CASE STUDY

Meptagon chooses Octave's Forte 3DWorx solution to digitalize project delivery

Key facts:

Company: Meptagon

Website: www.meptagon.com

Industry: Engineering Services (EPCs)

Country: Israel

Octave products used: Forte 3DWorx *(CADWorx Plant Professional),* Facets P&IDWorx *(CADWorx P&ID),* Leica BLK360, Imaging Laser Scanner

Key benefits:

- Significant time and cost savings by accelerating project schedules and delivery
- Improved quality of deliverables
- Simple-to-use tools allow process engineers to be more productive, sooner and more effectively

Identifying goals

Meptagon is an Engineering, Procurement, Fabrication and Construction (EPFC) company, designing, fabricating and installing complex plants for its customers.

As the engineering unit matured, there was a need to include more data alongside technical drawings to assist with fabrication and installation. This was in line with the company's holistic approach to digital transformation, with the goal of an end-to-end integrated process that would eliminate use of Excel and unintelligent drawings wherever possible. By eliminating siloes of data between engineering, design and fabrication, Meptagon would also be able to improve work processes, saving time.

Digitization would improve Meptagon's efficiency and reduce project engineering, design and execution costs. Using more effective design tools would also increase the accuracy of deliverables for pre-fabrication, avoiding the need for on-site work and costly re-work.

Meptagon wanted a solution that would provide benefits not only to its own business, but also for their customers.

The ideal solution it sought would enable parallel work so that all stakeholders involved would become more efficient and productive in how they could execute projects, enabling plants to be built more quickly, helping to accelerate the



customer's time to market. This, in turn, would contribute to Meptagon's competitiveness in the market.

These goals were put to the test when Meptagon was contracted to help build a new mega fabrication plant for a major semiconductor manufacturer in Israel.

Overcoming challenges

The new mega fabrication plant includes multiple different manufacturing processes executed by specialized automated machine tools. Each tool is roughly the size of a double-decker bus, and the install locations for the tools vary across the facility. A major challenge to consider during design was that several tools needed to be lowered into openings in the floor, six meters above the sub-floor. Once in place, each tool is then connected to hundreds of precision-engineered water, electrical, vacuum, air, gas and liquids inlets and outlets.

"Precision is imperative when working in clean room environments. By creating 3D designs in Forte 3DWorx, the intelligent 3D models enable fabrication off-site, simplifying the rest of the project and allowing us to complete construction faster – helping our customers to reach profitability sooner."

Eyal Leshem
Vice President Systems & Engineering Meptagon

During previous projects, Meptagon would install the new piping onsite only after the tool was in place. Piping had to be laid under the machine, which was both difficult and time-consuming because of limited space, working at heights of 6 meters (approximately 20 feet) under the manufacturing floor and due to the stringent clean room conditions of the site. Because of these circumstances, work at site needed to be minimized wherever and whenever possible. Any contamination of the manufacturing environment had to be avoided at all cost, so that production of the microchips was unaffected. Cleanroom conditions are also notoriously cramped, often with only a few centimeters space between pipes, ducts and raceways. This demanded greater as-built recording and more accurate design.

Meptagon adopted a new approach for the project. Forte 3DWorx was used to accelerate the design process and increase the accuracy of deliverables. By improving its design process, Meptagon was able to reduce, and in some cases avoid expensive on-site work thereby shorten the overall project schedule.

Improved design and deliverables from Forte 3DWorx meant more work could be completed in their pre-fabrication workshop, where it was also possible to better control the environment, which is essential for the pre-fabrication of high-purity pipe work. In-shop work is much more efficient and lowers costs significantly. Ultimately, Meptagon was able to reduce time spent in the field while also reducing risk of contamination of the clean manufacturing environment.

On-site performing installations made pre-fabrication even more vital. Social distancing requirements meant Meptagon had to minimize the time workers spent on-site performing installations. Flexible cloud-based licensing used to administer access to Forte 3DWorx allowed designers and engineers to work from home and share documentation via cloud platforms, enabling collaboration by their design teams in different countries.

Fabrication continued at the Meptagon shop and site visits were shortened to perform quick installations. Being used to minimizing time spent on site and having digital access to tools and data proved useful way.



Improved design and deliverables from Forte 3DWorx meant more work could be completed in their pre-fabrication workshop.

Improved design and deliverables from Forte 3DWorx meant more work could be completed in their pre-fabrication workshop. restrictions. The ability to design and fabricate remotely was critical to preparing the necessary pipework for rapid installation, even as the tool itself was being fabricated still off-site.

This precise, accurate modeling and fabrication ensured that the piping was already in place by the time the tool arrived onsite. Once lowered into place, it is simply a matter of joining the piping and valves.

Realizing results

Using Forte 3DWorx has been a game-changer. By shifting away from fabrication on-site, Meptagon has reduced workforce requirements by 75% for clean-room environments. The ability to accurately model every aspect of the plant prior to construction also helps to significantly shorten the project schedule – because there is no need to wait for the tools to arrive, piping and electrical installation is ready to be connected as soon as the tool arrives on-site.

The client also receives benefits from better design reviews and decision-making because they can see the project and problems in an accurate 3D rendering.

Deliverables can be reviewed, amended, and agreed in advance, avoiding errors, helping to simplify overall project delivery. Octave's solutions enable viewing the models with augmented reality (AR) goggles for simulated walk-throughs.



The ability to accurately model every aspect of the plant prior to construction and avoid fabrication on site helps Meptagon to significantly shorten project schedules.

Meptagon combines the use of Forte 3DWorx tools with Octave's Geosystems' laser scanning hardware. In case of brownfield projects, a laser scan of the complete facility can be quickly performed, with 3D models and and P&ID diagrams easily be validated against the laser scans.

Meptagon's ERP systems automatically receives a BOM (a bill of materials) from Forte 3DWorx to be used for procurement. Transportation of piping, fittings, electrical and other components between countries can take a lot of time and be expensive. When the design quality is good,

Meptagon can order the exact quantities of parts required, safe in the knowledge that they will not only receive what they need in the correct quantities, but at an economical price. In case of incorrect information in the MTO planning, ordering missed valves or equipment after the initial fabrication run can add significant costs and delays. The new 3D designs used by the fabrication and engineering teams means that made-to-order fabrication is very accurate, enabling project costs to be better controlled.

Octave's OnSite Spool Design software is also used to automate fabrication spool drawing creation and BoMs from the Forte 3DWorx models.

Meptagon considered different solutions before selecting Forte 3DWorx, and even used another CAD-based plant design product, but ultimately decided that the faster workflows in Forte 3DWorx, and the superior quality of isometric drawings, were game changers for them. It has subsequently migrated most of its design activities to the orte 3DWorx Design Suite.

Moving forward

With the ability to plan and execute piping fabrication in parallel to the owner operator's tooling installation, Meptagon can significantly accelerate construction projects for its clients. Digitized designs also offer the potential to work with third parties, allowing Meptagon to participate in more projects simultaneously, boosting its revenue and competitiveness.

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.

©2026 Octave Intelligence plc and/or affiliates. All rights reserved.