BuildingPoint
OHIO VALLEY
www.buildingpointohiovalley.com

Customer Story

# Vito's Virtual Viability: Mixed Reality Tools Bolsters Deep-Water Maintenance and Operations

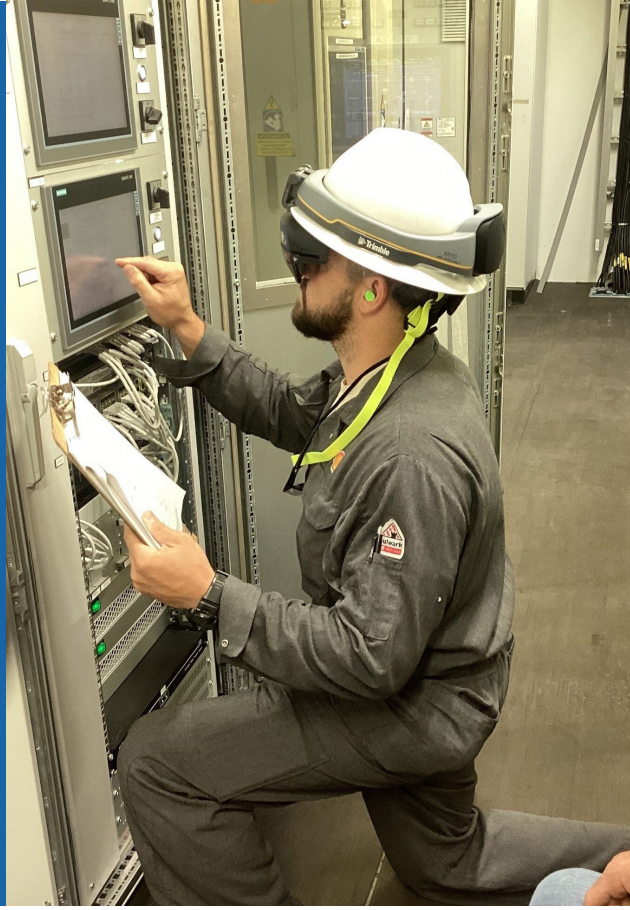
Trimble XR10 with HoloLens2

Trimble

# About Vito: Light & Modern

Vito is Shell's 13th deep-water host in the Gulf of Mexico. The original host design was rescoped and simplified, resulting in a reduction of approximately 80% in CO2 emissions over the lifetime of the facility as well as a cost reduction of more than 70% from the original host concept.

Vito also serves as the design standard for Shell's Whale project that will feature a 99% replication of the Vito hull and 80% of Vito's topsides.



The Vito floating production facility, located in the Gulf of Mexico, is Shell's first deep-water platform in the region that employs a simplified, cost-efficient host design—with a virtual edge.

It is a four-column semi-submersible host facility with eight 9,400-meter subsea wells with 5,500-meters deep in-well, gas lift, and associated subsea flowlines and equipment. The estimated peak production of the platform is 100,000 barrels of oil equivalent (boe) per day.

Vito's advanced hull design requires less maintenance, thus cutting operating expenses while its innovative mooring design requires less equipment and capital investment, which minimizes maintenance-related safety exposures to operators. It's also less expensive to operate, which translates to fewer people physically housed on the platform.

With a smaller crew, Shell recognized that it would need to be able to do more with less—and mixed reality offered a potentially ideal solution.

Shell's Gulf of Mexico Information and Digital Technology (IDT) team searched for answers. This team drives digital transformation initiatives through Shell's Digital Worker program, with an emphasis on offshore platforms. The initiatives include the deployment of mixed reality, digital twins, IoT remote sensing and other solutions to facilitate the digitalization across Shell's deepwater offshore assets.

According to Patrick Garrison, lead IT advisor for Shell's Gulf of Mexico IDT team, "We see mixed reality systems as a key opportunity to help us rethink and transform the way that we operate on an offshore facility."

It's a technology that has captured the attention of field operators and managers alike.

> Essentially, the ability to rapidly find and fix problems helped teams learn faster.

## On Land and At Sea

In late 2022, Garrison and his team began testing digitally enhanced hardhats, specifically the Trimble XR10 with HoloLens 2 and Microsoft Remote Assist, to support maintenance and operations.

The first proof-of-concept of the XR10 began on the construction yard in Ingleside, Texas, where the new semi-submersible platform underwent pre-production inspections before it was moved into the Gulf of Mexico.

The technology-enabled hardhat allows wearers to overlay design models with as-built conditions while leveraging remote workflows for improved collaboration. Shell crews found that they were able to connect with team members with the simple touch of a button. They could share their screen or send files as needed.

Garrison confirmed, "These early demonstrations generated a lot of excitement. The solution is extremely user friendly compared to some of the other technologies that we have worked with in the past. We had some good use cases in Ingleside, but the value of the virtual collaboration solution really took off when we moved the platform to its current position, 120 miles south of New Orleans."

The challenge with working on an offshore platform is space and personnel—in the case of Vito, a considerably smaller offshore team. "The team immediately took to the HoloLens," added Garrison, "in some anticipated and surprising ways."

## Remote Rewards

One of the earliest benefits of the mixed reality collaboration tool came about during the platform system checks. Ordinarily, Shell would send a specialized vendor to the offshore platform to conduct inspections, adjustments, or repairs - a costly endeavor.

Instead, Shell's mechanics and electricians can use mixed reality to virtually coordinate with these specialists.

More recently, U.S. regulators have been talking to Shell about the possibility of virtual inspections. Garrison added, "We see these mixed reality devices as a key piece of technology to help facilitate these virtual types of inspections for where it makes sense for various other offsite facilities across the industry."

When asked about ROI, Garrison noted that the XR10 has been extremely cost effective. "We can bring one or two units to an offshore facility as opposed to multiple tablets or handheld devices. It quickly pays for itself."

The XR10 with HoloLens 2 was featured on this episode of MythBusters by Kari Byron.

**Trimble Building Construction Field Systems**
10368 Westmoor Drive
Westminster CO 80021 USA
fieldtech@construction.trimble.com