

Third Generation Semiconductors: Enabling AI in a Net-Zero Future

GSA Global Semiconductor Conference

March 4, 2023

Americo Lemos, CEO



Architects
of tomorrow



Connectivity is
no longer optional



Architects
of tomorrow



Third Generation Semiconductors



Architects
of tomorrow

An aerial, top-down view of a dense urban center, likely a financial district. The image shows a complex network of roads and numerous skyscrapers of varying heights and architectural styles. The central part of the image is dominated by a large, multi-lane intersection with several roundabouts. The buildings are packed closely together, and the overall scene is characterized by a mix of modern glass-fronted structures and older, more traditional buildings. The lighting is bright, suggesting a clear day, and the colors are a mix of grays, blues, and greens from the buildings and vegetation.

Connect



Architects
of tomorrow

A woman with long dark hair is shown in profile, wearing a VR headset with glowing blue and green lenses. She is reaching out with her right hand to touch a large, curved digital display. The display shows a complex, glowing grid of light patterns that appear to be a 3D architectural model or data visualization. The background is dark with some blurred lights, suggesting an indoor setting at night or in a dimly lit room.

Sense



Architects
of tomorrow

A person wearing a VR headset is shown from the chest up, looking towards the camera. In the foreground, a hand is interacting with a glowing, digital globe. The globe is surrounded by various icons representing technology, business, and innovation, such as gears, a lightbulb, a shopping cart, a bar chart, a document, a person with a globe, a cloud with arrows, a fingerprint, a bar chart with a dollar sign, a document with a checkmark, and a computer monitor. The background is a soft, blurred gradient of blue and purple.

Display



Architects
of tomorrow



Power



Architects
of tomorrow



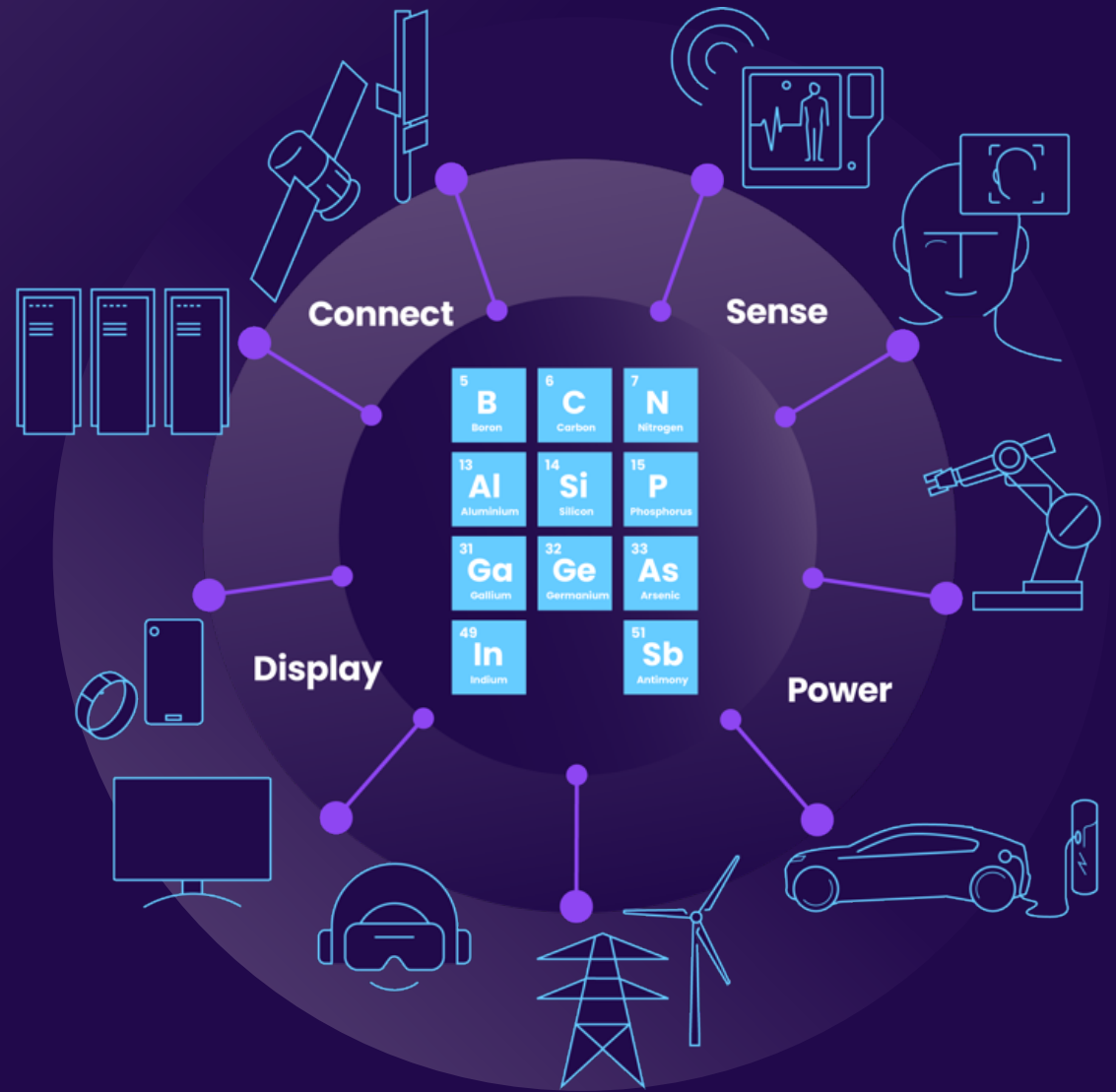
Enabling an
intelligently connected,
immersive,
low carbon world



Architects
of tomorrow

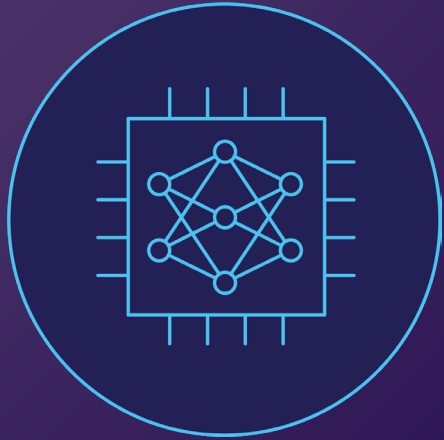
Compound semiconductors

Third Generation Semiconductors



AI is here

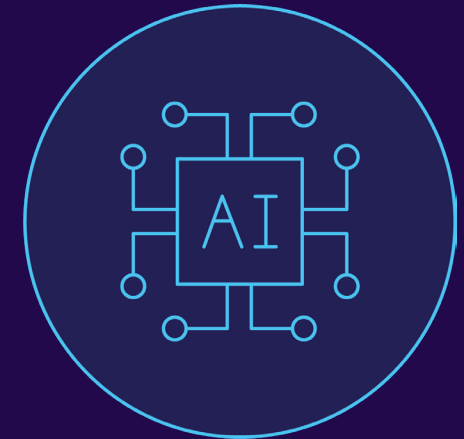
Collect, transfer and compute masses of data



Hardware is the
fundamental
enabler

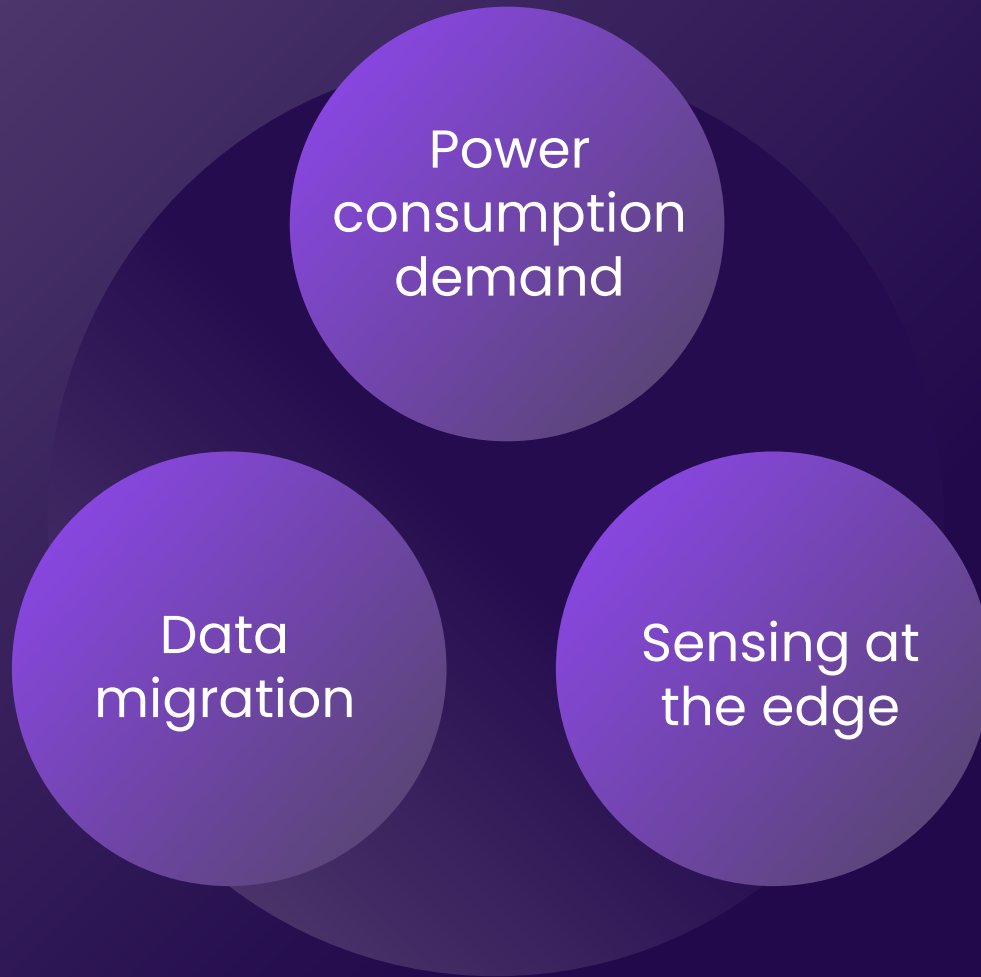


40-50% of
technology value
stack*



Compound
semiconductors
are critical to
AI architecture

Demand for AI will create bottlenecks

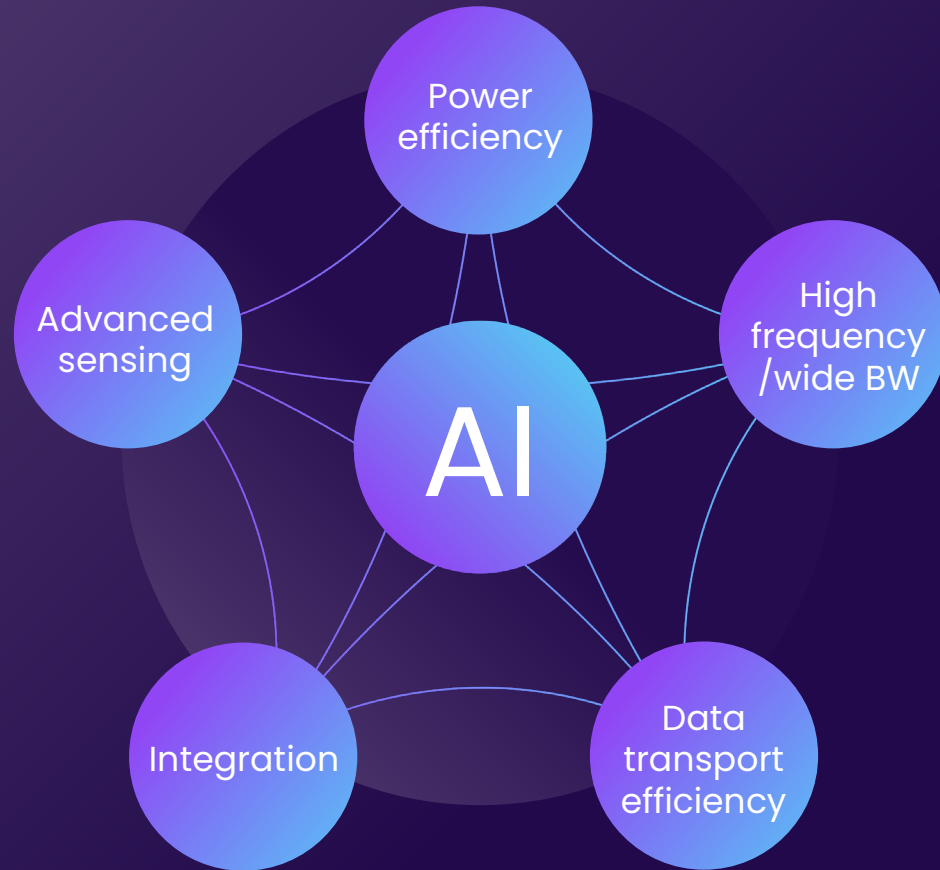


Demand on ecosystem is multi-dimensional

There is not enough power in the core architecture to deliver the future of AI

Innovation in materials, architectures and cooling technologies is required

Unlocking AI bottlenecks with compound semiconductors

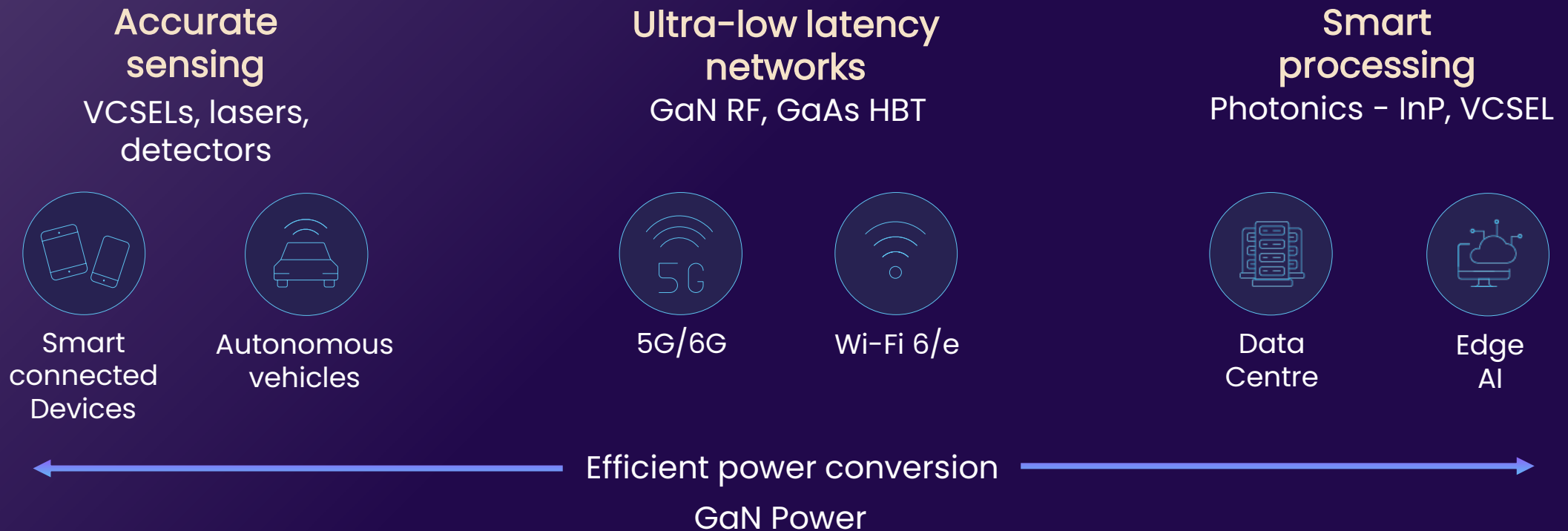


Compound semiconductors are complementary to Silicon

Diversification of materials with focus on energy efficiency is needed

Enabling AI in a Net Zero future

Compound semiconductors underpin sustainable growth of the AI ecosystem



Rethinking power architecture in data centres

Data centres
consumed

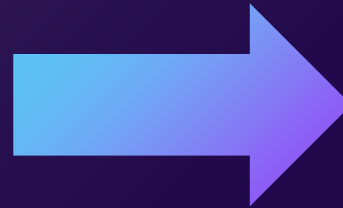
1%

of global
electricity in 2023

Projected to
consume

8%

by 2030



Data centres
contributed

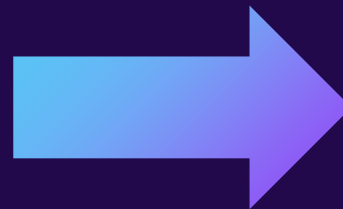
0.3%

to overall carbon
emissions in 2023

Projected to
contribute

2%

by 2030



Rethinking power architecture in data centres

GaN is the answer

GaN conductivity

1000x

than silicon*

Up to

40%

power savings compared to silicon*

Higher frequency

Compact & higher power density

Lower switching losses

Improved thermal performance

Third Generation Semiconductors: Enabling AI in a Net-Zero Future

Demand on
ecosystem is
multi-
dimensional

There is not
enough power in
the core
architecture

**Diversification
of materials
is needed**

Enhanced
performance,
efficiency and
capabilities

Complimentary
to
Silicon

Thank you



Architects
of tomorrow