

*For time , the world do not stand still. Change is the law of life. And those who look only to the past or the present are certain to miss the future.*

By: J. F. Kennedy

*Is Silicon still  
the future???*



Fig:  $^{28}\text{Si}_{14}$

# Why Gallium Nitride (GaN)?

- ▶ Higher band gap
- ▶ Higher breakdown field
- ▶ Higher mobility
- ▶ High frequency operation i.e. very fast switching

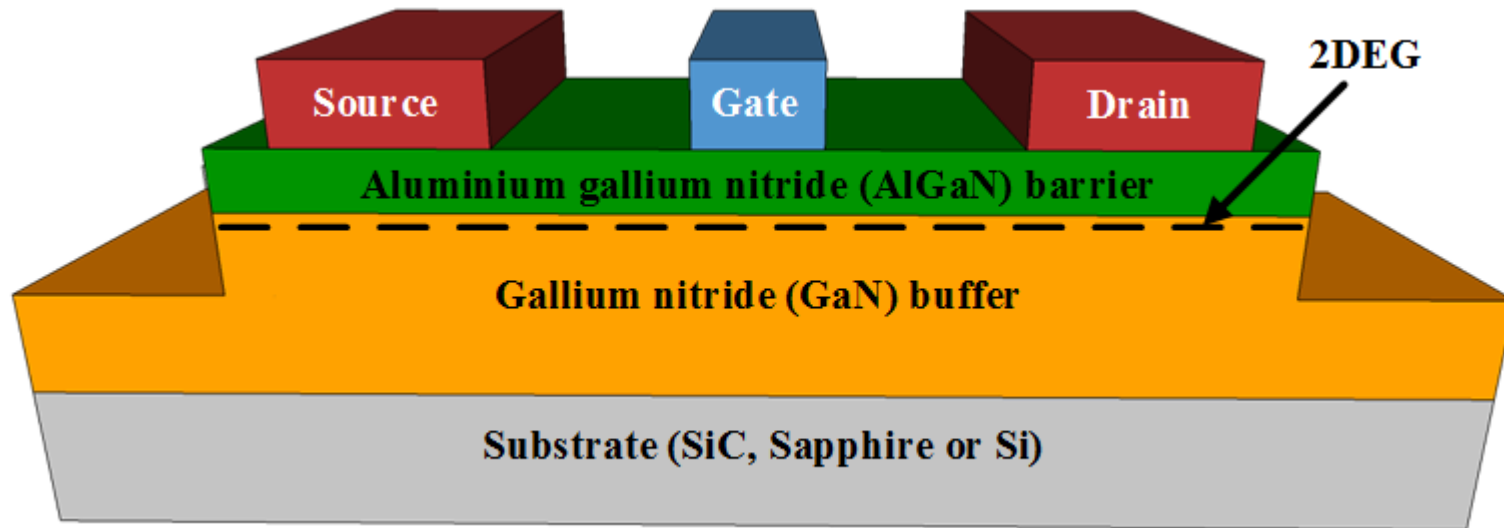


Fig: Typical GaN HEMT structure.

# Why not use it ?





# Challenges pertaining converter designing

- ▶ Fundamentally, GaN HEMT are normally ON
  - ▶ Current Collapse (Trapping Effect)
- } Fabrication Challenge

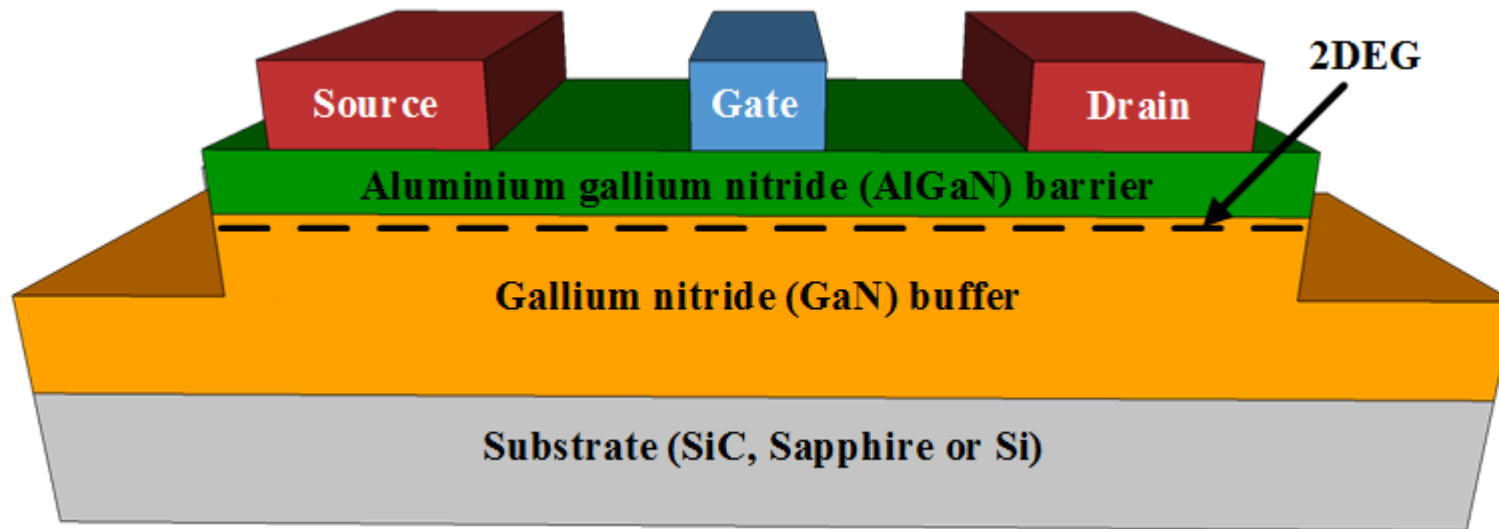
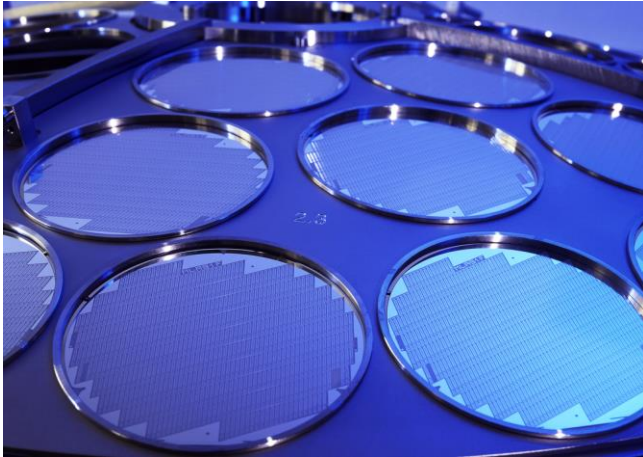
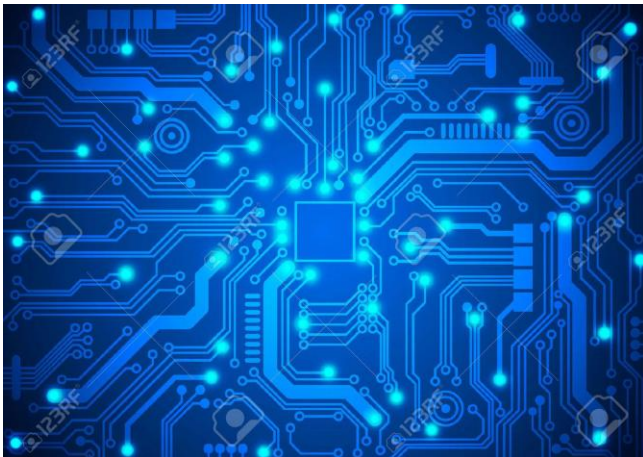


Fig: Typical AlGaN/GaN HEMT structure.

# Our Contribution to



Fabrication



Testing

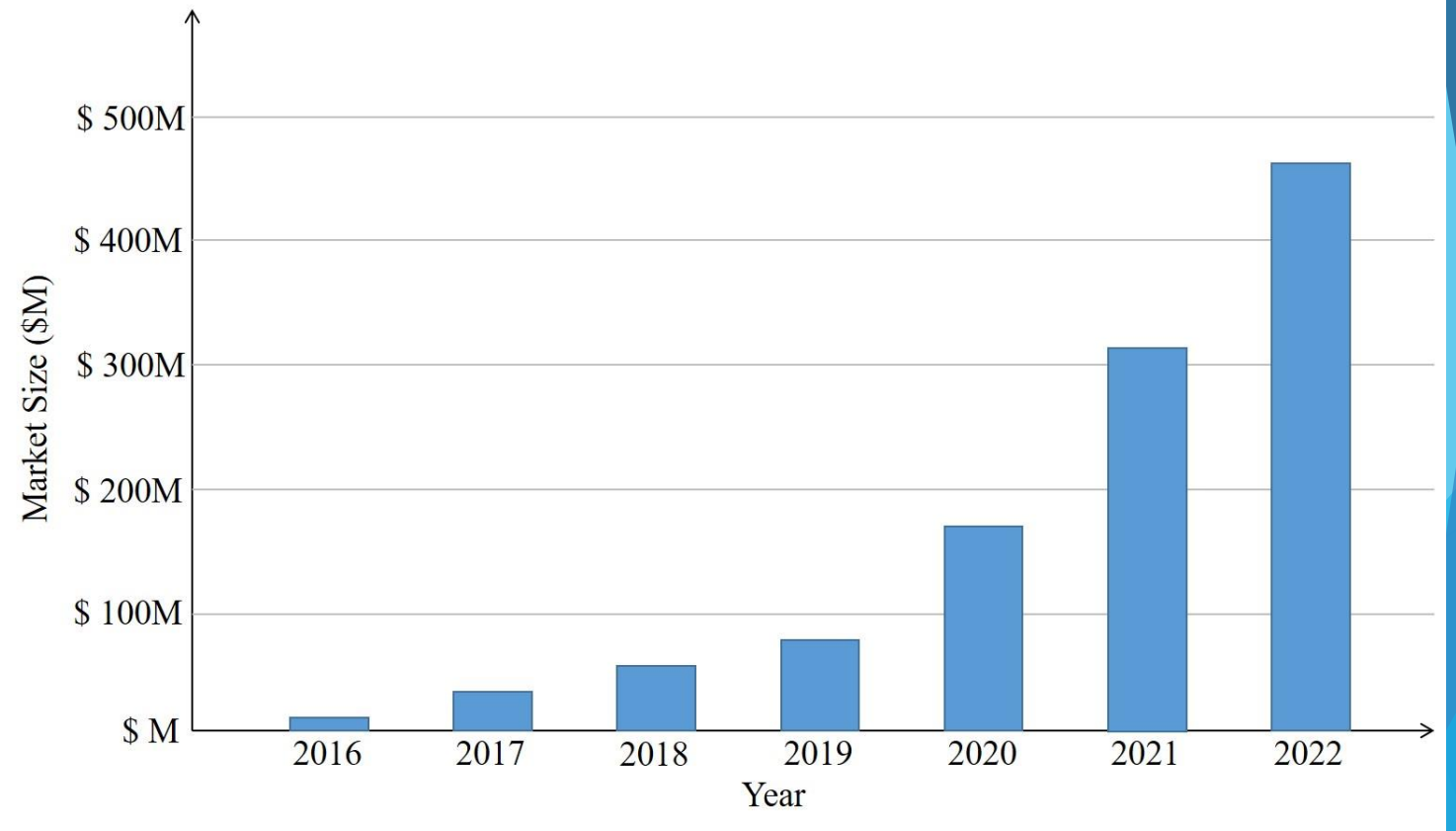
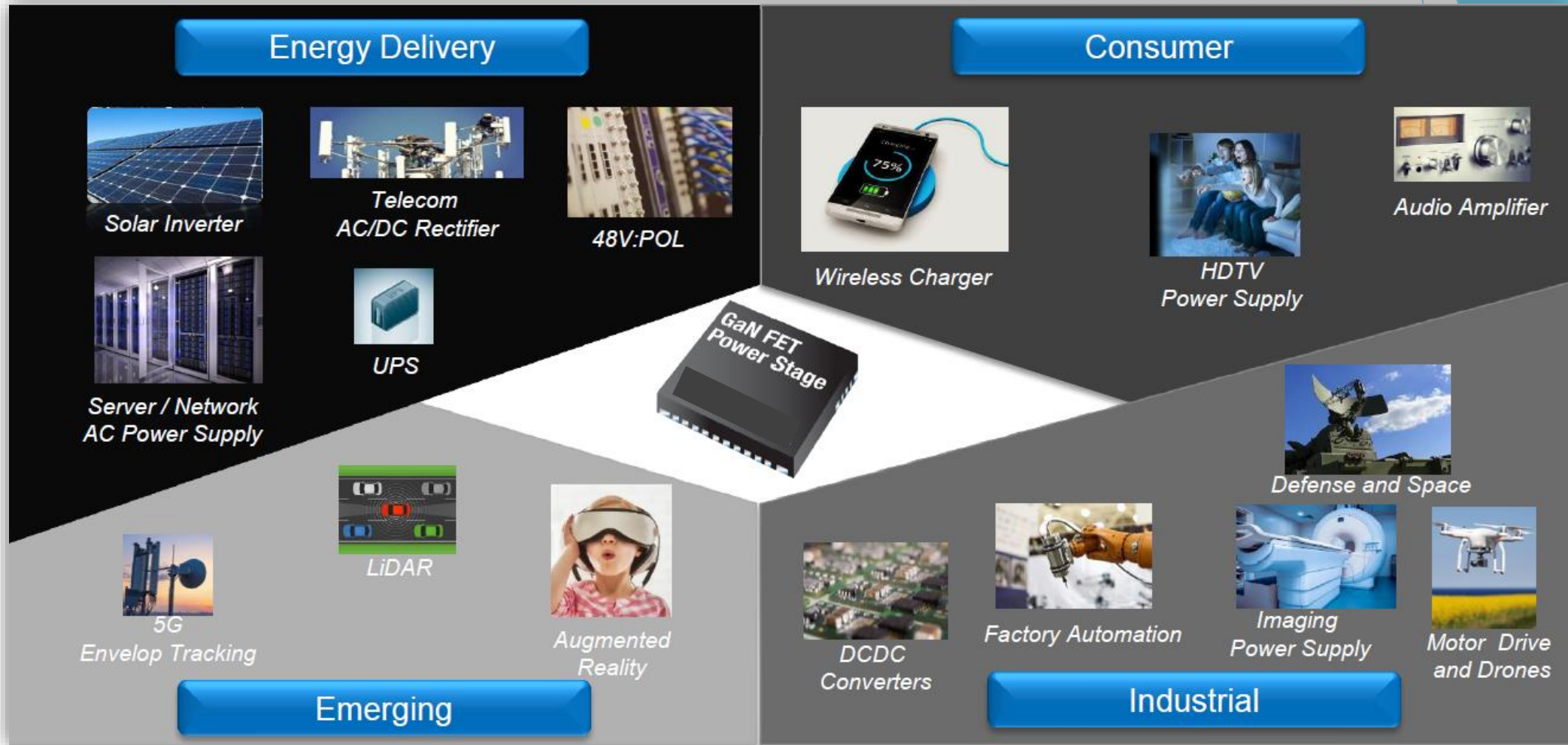


Fig: GaN power device market size by Yole Développement

# Target industries and research benefits



Thank You