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Northern Waves

Additive Manufacturing for Microwave Components

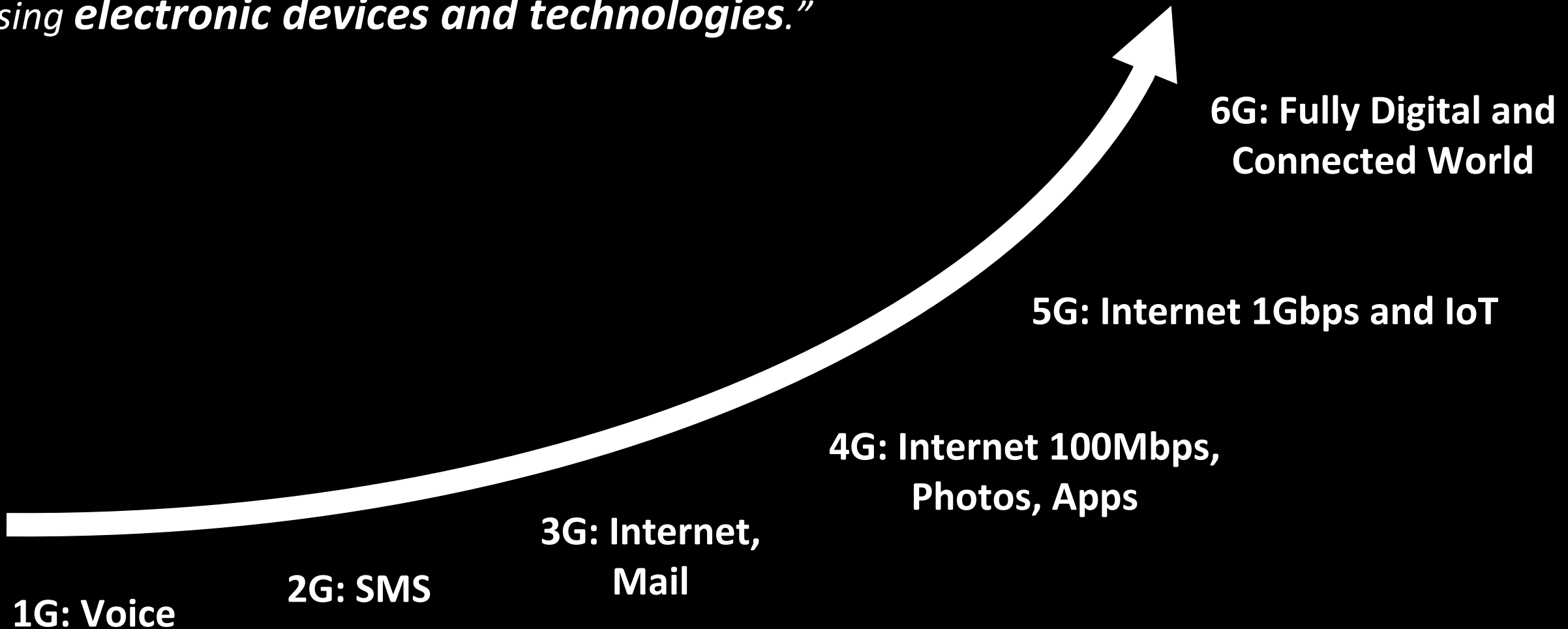
Pushing the limits of microwave designs

José Rico-Fernández

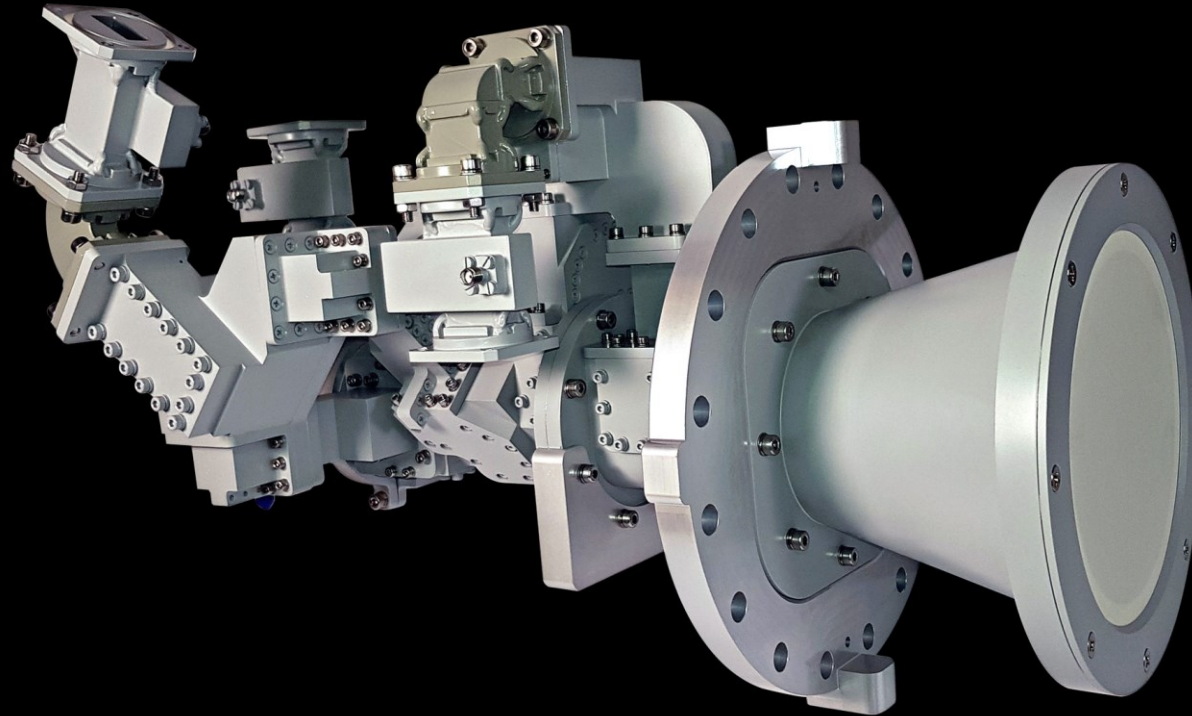
CEO & Founder

pepe.rico@northern-waves.com

*“The transmission of information over a distance using **electronic devices and technologies.**”*



PROBLEM: Inefficient and Limited Production



[1] "Microwave components for space, defense, naval",
Pascuali Microwave Systems

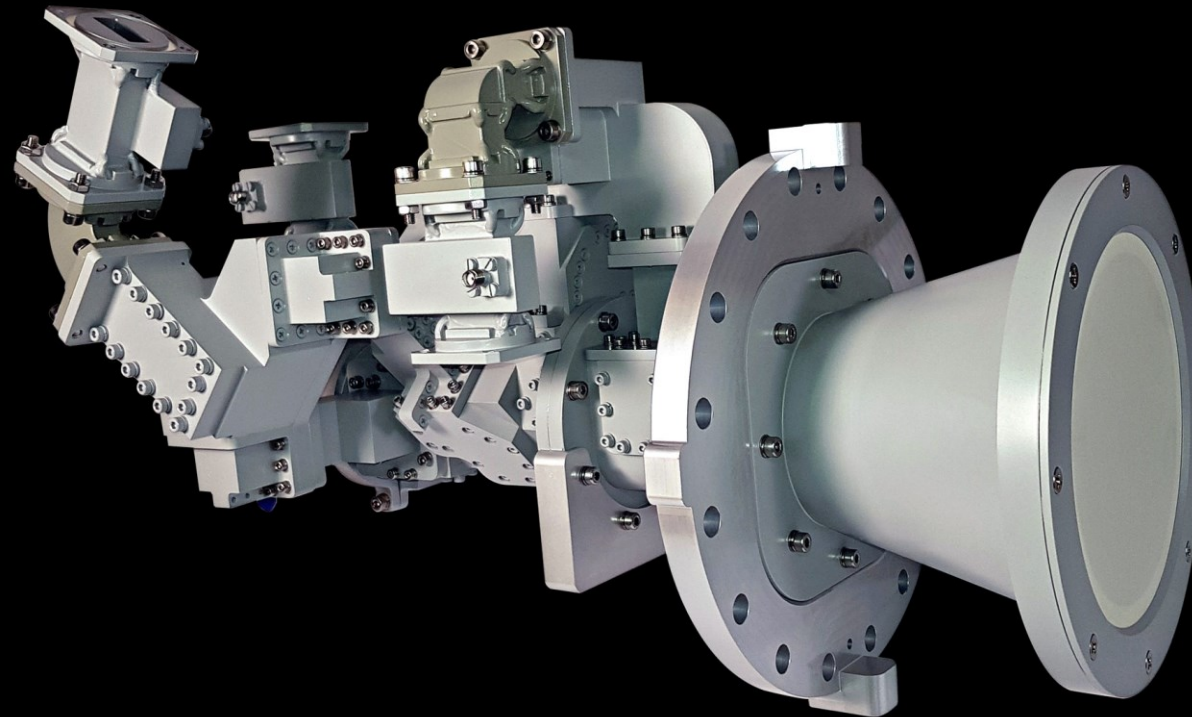
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PROBLEM: Inefficient and Limited Production

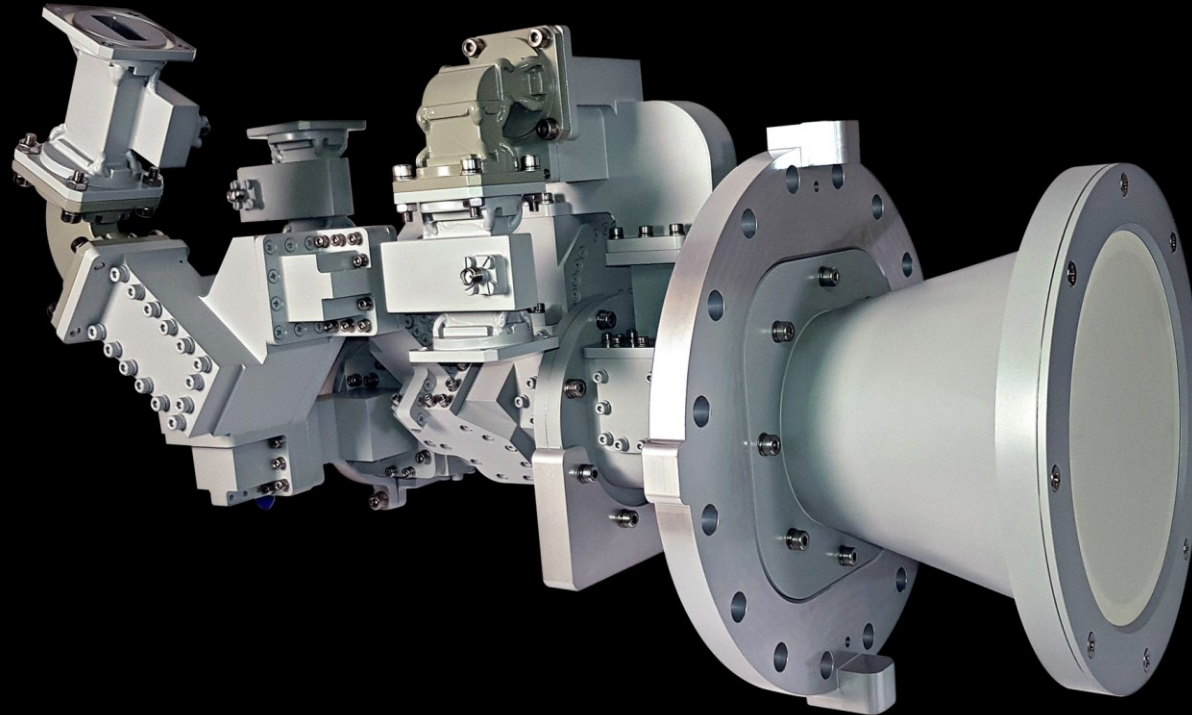
✗ Slow production



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PROBLEM: Inefficient and Limited Production

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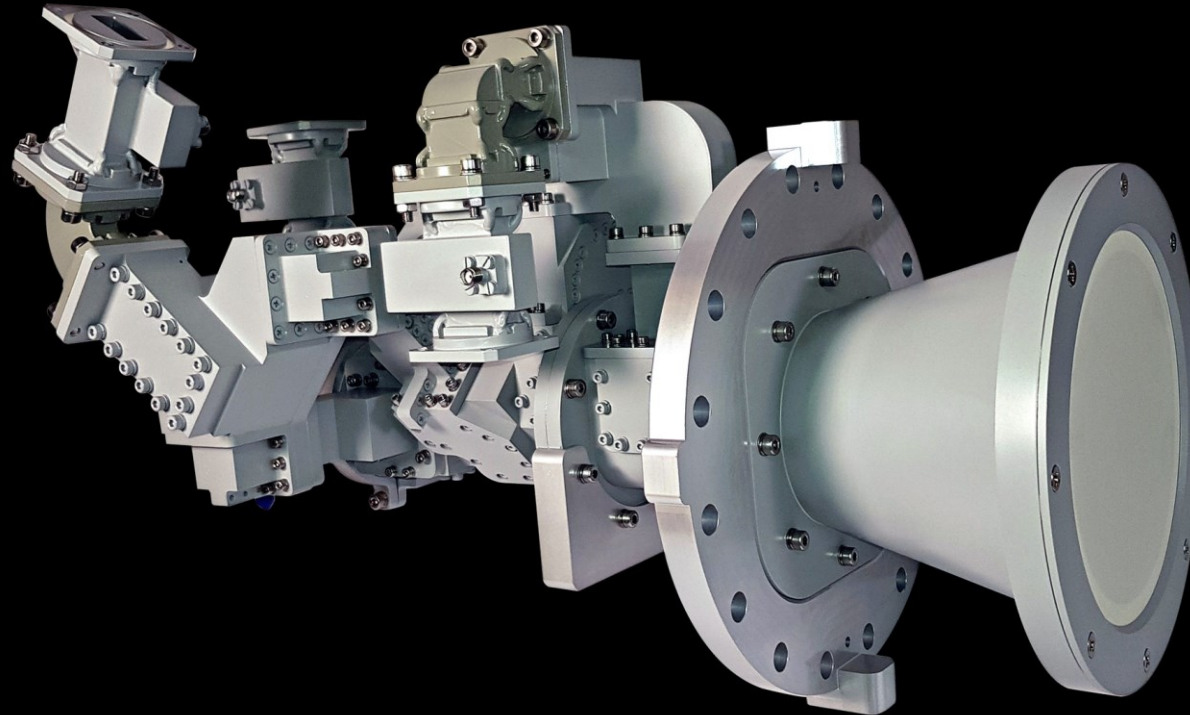
✗ High cost

[1] "Microwave components for space, defense, naval",
Pascuali Microwave Systems

PROBLEM: Inefficient and Limited Production

✗ Slow production

✗ Bulky and Inefficient



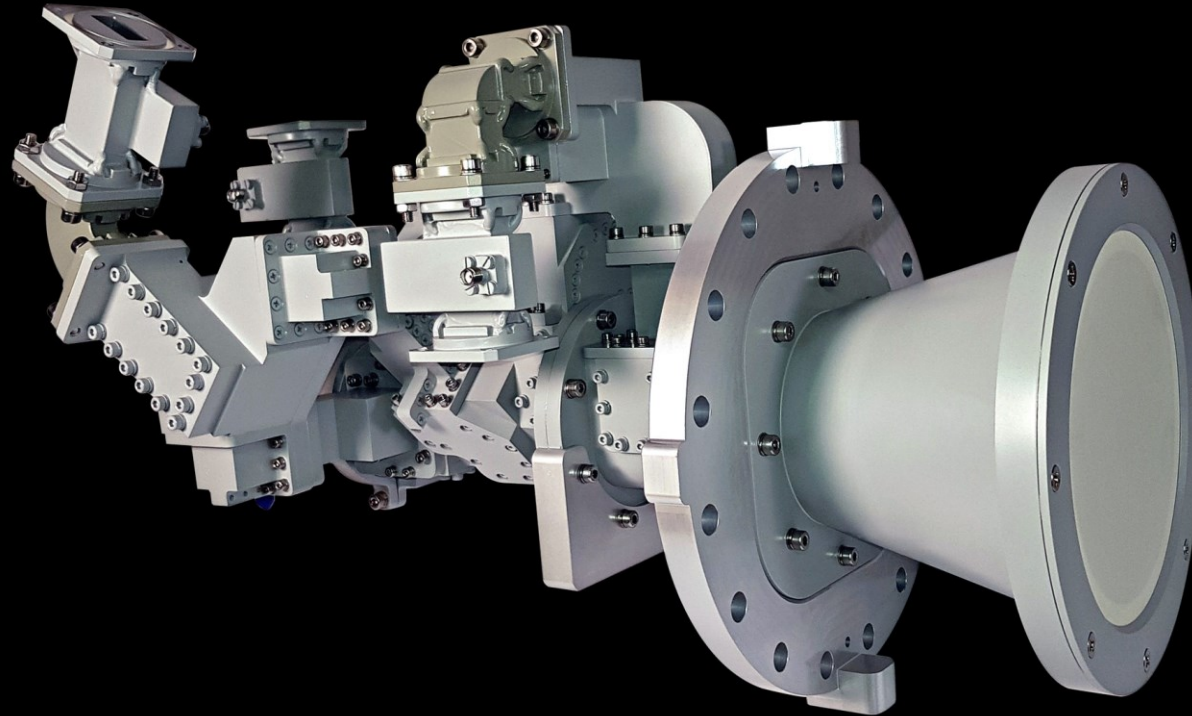
✗ High cost

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PROBLEM: Inefficient and Limited Production

✗ Slow production

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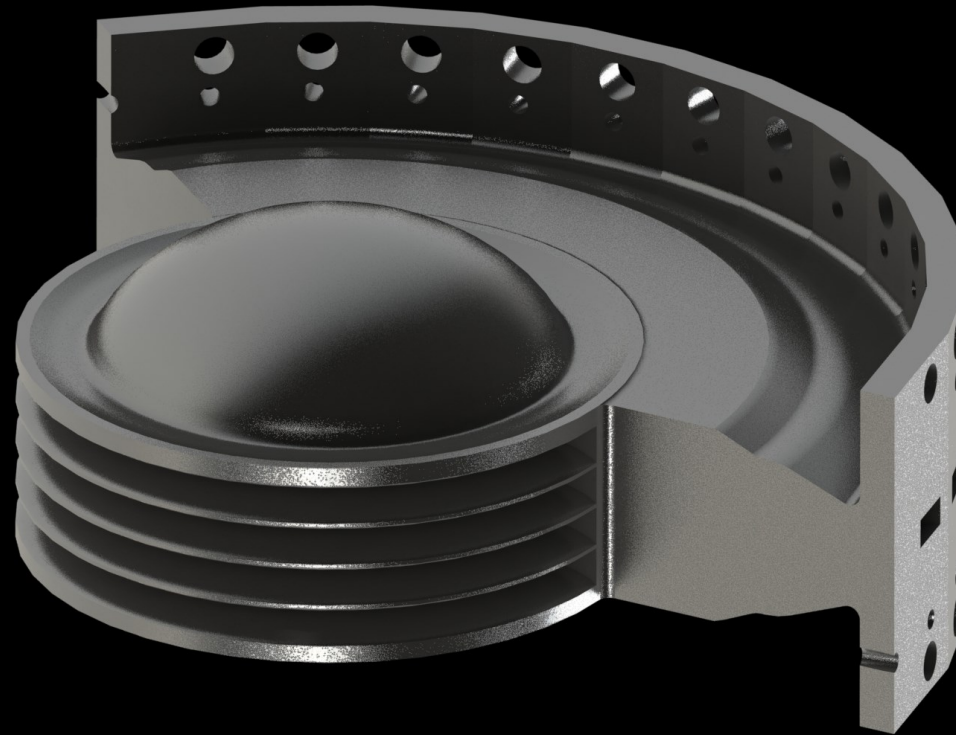


✗ High cost

✗ Multiple-parts assemblies

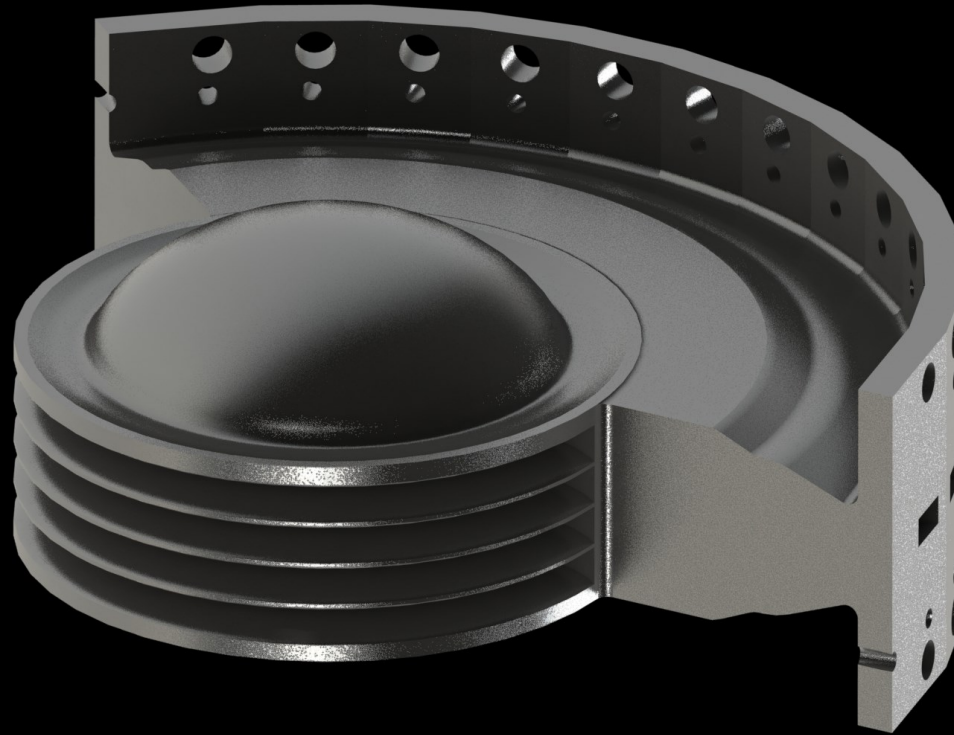
[1] "Microwave components for space, defense, naval",
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OUR SOLUTION: Additive Manufacturing for Microwave Components



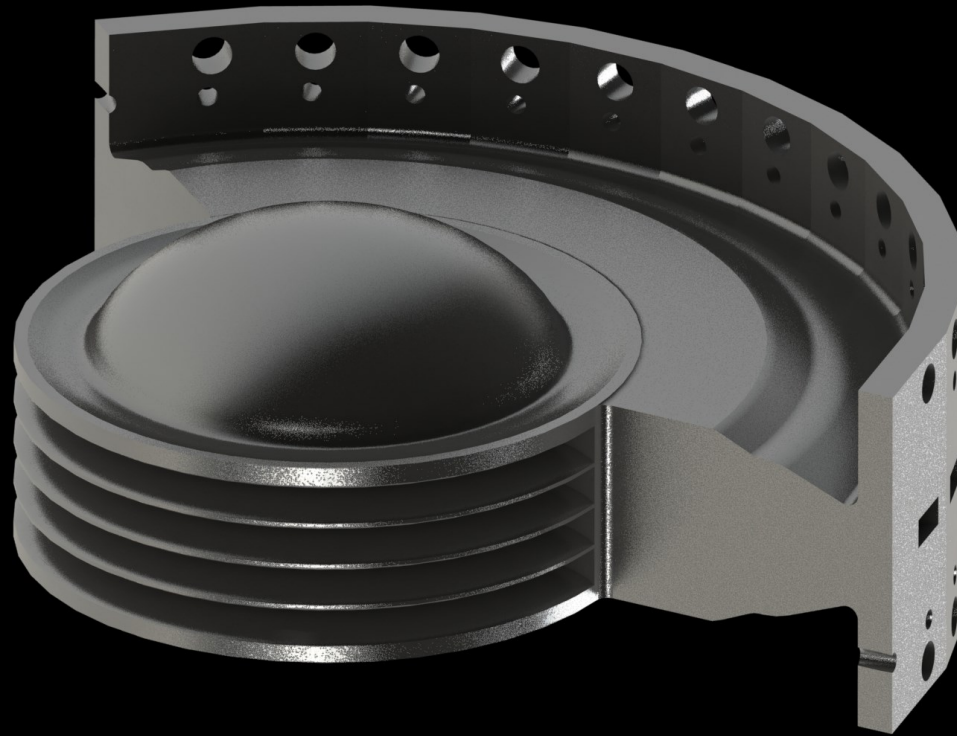
OUR SOLUTION: Additive Manufacturing for Microwave Components

Unlock new design possibilities



OUR SOLUTION: Additive Manufacturing for Microwave Components

Unlock new design possibilities



Up to **80% weight reduction**

NW

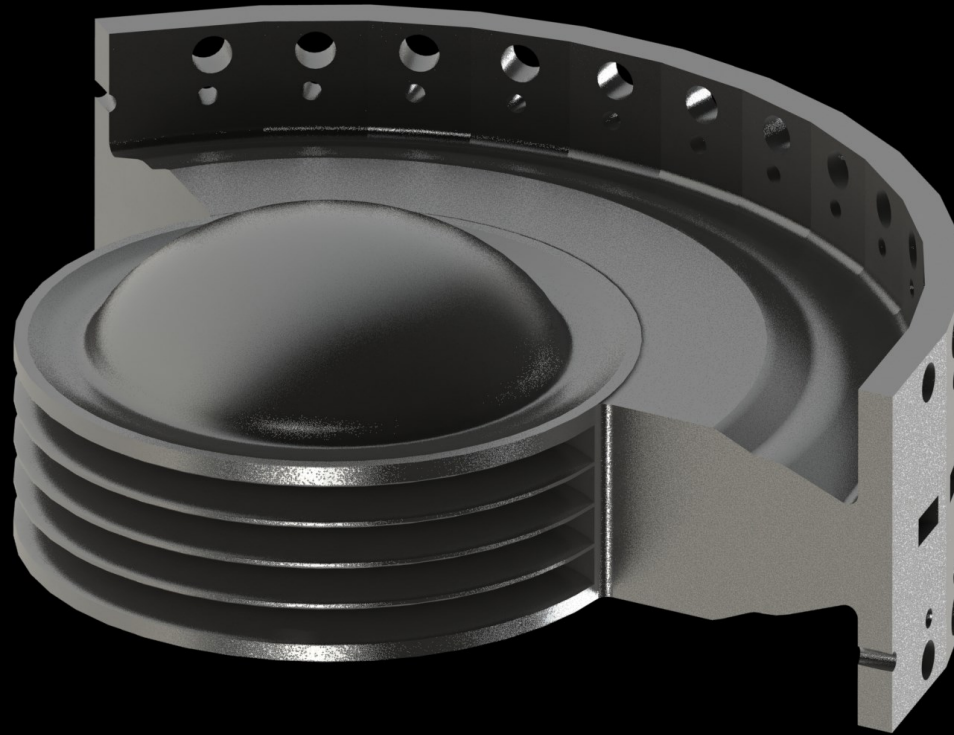
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OUR SOLUTION: Additive Manufacturing for Microwave Components

Unlock new design possibilities

Avoid assemblies



Up to **80% weight reduction**

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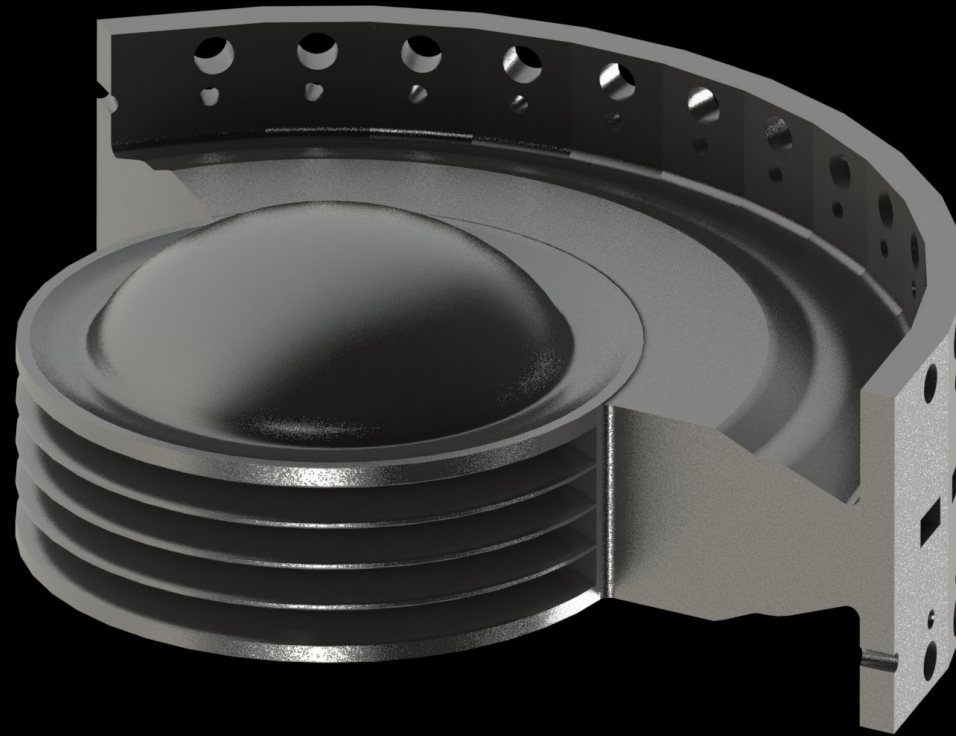
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OUR SOLUTION: Additive Manufacturing for Microwave Components

Unlock new design possibilities

Avoid assemblies



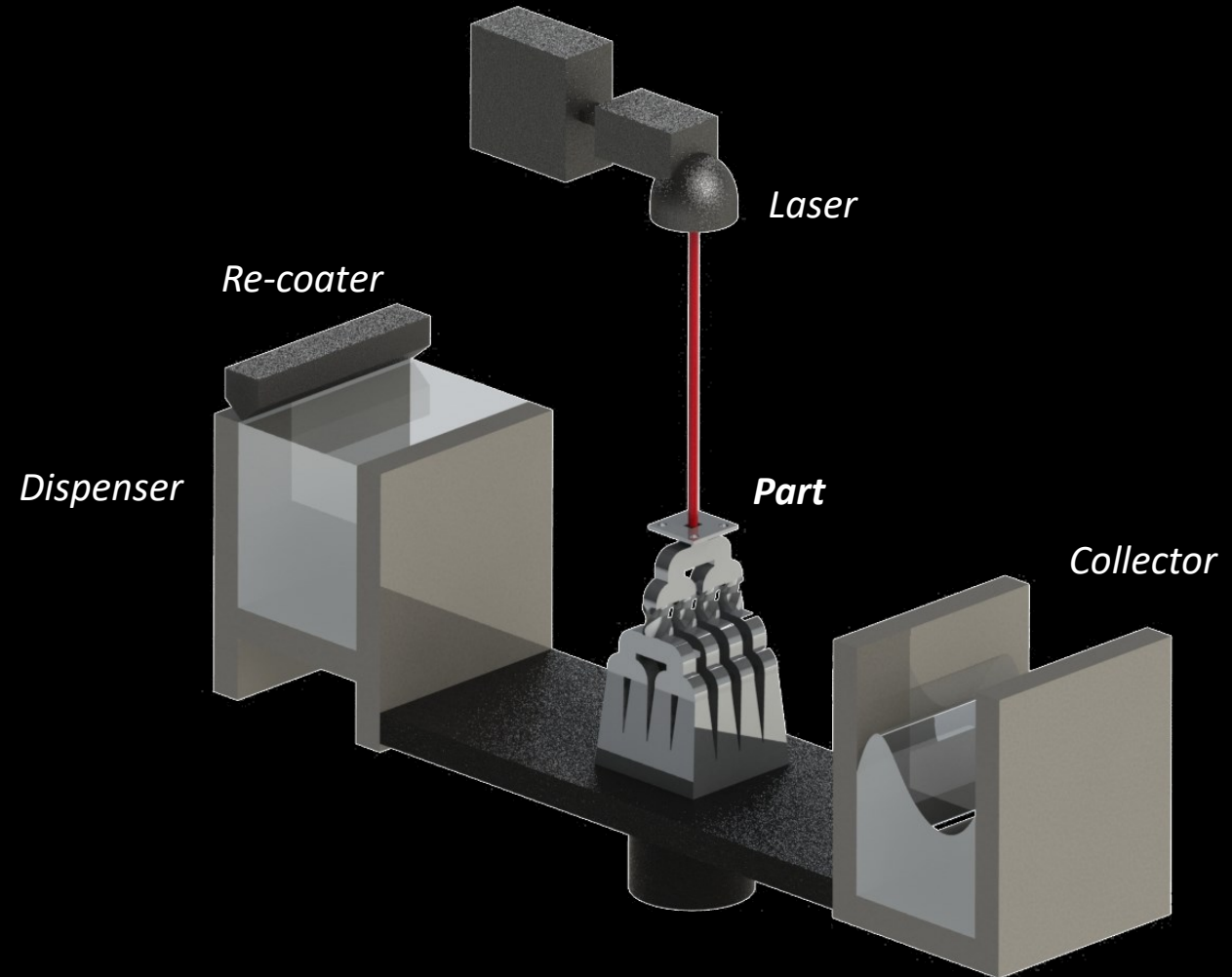
Up to **80% weight reduction**

Up to **50% cost reduction**

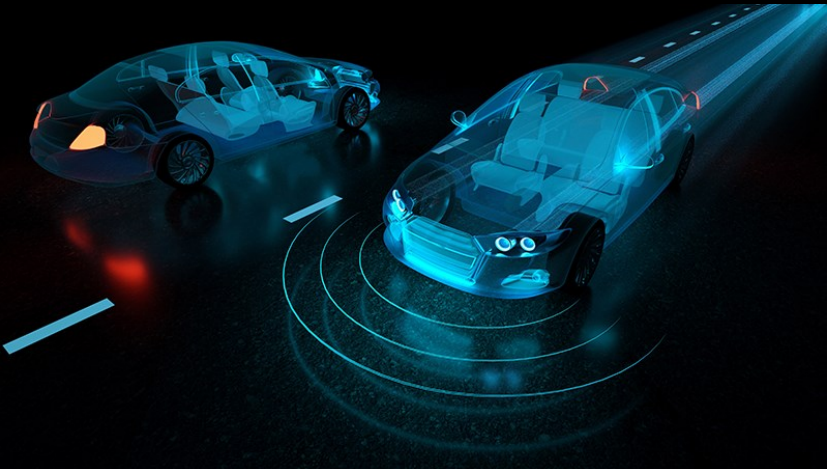
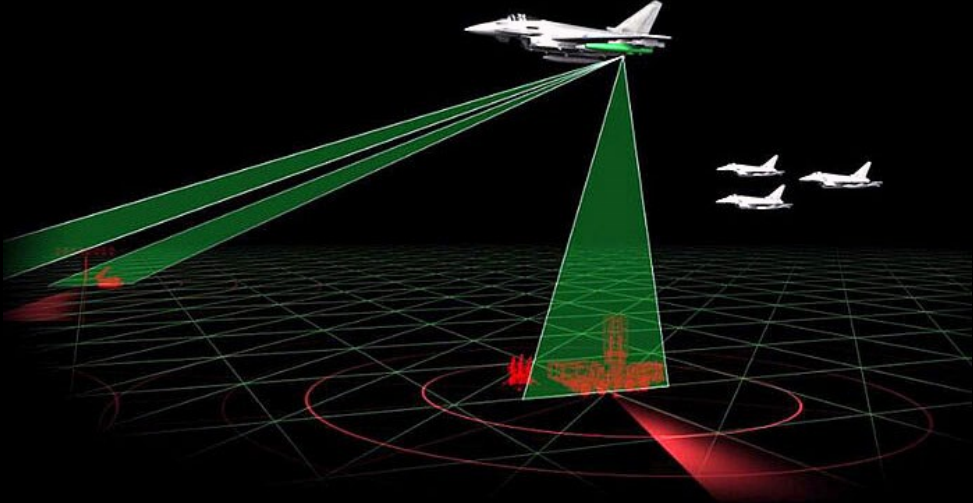
OUR SOLUTION: Additive Manufacturing for Microwave Components

Laser Powder Bed Fusion (LPBF)

- ✓ **Fast**
- ✓ Cost-effective
- ✓ Accuracy
- ✓ Possibility to adapt to **shaped forms**
- ✓ **Monolithic** parts



MARKET OPPORTUNITY



WHAT HAVE WE ACHIEVED?

+50 clients worldwide

WHAT HAVE WE ACHIEVED?

+300 Products successfully delivered

WHAT HAVE WE ACHIEVED?

Over 4.000.000 SEK revenue in 2024

WHAT HAVE WE ACHIEVED?

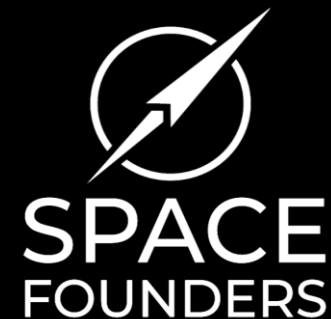
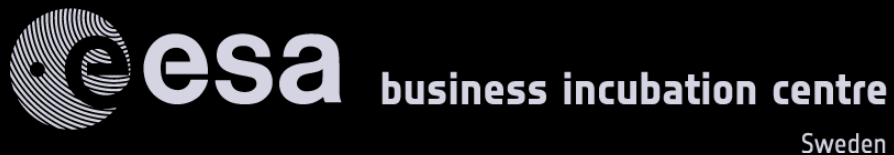
Two European Space Agency contracts

WHAT HAVE WE ACHIEVED?

First Product in orbit by Q4 2025

WHAT HAVE WE ACHIEVED?

Incubatee in ESA BIC Sweden with UIC Accelerated by Spacefounders





Our aim is to turn the microwave designs in your mind into manufactured and tested parts.

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Northern Waves

Reach out and start shaping the future!



José Rico-Fernández

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