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# China smartphone market dynamic and local panel makers strategy

The supply chain dynamic and intensive investment

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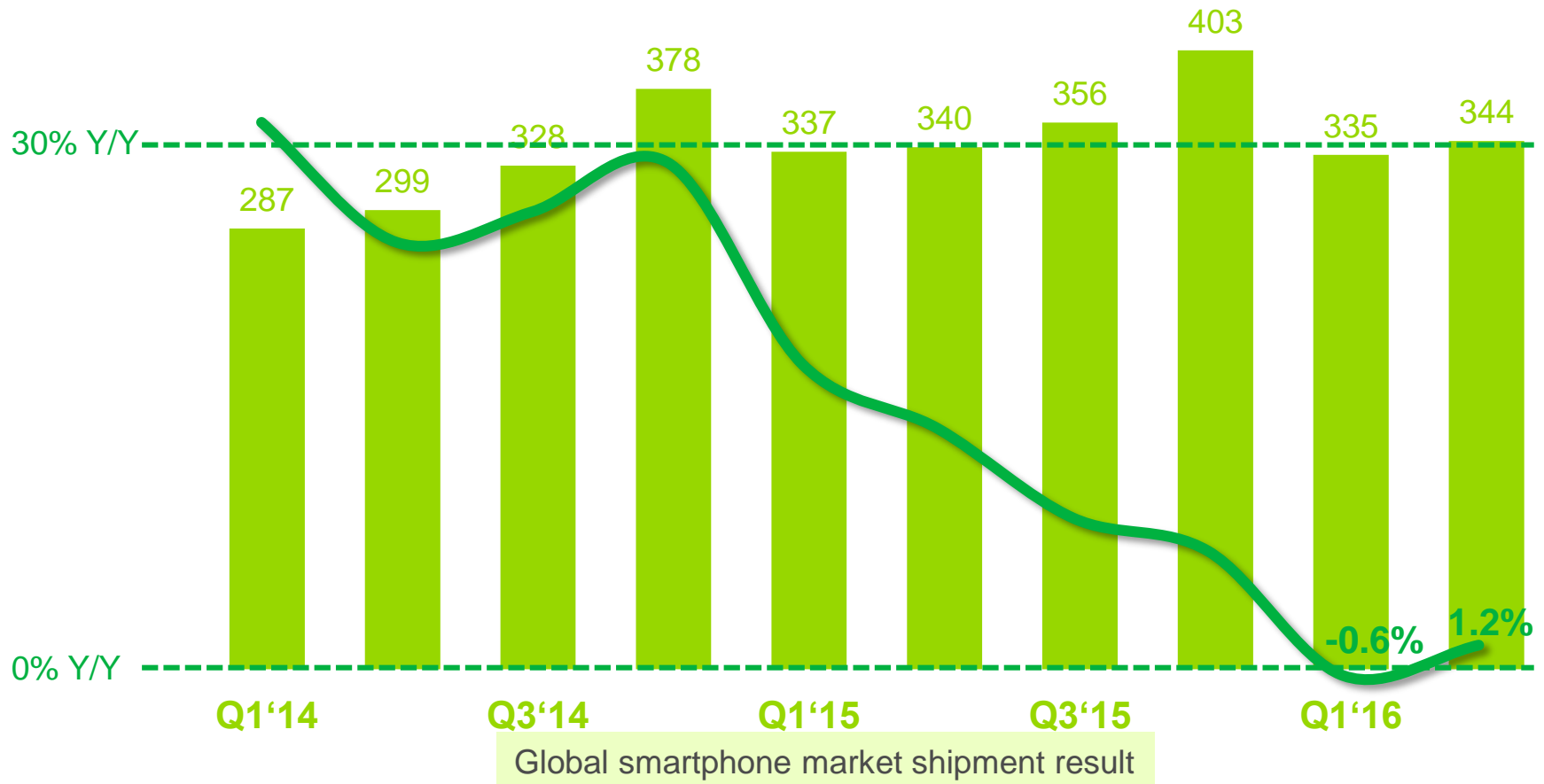
# Outlines

**Brand transfer wave and supply chain adjustment  
in China domestic market**

**Major panel makers strategy outlook**

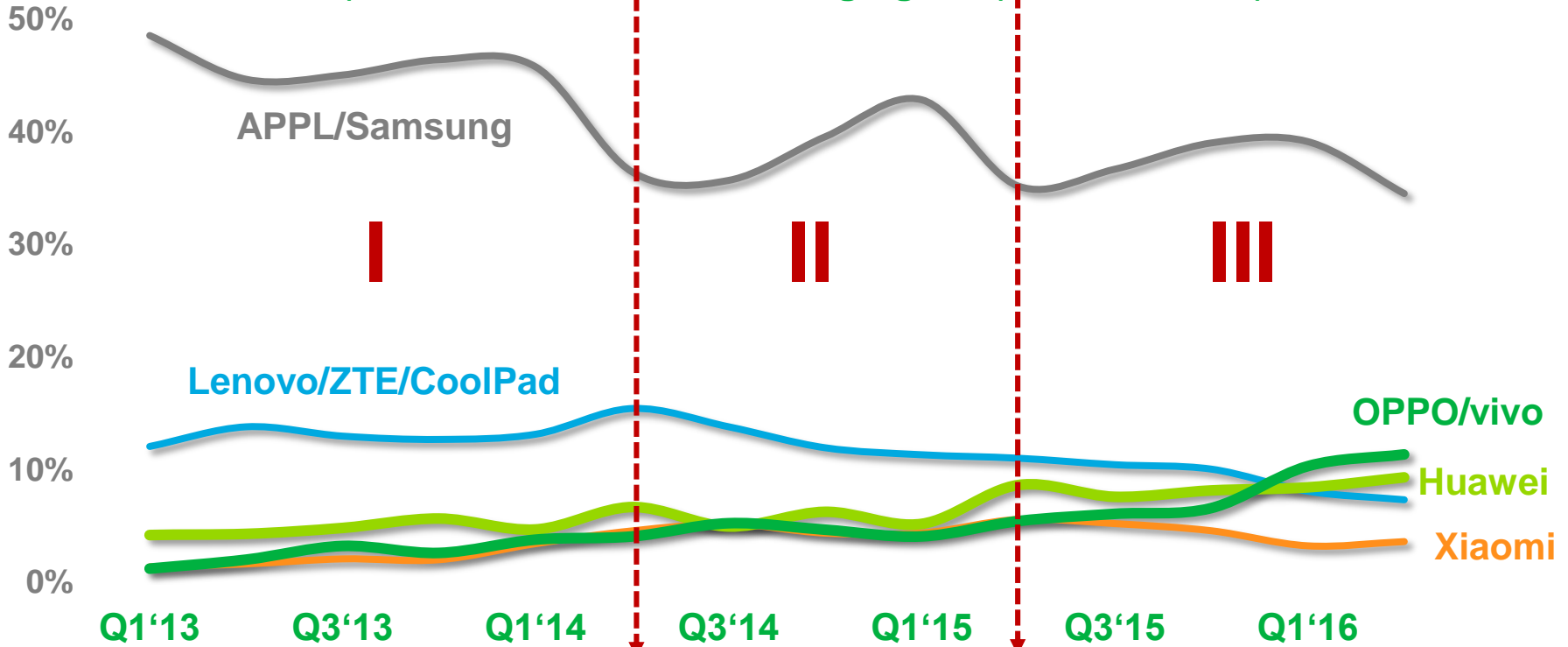
# Smartphone market is getting mature and losing growth

Impacted by the weak iPhone demand, smartphone got the negative Y/Y growth in Q1'16



# The driving force behind brands competition

The multi-wave helped to form current **fast changing** competitive landscape



\*\*Telecom operator subsidy

\*\*China domestic market

\*\*Mature hardware performance

\*\*Subsidy policy terminal

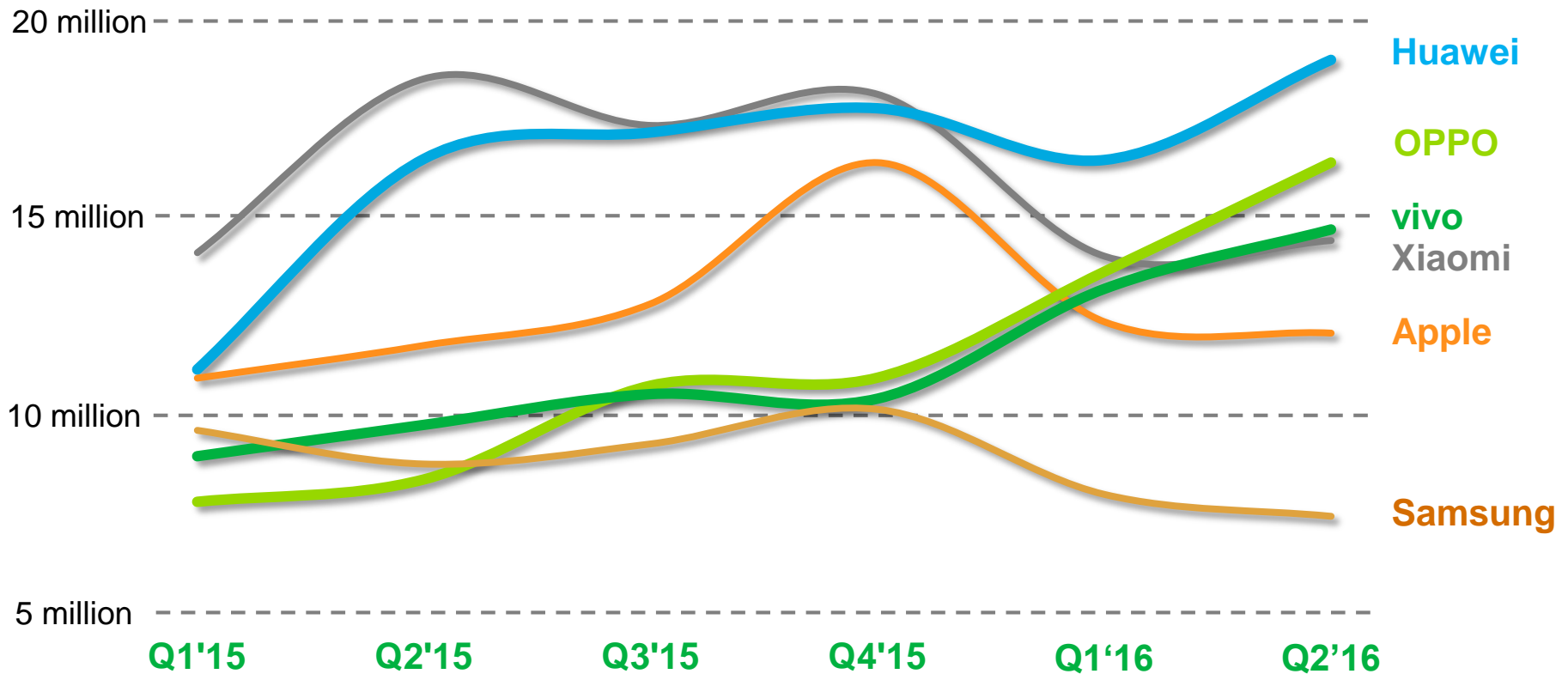
\*\*Boosted on-line demand

\*\*Boosted off-line demand

Global smartphone shipment share by brand

# The changing growth in China domestic market

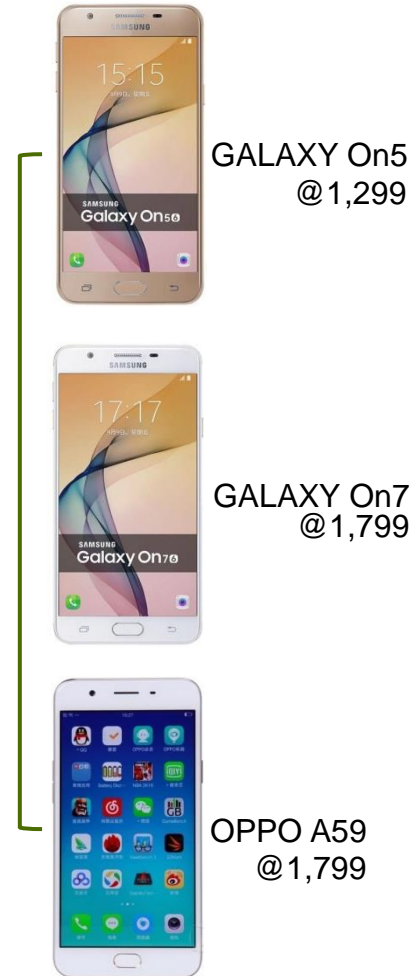
Benefitted from the **strong off-line channels and replacement demand**, **OPPO and vivo** performed extremely good in 1H'16.



China smartphone shipment share by brands

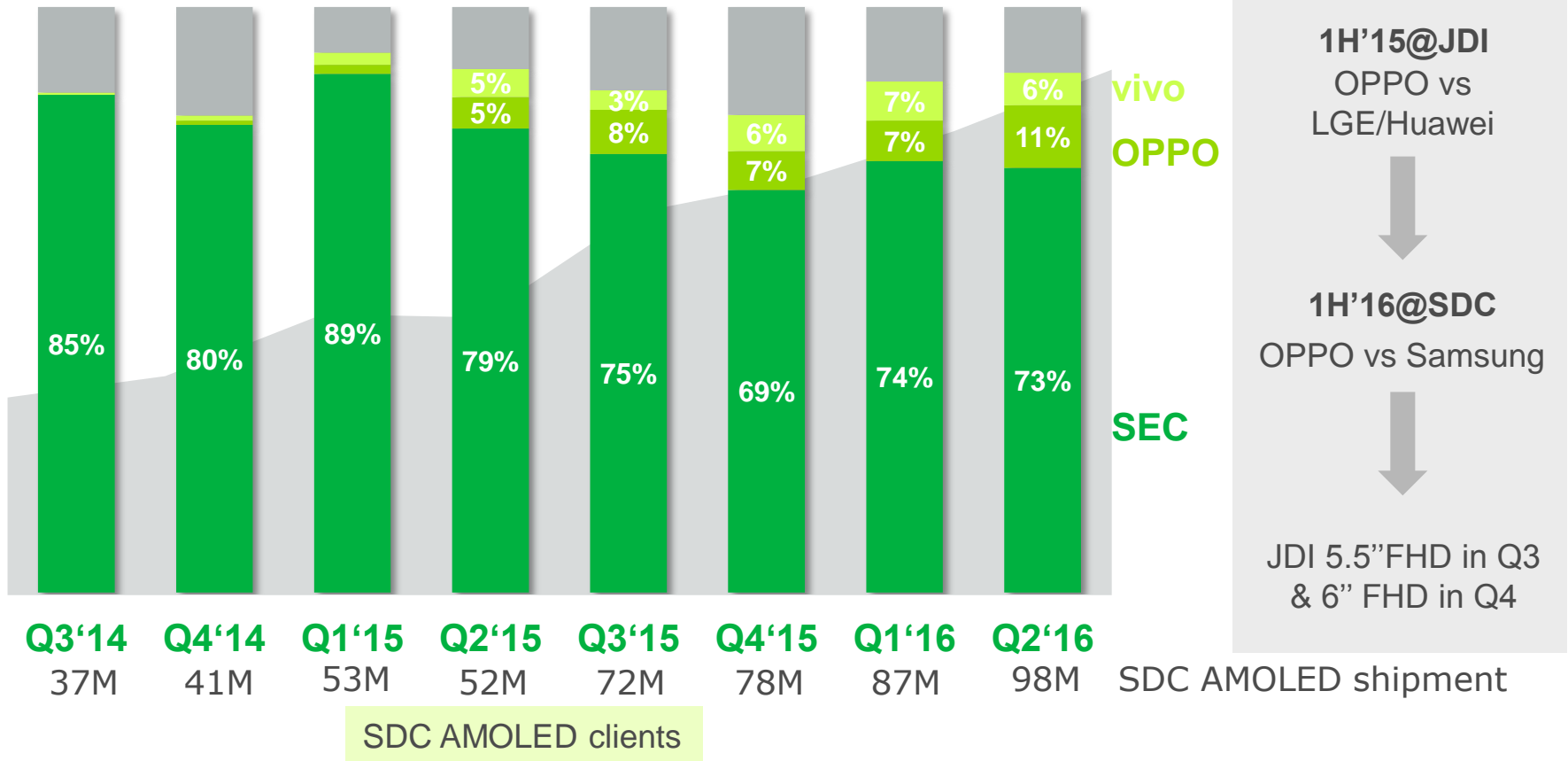
# Local brands' strong positioning among 1,000-4,000CNY range

Brand		OPPO	Samsung	Samsung
Model		A59	GALAXY On7	GALAXY On5
Launch		June'16	Sep'16	Oct'16
Price		1,799 CNY(\$266)	1,799 CNY(\$266)	1,299 CNY(\$192)
Display	Technology	aSi LCD	LTPS LCD	aSi LCD
	Size	5.5"	5.5"	5"
	Resolution	720HD	FHD	720HD
AP	Core	Octa	Octa	Octa
	Model	MT6750	Snapdragon 625	Snapdragon 617
RAM		3G	3G	3G
ROM		32G	32G	32G
Rare camera		13M	13M	13M
Front camera		8M	8M	8M
Battery		3075mAh	3300mAh	2600mAh
	Size	mm	154.5x76x7.38	151.7x74.9x8.0
Weight	mg	160	167	143



# Does the supply chain ready for the booming surge of OPPO/vivo?

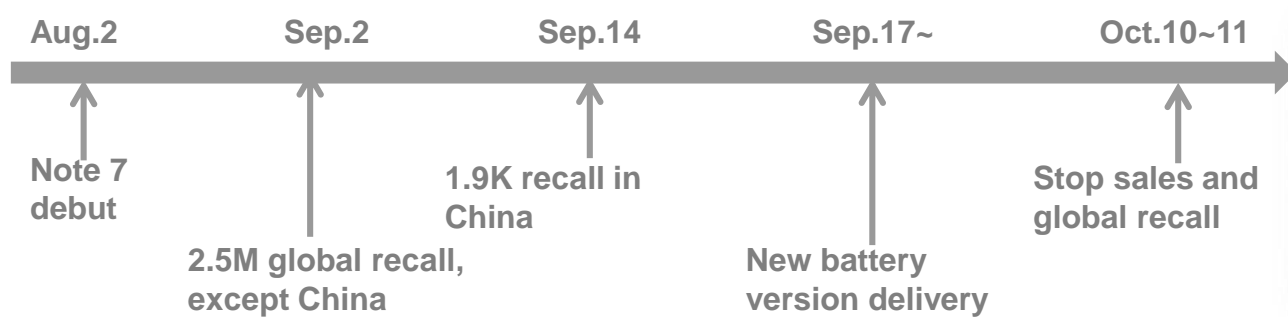
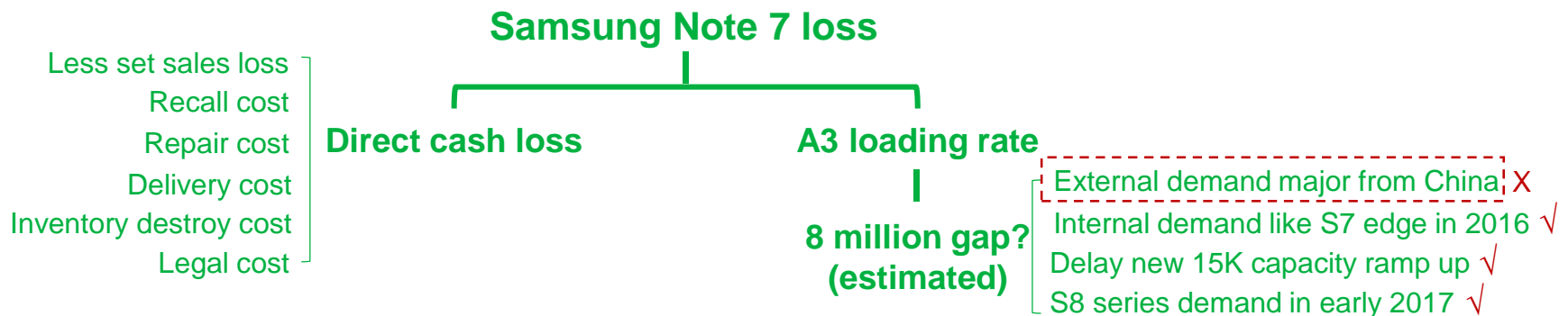
The tight Samsung AMOLED supply and JDI's back to OPPO/vivo value chain



# Samsung Note 7 recall issue cannot help China AMOLED supply

Besides the direct cash loss, Samsung Display A3 fab loading rate will be another challenge.

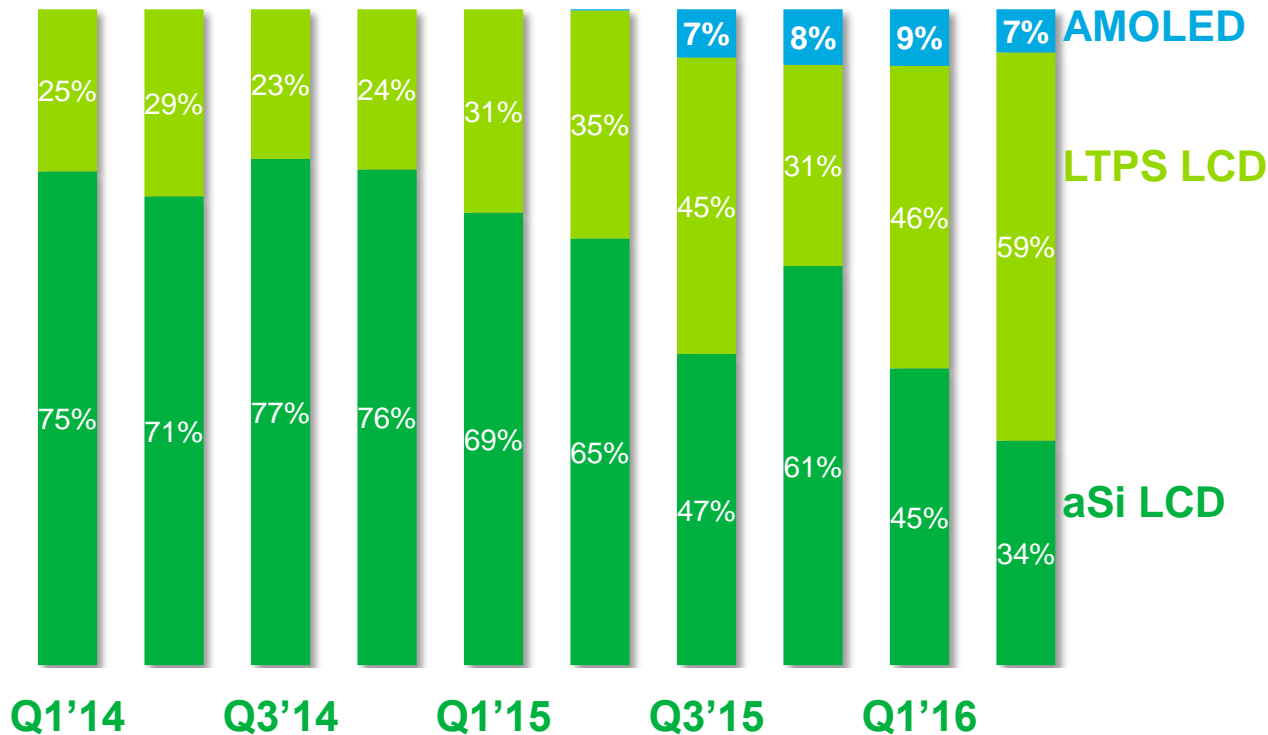
However, it's not helpful to improve current rigid AMOLED supply for Chinese brands.





# Huawei still keeps eyes on the AMOLED supply chain

The coming AMOLED models in 2H'16 and the strategy cooperation with JDI



Huawei procurement share by display technology



P9 plus  
5.5" FHD  
Rigid



Honor Note8  
6.6" WQHD  
Rigid



Long Island  
5.5" WQHD  
Curved display



Nice  
5" 720HD  
Rigid

# Xiaomi debuts AMOLED models without Samsung Display support

## Redmi Pro

Launch: July 27<sup>th</sup>

Price:  
1,499 CNY @ July  
1,099 CNY @ October

Display:  
5.5" FHD AMOLED  
Ever Display,  
BOE(sample)

Others:  
AP: MTK Helio X20  
RAM/ROM: 3G+32G  
Camera: 13M+5M  
Battery: 4050mAh



## Xiaomi Note 2

Launch: October 25<sup>th</sup>

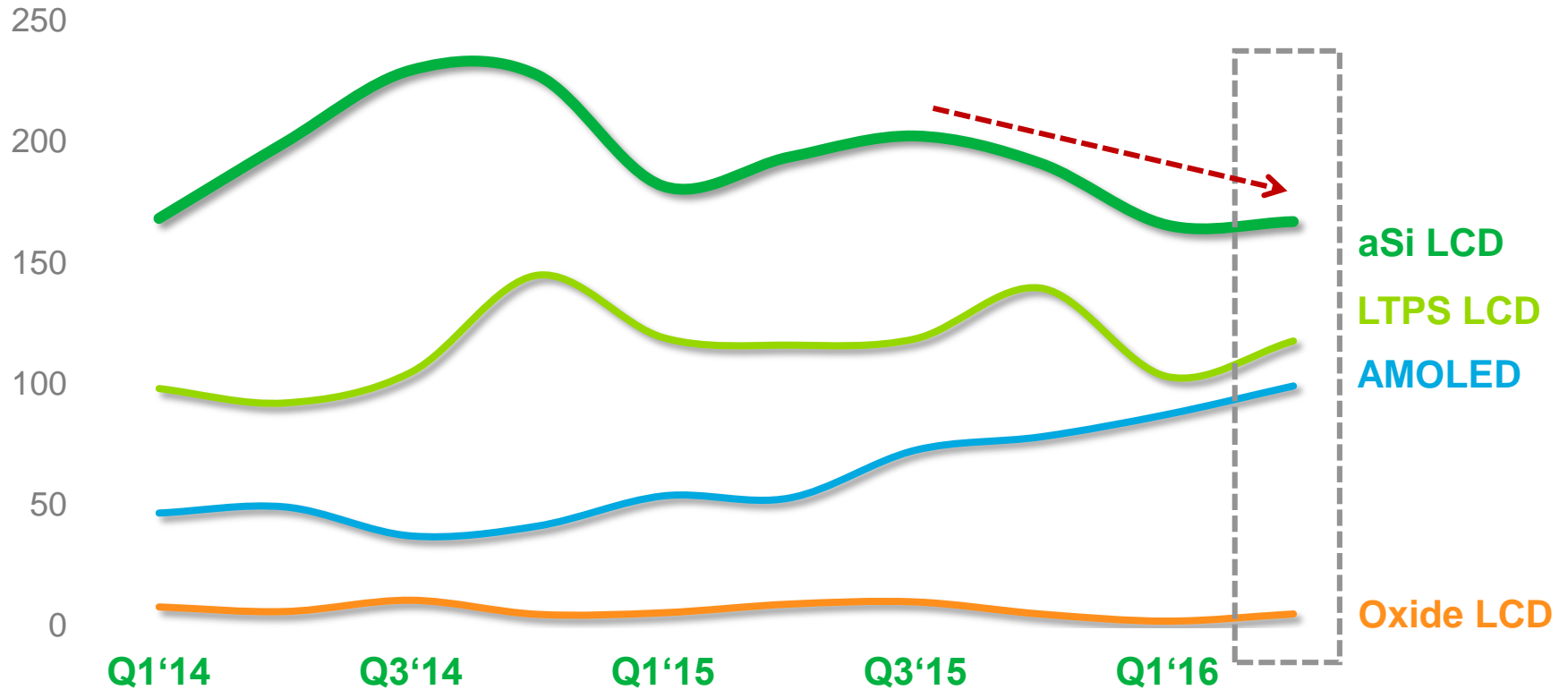
Price:  
2,799 CNY @October

Display:  
5.7" FHD dual curved  
AMOLED  
LG Display

Others:  
AP: Snapdragon 821  
RAM/ROM: 4G+64G  
Camera: 23M+8M  
Battery: 4070

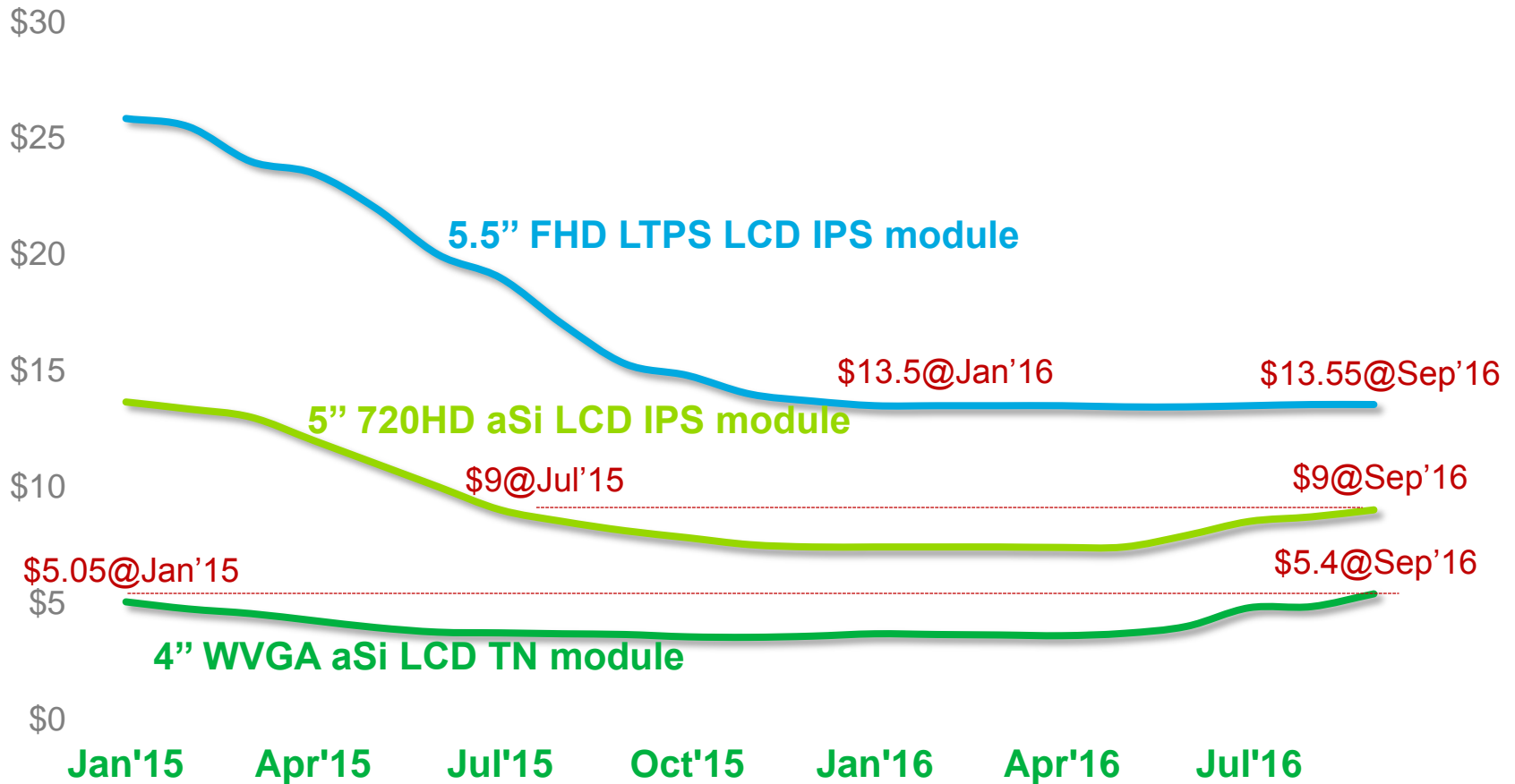
# The major driving force of the tight smartphone display supply

After years of easing supply, smartphone supply chain turns to be tight in 2016, not only for the display part. aSi LCD shipment dropped the most from Q3'15



Smartphone display shipment by technology

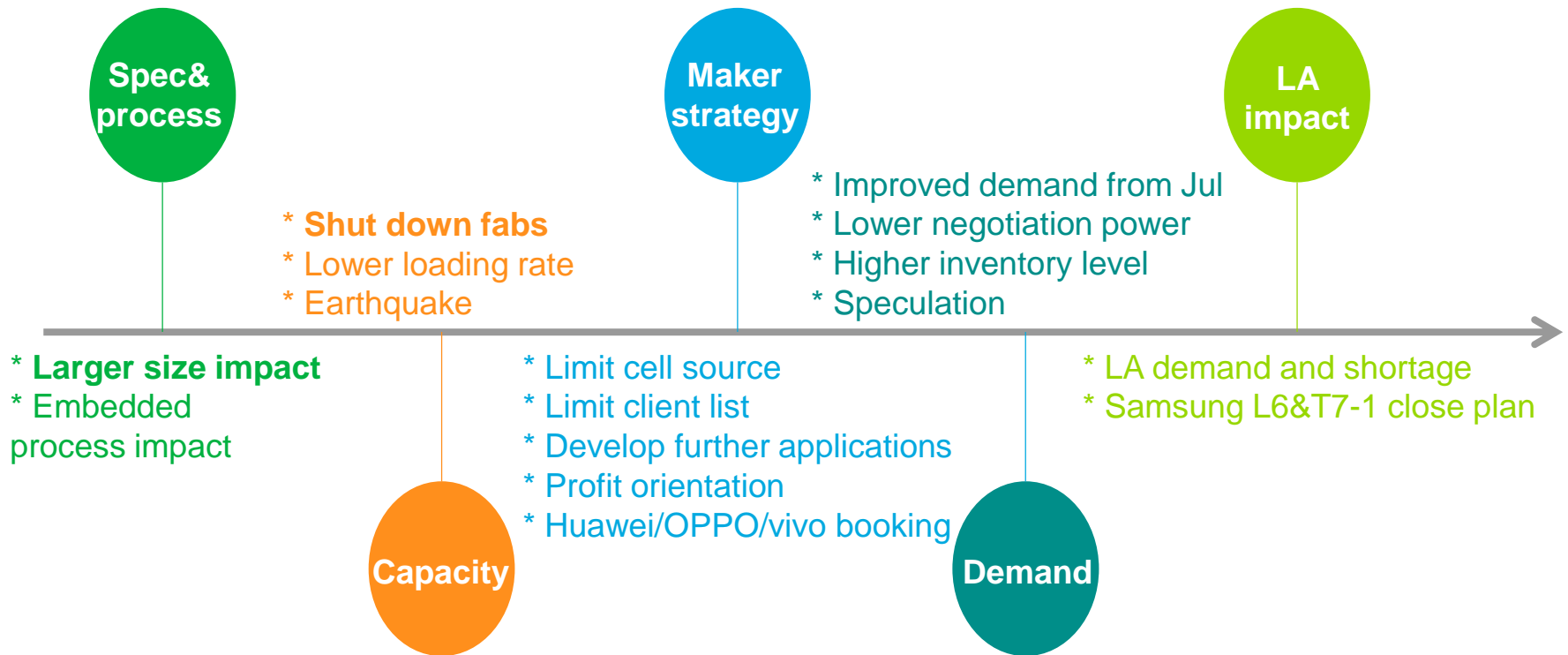
# The tight aSi LCD supply in 1H'16 and revised price trend



Typical prices in China open market

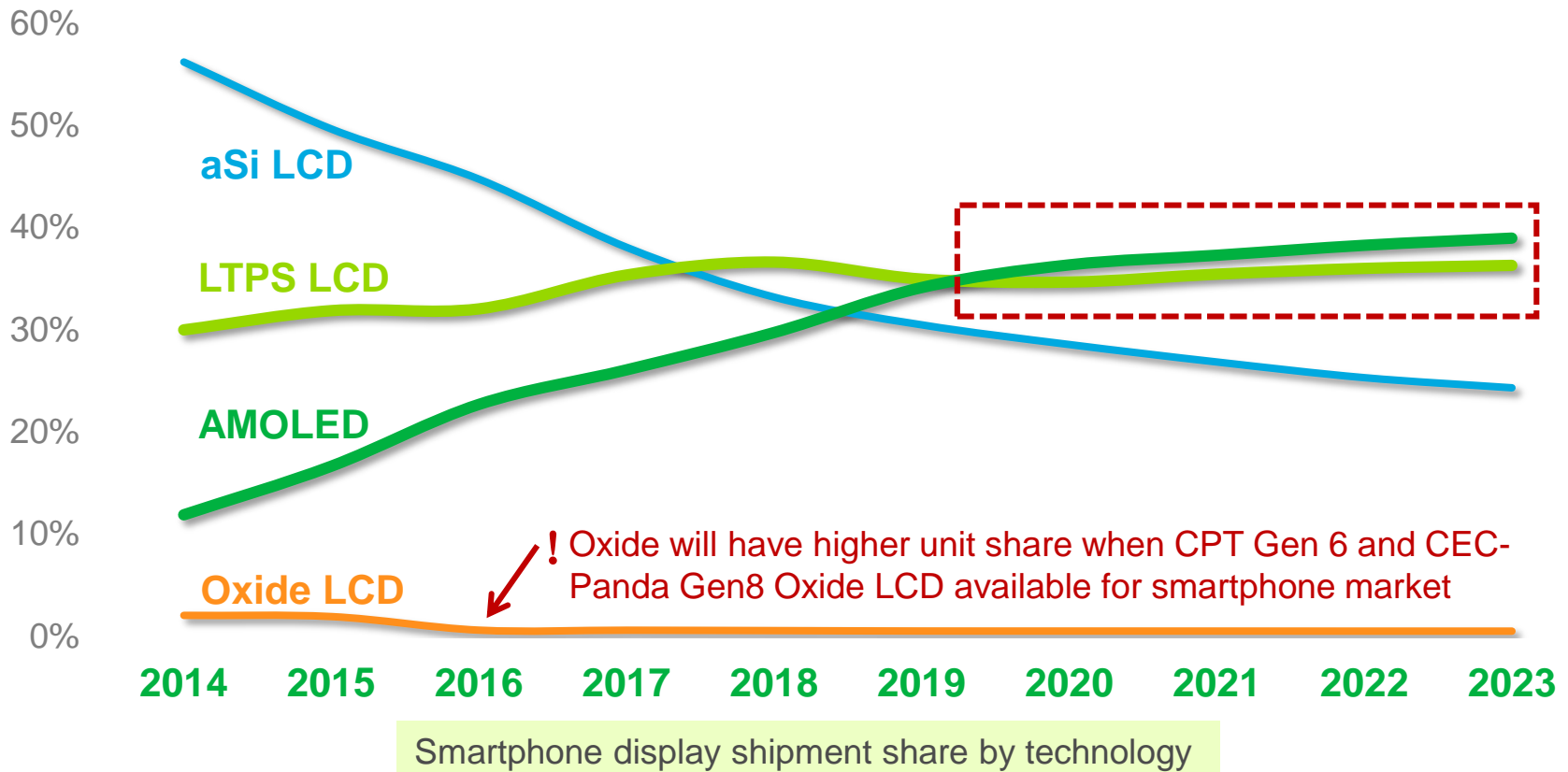
# Why does aSi LCD supply get shortage in China open market?

Limit cell : AUO, BOE, LGD, HSD, INN, Century



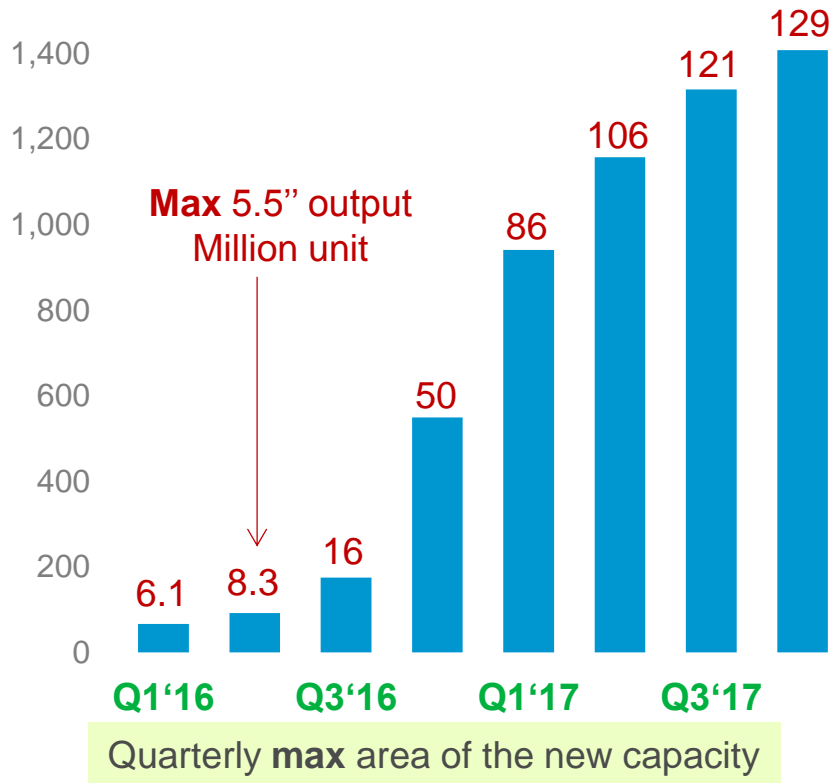
Potential Gen 8: BOE Chongqing, CEC-Panda

# LTPS LCD and AMOLED will be two major technologies in future



# Considerable new Gen 5.5/6 LTPS LCD capacity will be released in 1H'17

The fast increasing LTPS LCD supply may lead to the price down in 1H'17



Maker	Fab	Gen	Max Capa	MP ramp
AUO	Kunshan L6K	6	25K/M	Nov'16
BOE	Ordos B6	5.5	30K/M	Jan'17
CSOT	Wuhan T3	6	30K/M	Aug'16
Tianma	Xiamen fab 2	6	30K/M	Sep'16
JDI	Hakusan D3	6	25K/M	Oct'16
JDI	Mobara IPSA J1	6	8K/M	Jan'16
LGD	Kumi AP3 (P6)	6	8K/M	Apr'16
Foxconn	Kaohsiung	6	24K/M	Oct'16

JDI Hakusan D3 ramp up will delay again

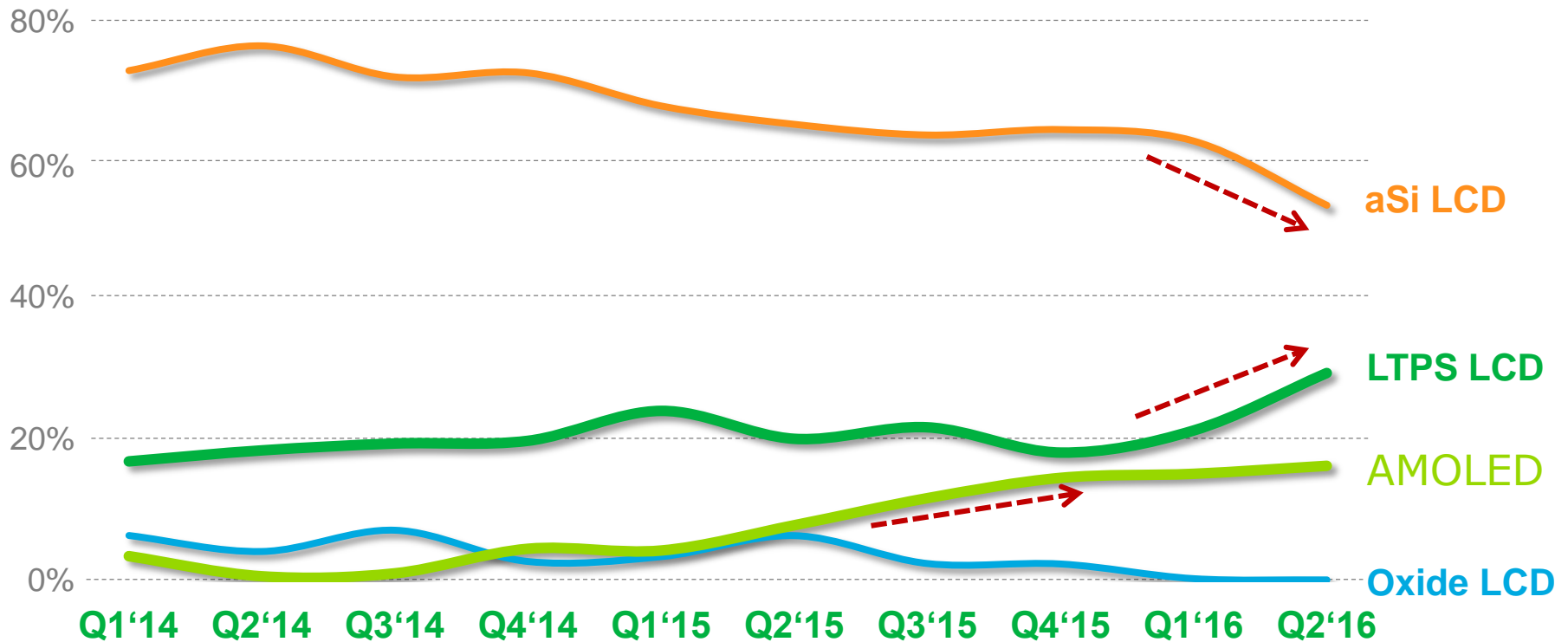
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# The increasing LTPS LCD and AMOLED demand from major Chinese brands

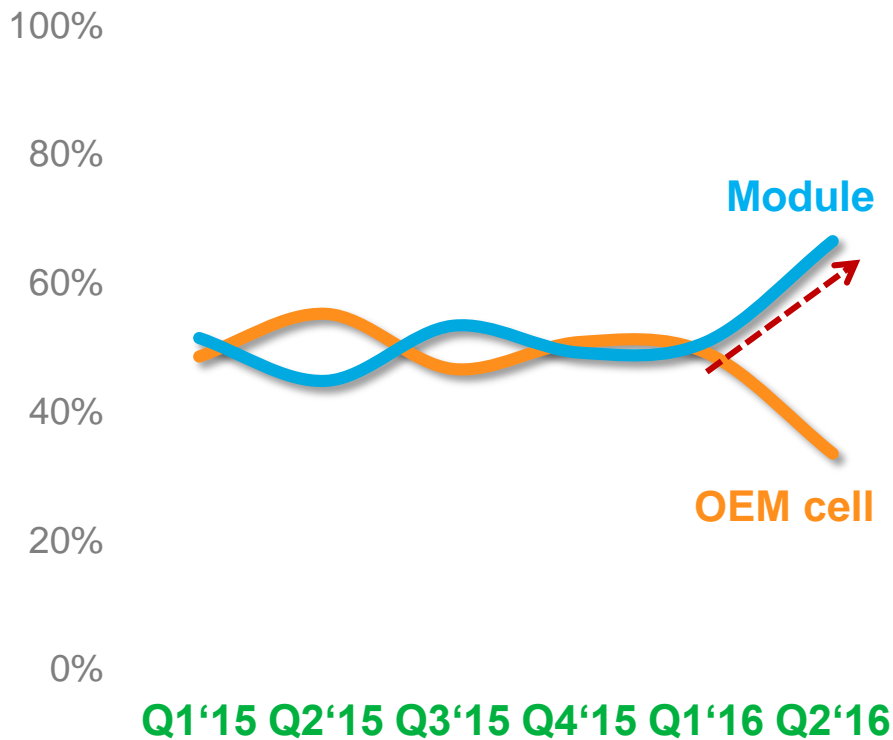


Major Chinese brands display procurement share by technology

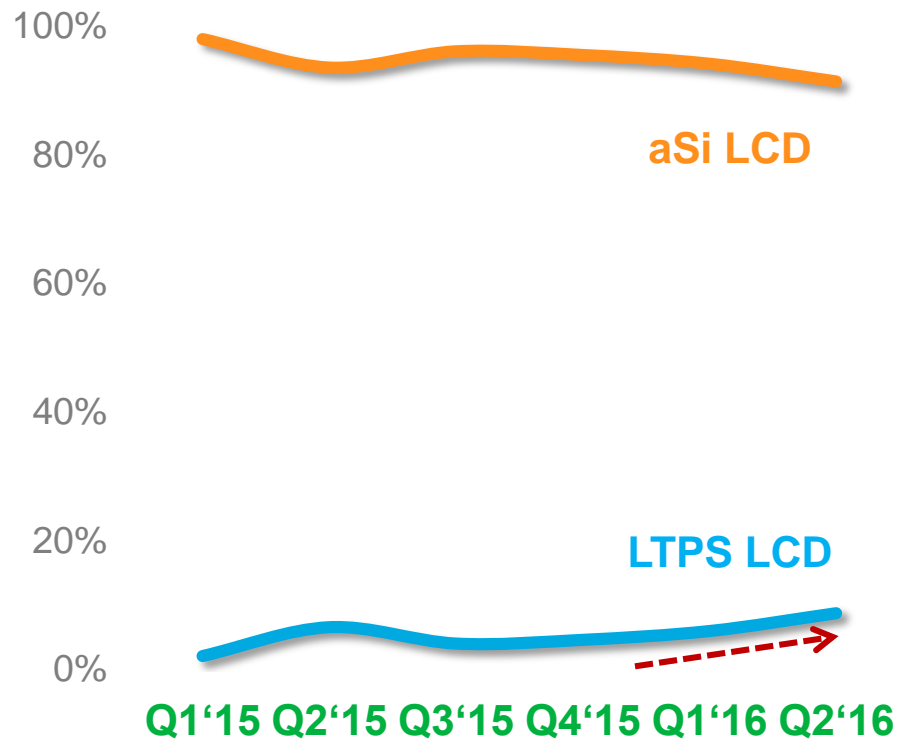
Major brands include Huawei, OPPO, vivo, Xiaomi, Lenovo+Motorola, CoolPad+LeEco, ZTE, Meizu, TCL and Gionee

# BOE to carry out revenue orientation strategy actively in 2016

Besides the increasing module business and LTPS LCD shipment share, BOE also developed embedded touch solutions aggressively.



BOE mobile phone display shipment share by business mode

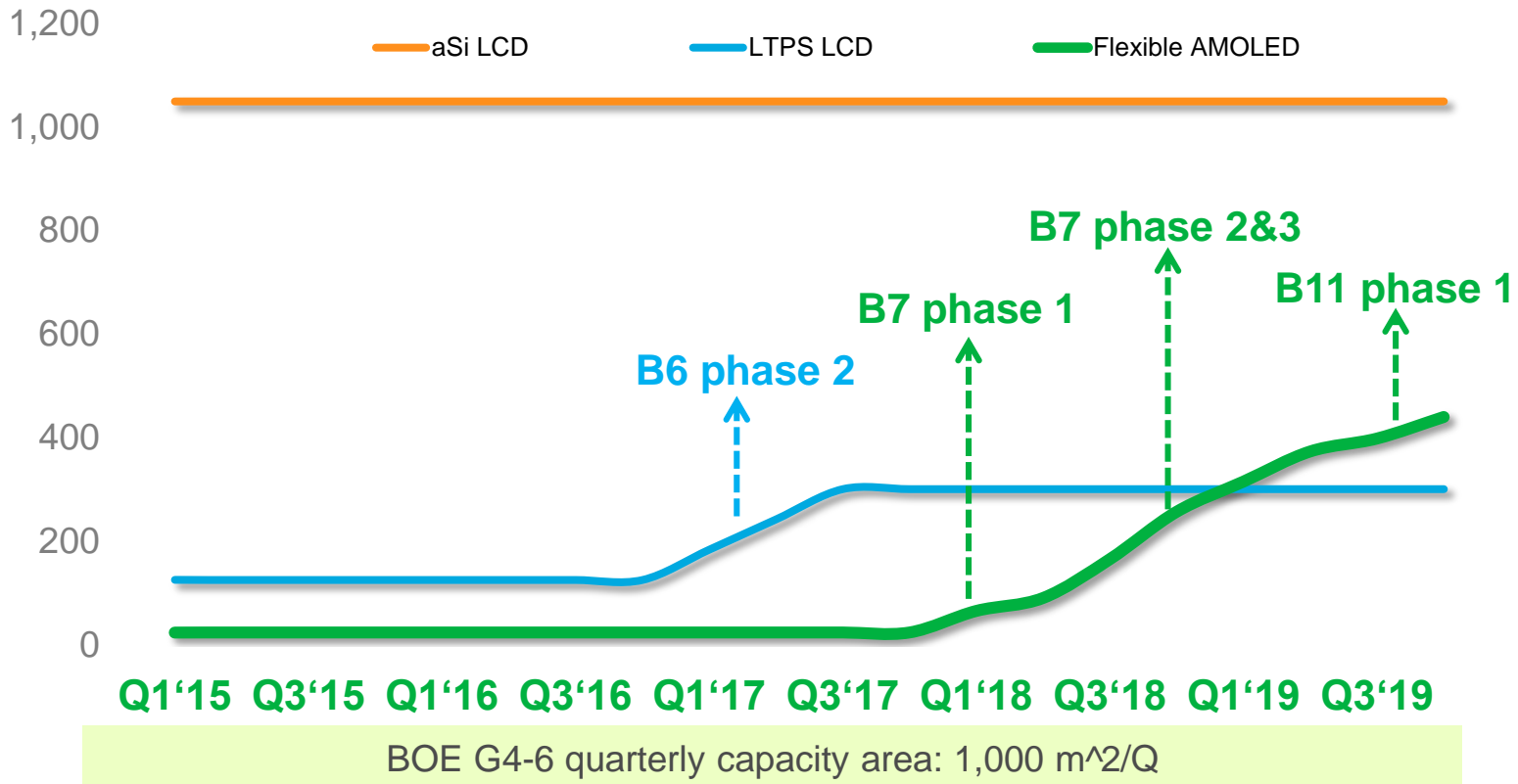


BOE mobile phone display shipment share by technology

# BOE to develop flexible AMOLED aggressively

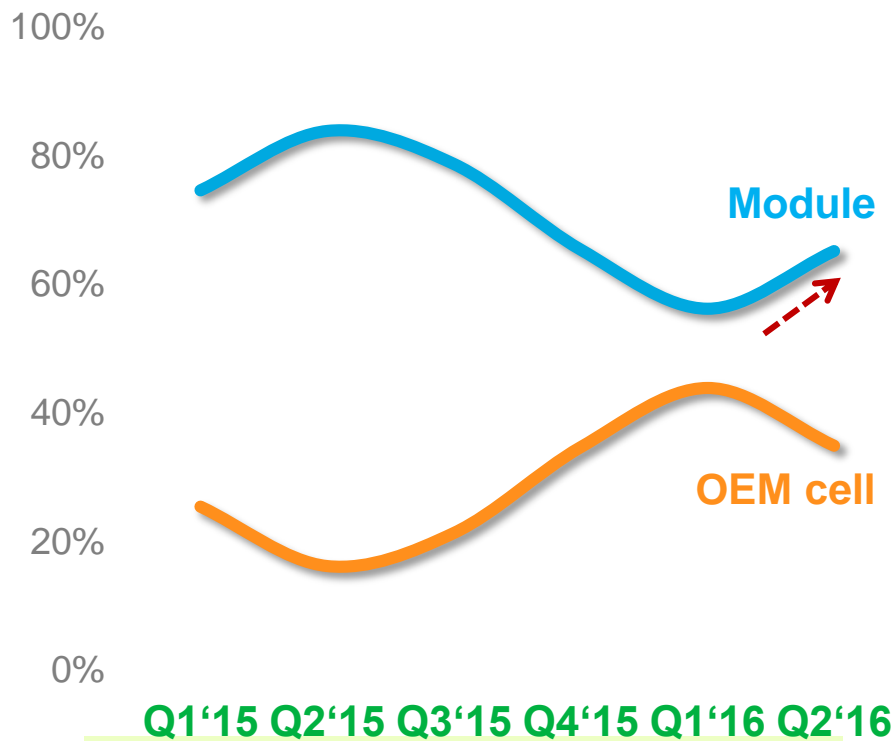
With the B6 phase 2 capacity ready in Ordos, BOE LTPS LCD, including the in-cell total solutions will boost fast in 1H'17.

The flexible AMOLED investment is aggressive that BOE could reach remarkable capacity in 2018 but MP challenge will be very difficult.

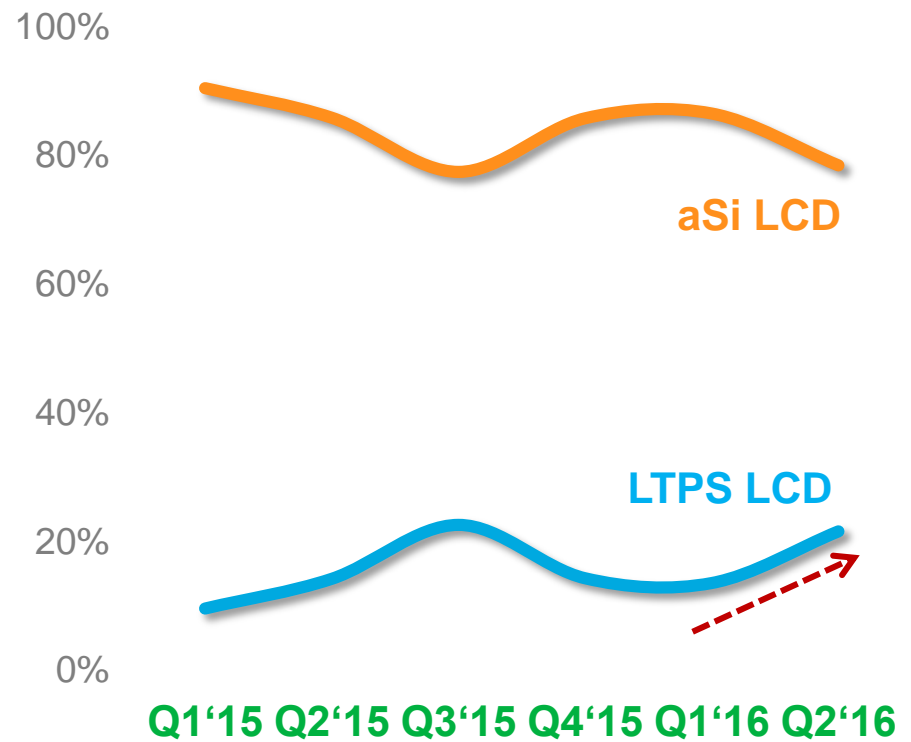


# Tianma to keep aSi LCD fabs loading rate with priority in 2016

Different from the aSi LCD, Tianma is leading China local LTPS LCD supply chain and benefit from local LTPS LCD demand.



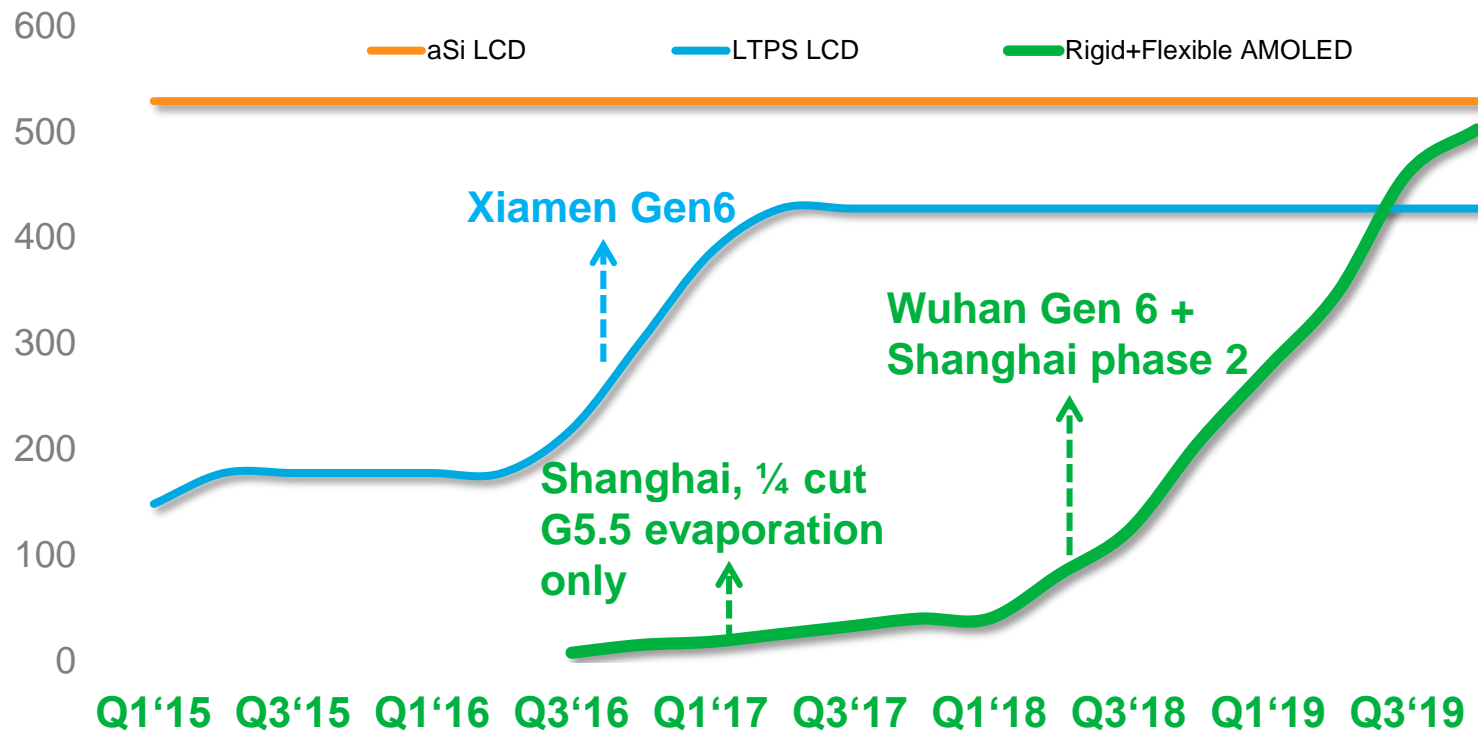
Tianma mobile phone display shipment share by business mode



Tianma mobile phone display shipment share by technology

# Tianma to improve the capacity portfolio gradually

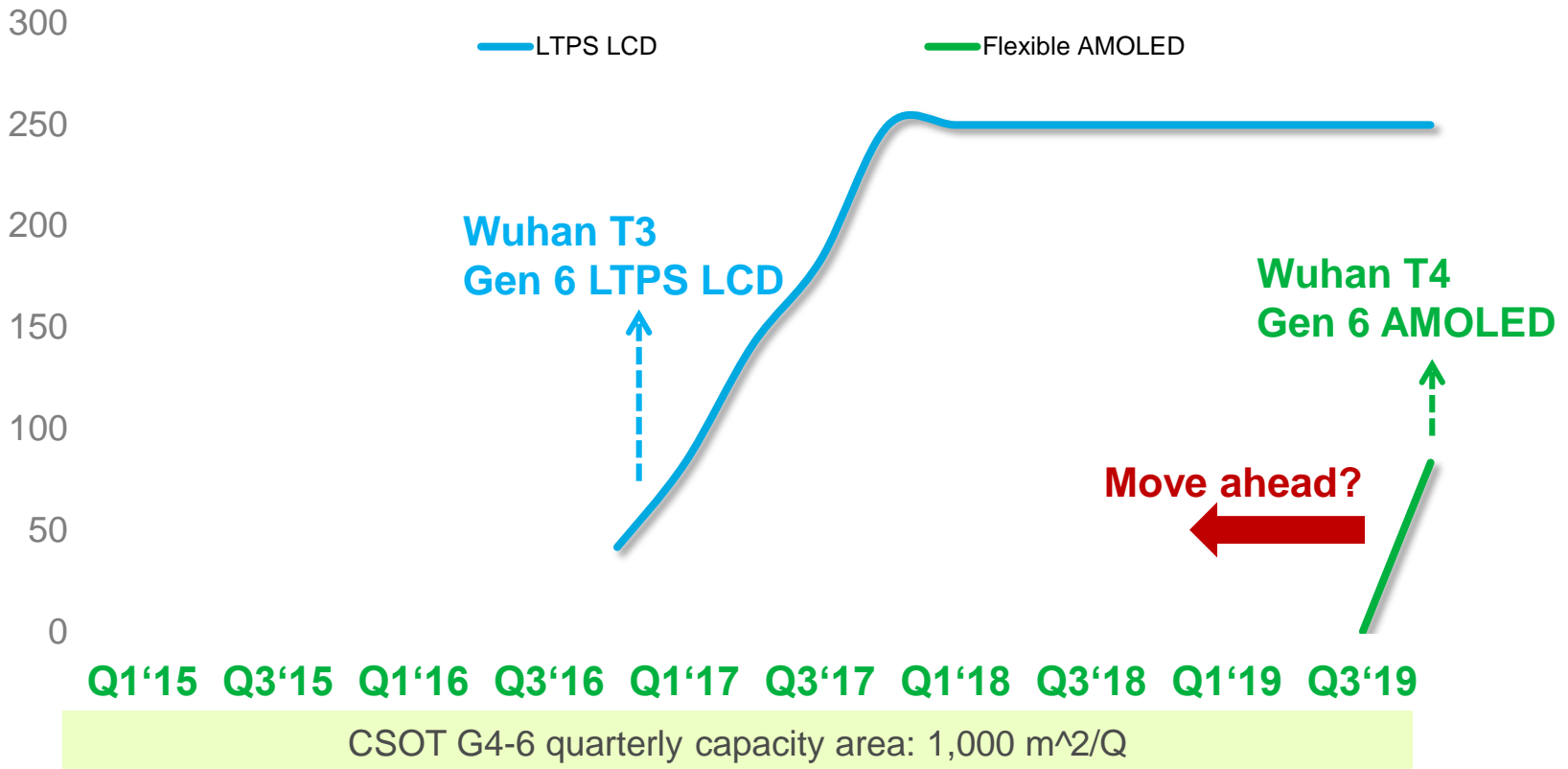
With the new Gen 6 LTPS LCD capacity ready, Tianma is supposed to release considerable LTPS LCD output in 2017. AMOLED capacity will increase fast in 2018.



Tianma G4-6 quarterly capacity area: 1,000 m<sup>2</sup>/Q

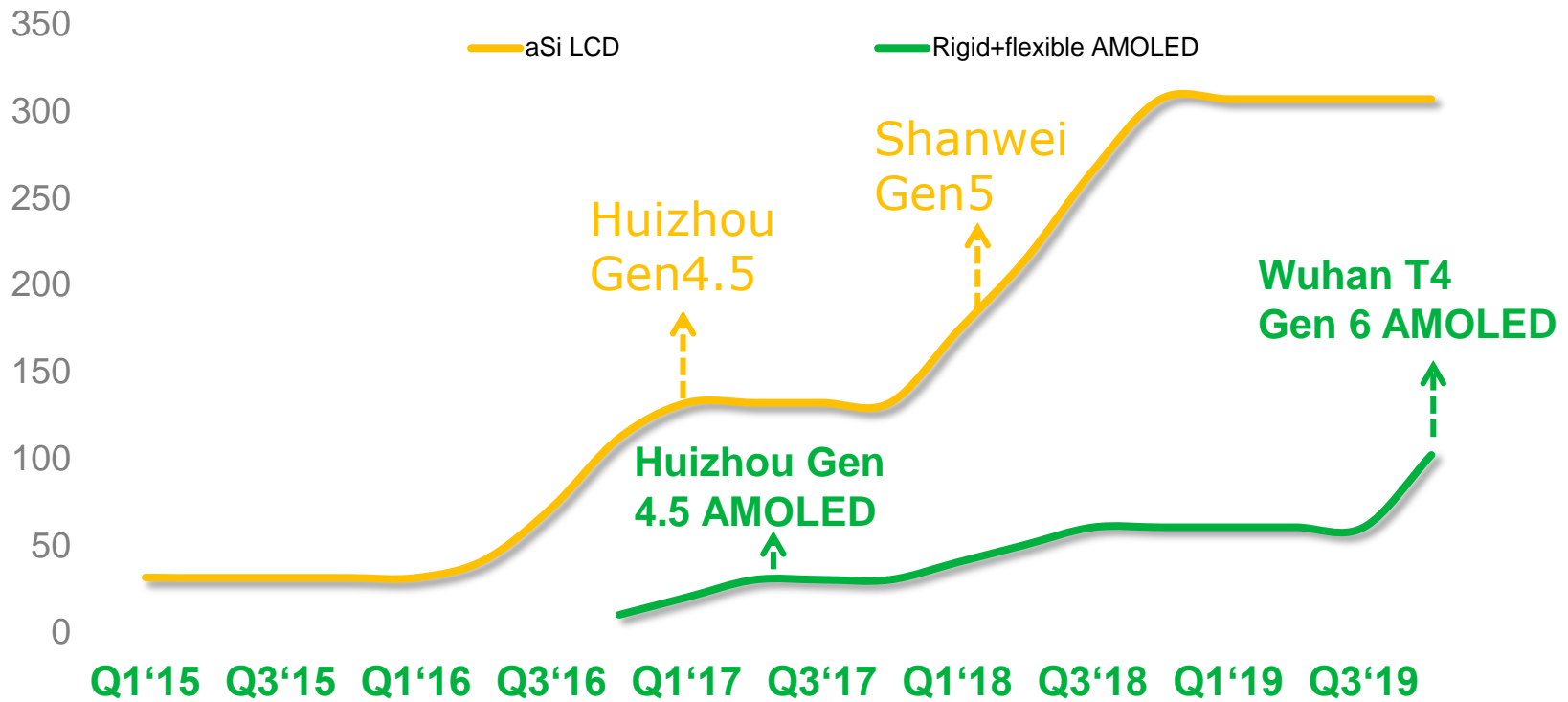
# CSOT to join the small/medium game from 2016

CSOT has developed 5.5" FHD and 5.2" FHD LTPS LCDs and now trying to ramp up. TCL-Alcatel will be the great support to improve MP yield rate. CSOT also plans flexible AMOLED capacity directly in Wuhan T4 fab to prepare for future competitions.



# Truly to get into the role of panel maker

Truly doesn't prepare aSi LCD capacity for smartphone market for long term run to avoid disadvantage competitions, yet, for the short term run, Truly will develop smartphone AMOLEDs to improve the ramp up yield rate.

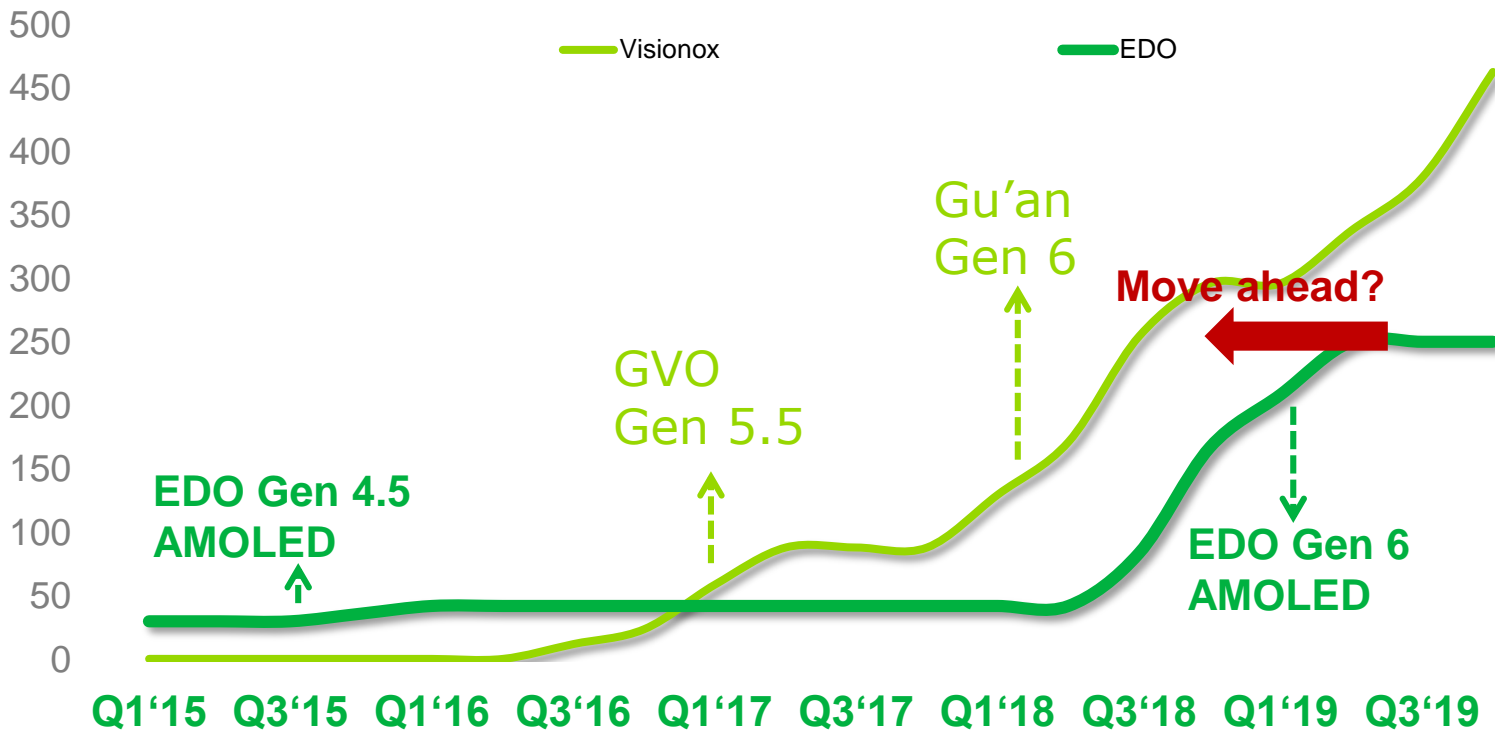


Truly G4-6 quarterly capacity area: 1,000 m<sup>2</sup>/Q

# EDO & Visionox to focus on AMOLED only

EDO is now actually leading China AMOLED shipment scale and mass production yield rate, yet, the delayed Gen 6 project lowers their competition.

Visionox is still challenging for 720HD yield rate, but gets support for active Gen 6 AMOLED investment.



EDO & Visionox G4-6 quarterly capacity area: 1,000 m<sup>2</sup>/Q



# Thank You

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