



mobile made easy.

Hewlett-Packard

**SYCLO SOLUTIONS
IMPROVE ASSET LIFE
RELIABILITY BY
47% AND REDUCE
MAINTENANCE
COSTS BY 25%.**

QUICK FACTS

Paperless data entry allows tradesmen to focus on more productive work.

With the elimination of work-order backlogs, supervisors use their time more efficiently.

Timely, accurate data improve asset tracking.

Better data access increases asset reliability and lowers maintenance costs.

HP's Corvallis, Ore., plant uses Syclo's SMART hand-held solution to improve maintenance productivity and data management.

Challenge:

After a period of significant growth, Hewlett-Packard needed a system to control costs, extend asset life and better manage its support staff. For years, the company's inkjet manufacturing plant in Corvallis, Ore., had focused on meeting consumer demand, but maintenance efficiency and productivity had eventually begun to suffer.

Solution:

To improve plant infrastructure support, HP deployed Syclo's SMART hand-held computing solution as an integral part of its new total productive maintenance program. The SMART solution eliminated paperwork, allowing tradesmen to save an average of 43 minutes a day — the equivalent of adding five technicians each day.

HP Corvallis

The strong demand for HP's personal computers, printers, high-tech health-care instruments and other products has made the company not just a leader in the computing industry, but one of the country's most successful corporations. HP's inkjet manufacturing plant in Corvallis, Ore., has played a key role in that growth. The booming demand, however, raised significant challenges for plant infrastructure support, particularly for the 45 facilities technicians at the Corvallis site.

As the Corvallis plant expanded rapidly with HP's success, the plant's management team in May 1998 moved to develop a total productive maintenance (TPM) program to handle the additional work and focus on plant asset management. The TPM program would rely on more accurate and timely data to keep the plant running at peak performance and minimize downtime from system and equipment maintenance. But because of the plant's quick growth and increasing age, the



The Corvallis plant is the production home of the HP inkjet cartridges.

TPM program began well behind the curve of a world-class maintenance program.

"Our vision was that improved maintenance practices would measurably contribute to reduced costs and better quality of the finished product," said Thomas J. Woginrich, the plant's maintenance and reliability program manager. "Our goal was to become an organization continually

learning about itself, its customers and its customers' needs."

HP had selected a computerized maintenance management system (CMMS) to improve operations, but the plant still suffered from work-order backlogs and inefficiencies due to its reliance on paper work orders. To help build the TPM program and confront these productivity issues, Woginrich and Corvallis management turned to SMART for Maintenance, a hand-held computing solution developed by Barrington, Ill.-based Syclo. The SMART solution allows technicians to use HP's own Jornada Windows CE-based hand-held computers as their electronic clipboard, automating every aspect of data collection and dissemination while providing technicians with real-time information from the CMMS.



"With Syclo's help, we have fulfilled our commitment to becoming agile and mobile in proactively meeting the challenges of our ever-changing business environment."

*Thomas J. Woginrich,
Maintenance and Reliability
Program Manager*

The decision to deploy SMART as part of the TPM program came after years of staggering growth at the Corvallis site. In just six years, the plant expanded from four to 11 buildings, covering 2.1 million square feet. But the plant's focus was on maintaining manufacturing production throughout the growth, not on cost-competitive maintenance procedures or lifecycle management of plant assets. Corvallis was using its CMMS for project management, not the true purpose of the CMMS.

HP realized its paper-based maintenance system was slowing productivity by making inefficient use of its skilled technicians' time. Tradesmen were spending valuable hours handling work orders and data entry. To combat growing work-order backlogs, HP upgraded its CMMS and rebuilt its workflow processes. Then HP deployed SMART and used its support for Ethernet communication to synchronize the connection to the HP network. Technicians are required to transmit completed work information from the hand-held twice



Asset life reliability is up 47%, while maintenance costs are down 25%.

per day — which immediately updates the CMMS — and then receive any new assignments or changes. With SMART's offline capability, technicians are able to interact with their CMMS system on an untethered basis, delivering truly mobile access for complete automation of maintenance processes.

SMART's rapid deployment and easy-to-use technology helped the Corvallis plant meet its TPM goals, realizing swift productivity gains by giving HP's technicians more wrench time. Tradesmen benefited from immediate access to critical data to handle both critical-response tasks and preventive maintenance. After implementing SMART, each of the plant's technicians is saving an average of 43 minutes per day — the equivalent of adding five technicians each day. Those savings have led to the elimination of mounting work-order backlogs.

SMART also has helped HP eliminate the inevitable errors that accompany paper-based work-order systems, allowing the company to keep more accurate records on its parts and inventories. With the success of its TPM initiative, asset life reliability at the Corvallis plant has increased by 47 percent (see Figure 1), while costs associated with operations and maintenance of the plant infrastructure dropped by 25 percent (see Figure 2). In addition, support staff who once handled paper work orders were reassigned to more productive administrative functions.

Woginrich noted that Syclo's flexible, collaborative approach to providing HP with a strong maintenance management solution was crucial to the success of its new TPM program. SMART is powered by Syclo's Agentry™ technology — the premier tool for linking mobile computing devices to enterprise systems — which allows Syclo to work with each client to tailor the solution to best fit its specific needs.

"Syclo was focused on developing the right solution for our situation," Woginrich said. "With Syclo's help, we have fulfilled our commitment to becoming agile and mobile in proactively meeting the challenges of our ever-changing business environment."

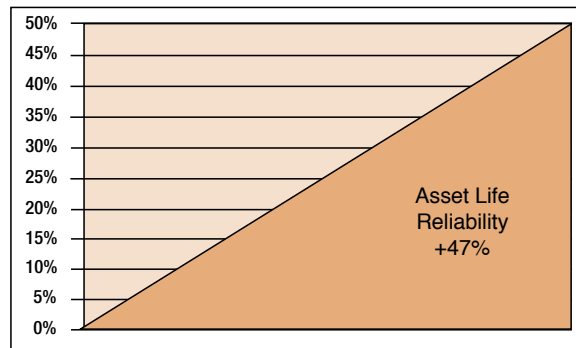


Figure 1
With SMART, Asset Life Reliability rose 47%

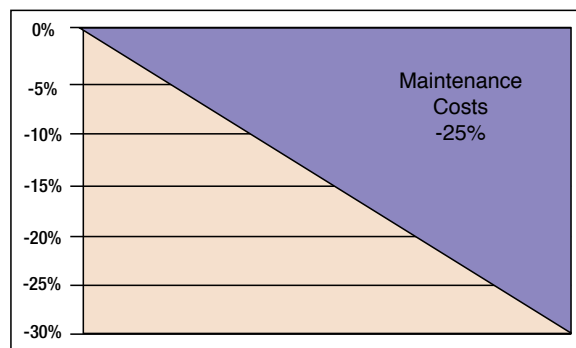
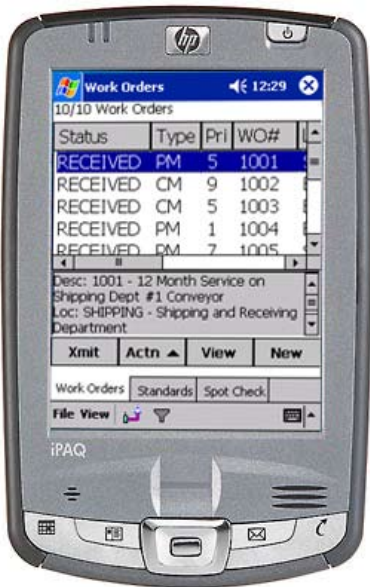


Figure 2
SMART helped maintenance costs go down 25%

IMPROVED EFFICIENCY

By virtually eliminating paperwork, each tradesman is saving an average of 43 minutes per day — the equivalent of adding five technicians each day.



Use mobile devices to generate work orders and check their status from the field.

PRODUCTS IMPLEMENTED

SMART Work Manager

Boost productivity and improve on-the-job performance by connecting mobile employees with the critical data they need to better manage work and service requests.

Agentry Platform

Design, deploy and manage the entire lifecycle of mobile projects on one software platform. Agentry shortens development times and lowers application maintenance costs while maximizing value and delivering sustained ROI.

Syclo's SMART Boosts Productivity at HP's Corvallis Plant

SMART helped HP's Corvallis plant meet its TPM goal by providing multiple productivity benefits:

- With no paperwork, each tradesman is saving an average of 43 minutes per day — the equivalent of adding five technicians each day.
- Mounting work-order backlogs have been eliminated, freeing supervisors to spend more time on the plant floor directing activities and mentoring technicians.
- Timely and more accurate data have improved tracking of parts and inventories.
- Support staffers moved from handling paper work orders to more productive administrative functions.
- Asset life reliability is up 47 percent, while maintenance costs are down 25 percent.



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