



DATALOGIC

THE VISION IS YOURS

Industrie 4.0 and "Mark & Read"

la generazione del dato dal Manufacturing al Retail

Revisione 3

6 Settembre 2016

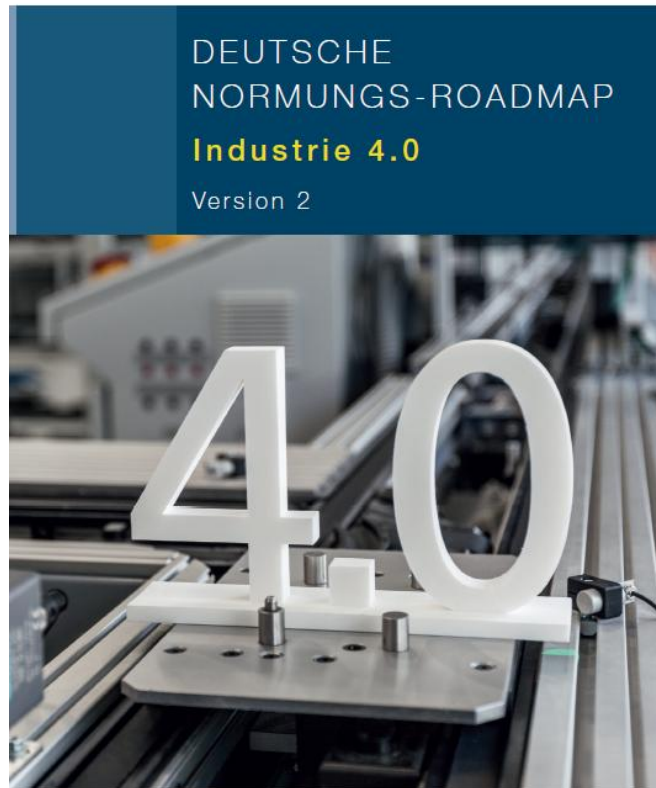
Chi è Datalogic



- Fondata nel 1972 a Bologna da Romano Volta
- Leader globale nell'Acquisizione Automatica dei Dati (ADC) e nell'Automazione Industriale (IA)
- Tra i maggiori produttori di lettori di codici a barre, computer manuali, sensori per la rilevazione, misura e sicurezza, sistemi di visione e marcatura Laser
- Focalizzata nell'industria manifatturiera, trasporto e logistica, nella distribuzione *retail* e nel medicale
- Fatturato 2015 di 535,1 M€ (73% ADC e 27% IA) in crescita del 15,2% sull'anno precedente
- 2500 dipendenti nel mondo, di cui 400 in R&S con un portafoglio di oltre 1100 brevetti internazionali
- Una presenza globale con sedi proprie in 30 paesi <http://www.datalogic.com/>

Industrie 4.0 = Standardizzazione dell'innovazione

DIN/DKE – Roadmap



DIN

DKE

VDE

*The aim of the initiative **Industrie 4.0** is to exploit the potential resulting from:*

- *the extensive use of the internet,*
- *the integration of technical processes and business processes,*
- *the digital mapping and virtualization of the real world, and*
- *the opportunity to create “smart” products*

*In order to address the **standardization** issues at an early stage, a roadmap has been compiled by the WG “Standardization Concept for Industrie 4.0” of the DKE**

*The future project Industrie 4.0 presented by the German Federal Government is intended to reflect the importance of **manufacturing** technology and the **ICT** sector which supports it [...] transforming **mechatronic systems into Cyber-Physical Systems (CPS).***

<http://www.din.de/blob/95954/42935f7a165f16e341967b8a9f91c026/aktualisierte-roadmap-i40-data.pdf>

Industry 4.0 — and What Exactly Is New?



In a statement for ACHEMA worldwide News, **Dr. Eberhard Veit**, Chairman of Festo (till 2016) and **Managing Partner of 4.0-Veit; Head of Advisory Board “Plattform Industrie 4.0 der Bundesrepublik Deutschland”**, looks into what exactly is new with Industry 4.0 in a special way.

“Not long ago I met four children (one girl and three boys) aged 6–7 that showed great interest in technology. After exchanging a few words we also touched the subject what “Industry 4.0” actually is.

I quickly explained the topics around digitization, networking, new interaction with machines (man-machine interface), the possibility of worldwide 24/7 remote access for better business deals and also new business models — at this point I was interrupted by the four children that had listened carefully up till then.

So, what exactly is new with Industry 4.0?

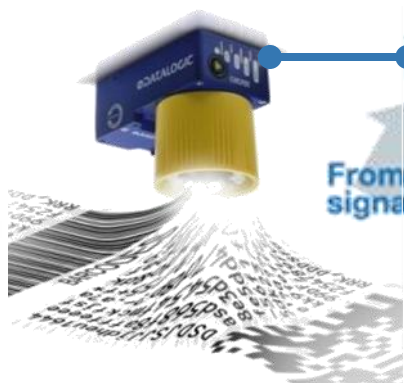
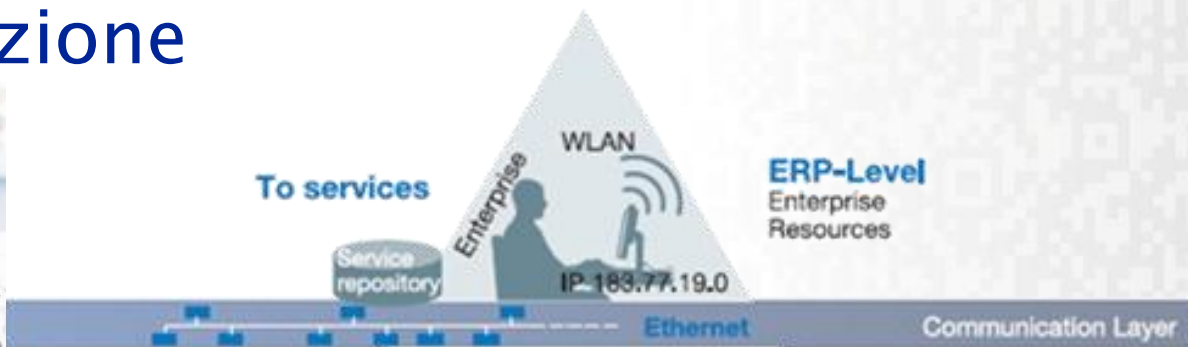
As member of the advisory board of the platform Industry 4.0 I had a hard time with argumentation which techniques are actually new, or if they simply had to be transferred to industrial production.

And now what!? — Are we really in the midst of a revolution or evolution with Industry 4.0 or are we, as the children concluded, just in a catch-up or transfer process of well-known modules?

<http://www.podcast-wirtschaft.de/industry-4-0-aid-wirk-exactly-is-it-a-52376>

maybe answers to these questions then will pass my lips easier in two years’ time!

Livelli di integrazione e strati di comunicazione



<http://machinedesign.com/sensors/plcopen-opc-ua-function-blocks-simplify-packaging-machine-communications>

Tecnologie Datalogic per la generazione del dato

| Tipologia e funzione del dato | Prodotto e tecnologia | | Interface/protocol Industrial Ethernet |
|---|--|---|---|
| Marcatura dati di prodotto o processo produttivo | Marcatori Laser |  | Ethernet TCP/IP EtherNet IP Profinet |
| Rilevazione dati di prodotto o processo produttivo | Lettori di barcode, Terminali Portatili, Sistemi di visione |  | Ethernet TCP/IP EtherNet IP Profinet |
| Scrittura e lettura dati di prodotto o processo produttivo | Lettori e TAG RFID |  | Ethernet TCP/IP |
| Rilevazione di presenza oggetti e anti-infortunistica | Sensori fotoelettrici Sensori di visione Barriere di sicurezza |  | EtherNet/IP IO-Link to Profinet Powerlink |
| Rilevazione di caratteristiche fisiche | Sensori di colore Sensori dimensionali Sensori di visione |  | EtherNet/IP EtherCAT IO-Link to Profinet |

Esempi pratici di soluzioni per la Manifattura 4.0



Dieci cose da fare a SPS Italia 2016

Fare un giro nell'Area demo Know How 4.0, Pad. 4, dopo l'ingresso in Fiera, dove le idee prendono forma e si potranno vedere 'dal vivo' alcuni progetti in atto e possibili soluzioni operative legate ai temi della 'Manifattura 4.0'.

Nell'area dimostrativa **Know how 4.0** innovazione e tradizione si legano per creare una visione 4.0 dell'automazione. Il progetto è stato curato da [Giambattista Grusso](#), Dipartimento di Elettronica Informazione e Bioingegneria del Politecnico di Milano e vuole offrire lo spunto di riflessione e aprire un dibattito sulle potenzialità del 4.0. **Un esempio?**

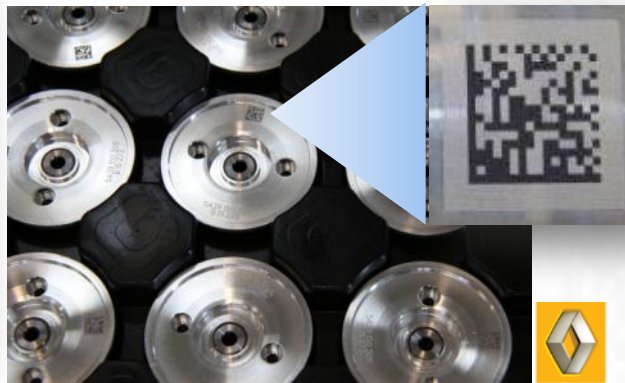
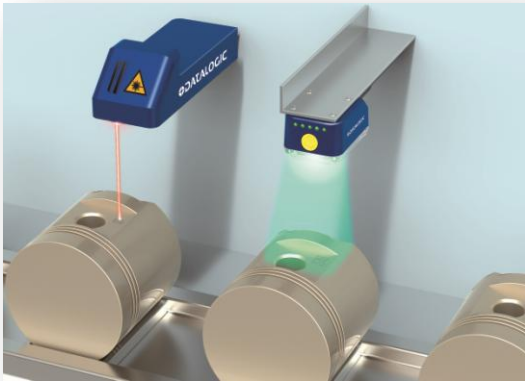


Comau, B&R e Datalogic hanno unito le rispettive competenze e mostrano in fiera una soluzione sotto il segno di Industria 4.0, che sfrutta le informazioni disponibili dai sempre più numerosi dispositivi intelligenti in campo, integrando tutte le parti dell'automazione tramite uno standard di comunicazione aperto come **Ethernet Powerlink**.

Mark & Read

Generazione e integrazione dei dati nel Manufacturing

- **Direct Part Marking** (DPM) is a process for imprinting a data on an item, replacing ink printing, labels or other less durable technologies
- **2D codes** (Datamatrix) are used in most of DPM applications and industries, such as Automotive parts manufacturing, assembling and post-sales service
- Datalogic's **AREX** compact pulsed fiber laser marking system is used to **“WRITE”** the 2D code on any plastic or metal mechanical part
- Datalogic's **T47** Smart Cameras or **Matrix 300** Imager are used to **“READ”** the Datamatrix code and transmit the information on an Ethernet port



RENAULT



OCR, Barcode e QrCode

Tracciabilità alimentare dal produttore al consumatore

- **Food safety** directives require a full **traceability** from the manufacturer to the consumer and Datalogic is the global leader for automated data capture
- **Optical Character Recognition (OCR)** has been used for human readable information of Expiry date (i.e. best before), Lot number, Production Plant
- **1D Barcode** is still the most diffused carrier for product information when it is necessary for automated data capture in manufacturing and logistics
- **Quick Response Code (QRcode)** is being more and more adopted to store information for smartphones and **JOYA** Datalogic pod for self-shopping



ESSELUNGA

Pharmacode Datamatrix

Aggregazione, serializzazione e tracciabilità del farmaco

- **Pharma** industry requires strict quality control, serialization, track and trace along the supply chain, where Datalogic is present with many applications
- One of main requirements in manufacturing control is the **Aggregation** of pharmaceutical product - instruction sheet - packaging - bundling – packing
- Many countries are adopting **Pharma Traceability** measures according to local regulations; Italy is adopting the Italian “bollino” 9 digits AIC code
- European directives about **Serialization** are driving, by 2016, Pharmacode 1D evolution to GS1 2D Datamatrix **Serial Global Traded Item No. (SGTIN)**



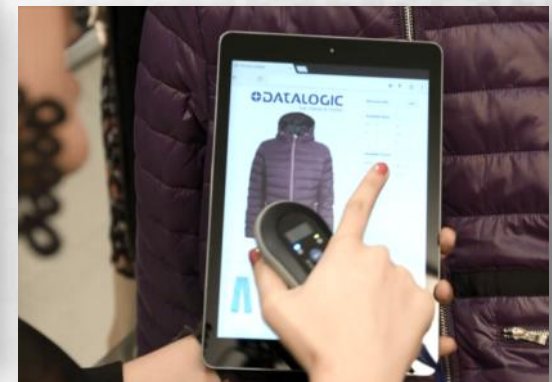
RFID

L'identificazione automatica a radio-frequenza

- **RFID is a complement to Barcode ID** and specific features differentiate the tagging solutions for tracking industrial processes and material handling in Factory Automation and Logistics, such as:
 - Harsh and dirty environment where optical reading is not possible
 - High temperature over 50...60° C, or even temperature logging
 - Write and update data to Tags during process
 - Hidden or no line-of-sight Tags
 - With Barcode for redundancy and security check
- **RFID tags can follow the goods to retail**, with additional functionalities like automatic storage and retrieval, inventory, assisted sales and safe check-out



KING
L I V I N G



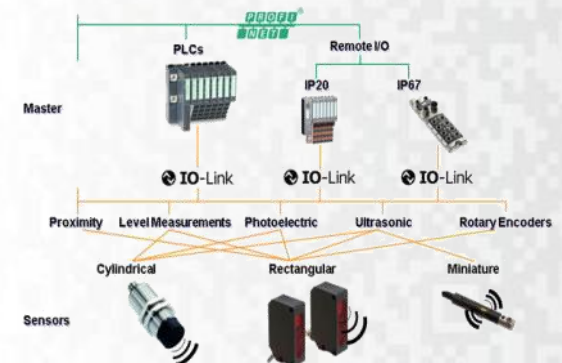
S70 IO-Link

Il collegamento dei sensori in ambiente Industry 4.0

- The new **S70** fiber optic sensor features a **model with IO-Link interface**
- **IO-Link** is the first standardized technology for **point-to-point communication** protocol, based on a standard sensor connection without any additional cabling
- **IO-Link ensures many advantages:**
 1. Easy installation (replacing parallel wiring or analog signals with IO-Link, standardized interfaces and connection);
 2. Hot swap and automated parameter setting;
 3. Expanded diagnostics (remote diagnostics, cable break detection, device-specific checks)
 4. IO-Link is the gate for Sensors to Industry 4.0 through any Industrial Ethernet network



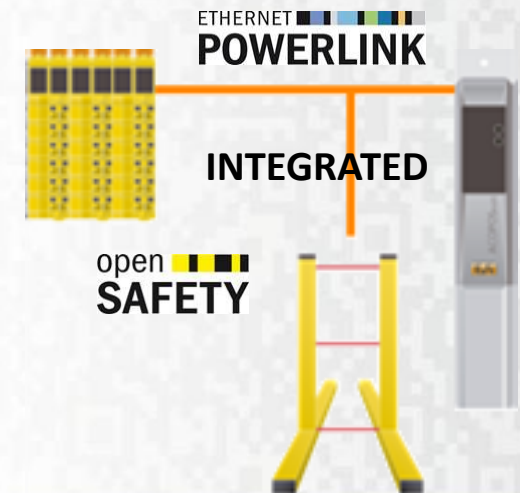
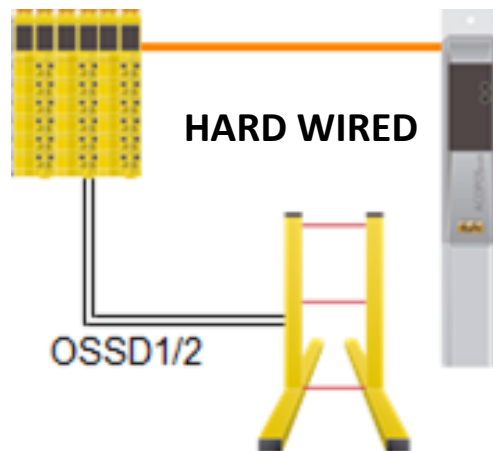
Use
IO-Link
Universal · Smart · Easy



SG4 Fieldbus

“Less is More” più sicurezza con meno collegamenti

- **SG4 Safety Light Curtains** are used in manufacturing plants to protect operators from entering to dangerous areas and **stop any dangerous machinery**
- **New SG4 Fieldbus** model allows less wiring, just plugging at network, **less labour cost and time**, less wiring errors, no manual setting and automatic parameter from CPU, less downtime and faster diagnosis at HMI or over Internet, easier replacement
- Furthermore, **SG4 Fieldbus controls each single beam**, adding **Smart Sensor** features like profiling the material via **openSAFETY** over Ethernet **POWERLINK**, becoming in this way an **integrated part of an Industry 4.0 system**



WEB Sentinel

Valigie sotto controllo all'aeroporto di Fiumicino

- No more baggage lost and related cost at Fiumicino Airport in Rome, thanks to a Datalogic and Sita solution for **Baggage Handling Systems (BHS)**
- 200 **barcode scanners DS8K** with ACR (Auto reconstruction code), ASTRA (Automatically SwITched Reading Area) and PackTrack read 100% of tags
- 30 **controllers SC6000** collect the data from Datalogic readers on a dedicated bus at 1.25 Mb/sec and interface with the host via Ethernet
- **Websentinel** software allows the Diagnostic and Statistical monitoring even remotely through a browser of each reading station and all its components



Thank You!

This presentation contains statements that are neither reported financial results nor other historical information. These statements are forward-looking statements. These forward-looking statements rely on a number of assumptions and are subject to a number of risks and uncertainties, many of which are outside the control of Datalogic S.p.A., that could cause actual results to differ materially from those expressed in or implied by such statements, such as future market conditions, currency fluctuations, the behavior of other market participants and the actions of governmental and state regulators

© 2015 Datalogic S.p.A. - All rights reserved. · Protected to the fullest extent under U.S. and international laws. · Copying, or altering of this document is prohibited without express written consent from Datalogic S.p.A. Datalogic and the Datalogic logo are registered trademarks of Datalogic S.p.A. in many countries, including the U.S.A. and the E.U. All other brand and product names may be trademarks of their respective owners.



Datalogic S.p.A.
Via Candini, 2
40012 Lippo di Calderara di Reno
Bologna - Italy
Tel. +39 051 3147011
Fax +39 051 3147205
E-mail corporate@datalogic.com