SOLUTION SHEET

The digital twin

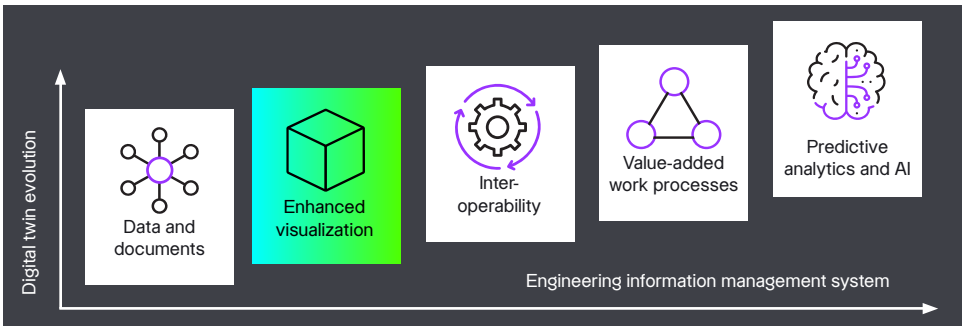
Operating without a digital twin is like driving across the country with only a paper map

Limited access to the most up-to-date information exposes inefficient enterprises to increased operational risk

IDC predicted that the digital universe would grow to an incredible 175 ZB by the year 2025! To manage this overwhelming amount of data, in the context of asset operations and maintenance, companies are investing in a digital twin solution.

Gartner defines a digital twin as "a software design pattern that represents a physical object with the objective of understanding the asset's state, responding to changes, improving business operations and adding value." For those operating in the manufacturing and process industries, quick access to the most up-to-date information in a digital twin from the plant floor to the boardroom enables better decision-making, improved business processes, enhanced productivity and reduced operational risk.

Octave provides integrated solutions for the project twin and the operational twin to help companies maximize these digital twin benefits and achieve situation awareness. The overall digital twin is the glue that connects these enterprise solutions and their data on one platform, enabling the "single version of the truth" concept. To prevent barriers to adoption, a digital twin can be built gradually using Octave solutions in different stages. The extent of digital twin maturity required is based on an organization's digitalization level.



Connect

A digital twin is a dynamic digital depiction comprised of physical entity information. It is the single version of truth unique to a user's perspective for a point in the lifecycle with many digital levels.

Think

Data is diffused seamlessly between the digital depiction and physical entity to enable co-existence. Then advanced technologies bring data, algorithms and context together.

Do

With this comes understanding, prediction and optimization for the physical entity to drive improved business outcomes.

Companies in the manufacturing and process industries are at various stages of digital maturity. Octave understands this and provides digital twin solutions for all digital maturity stages across the asset lifecycle.

The **first stage** of a digital twin starts with a basic set of structured data and documents defining the facility configuration, designed by engineering teams in the project twin. This is an excellent start for companies near the beginning of their digital transformation roadmap, empowering better decision-making from more intelligent data and improving engineering-to-operations handover processes.

The **second stage** of connecting this intelligent data to 2D schematics, 3D models or laser scans allows for more intuitive viewing and navigation. It begins to unlock the benefits of weaving engineering, operations and maintenance information in an operational twin.

The **third stage** further enhances the operational twin with increased interoperability by exchanging information and providing links to other information sources in the operations landscape, such as asset performance, data historian, maintenance management and real-time data solutions.

The **fourth stage** is where the major digital transformation business benefits are realized, as the asset owners and operators can leverage a digital twin to manage value added work processes, such as human procedures, inspections, integrated safe systems of work and management of change. This ongoing stage of value addition can also include advanced analytics, artificial intelligence, machine learning and predictive and prescriptive analytics to reduce downtime.

When a comprehensive digital twin is deployed, the associated data needs to be efficiently dissected to understand it and transform it into actionable information. Optimized situation awareness allows personnel to clearly see what's happened, what's happening, what could happen, what should happen and what's scheduled to happen in a high-level operational dashboard that includes all the visual elements of a digital twin.

Overall, the goal of any digital twin is to increase asset efficiency and offer a digital representation of current and historic plant configurations, along with related performance information. Enlightened, data-driven decision-making becomes the norm, and the easy sharing of digital twin data with multiple departments increases collaboration and reduces operational risk. Octave solutions help people design, build, operate and protect industrial assets. The project twin and operational twin allow asset owners and operators to build and maintain a digital twin ecosystem throughout the asset lifecycle, with optimized situation awareness and a continuous journey of operational excellence.

Unite operations and maintenance, safety, engineering and real-time data with a digital twin!

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.