FIRST WORLD CONGRESS ON CORROSION IN THE MILITARY
Cost Reduction Strategies

Microelectronics & Process' Innovation
A Way through Costs Reduction

Grand Hotel Vesuvio - Sorrento, Italy, June 6th – 8th 2005
Key-words of this Slide Show

Automatic Identification and Data Collection
Electronic labelling
Maintenance
(Quality and Financial Implications in Managing Maintenance)
Asset inspection
Systems Integration
Starting from AIDC Techniques to get Innovation

Automatic Identification and Data Collection (AIDC) are the terms used to describe direct entry of data into a computer system, programmable logic controller (PLC) or other microprocessor-controlled device without using a keyboard. AIDC technologies provide a reliable means not only to identify but also to track items. It is possible to encode a wide range of information, from basic item or person identification to comprehensive details about the item or person.
Starting from AIDC Techniques to get Innovation

AIDC includes a number of technologies which provide different solutions to data collection problems.

Technological solutions include:

Communications, Touch Memories, Magnetic Stripe, Voice and Vision Systems, Optical Character Recognition, Biometrics, as well as others.
Starting from AIDC Techniques to get Innovation

Each of the AIDC technologies has specific advantages and features which make it better suited for some applications than others.

In many situations AIDC is key to providing highly efficient solutions for a wide range of carrier and data collection needs, particularly where there is a requirement to identify items, individuals, data, events and locations.
Starting from AIDC Techniques to get Innovation

A large number of activities can be improved by AIDC in three specific ways:

- Data entry is streamlined, automated, and inexpensive
- The information is then rapidly available in electronic form providing a more current and flexible view
- Additionally, the automated data entry provides more accurate information than is economically feasible with manual data entry
Impacting on Processes to get Costs Reduction

Impacting on processes is key to provide:

- Effective cost reduction
- Effective efficiency
- Effective, cross-specific Innovation
Technology in Processes Innovation

Manufacturers and users need an information infrastructure that gives them up-to-date, dynamic information about the value, supply and performance chain. The goal of these systems is visibility at every point.

How to get a point-to-point visibility and make quick remedial changes?

How to keep under control quality and financial implications in managing maintenance?
Technology in Processes Innovation

The SmartPoint System®

Even technology could be defined as a “shear force” support in maintenance processes’ design, the Smart Point® System experience wants to show how predictive maintenance, physical disease monitoring activities and information infrastructure have to be integrated in supporting any effective costs reduction program. Accordingly with safety legislative requirements.
Technology in Processes Innovation

The SmartPoint System®

The purpose from SmartPoint SA, Geneva, impacts on predictive maintenance management and allows integration in existing processes so to empower system and material’s performance.
The Smart Point® is an electronic labeling, automatic identification system, unique among AIDC touch memories devices
Technology in Processes Innovation

The SmartPoint System®

The heart of the Smart Point® is an extremely miniature electronic circuit that incorporates all the functions. It is enclosed in a special outer casing made of 316-L stainless steel.
Technology in Processes Innovation

The SmartPoint System® - Details

Smart Point® is composed of an EEPROM (Electrically Erasable Programmable ROM - memory). The memory can be split in a number of pages, each of which is protected with two access codes: SID (Software Identifier) and SAC (Software Access Code), 16 and 32 bits, respectively. The content of each page can be viewed by all Providers or, alternately, only by the Provider who owns the specific page. On the other hand, the page can only be modified by its owner and only if enabled for writing operations.
Technology in Processes Innovation

The SmartPoint System® - Details

Data are transferred to memory through contact with a special interface (VGL-H). This interface is a printed circuit with components installed on both sides and a "micro-controller" containing a specific program.

A proprietary communications protocol is used to access this program.
Technology in Processes Innovation

The SmartPoint System® - Flexibility

The electronics and the communications protocol commands have been simplified to the utmost, making the interface as general as possible. In this manner a system has been obtained that can be interfaced with all the hardware (PC or hand-held) and with all the operating systems and software already in use.
Technology in Processes Innovation

The SmartPoint System® - Flexibility

The system lets you keep trace of the information required for prompt, correct management and control. Moreover, since it can be interfaced with pre-existing software and hardware, these data can be transferred from the field to the center using a serial, remote, wi-fi, bluetooth or GSM/GPRS connection, depending on the distance.
The SmartPoint System® Uniqueness

- write and rewrite from 58 to 488 characters to memory
- customize the unit, from the very first use, so it can be irreversibly dedicated to a specific application for a specific user
- guarantee data privacy through use of a code selected from among 3.5 billion possible combinations
- ensure absolute reliability, preserving the data in the memory for more than 100 years (at +25°C) and up to 10 years (at +85°C)
- align field data with the corporate databases
- achieve high versatility, since it can use a full series of reading, writing and saving data devices able to cover all application requirements. In addition, systems are available to Interface Hardware and Software with standard Personal Computers for each subsequent data processing or transmission (handling)
- realize a wide range of applications, and, given its small dimensions (3.5 mm in diameter by 0.8 mm in thickness), this holds true even when space is a critical factor
The SmartPoint System® Uniqueness

- ultraviolet radiation (NIHS 96-50)
- chemicals (ISO 4538 - NIHS 96-50)
- magnetic fields (ISO 764 - 4800 A/m)
- thermal shock
- condensation (ISO 3160-2)
- salt deposits (ISO 9227)
- tropical climate (DIN 50017)
- sterilization processes
- vibrations (IEC 68-2-6)
- mechanical shocks (ISO 1413 - NIHS 91-10)
- X-rays
- pressure drops (depressurization)
- high pressures (NIHS 92-11 - ISO 6425)
- electrostatic discharges (MIL 883 - method 3015)
Processes’ Innovation at a Glance

The SmartPoint System® - Applications

Applications bear witness to the multi-sector versatility of the Smart Point® System. Naval and aerospace industries, gas and water distribution, electrical energy distribution are just a few examples.

Advantages can be reaped in the management of railway or overland transport networks, value chain maintenance, value added performance support.
Deepen Processes’ Innovation

A critical interface: asset management and quality systems

Activity monitoring introduces significant computerized interaction with the decision-making centres, but the core-question is: how can monitor in a proactive way?

This is, in the SmartPoint experience, the strategic perspective: enhance any predictive investigation tool and support diagnostic system to get efficiency and efficacy.
SmartPoint SA “Innovation Flow”

Technological Leverage → Standards and Law → Processes’ Innovation → Technological Innovation
R&D and Market co-operation

ESA Srl, a Company located in Italy, is the first and the main international partner of Smart Point SA, Geneva.

In Europe, all the applications, hardware & software solutions, are released by the ESA's technical staff, following projects from analysis to deliveries.

To deepen applications, www.esanapoli.com
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