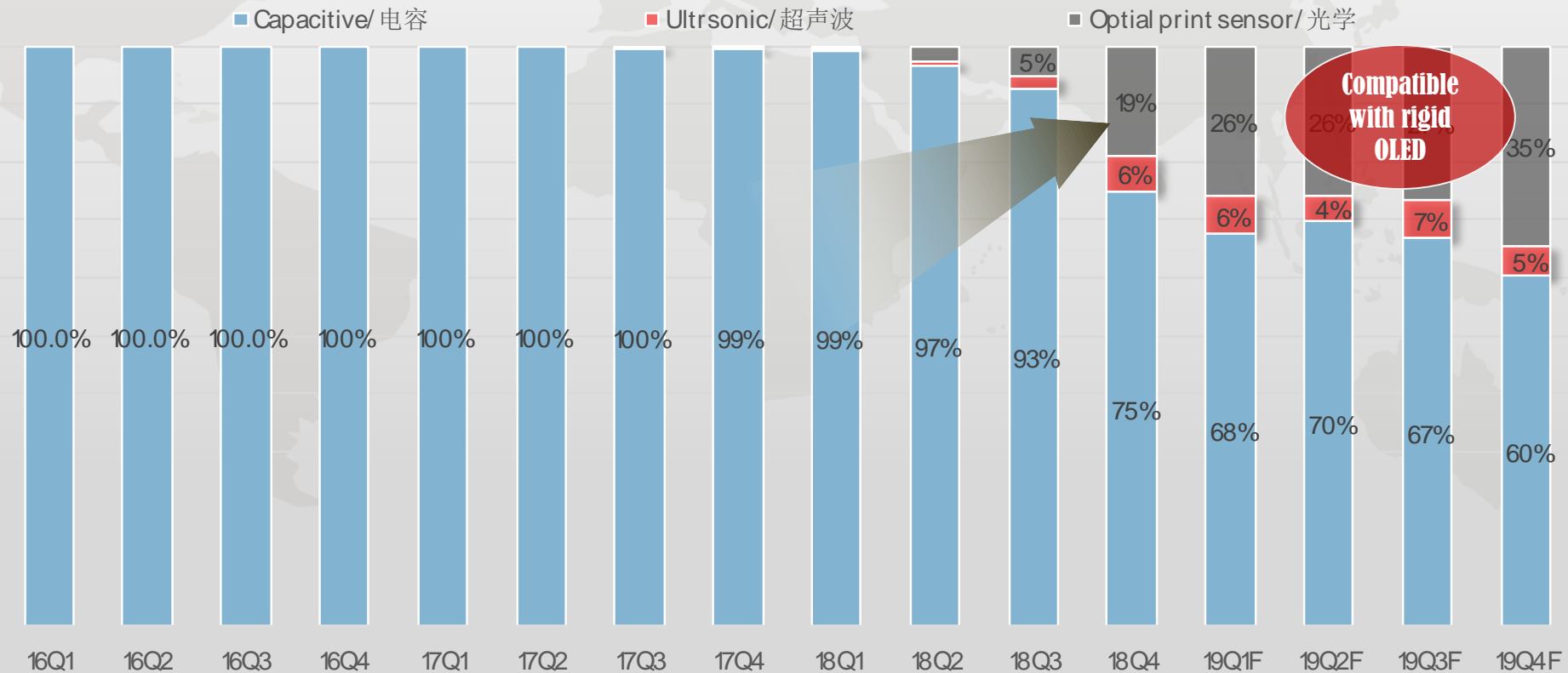
Source : Sigmaintell



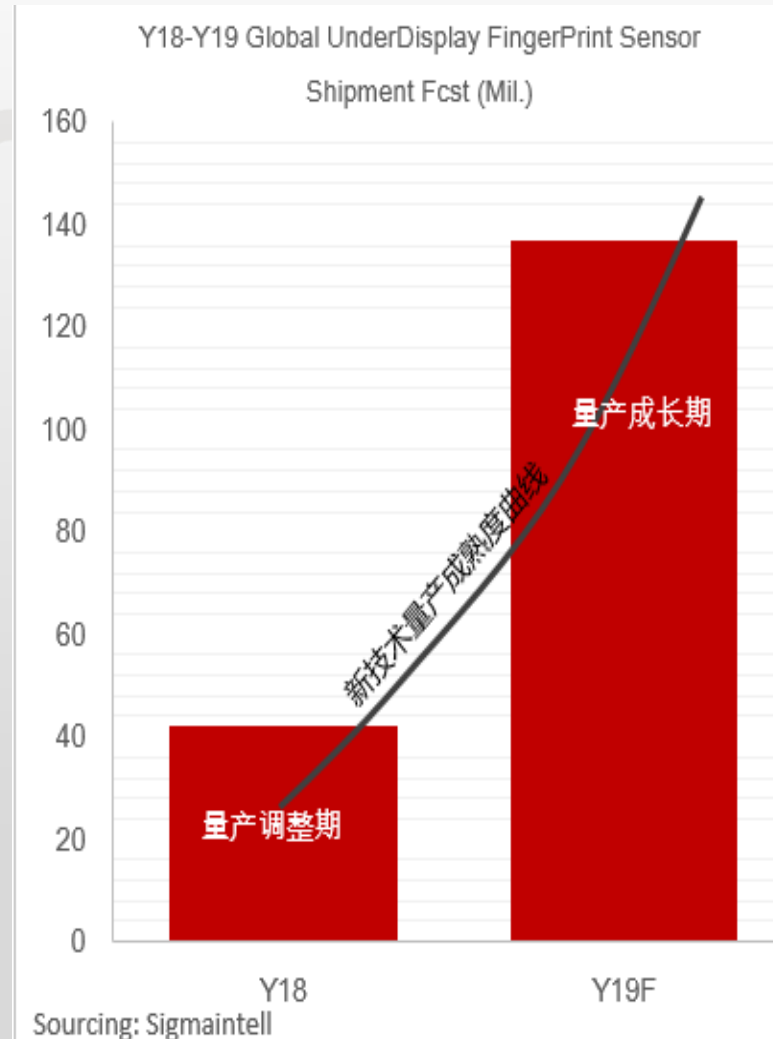
## 5<sup>th</sup>. FOD&UDC is coming, sensor integrated in Display will be mainstream

1. The Ultrasonic Fingerprint MS% was up to around **6%** in 18Q4, mainly demand was from Samsung Galaxy S10 series. Sigmaintell fcst it will keep stable at around **5%** in Y19. Total volume will be up to **54mil.** in Y19 and YoY increasing around **172%**.
2. In 18Q4, the MS% of Optical fingerprint was up to **19%** sharply. Total volume will be up to **281mil.** And YoY increasing around **372%** in Y19.

Y16-Y19 Global Fingerprint developing trends by Type (%)



# 5<sup>th</sup>. FOD&UDC is coming, sensor integrated in Display will be mainstream



## 1. 指纹传感器 (屏下指纹)



## 2. 摄像头传感器 (屏下摄像头)



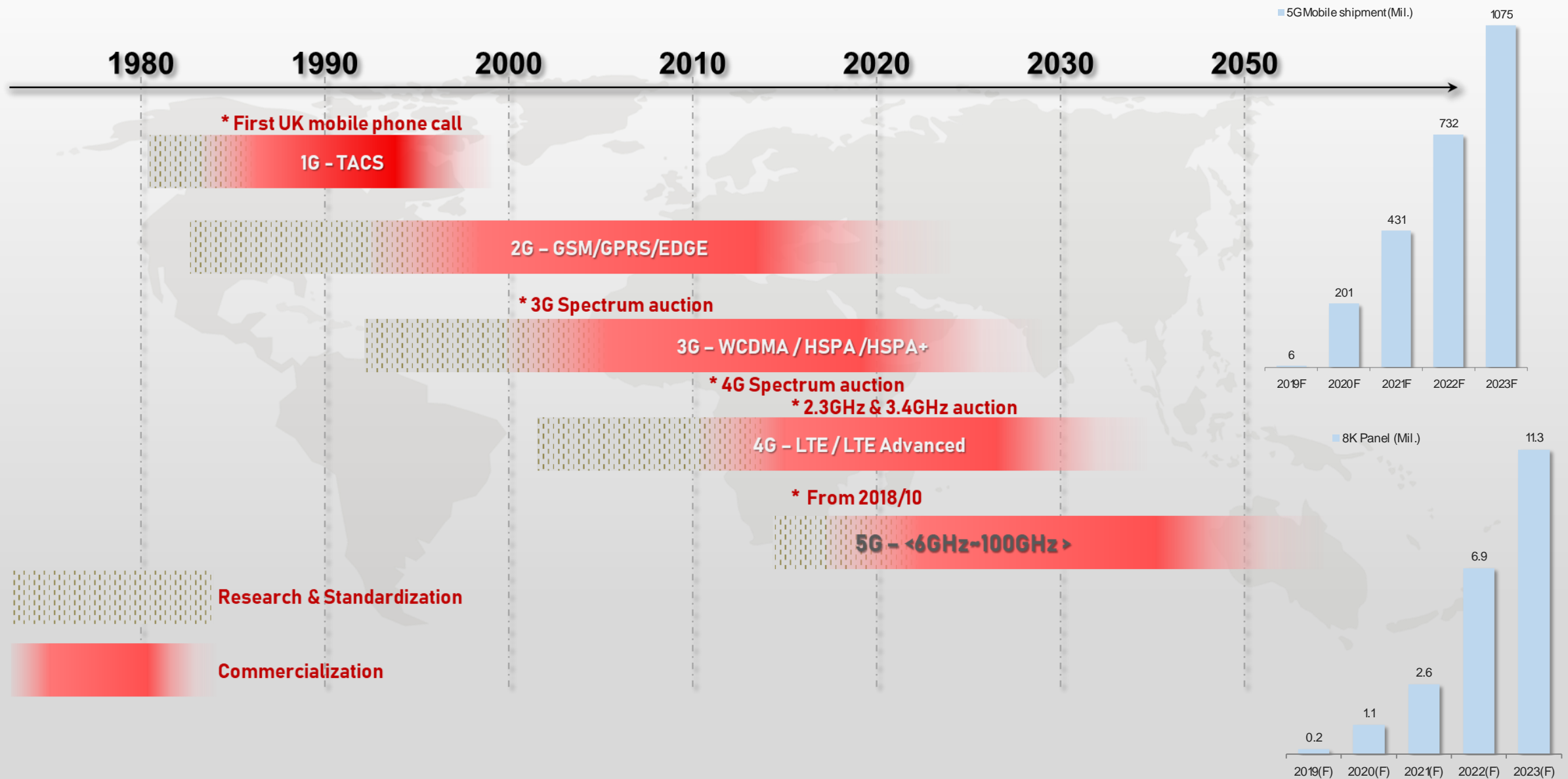
## 3. 声学传感器 (屏幕发声)



## 4. 5G射频传感器

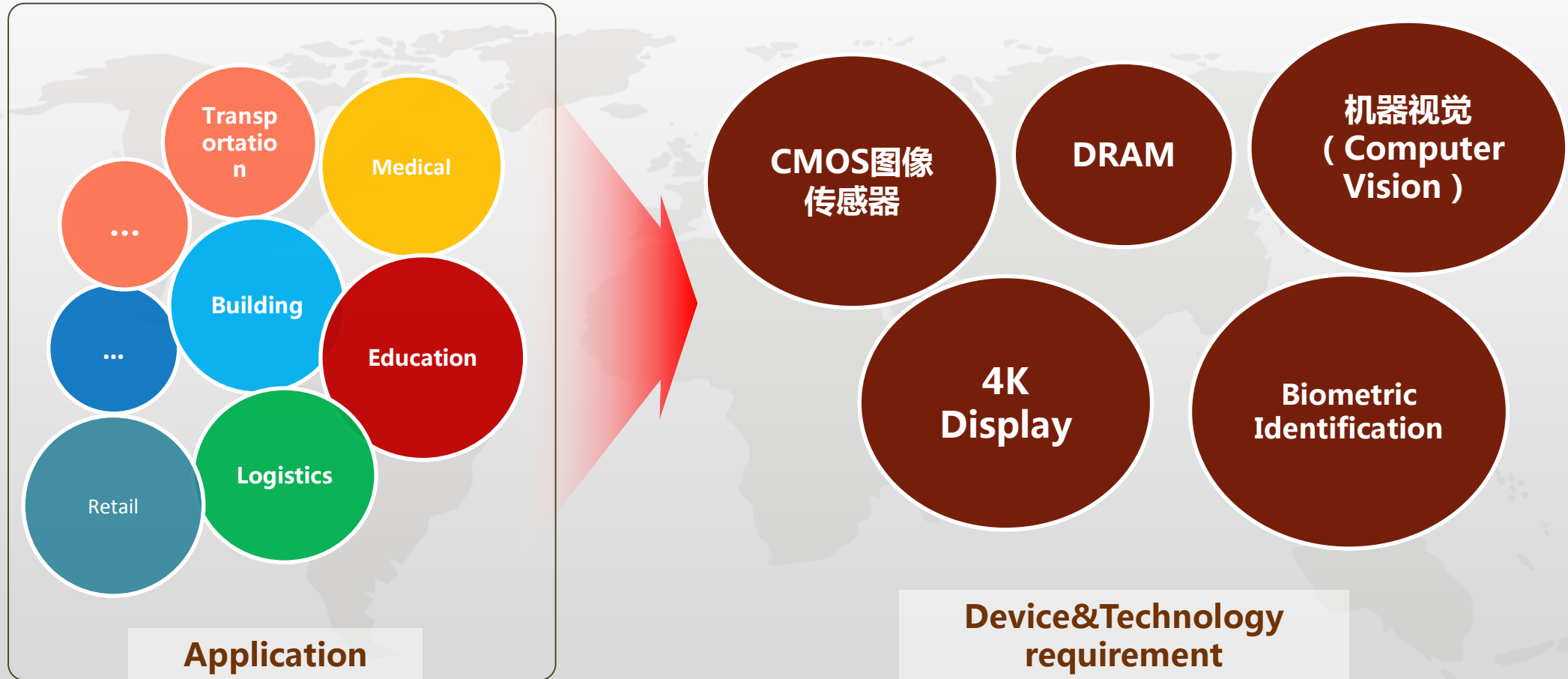
# 6<sup>th</sup>. 5G – Drive demand booming on 5G smartphone&8K TV from 2021~2022

Chap.4: ValueChain



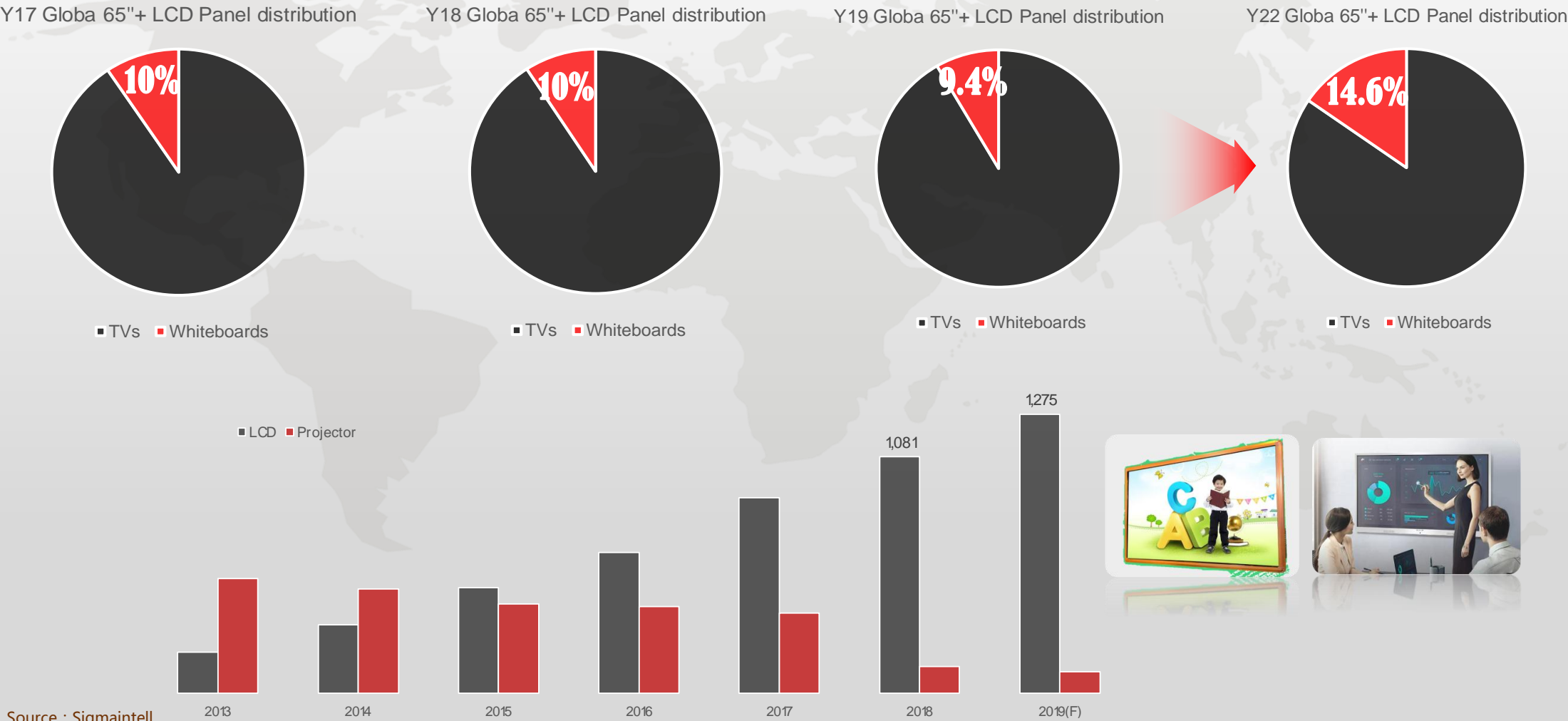
Source : The Ministry of industry, Sigmaintell

## 6<sup>th</sup>. 5G is ON, driving innovation application growing



# 6<sup>th</sup>. 5G is ON, driving innovation application growing

Y2017–Y2019 IWB Market Scale in large size market



## 6<sup>th</sup>. 5G is ON, driving innovation application growing

-5.0%

Smartphone - Y18  
1364Mil.

+4.0%

TV - Y18  
239Mil.

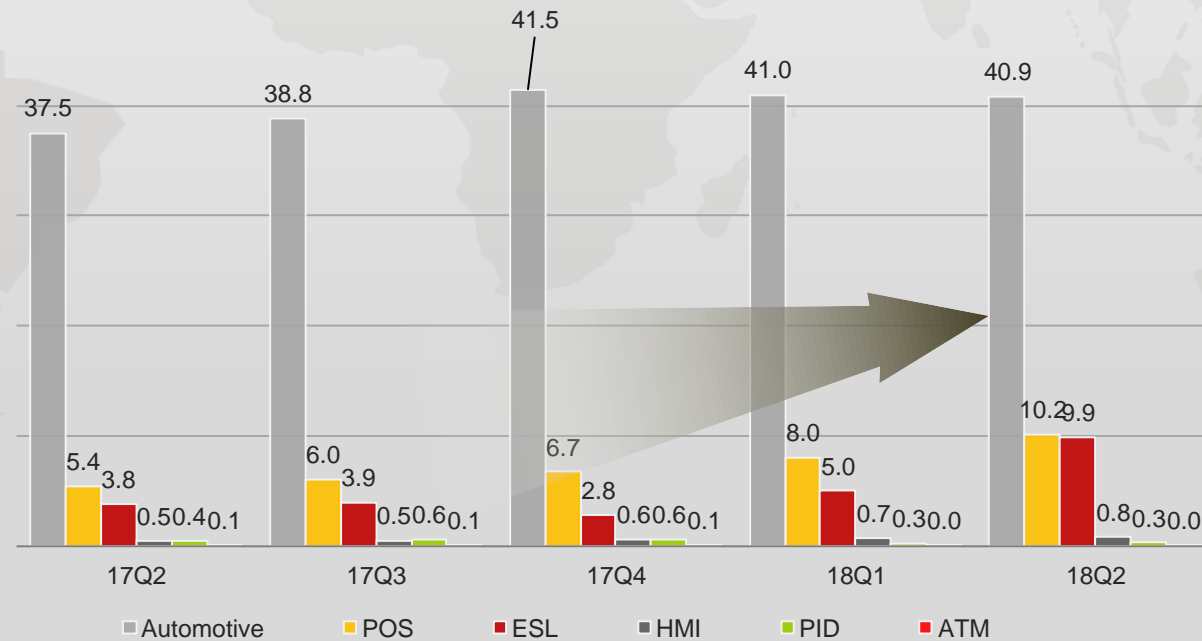
+1.1%

NB - Y18  
157Mil.

+5.1%

MNT - Y18  
135Mil.

17Q2-18Q2 Global Innovation Application Display Shipment Trends (Mil.)



Evolution on Smart Car/Retail/manufacture Will push demand grow on Automotive, POS, PID and HMI displays.

Source : Sigmaintell

# Summary



**1<sup>st</sup>. Display industry is eager on technological innovation.**

**2<sup>nd</sup>. Display and capacity technology evolution play key role in coming years.**

**3<sup>rd</sup>. With supply grow and cost down, bigger size and 8K will gain sustainable grow**

**4<sup>th</sup>. *Crystal cycle* broke, supply control becomes much more important**

**5<sup>th</sup>. With FOD&UDC evolution, display integrated with sensor will become mainstream**

**6<sup>th</sup>. 5G accelerate demand on AMOLED, 8K and application innovation for displays from 2021~2022.**

# Thank you

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