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Connecting Technology to Future System Needs:

3D Microelectronics Research & Packaging

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Producing
Leading
Creating
Researching
Analyzing

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3D Microelectronics Research & Packaging

From the Technology Integrator/Consumer Perspective

Enhancing Existing Capabilities

Enabling New Capabilities

Performance, Size, Weight, Power, Cost, Reliability/Stability, New Functionality

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Implementation Considerations

Enhancing Existing Capabilities

- Backward Product Compatibility
- System Overhead for Tech Incorporation
- Introduction of Unintended Consequence
- Field Use Considerations (Infrastructure)

Enabling New Capabilities

- ConOp Change
- Enabling New Missions
  - Size-Enabling
  - Performance-Enabling
  - Creating Asymmetric Advantage of x

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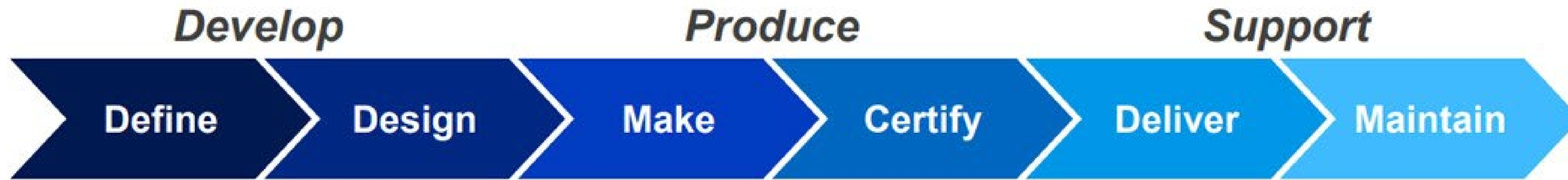
Life Cycle Considerations

From Mission Utility & End Product Perspective

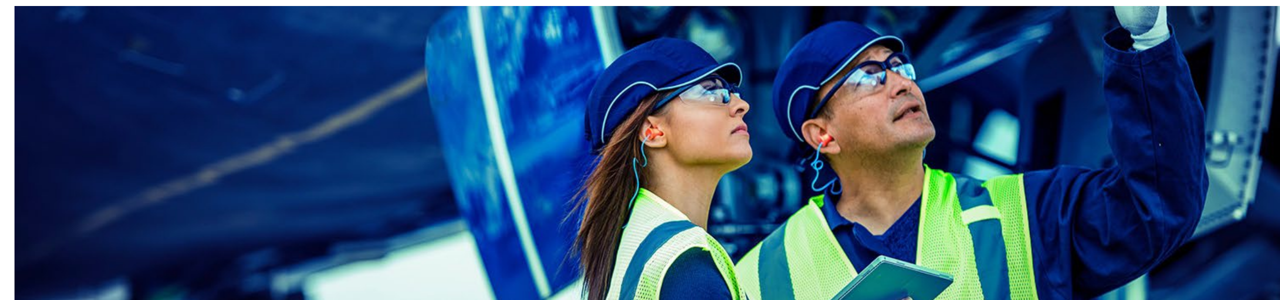


- Mission Requirement
- Fielding Speed

- Testability
- Reliability
- Qualification

- Assembly
- Integration
- Troubleshooting

- User Safety
- Field Maintainability
- Shelf Life



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Final Thoughts

Connecting 3D Microelectronics to Future System Needs

- Enabling Speedy Adaptation of Tech
  - Full lifecycle “gap” assessment for incorporation of 3D Microelectronics
  - Field use considerations (existing infrastructure compatibility)

Connecting 3D Packaging for Future System Needs

- More than Protect & Connect?
- 3D packaging enabled functionality?
  - Anti-Temper?
  - Redundancy?
  - Reconfiguration?
  - Self Healing?
  - Trigger for x?

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