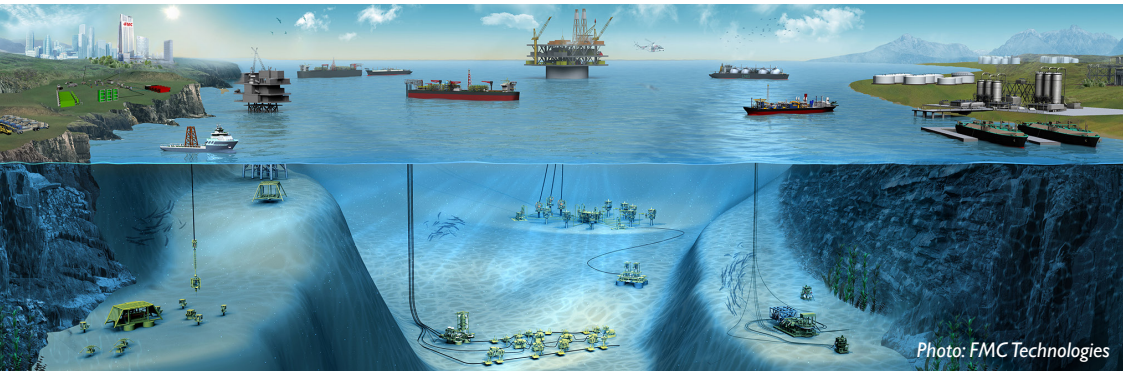


## *Customer Success Story*



# *FMC Technologies*

*Westermo switches provide mission  
critical reliability below the oceans*



# Westermo switches provide mission critical reliability below the oceans

Extracting oil and gas from subsea reservoirs is very challenging and requires sophisticated technology to ensure safe and efficient production. Subsea systems are constantly being developed and improved, and as a result, the boundaries of which reservoirs are considered economically unviable or inaccessible are continually changing. Improving data communications are playing an important role, providing operators with increased production, equipment health, and safety information, to ensure efficient and safe operation.

FMC Technologies is a global leader in the energy industry, providing subsea systems for oil and gas extraction and processing on the sea floor. FMC Technologies equipment can be installed as deep as 3000 metres, which makes access very difficult. Any equipment downtime or failures would result in difficult and costly maintenance and significant economic losses due to potential lost production. It is therefore extremely important that all the components of a subsea system offer the very highest levels of reliability and longest mean time between failures.

FMC Technologies can offer communication system uptime just below 100%, but is continually developing and improving its systems to further increase performance and reliability. The data communication solutions that support the subsea systems have been a specific area of opportunity. The latest communication technologies available present an opportunity to improve both reliability and performance, and FMC Technologies were keen to take advantage of this.



For example, FMC Technologies has deployed industrial Ethernet switches to handle a range of data from subsea trees. Subsea trees are used to monitor and control the production of subsea wells and are a central part of the production system. In simple terms, they are big valves installed directly on top of the oil well downhole that controls the flow, pressure and other variables in the extraction process.

When sourcing new data communications devices for its subsea trees, FMC Technologies required highly reliable devices that offer very long life cycles of up to 30 years. It was also important to find a partner that could demonstrate a track record of providing data communication solutions for critical industrial applications, and also offer future proof solutions.

"Reliability and operational uptime are extremely important in these types of installations and it is critical that the data communications technology we deploy supports these requirements," explains Bjørn Haavengen, Global R&D Manager in CDM at FMC Technologies. "When looking for new technology we needed a company that has a clear vision of future communications solutions and extensive experience in critical applications."

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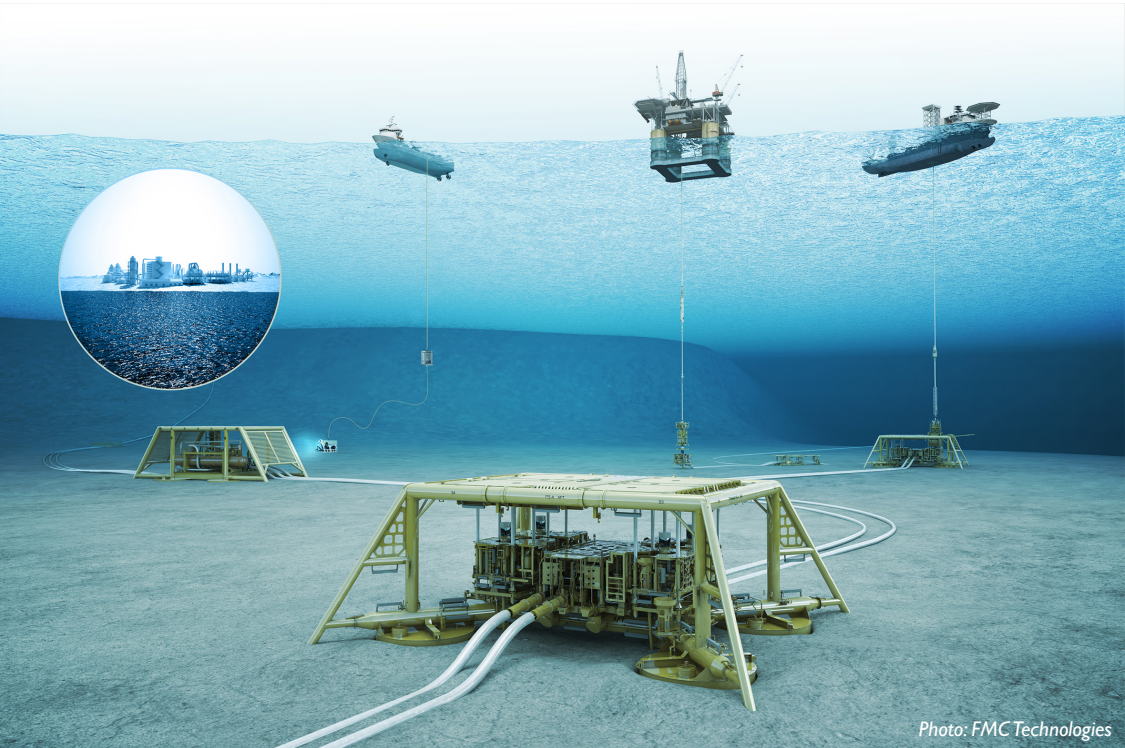
Faced with these demanding challenges FMC Technologies turned to Westermo for support. With Westermo products providing a communication infrastructure for control and monitoring systems, typically used in mission critical solutions where commercial grade products are not sufficiently resilient, it was perfectly positioned to meet these needs.

Westermo has a similar philosophy to FMC Technologies, in that it aims to develop, manufacture and sell more than just a product - it is able to provide a complete solution for complex and demanding environments. Using only the highest quality components and avoiding the use of electrolytic capacitors, relays, fans and batteries wherever possible (as they typically reduce MTBF) Westermo has developed the most reliable Ethernet switches on the market, providing industry leading MTBF (Meantime Between Failures) figures exceeding 500,000 hours.

FMC Technologies was encouraged to visit and inspect the processes and methods used in Westermo development and manufacturing. "Westermo's state-of-the-art industrial electronics manufacturing facility in Sweden is very impressive," continued Bjørn. "The stringent production and quality procedures mean that products are tested at many stages of the manufacturing process – ensuring maximum product reliability."

*"Westermo's state-of-the-art industrial electronics manufacturing facility in Sweden is very impressive"*

## Customer Success Story



The Westermo Ethernet switch is the main data communication device in FMC Technologies' subsea trees and is based on its popular Lynx range of managed switches. Constant and reliable communications is critical and the Westermo Ethernet switches are used to transmit a wide range of critical data including temperature, pressure and flow. The switches are installed in an electronics and communications pod which sits inside the subsea tree. The pod is used to accommodate a number of electronic devices and provides a controlled environment.

"The cooperation between FMC Technologies and Westermo has worked well and has provided solutions to difficult challenges," said Jan-Helge Kupaen, Project Manager at FMC Technologies. "Being able to rely on each supplier is critical to the success of these projects, especially in crucial areas such as the communication with the equipment on the sea floor."

As a result of the cooperation between the two companies, FMC Technologies subsea trees incorporating the Westermo switches are now being deployed in oil and gas projects around the world.

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