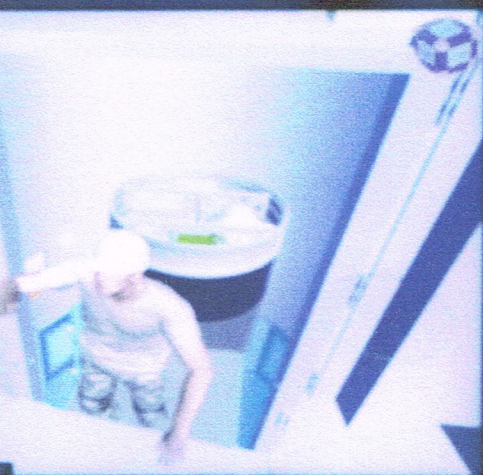


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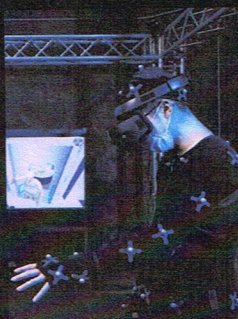
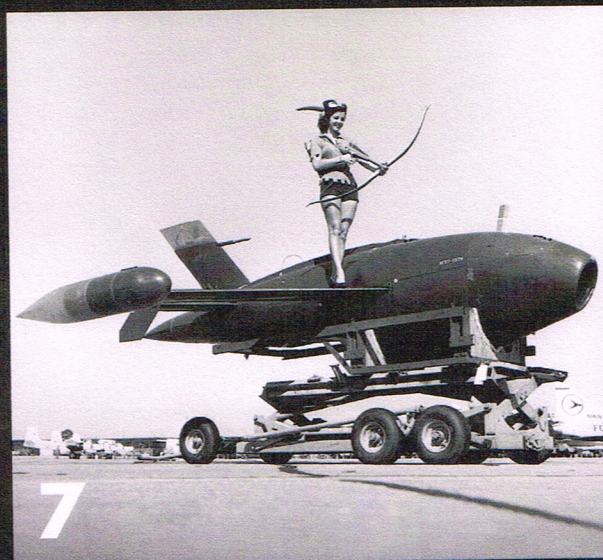
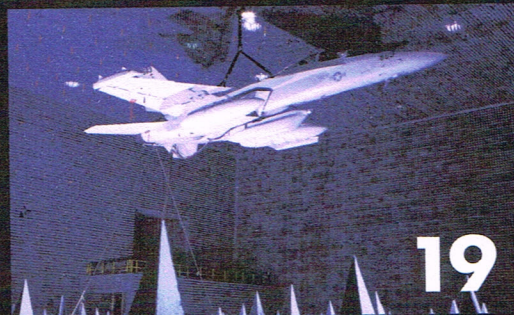
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on the cover

With the help of model-based systems engineering, virtual reality and full-body, high-precision motion capture, engineers — including Michael Addabbo and Allen Tse, pictured — can step inside their designs.



My Word

By Paul Nelson

Pioneering

DIGITAL ENGINEERING ACROSS NORTHROP GRUMMAN

My digital engineering journey began in a virtual reality (VR) lab when I was eight years old.

Back then, my father had started a company in Houston, Texas, that used digital technology to locate oil and gas resources for easier extraction. They were one of the first to use VR technologies. I remember visiting his VR labs in the '80s and being exposed for the first time to the enormous potential of using cutting-edge digital technology to amplify an industry. Those experiences steered me toward my studies in engineering and technology and are at the root of my lifelong fascination with digital engineering.

We are witnessing the biggest change to engineering since computer-aided design was introduced in the 1960s. Digital engineering, as a whole, can revitalize the way we design, deliver and collaborate across disciplines, from concept through delivery. In short, it encompasses a shift from paper-based processes, 2D drawings and siloed networks to a multi-dimensional digital world.

I joined Northrop Grumman through the company's 2018 acquisition of Orbital ATK, where I had the privilege to work with several amazing programs for just over 10 years on digital strategy efforts, including the space shuttle, Trident D5 missiles, and the Space Launch System and Orion Launch Abort programs. Today, I am the chief architect of the Northrop Grumman Integrated Digital Enterprise (NGIDE) 2.0, a cloud-based project that is digitizing and integrating product development efforts to enable model-based collaboration, data exchange and concurrent engineering.

Growing up in an entrepreneurial household, I quickly learned the importance of proactively asking, "Can we do it better?" NGIDE 2.0 is tearing down the walls of traditional product development — helping facilitate the digital transformation required by our customers by making digital tools more readily available, providing better access to actionable and reusable information and enabling the rapid stand-up of capabilities, in hours or days instead of months.

New, innovative tools and technologies are shaping the world and our everyday lives, and our employees around the globe require solutions that provide greater interoperability and enable secure interactions across the company. Through digital engineering, we are driving to a state where work can be done anywhere, anytime and on any device.

I've learned throughout my life and career to be open to new ways of doing things and to not be afraid of challenging the status quo. I feel blessed to work at a company that empowers its employees to take risks, embolden their pioneering spirit, and find more efficient ways to serve our end-users. Our customers are demanding innovation, and I am proud to be a part of a cross-sector team pioneering digital engineering across the company. **n**

* As told to Brandon Hartman