2016 NSF-ATE PI Conference

Tomorrow's Exciting Technologies

(From a Manufacturing Perspective)

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www.fl-ate.org

Mission:

"Be the go-to organization to connect manufacturers with educators, students, and the community."

Vision:

"Build a world-class manufacturing workforce in Florida."

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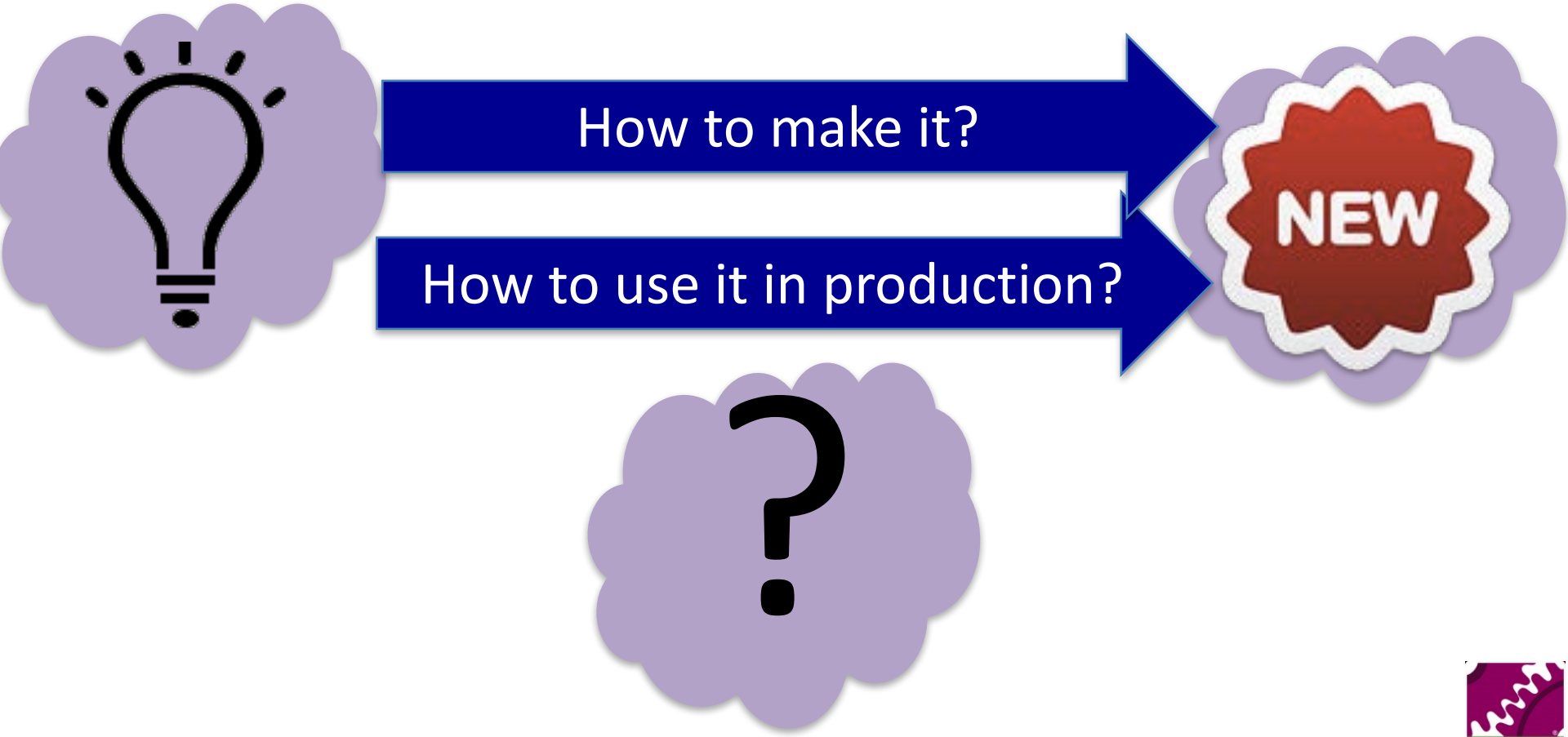

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For Manufacturers:
It's the PROCESS

Manufacturers who focus on tomorrows technologies can partner with federal research entities.

Manufacturing USA (NNMI)

Integrate techniques and technologies to realize higher:

SPEED

- Individualized products
- More production volume

QUALITY

- Better products
- Less waste

$$

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2 "new technologies" and what they mean to manufacturers

Smaller, more efficient power & RF devices

qorvo
all around you

"Smart" motors

TAW

Tampa Armature Works Inc.

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For one Florida Manufacturer
It's Gallium Nitride processes!

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Manufacturing USA (NNMI)

PowerAmerica

PowerAmerica is accelerating the adoption of advanced semiconductor components made with silicon carbide (SiC) and gallium nitride (GaN) into a wide range of products and systems

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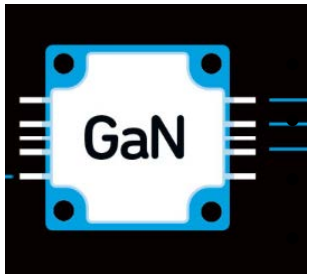

KEY BENEFITS OF GaN

High power density
Wideband performance
High power handling
Input power robustness
Reduced part size and counts

qorvo
all around you

NEXT GENERATION APPLICATIONS

- Space communications
- Integrated Assembly
- Custom die-level packaging
- Advanced radar

The Internet of Things

- Support DOCSIS 3.1 high performance broadband
- Fiber optic components
- Broadband transmission
- Analog/digital switches

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"New" Final Control Elements: SMART MOTORS

Tampa Armature Works Inc.

DIRECT DRIVE MOTORS:

Takes power coming from the motor without requiring a gearbox.

Increased efficiency: no friction from belts, chains and gearbox.

Fewer moving parts: Longer life, lower vibrations and less expensive noise abatement

High torque at low rpm.

Lower inertia (faster response to sensors)

No hysteresis

STEPPER MOTORS:

DC motors with a shaft that rotates in discrete steps.

Simple interface to computer

Precision motion control (3D printing, CNC)

Reduced increments of motion permit rotational speed control for process automations and precision robotics

Maximum torque at low speeds

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