

From Concept to Reality: How Digital Engineering Powers Government

MeriTak, in partnership with GDIT, explored the evolving field of digital engineering to understand its current state, future trajectory, and implementation strategies.



Digital engineering is a holistic engineering approach that uses modeling, software, and simulation to lower costs, reduce risk, and increase design quality throughout a project life cycle¹

ABCs of Digital Engineering



Digital engineering aims to **eliminate document-driven** environments where **inefficiency** and **out-of-date** information leads to poor decision-making²



How? When digital threads connect **data from** one application to another, they remove the need for exports of information to be subject to interpretation and consumed by downstream applications³

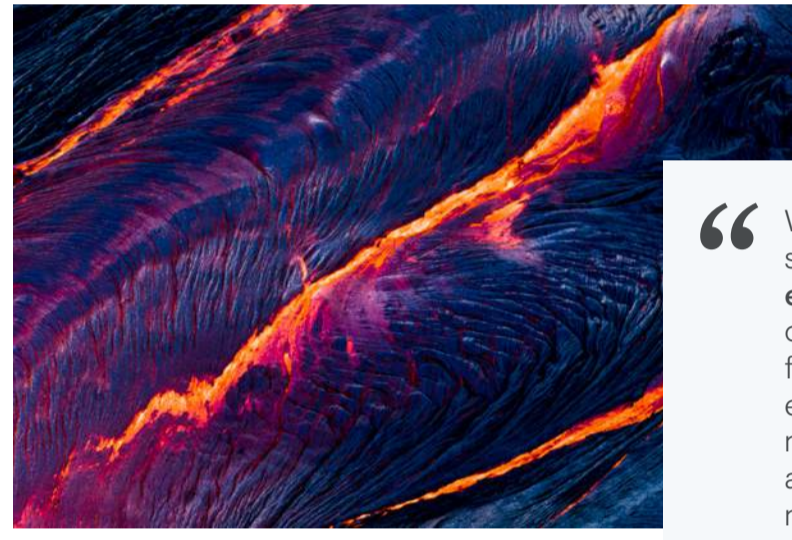
Why Now?



Recent DoD guidance requires project managers to “implement digital engineering procedures as early in program planning as possible and across the system life cycle ... to the maximum extent possible”



According to Air Force Secretary Frank Kendall, digital engineering can save about **20%** in time and money over the approaches of just a few years ago⁴



“ We have demonstrable examples showing that the cost of executing **engineering** processes goes down over time when you implement fundamentally sound digital engineering. Upfront investment is required to stand up some of this automation, but it pays for itself – and more – over time. ”

– Mike Nash, Director of Engineering, General Dynamics Information Technology (GDIT)



Just getting started: By 2026, global digital engineering spending is projected to reach **\$1.6 trillion**, doubling its 2022 spend⁵

The Digital Advantage



Digital engineering drives **collaboration** and **agility** at every phase of the engineering process, which ultimately leads to an improved end product⁶

Measurable benefits of Digital Engineering:⁷



- Increased **efficiency**
- Improved **design integrity**
- Greater **access** to data
- Increased **security**



- Reduced **risk**
- Reduced **rework**
- Reduced **cost**
- Reduced **lead time**

“ When I think about the value that digital engineering provides, it’s very much focused on improving the data decisions that we get to our leaders and having the decisions be made sooner. ”

– Daniel Hetteema, Director of Digital Engineering Modeling and Simulation, Department of Defense



Digital engineering investments in design and development will generate payoffs **throughout** the product’s life cycle⁸

Reasons to use Digital Engineering now:⁹



Data is now readily available and easier to access via modern interfaces



Requirements change at the speed of our adversaries, and we require our designs to keep the pace.



Model-based systems engineering provides more precise specifications of data than documents

Explore how GDIT Ember Digital Engineering offers a non-proprietary, standards-based, graphical, and intuitive way for teams to define and interact with digital models of their systems.

For more information, please visit: gdit.com/ember

¹ GDIT “Digital Engineering Is the Future of Modern Engineering”

² Gartner “Top Practices To Enable Digital Engineering for Government Organizations”

³ MeriTak “DoD Official Pushes for Digital Engineering as Standard Practice”

⁴ Department of Defense “DoD Instructions 5000.97 Digital Engineering”

⁵ Air and Space Forces Magazine “Kendall: Digital Engineering Was ‘Over-Hyped,’ But Can Save 20 Percent on Time and Cost”

⁶ Zinnov “The Inevitable Rise and Impact of Digital Engineering 2023”

⁷ Acquisitions Innovation Research Center “Measuring the Role of Digital Engineering: It’s a Journey, Not a Number”

⁸ DefenseTalks “Defense Talks 2023 Virtual Conference”

⁹ RAND Corporation “A Framework for Assessing the Costs and Benefits of Digital Engineering: A Systems Approach”

¹⁰ Defense Acquisitions University “Bringing Digital Engineering to the Acquisition Process”