

Investor Day 2015

Delivering profitable growth driven by attractive market opportunities & strong technology inflections

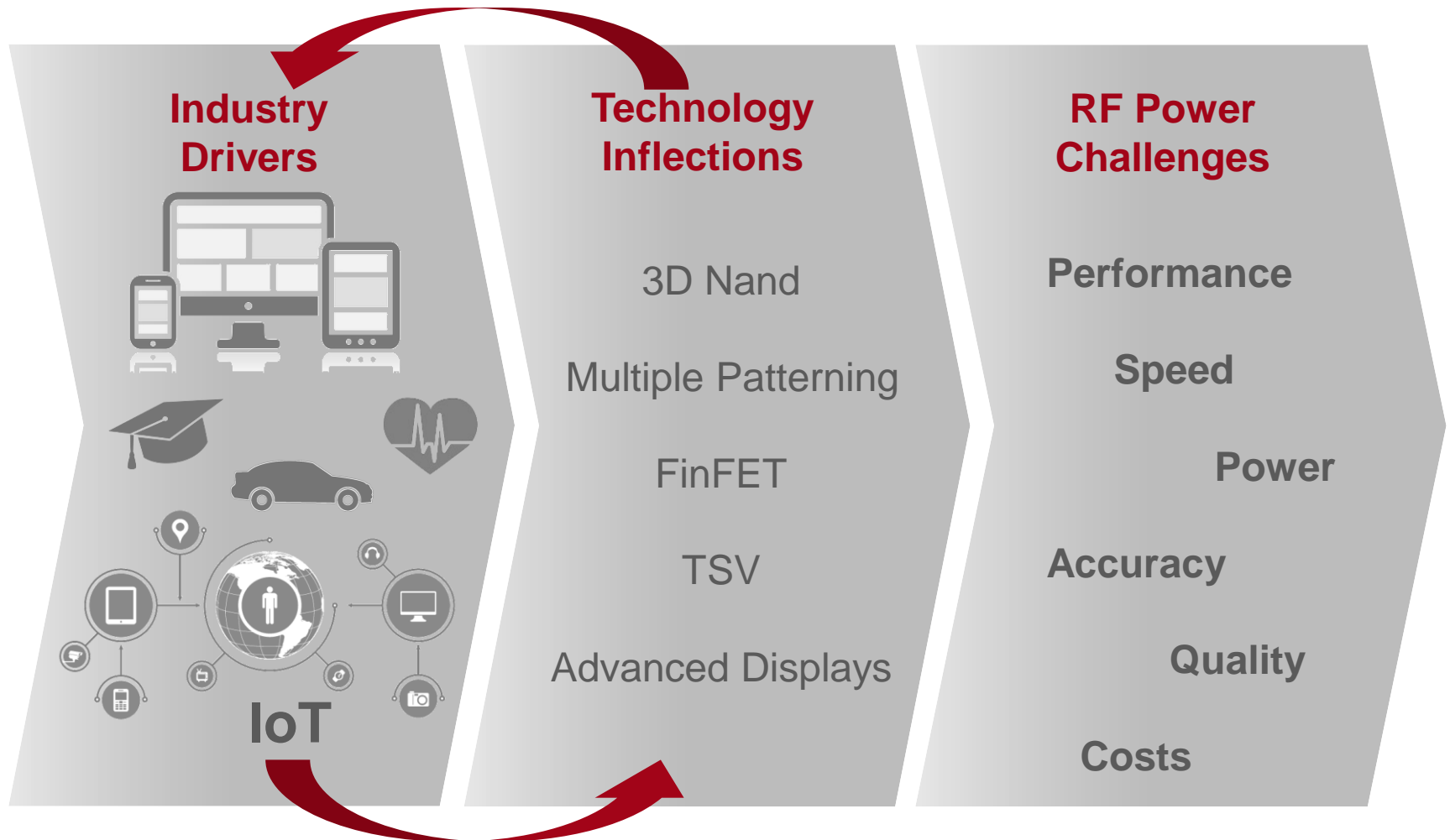


Michael Kammerer, President PCT

COMET

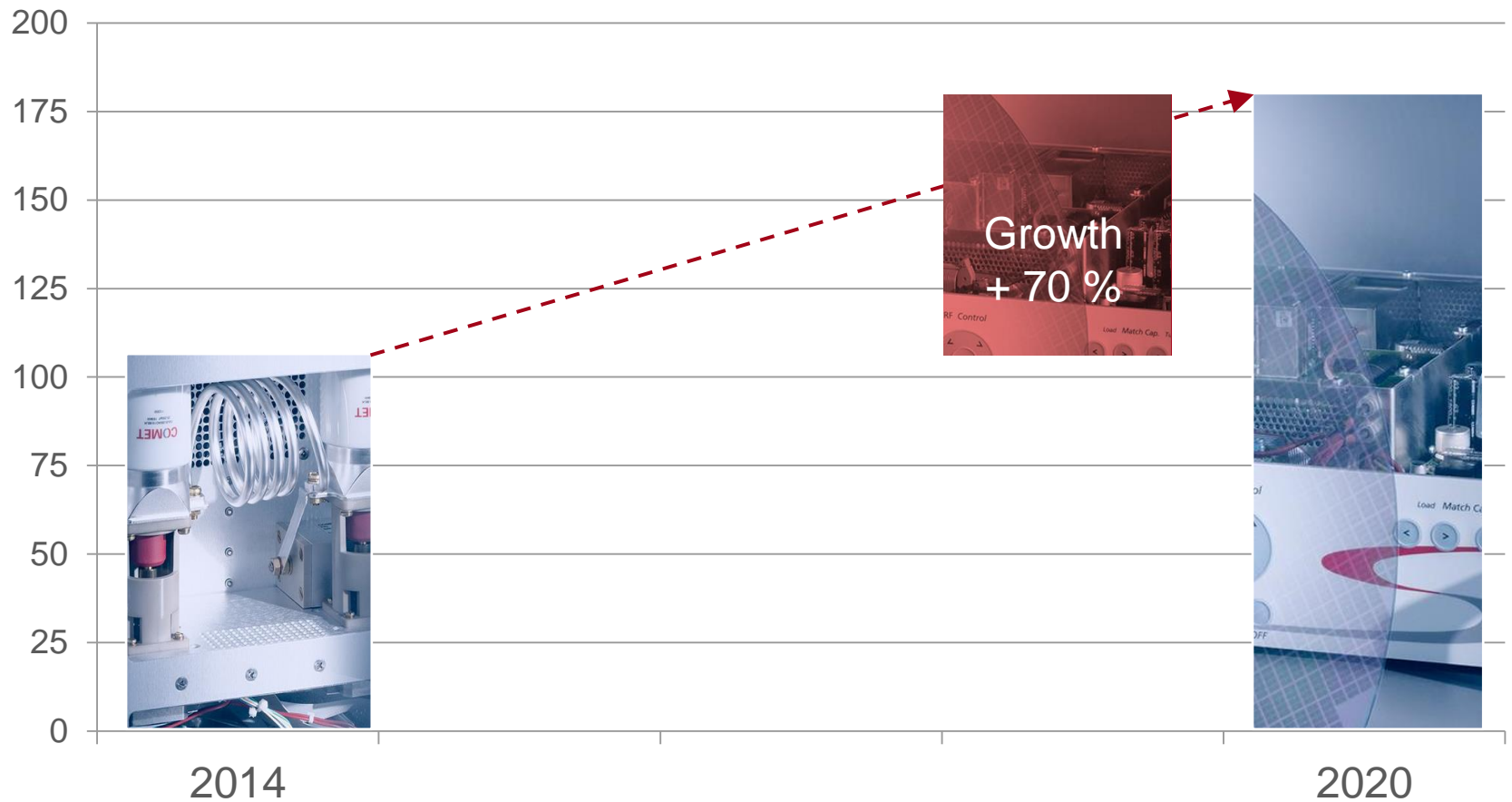
Technology with Passion

RF Power Technology for more and faster Electronic Devices



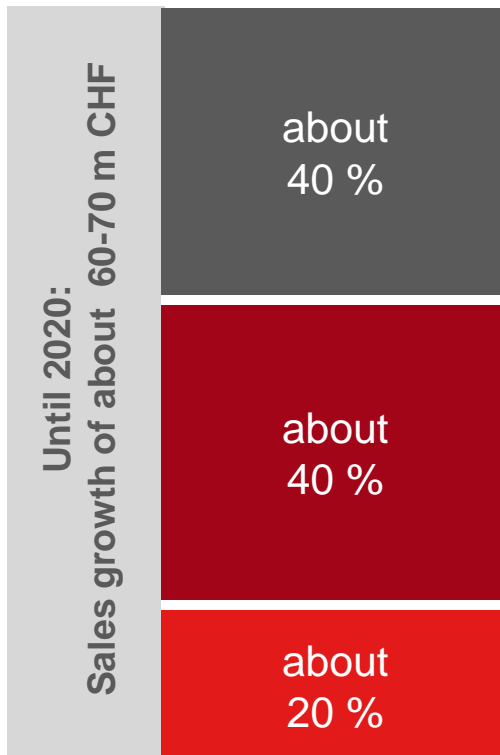
PCT Vision 2020

Raise of Sales to CHF 170 – 180 million



Exploiting the huge Technology Inflections for Strong Profitable Growth

Growth



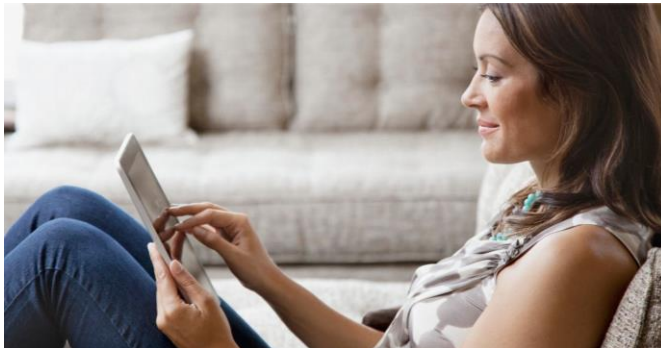
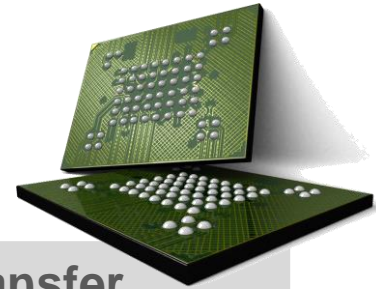
Application Opportunities for COMET

1	3D Technologies
2	Internet of Things
3	Advanced Displays

The figure is a table with three rows. The first column contains the numbers 1, 2, and 3. The second column contains the text '3D Technologies', 'Internet of Things', and 'Advanced Displays' respectively.

1. 3D Technologies

Memory capacity required!



Worldwide data transfer and storage continuous to grow at explosive rate. Growth of memory requires investments in Semi Processes.



300 million photos uploaded per day



347'000 new tweets every minute



300 hours of video uploaded per minute



80 million photos uploaded per day

Infrastructure

- High-performance computing
- SSD, data storage, cloud computing
- Communication Infrastructure



Mobile Computing

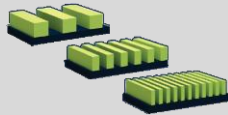


- Processors
- Memory
- Sensors
- Connectivity

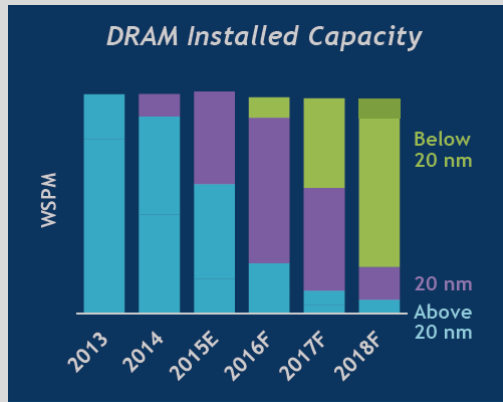
1. 3D Technologies

Major technology inflections for Plasma

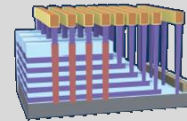
DRAM



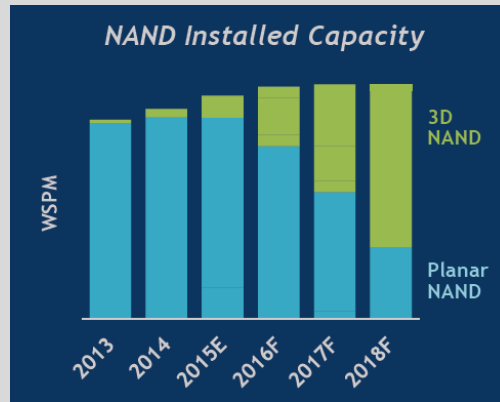
Multi-patterning: Dual, Quad, even Octa-patterning 3D



3D NAND

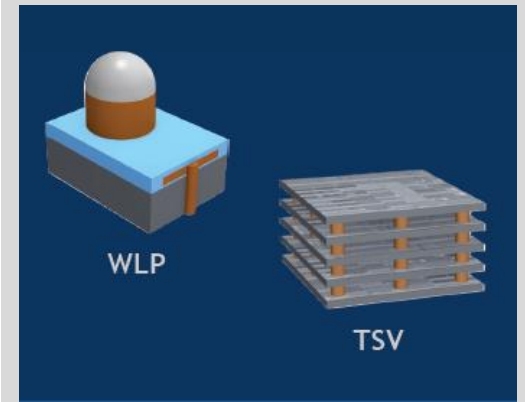


Transition to 3D NAND



Advanced Packaging

Through Silicon Via (TSV) 3D

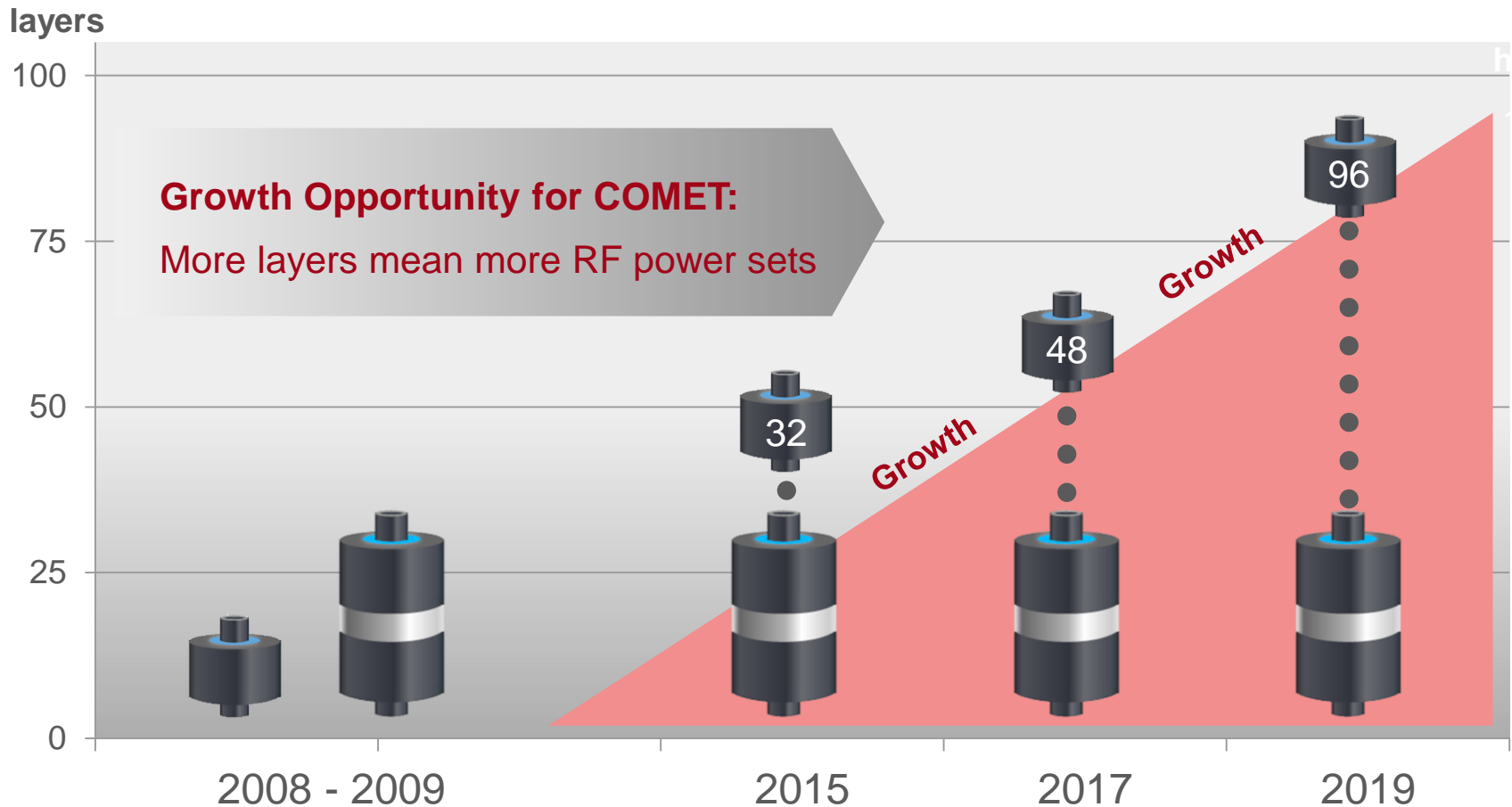


Deposition and Etch intensive

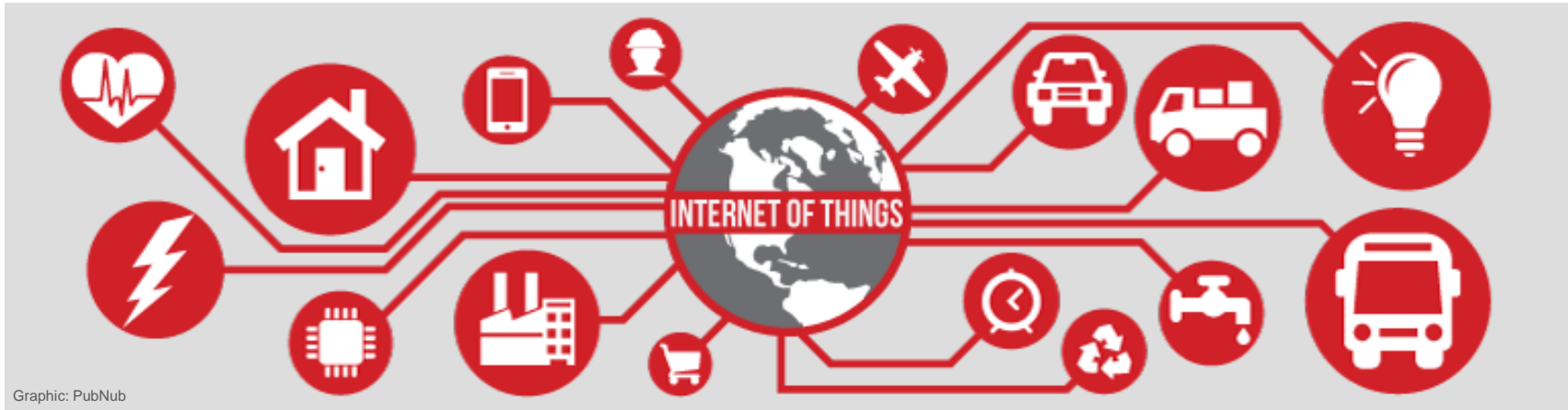
Source Charts: Lam Research, Investor & Analyst Meeting 2015

1. 3D Technologies

3D NAND Flash Development



2. Internet of Things



Trend

Rising Demand for smart objects

Up to 50 bn devices are expected to be connected to the Internet of Things by 2020*

Situation of fabs

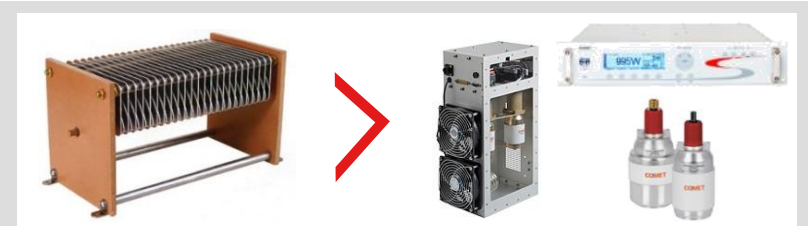
- IoT drives micro electronics capacity demand
- Wafer fabs need more than 95 % uptime
- RF technology used by fabs is out of date
 - ⇒ Problems with repeatability, reliability and downtime due to frequent failures, expensive repairs and availability of parts

* source: VLSI Research, Impact of IoT on Semiconductor Manufacturing, June 2015

2. Internet of Things

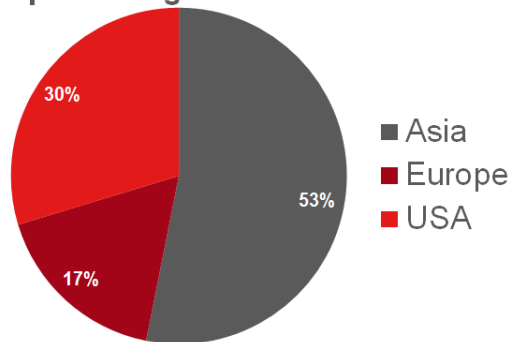
Opportunity for COMET

Conversion of existing fab systems with COMET PCT RF power technology enable **faster** and **repeatable processes** which result in **higher throughput** and **yield**.



- Air supported power equipment is replaced by reliable and efficient RF power technology
- Higher efficiency, higher current/voltage capability, longer lifetime

Fabs producing for IoT business



More than 200
fabs worldwide

Conversion Advantages

- New generation COMET RF power systems promise 15 – 30 % improvement over existing equipment.
- Reduction of unplanned failure and tool downtime ⇒ higher efficiency
- Less repair costs and lost wafers, higher efficiency ⇒ cost reduction

3. Advanced Displays: Coating & Encapsulation

Technology Inflections

**OLED Technology –
better image quality**



**Thin Film Encapsulation
enables OLED and flexible
displays**

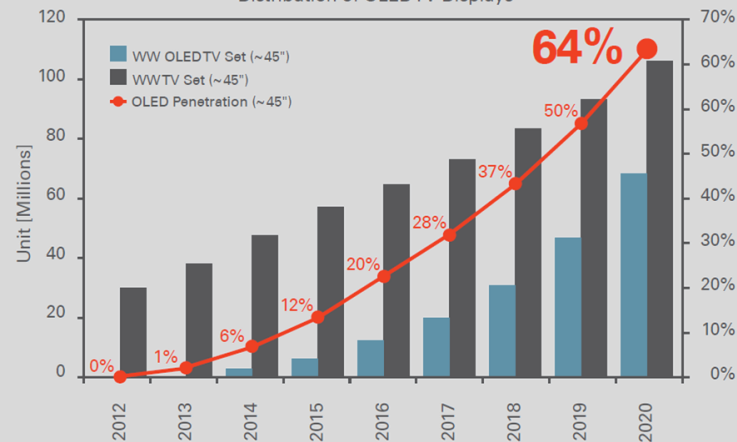


- OLED markets (display and lighting markets) may exceed USD 13 bn by 2016 and USD 60 bn by 2020.
- OLED Manufacturing Equipment Market should exceed USD 4 bn in 2016 and USD 7 bn by 2020.



Thin Film Encapsulation

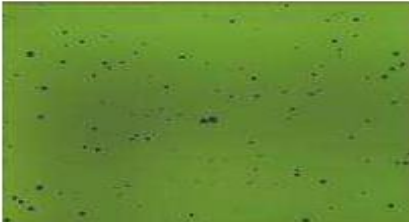
Distribution of OLEDTV Displays



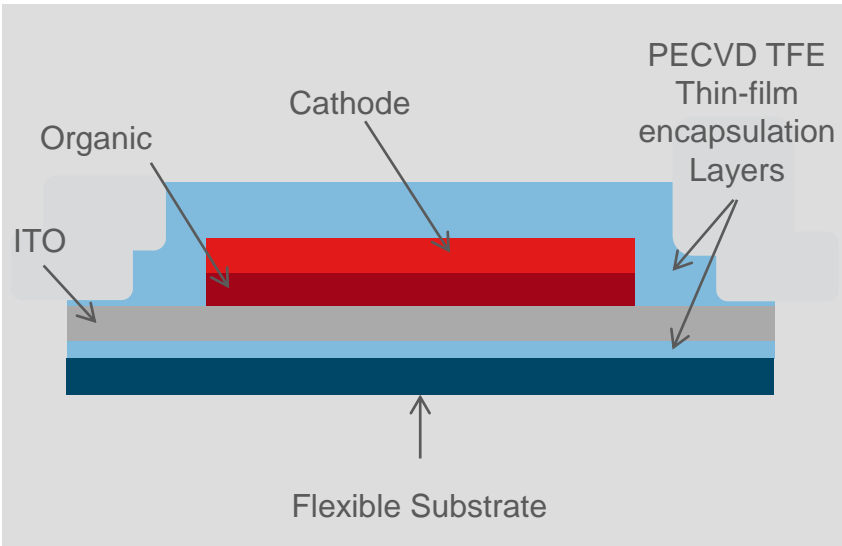
OLED Display Market

Source Chart: IDTechEx

3. Advanced Displays: Coating & Encapsulation



Challenge of OLED production
OLED displays form “black spots” when H₂O contacts the organic material.



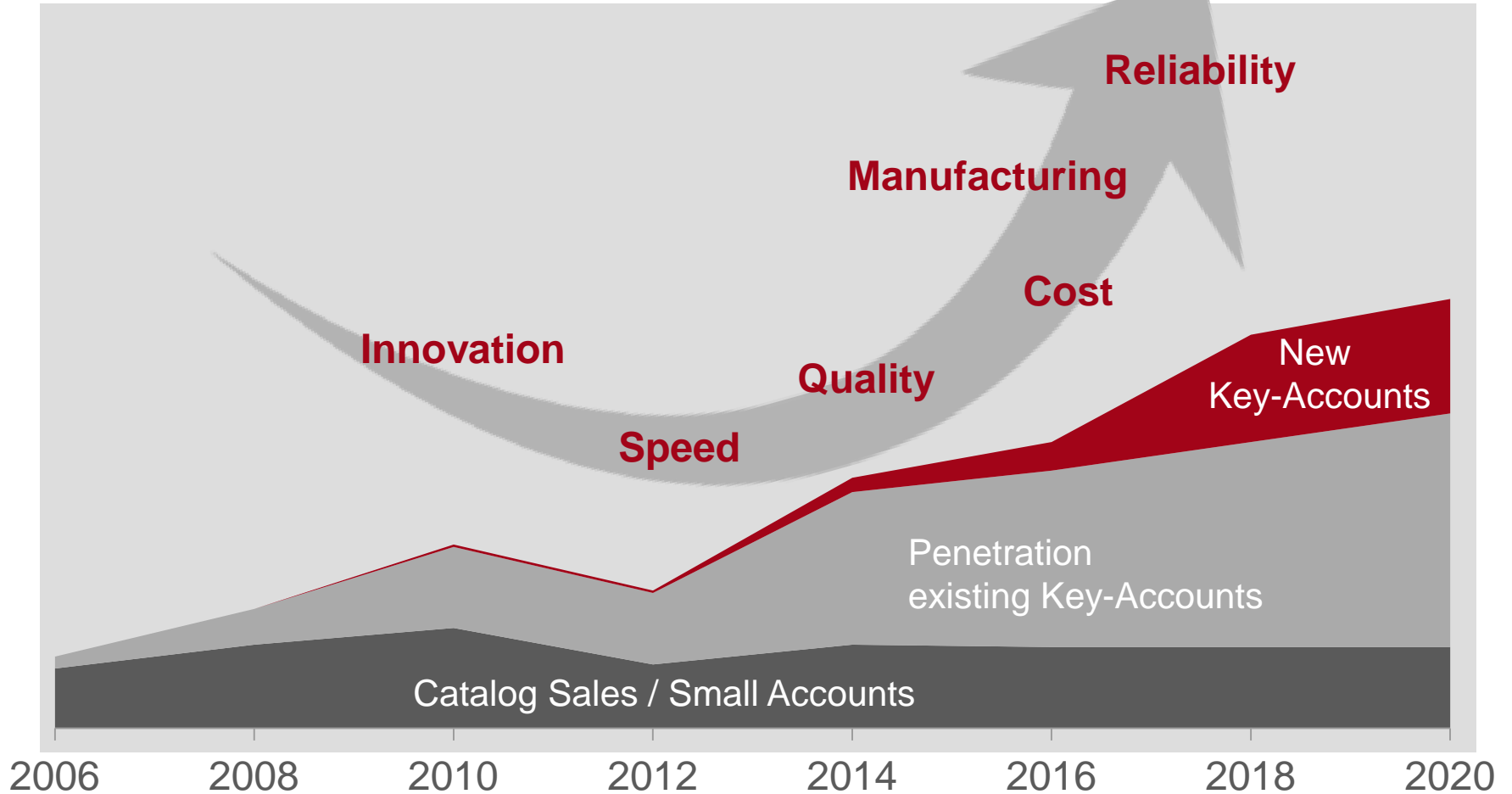
PECVD TFE
Thin Film Encapsulation will protect OLED materials and ensure long life and display quality on rigid and flexible substrates.

COMET products support TFE production. TFE enables **OLED displays to reduced costs with high yield.**

Growth opportunity: COMET is very well positioned in TFE market

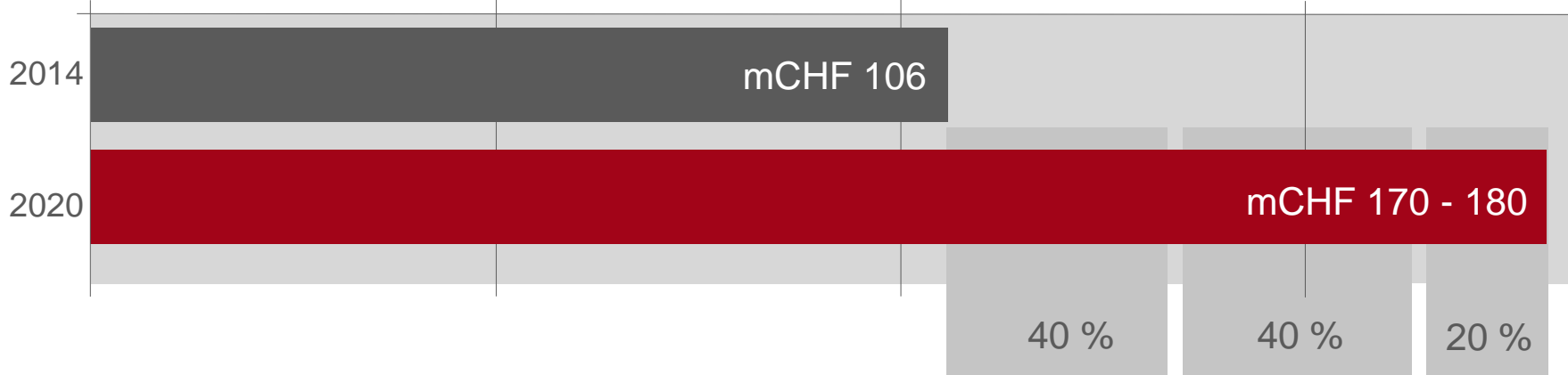
Key Account Partnering

Growing Customer and Revenue Base



Summary

Growth in Technology Inflections



“COMET PCT vacuum capacitors and RF power systems enable faster and repeatable processes which result in higher throughput and yield for our semiconductor and display customers.”

3D Technologies 	Internet of Things 	Coating & Encapsulation
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Thank you for your attention