



Deep Tech Collaboration for Power-Efficient Semiconductors

Semicon Europa, November 2024

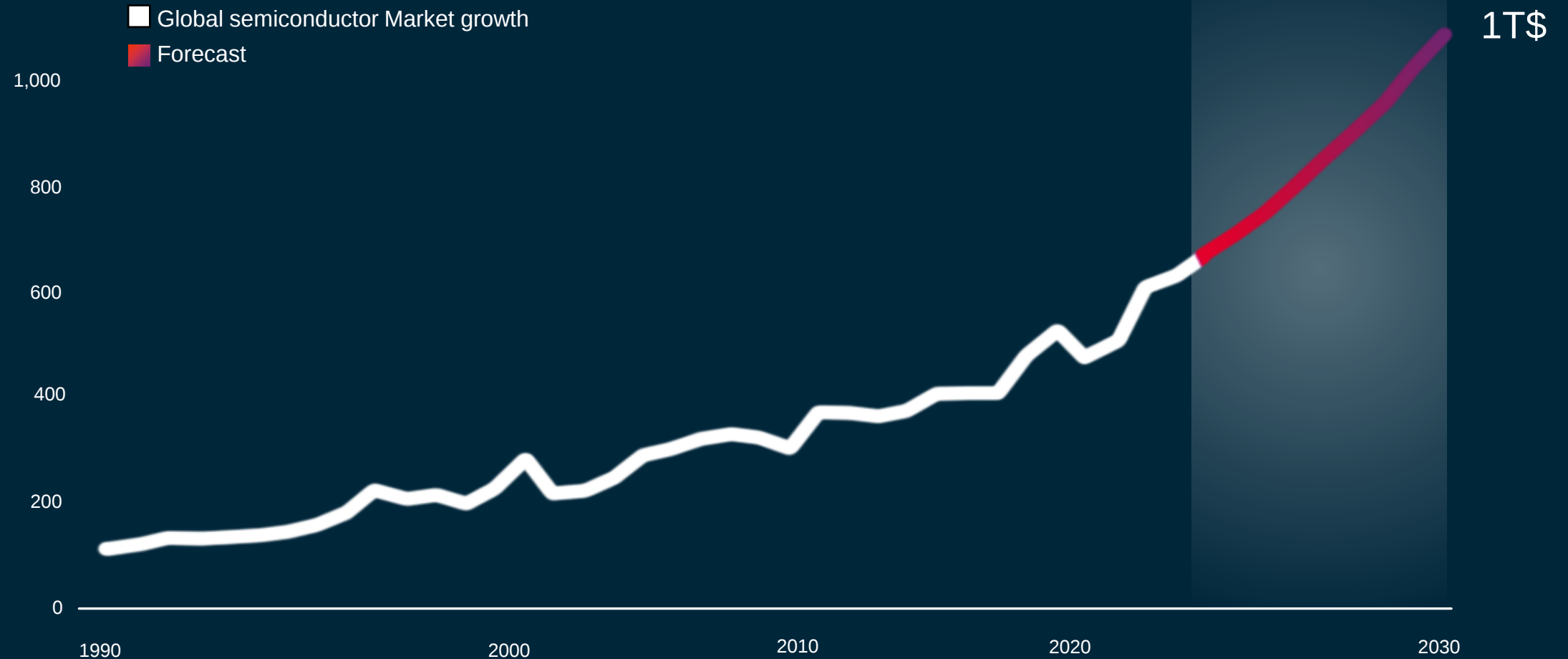
Stephan Haferl, CEO

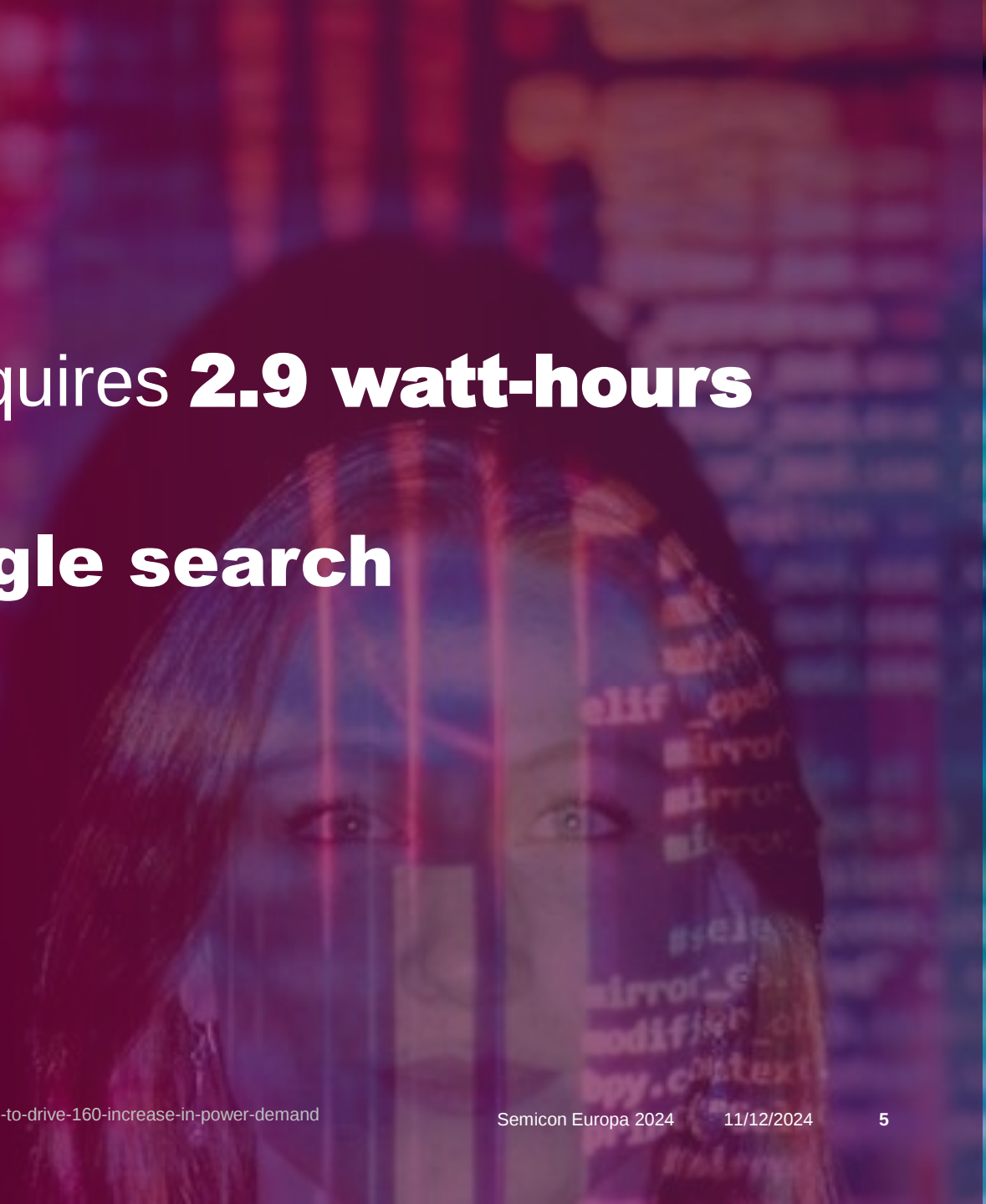


The world is going...

AI

.. and it's driving growth in the Semiconductor market

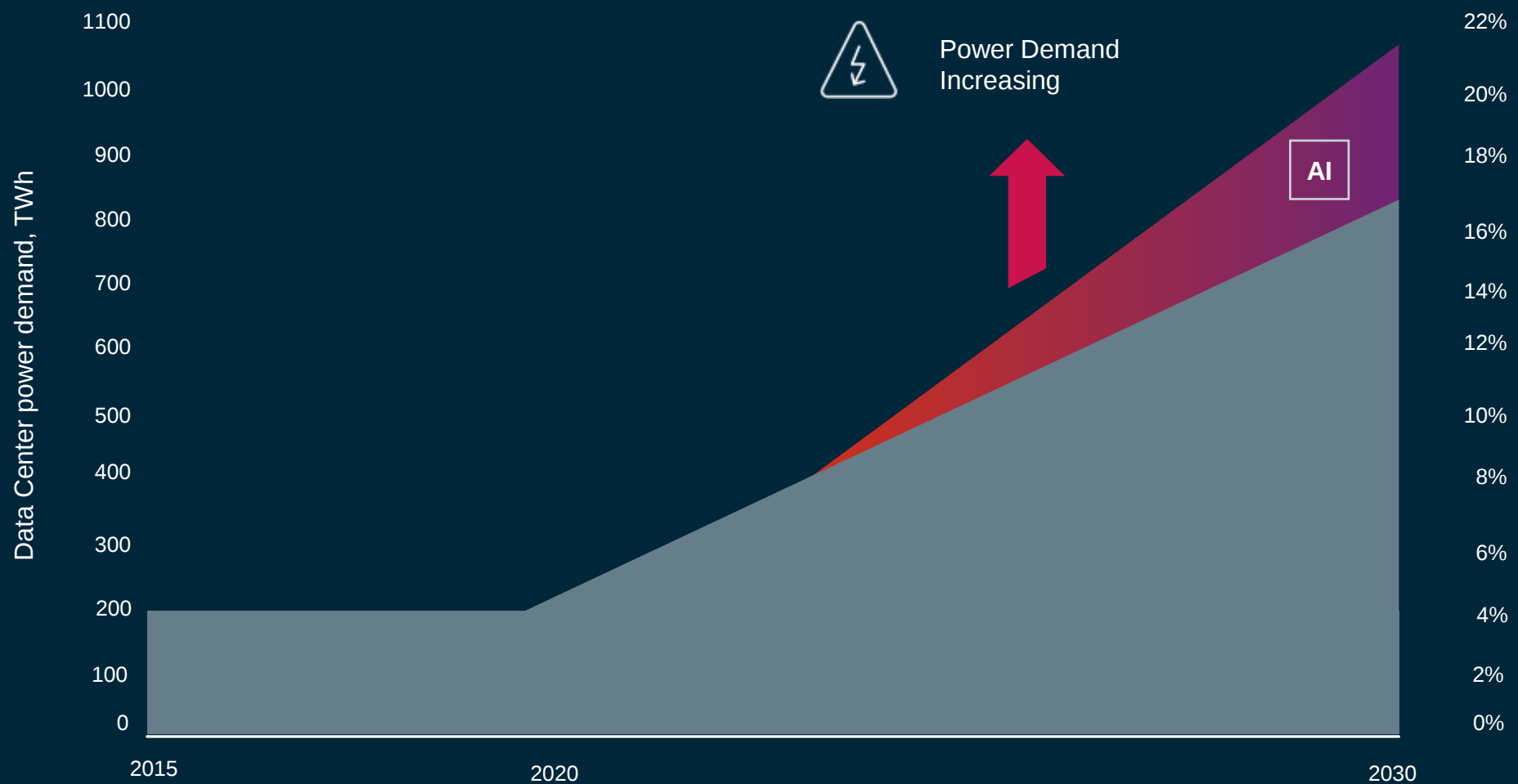


A woman's face is visible in the background, partially obscured by a semi-transparent digital overlay. The overlay consists of vertical lines and snippets of code, such as 'elif op', 'mirror', 'mirror', 'mirror', 'sysle', 'mirror_G', 'modifier_o', and 'by.context'. The overall color scheme is a mix of deep red and blue.

A single **ChatGPT** query requires **2.9 watt-hours** of electricity, compared with **0.3 watt-hours** for a **Google search**

International Energy Agency

AI exponentially pushes data centers to power efficiency gains.





Stop advancing on AI applications?



Stop advancing on AI applications?



**Innovate for
more compute per mm² & Watt**

... How? With miniaturization.



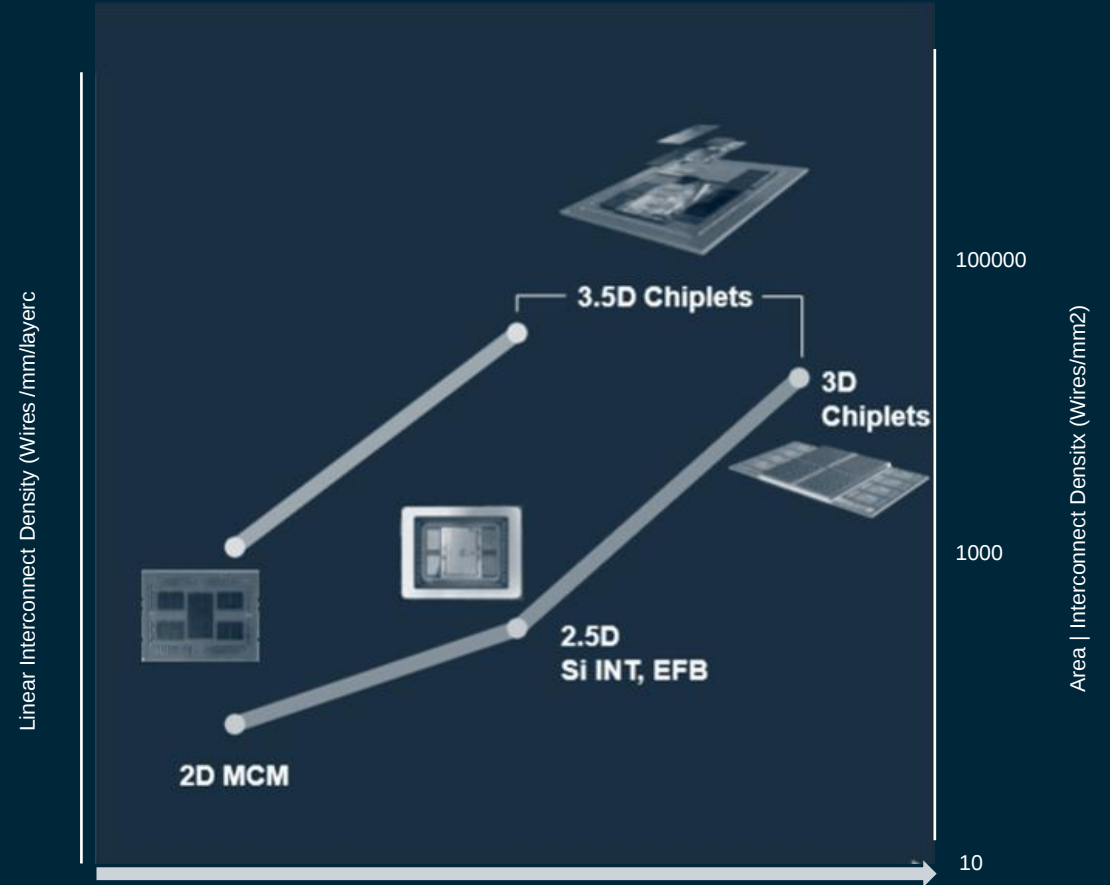
Smaller transistors consume less power and reduce current leakage, making AI computations more energy-efficient.

Higher transistor density allows more processing cores, enabling faster, parallel AI computations.

Higher density?

3D Advanced Packaging!

Packaging interconnect density



Higher performance, lower power and area

**How do we ensure the integrity of ever
smaller and complex components?**

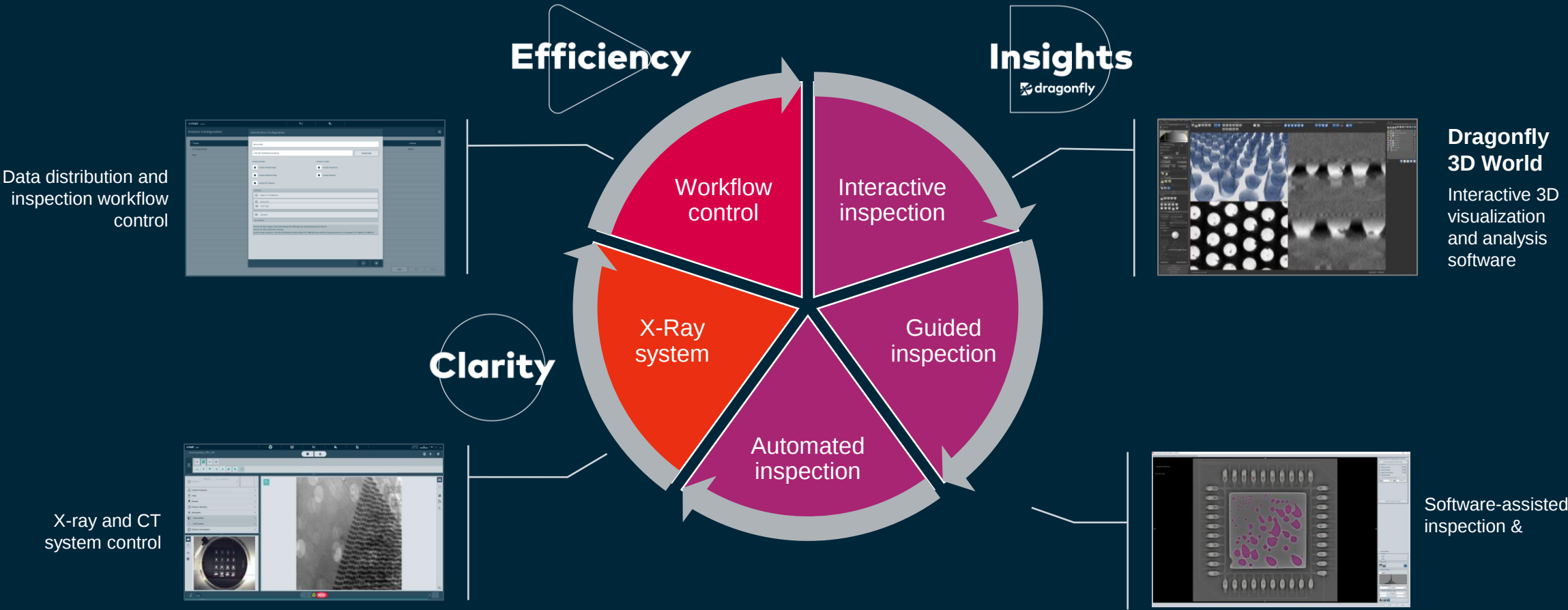
Next generation 3D X-Ray inspection provides fast & easy insights to critical defects

Specimen: Advanced Packages		Tools for inspection / failure analysis			
		Optical	X-Ray		FIB-SEM
			2D	Next Gen 3D	
Tilt		✓	✓	✓	✓
Missing bump		✓	✓	✓	✓
Bridge		✓	✓	✓	✓
Bulge/big-bump		✓	✓	✓	✓
Small bump / non-wet			✓	✓	✓
Void			✓	✓	✓
Missing/ Small via connect			✓	✓	✓
Shift				✓	✓
Head in pillow				✓	✓
Substrate cracks				✓	✓
		Speed Detail recognition			

When AI helps AI

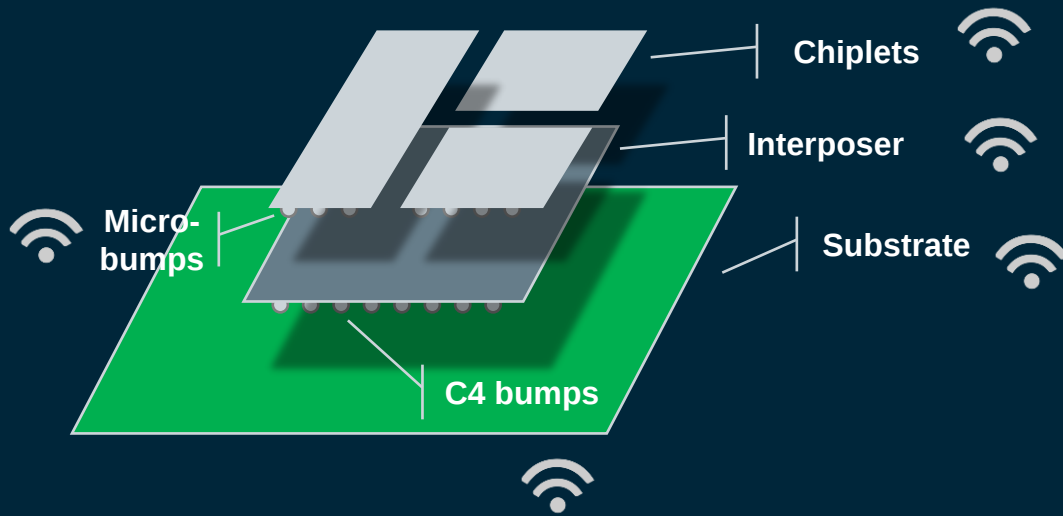
The background of the slide features a dark blue field with glowing, neon-like circuit traces in red and magenta. These traces form a complex, interconnected pattern that resembles a microchip or a neural network, with a central square-like structure and various branching lines extending outwards.

AI-Based Software Platform: From Clarity to Automatic Insights

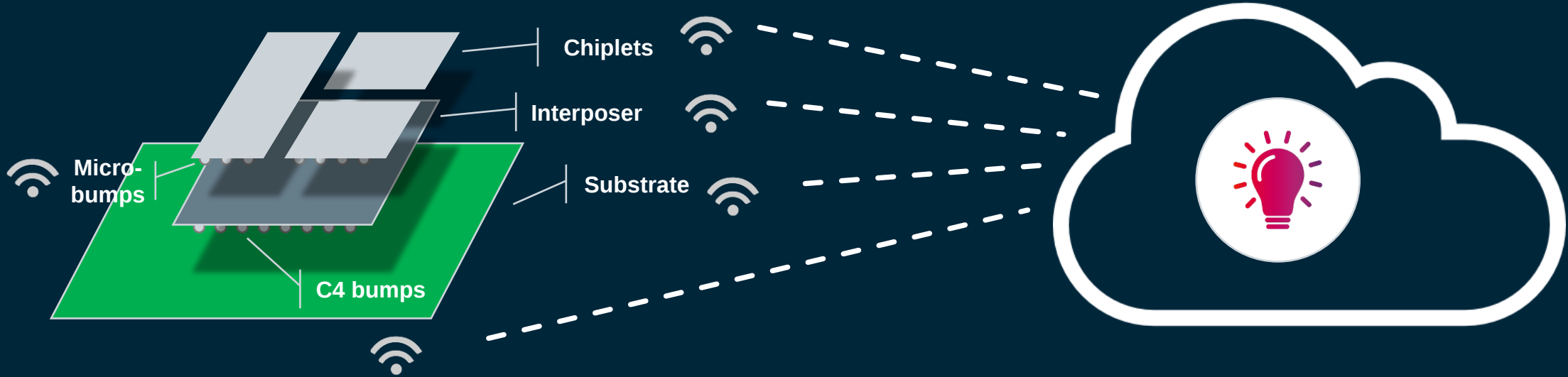


Insights $\neq$ Understanding

**...but each inspection during manufacturing
generates data about defects and anomalies.**



Processing shared data can generate **understanding of issues' root cause.**



**Today, individually,
we can see faster. better. more.**

Call for collaboration



**Tomorrow, together,
we could solve critical
manufacturing process issues.**

Let's join forces and make something

Fabulous.

We invite you to join us

**at Comet Yxlon,
1:45pm, booth C2.555**

**For the reveal of the
next-gen inspection solution
driving AI chip yield.**



RSVP now

c•met
yxlon

c•met