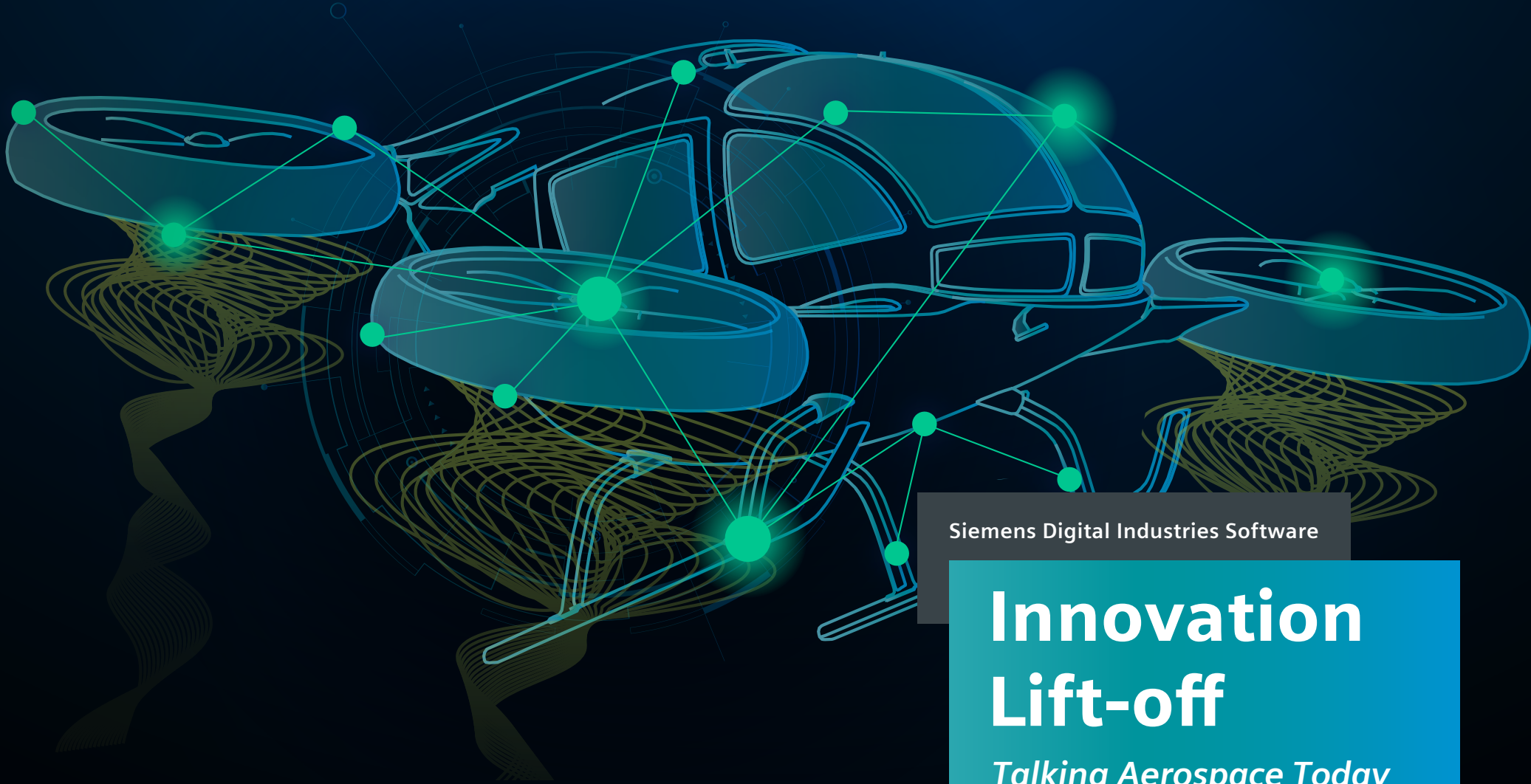


SIEMENS



Siemens Digital Industries Software

Innovation Lift-off

Talking Aerospace Today
podcast series

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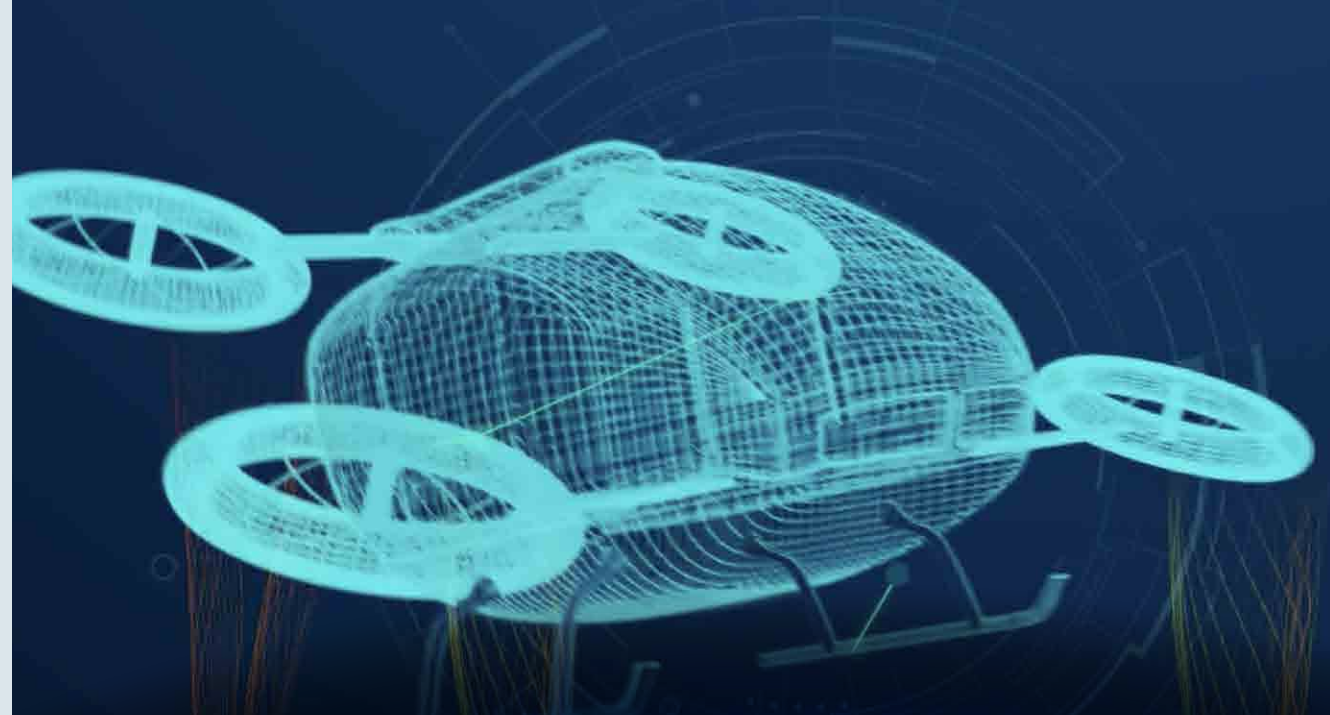
Innovation podcast series (Ep. #1):

"Up, up and Away - eVTOL Vehicles in the Age of Digital Transformation"



Urban air mobility is seeing significant progress...
Is it time to climb aboard?

The A&D industry is experiencing unprecedented innovation these days. There's so much talk around space missions, supersonic travel and urban air mobility such as the electric Vertical Take-off and Landing (eVTOL) aircraft. We're seeing breakthroughs in propulsion, composites and additive manufacturing. Electrification is huge right now... The list goes on and on.

In this first episode of the five-part series on *Innovation*, we'll take a quick look back at the early days of aerospace – the first wave of innovation back to the Wright Brothers. And then we'll fast forward to the current landscape and the technologies that are fueling innovation today. We'll be taking a very close look at how all this innovation is giving birth to a whole new way of flying – urban air mobility.



In this episode, you'll learn:

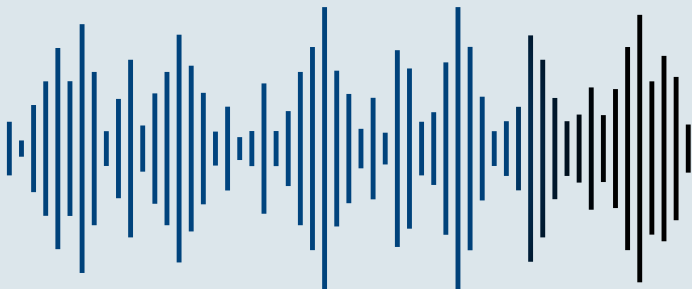
-  The early days of modern aviation. (02:17)
-  The current wave of urban air mobility and its impact on the future. (04:06)
-  The challenges faced by eVTOL startups. (06:36)
-  How the Siemens Xcelerator portfolio helps eVTOL companies with their digital transformation. (08:34)
-  How Siemens helps customers to go faster and to be more productive and innovative. (10:28)



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Innovation podcast series (Ep. #2): "eVTOL Aerodynamic Design through Digitalization"



In this episode, you'll learn:

-  What makes eVTOL aircraft so unique? (02:48)
-  The challenges with eVTOL aerodynamics. (04:27)
-  The meaning of Computational Fluid Dynamics and why it's important to eVTOL aerodynamic design. (05:50)
-  How Siemens is helping customers achieve eVTOL certification. (07:56)
-  The important role of the Siemens Xcelerator portfolio. (10:25)
-  How digital thread technology helps companies innovate faster. (12:35)



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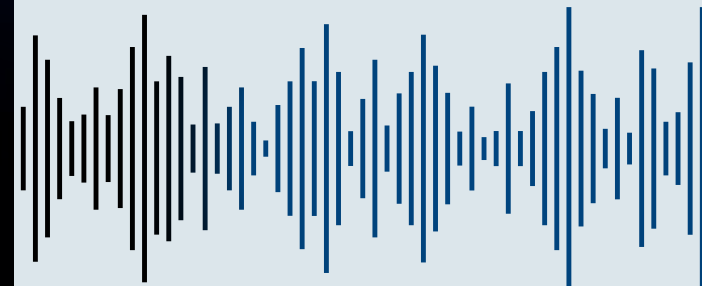
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Has simulation become the great equalizer for the aviation industry?

There is just so much innovation sweeping through our industry these days.

We're seeing the emergence of new propulsion techniques (including green energy alternatives), supersonic air travel and the fast-emerging market of urban air mobility (UAM) vehicles. Knowing the latest technologies available, and solutions to address both innovation and growing complexity, are keys to success and fast entry into market.

In this second episode of a five-part series we're calling "eVTOL Aerodynamic Design through Digitalization," we'll be discussing the aerodynamic design of eVTOL vehicles and the associated elements that impact performance and efficiency. No question, eVTOLs are some of the coolest-looking aircraft out there, but there are so many decisions that play heavily in the role of aerodynamic design.



Innovation podcast series (Ep. #3): "eVTOL Power Density and Thermal Management"







Do you feel it? We're in a pivotal moment in aviation.

When you think about the first airplanes... they were propeller-driven. Then, the jet engine came along and transformed the nature of aviation forever.

Today, we're ready to embark on the next frontier – electric propulsion in urban air mobility (UAM) vehicles. Electric propulsion is a great response to the need for green energy alternatives and battling climate collapse. Electric propulsion is being built into short-haul aircraft for cargo and medical supplies delivery, urban air mobility vehicles for human transport and even into supersonic air travel.

In this third episode of a five-part series we're calling "eVTOL Power Density and Thermal Management," we'll be addressing power density and thermal management of an eVTOL aircraft. You'll learn the benefits and challenges of using electrical systems, how companies go about solving those challenges and how Siemens is contributing to the digitalization of this space through the Xcelerator portfolio.

In this episode, you'll learn:

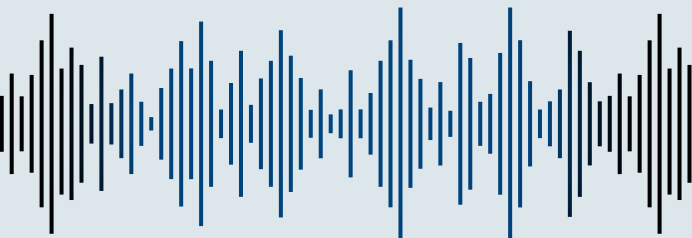
-  The innovations happening in electric propulsion. (02:54)
-  The advantages and challenges of electrical systems. (04:03)
-  The challenges of electrical propulsion relating to eVTOL design. (05:43)
-  What needs to be considered when making electrical propulsion units viable for aviation? (10:03)
-  How to manage the heat produced by electrical propulsion units. (12:28)
-  How Siemens Xcelerator helps customers with good solutions. (15:50)



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Innovation podcast series (Ep. #4):

"eVTOL Structural Design using Composites and Additive Manufacturing"



In this episode, you'll learn:

-  The unique characteristics of eVTOL structures. (02:47)
-  eVTOL structural design challenges. (04:43)
-  The challenge of bringing additive and composite technologies together. (05:43)
-  Achieving the balance between design optimization and manufacturing constraints. (08:11)
-  The role additive manufacturing plays in eVTOL structural design. (10:05)
-  How Siemens' Xcelerator is helping customers with their digital transformation. (13:01)



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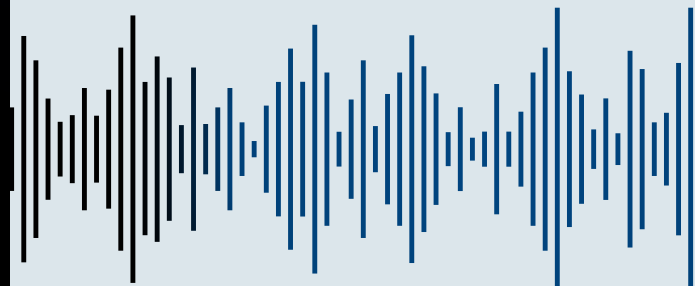


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eVTOLs learn to lighten up

The aerostructural design of an eVTOL aircraft is incredibly important. Yeah, these designs are pretty cool-looking, but considerations need to be made around managing vehicle weight and structural integrity.

In the fourth podcast of our *Innovation* podcast series, we'll be discussing eVTOL aerostructural design. This is an extremely important topic because through building with composites and employing additive manufacturing, OEMs can build with a stronger, lighter material for optimal aircraft performance. In this episode, we'll dive into composites and the role additive manufacturing plays and how the digital transformation is making all of this possible.



Innovation podcast series (Ep. #5): "eVTOL Electrical System Design and Compliance"








Lean, mean and clean – the electrical system in today's eVTOL

eVTOLs are not only electrically powered but they need an electrical system that's lean, lightweight, and efficient. They also have to be 110 percent safe – no question about it. What are manufacturers doing to ensure they meet these requirements in an efficient manner?

In the fifth and final episode of our *Innovation* podcast series, we'll explore and explain the design and manufacture of an electrical system for today's eVTOL aircraft. We'll also touch on the importance of power management and why electrical platform weight is so critical to eVTOL design. Of course, all this wouldn't be possible without a model-based engineering approach so we'll dive into model-based design and the advantages of this approach when it comes to creating an electrical system for an eVTOL aircraft.



In this episode, you'll learn:

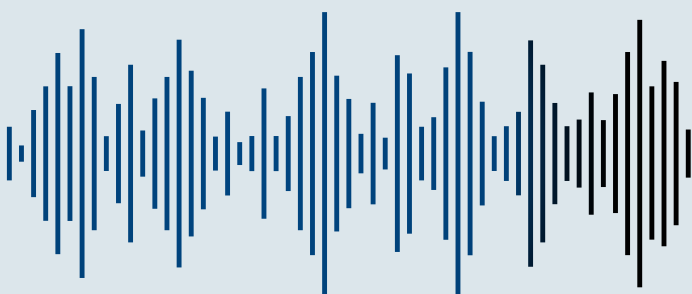
-  Dale's experience with electrical systems. (03:00)
-  What manufacturers focus on the most in the electrical system of an eVTOL (04:15)
-  The challenges with electrical systems in today's eVTOL designs. (05:03)
-  How companies are addressing the power management and platform weight of electrical system design. (05:57)
-  How model-based techniques and approaches help with getting certifications easier and faster. (08:35)
-  The benefits of using a comprehensive digital twin. (10:09)
-  How embracing the digital transformation allows teams to operate more efficiently. (12:32)



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Just announced!

Talking Aerospace Today Season 5

About Siemens Product Design and Engineering (PD&E) for Aerospace & Defense:

Undertaking a digital transformation isn't just digitization, it's about *digitalization* that includes process improvement. Aerospace and defense organizations can benefit from adopting new engineering practices to keep pace with smaller, more nimble innovative new startups. These firms will also need to consider how to affect cultural change and adopt the right tools to make this work.

Using agile methodology and the power of digitalization can help define a program plan and in turn, accelerate product development. Teams now work in a collaborative, model-based design environment combining electrical, mechanical and software disciplines to foster iterative and innovative designs-using virtual verification and manufacturing to "test" the designs.

Adopting agile engineering transforms program execution, enables companies to go faster, breaks down organizational barriers and increases effective collaboration as teams become more flexible developing innovative products.

For more information on Siemens PD&E, listen to the [podcast](#), read the [blog](#), visit [siemens.com/plm/pde](https://www.siemens.com/plm/pde) or follow us on [LinkedIn](#), and [Twitter](#).

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