

5G acceleration & opportunities beyond COVID-19!

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Outline

- 1 How COVID-19 changed our lives
- 2 5G acceleration & opportunities
- 3 Advancing technologies into the future



How COVID-19 changed our lives

Navigating through the storm

- › Early implementation of precautionary measures, keeping all our employees safe
- › No manufacturing interruption across all our sites: France, Belgium, Singapore, China
- › Strong communication with customers, suppliers, partners
- › Continuation of all our R&D projects

Success factors: learning from each other!

- Global footprint:
 - › Better risk understanding and faster response time
 - › Risk exposure mitigation
- Criticality of ecosystem:
 - › Strong link to customers, suppliers & partners
 - › SEMI and other organizations played an essential role in business continuity
- Contribution to local communities
- Home office culture





Semiconductors are the backbone of society

Enable remote education

Work

Secure information

Prevent disease spread

Communicate

Connectivity

Enable telemedicine

Detect critical information

Protect

Edge computing

Big data

Help make the right decision



5G – The foundation for the next society



 **100x**
Network capacity

(*)



 **10x**
Speed

(*)

 **10x**
Fastest
response time

(*)



 **10x**
Connected
device

(*)



(*) Source: Qualcomm



5G world – connecting everyone and everything



Immersive experiences



Autonomous cars & smart cities connected to the cloud



Smarter manufacturing & agriculture



Smarter health connected devices

5G roadmap will drive our industry for the next decade



5G roadmap extends for 10+ years

Driving innovation to enhance smartphones and transform other industries

Continued innovation for new verticals, deployments, use cases, and spectrum

3GPP Rel. 17+



3GPP Rel. 16



3GPP Rel. 15



Source: Qualcomm Analyst Day, J. THOMPSON, Nov. 2019

Engineered substrates from Soitec – key enabler of mobile revolution

rfmd



SOI Antenna Switch
(Wi-Fi first introduction)



iPhone 4S



iPhone 5



Galaxy S5



iPhone 8



Mate Pro 30



Galaxy S20

Mate 20 X

2G

3G

LTE

LTE-A

LTE-A-Pro

5G sub-6GHz

5G (sub-6GHz + mmW)

RF-SOI

1

2

7

20

40

50

65

mm²

FD-SOI (*)

2

→ 65

mm²

POI

2 → >25

>25

mm²

Source: System Plus, Soitec estimates



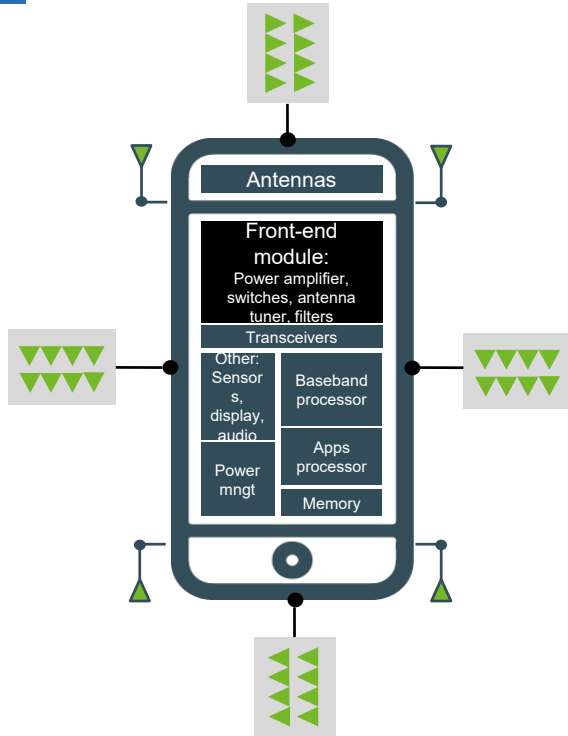
next generations

(*) either FD-SOI or RF-SOI

Mm² are serviceable accessible market



A comprehensive product portfolio offer for 5G sub-6GHz & mmW RF FEM



5G handset sub-6Ghz FEM key blocks

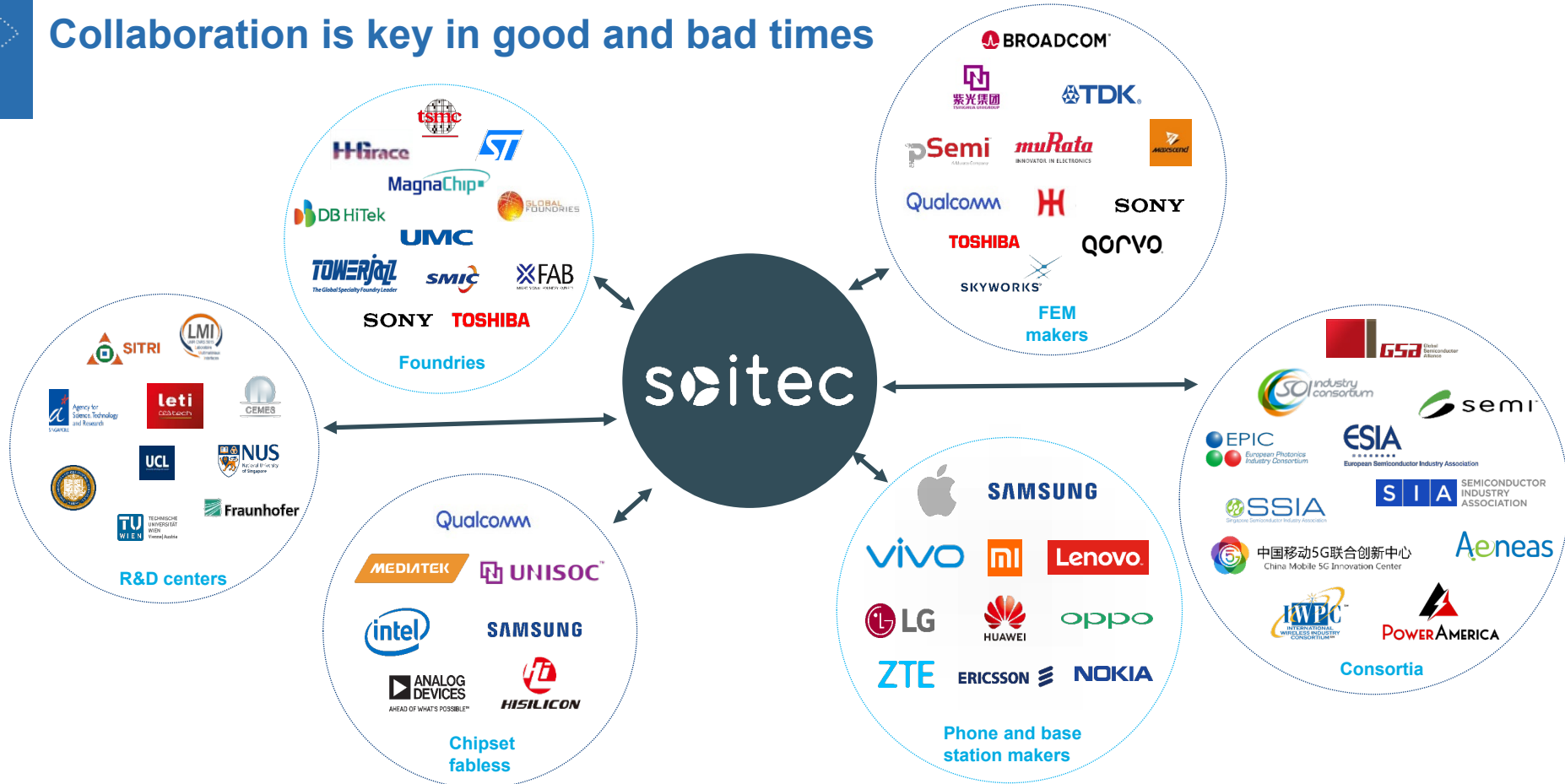
	PA <small>*Power Amplifier</small>	LNA <small>*Low Noise Amplifier</small>	Switch	Tuner	Filter	ET <small>*Envelope Tracker</small>
RF-SOI		✓	✓	✓		
POI					✓	
FD-SOI						✓

5G handset mmW transceivers key blocks

	PA <small>*Power Amplifier</small>	LNA <small>*Low Noise Amplifier</small>	Switch	Phase Shifter	RF & IF Rx/Tx Mixer	
FD-SOI	✓	✓	✓	✓	✓	✓
RF-SOI	✓	✓	✓	✓	✓	
GAN	✓	✓	✓			

✓ Suitable solution (*) : No public data available for GaN

Collaboration is key in good and bad times



Our world will never be the same again



Thank you

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