



## Background Information

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Across industries such as oil & gas, mining, petrochemicals, power distribution and water/wastewater, many operating companies have multiple production facilities that are geographically spread out over vast distances. Optimal overall production and productivity is hard enough to achieve on a single asset level, but interdependencies between remote processes and facilities complicate things even further.

Experience has shown that a comprehensive remote operations management solution enables industrial organizations to respond faster to market conditions, increase efficiency, reduce downtime, and achieve higher production availability. It also minimizes the costs and risks associated with remote site visits—enabling fewer core personnel to meet the operational requirements of numerous facilities from a single secure location.

In June 2007, the Fieldbus Foundation, a not-for-profit industry consortium consisting of the world's leading suppliers and end users of plant automation equipment, launched its FOUNDATION for Remote Operations Management™ initiative. This technology will advance the utilization of an open, interoperable fieldbus automation infrastructure incorporating wired and wireless High Speed Ethernet (HSE), integration of wired and wireless sensor networks, and industrial wireless applications.

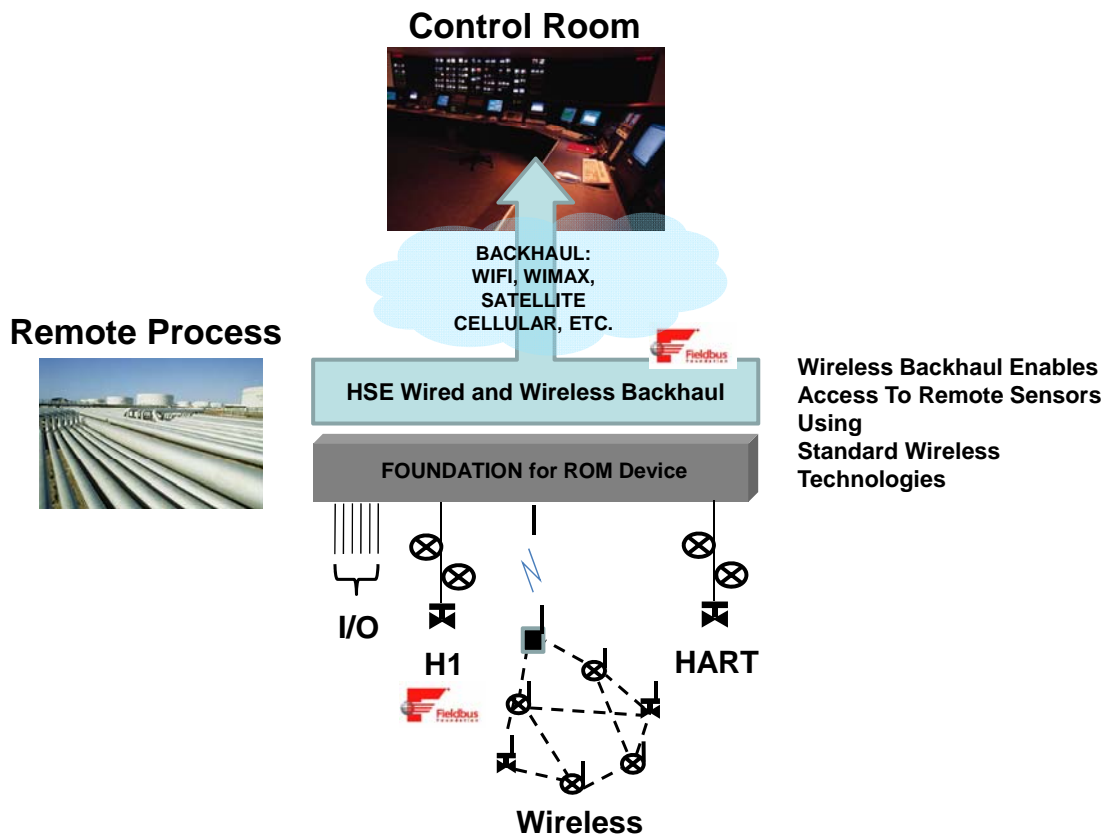
The combination of FOUNDATION fieldbus, advanced diagnostics, and industry-standard technologies for the application of wireless will provide a solution for many users to significantly improve their remote operations capabilities.

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### Path of Development

The FOUNDATION for Remote Operations Management development is part of the Fieldbus Foundation's continuing initiative to design and deploy an infrastructure that will accommodate evolving wireless standards inclusive of *WirelessHART*<sup>®</sup> and ISA100.11a. FOUNDATION for Remote Operations Management provides an interface to both technologies and uses Electronic Device Description Language (EDDL) and function blocks to ensure interoperability with other FOUNDATION for ROM devices.

Within the FOUNDATION automation architecture, H1 (31.25 kbit/s) and HSE (100 Mbit/s) provide a distributed function block capability with HSE serving as a larger pipeline with increased speed and throughput. The FOUNDATION for Remote Operations Management solution expands these capabilities by establishing open, non-proprietary specifications for an interface to wireless field device networks, a wired HSE backhaul, and a wireless HSE backhaul integrating various wireless sensor networks. As part of this solution, FOUNDATION for Remote Operations Management provides an efficient way to bring large concentrations of discrete and analog field I/O back to the control room using HSE communication.



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### Advantages for End Users

FOUNDATION for Remote Operations Management promises to change the world of remote operations management for pipeline supervisory control and data acquisition (SCADA), tank farms and terminals, offshore platforms, and water/wastewater facilities. Advanced knowledge of the process is required to operate sophisticated processes in an exclusively remote fashion, and the increased level of process and diagnostic information from fieldbus-compatible devices allows users to make intelligent decisions about the process and then act on them. This solution is key to improved integration of critical functional areas, including machinery health monitoring, safety interlocks, fire & gas detection systems, and video surveillance.

Enabling the use of FOUNDATION fieldbus-based devices in remote applications marks a step change in the visibility industrial organizations have into their operations. Remote diagnostics via FOUNDATION fieldbus provides significant improvement in labor costs by avoiding the need to send maintenance personnel on unnecessary trips to the field to check or diagnose problems with instrumentation without the benefit of remote diagnostic data. In the oil & gas industry, for example, the use of FOUNDATION fieldbus and the remote access to devices it affords can reduce the exposure and risk operations personnel face in the hazardous environment of an offshore platform.

Access to high-quality process and equipment health data ultimately increases a user's profitability by minimizing downtime and increasing production, which results from well-informed operational, maintenance, and management decisions.

### Successful Project Results

At a validation team meeting in November 2010 at the Fieldbus Foundation's facility in Austin, Texas, the first FOUNDATION for Remote Operations Management device interconnecting *WirelessHART* devices to a wireless HSE backhaul network was tested successfully. The *WirelessHART* process parameters were mapped into transducer blocks according to the specification, and communicated over the wireless backhaul network using the HSE protocol.

As part of the proof of concept testing for the FOUNDATION for Remote Operations Management technical specifications, the Fieldbus Foundation's Interoperability Test Kit (ITK) system tested FOUNDATION for Remote Operations Management devices over a 300 Mbit/s wireless Wi-Fi backhaul network.

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