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Industry 4.0
e nuovi scenari tecnologici

Emanuele Frontoni
Vision, Robotics & Artifical Intelligence
VRAI Lab

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I TEMI DEL BANDO – LINEA A

Linea di intervento A: **MIGLIORAMENTO DELL'EFFICIENZA AZIENDALE MEDIANTE L'ACQUISIZIONE DI NUOVE TECNOLOGIE DIGITALI E TECNOLOGIE 4.0**, ricomprese nell'elenco sotto riportato:

- Automazione industriale
- Smart and Digital Factories, inclusi sistemi basati su big data e data analytics
- Robotica avanzata e collaborativa
- Simulazione e sistemi cyber-fisici
- Interfacce remote uomo-macchina
- Soluzioni per l'ottimizzazione della supply chain e sistemi di tracciabilità (RFID, RTLS, ecc.)
- Manifattura additiva e stampa 3D
- Cybersicurezza e business continuity
- Sistemi decentralizzati per la gestione dei dati
- Sistemi di visualizzazione, realtà virtuale (VR) e realtà aumentata (AR)

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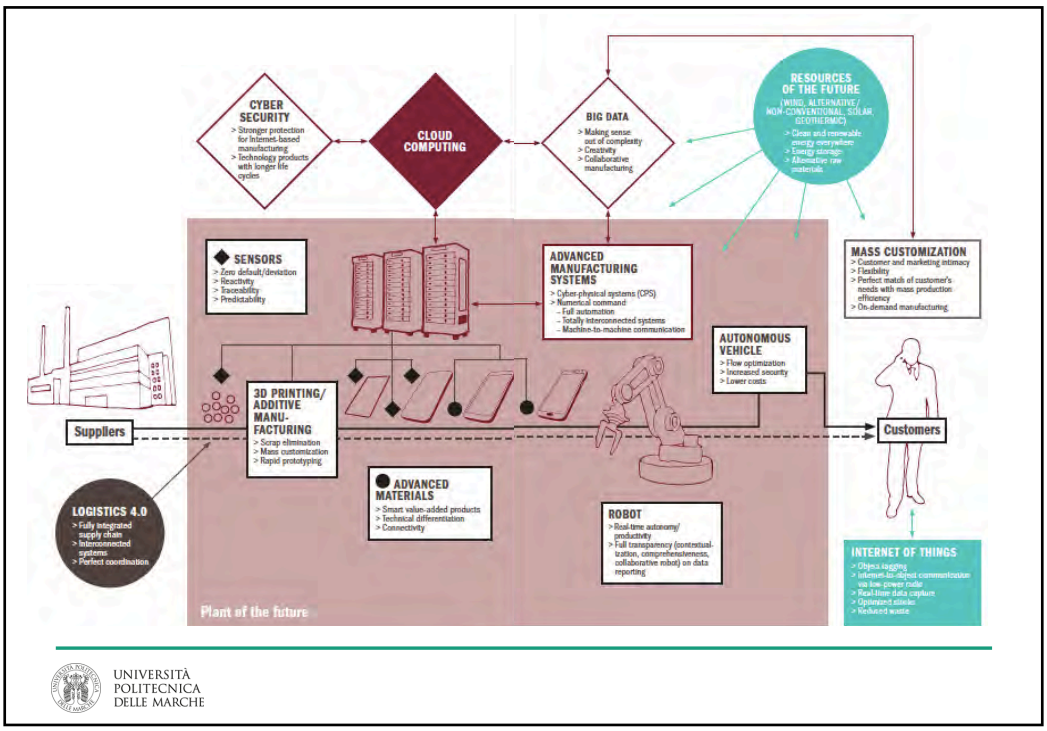

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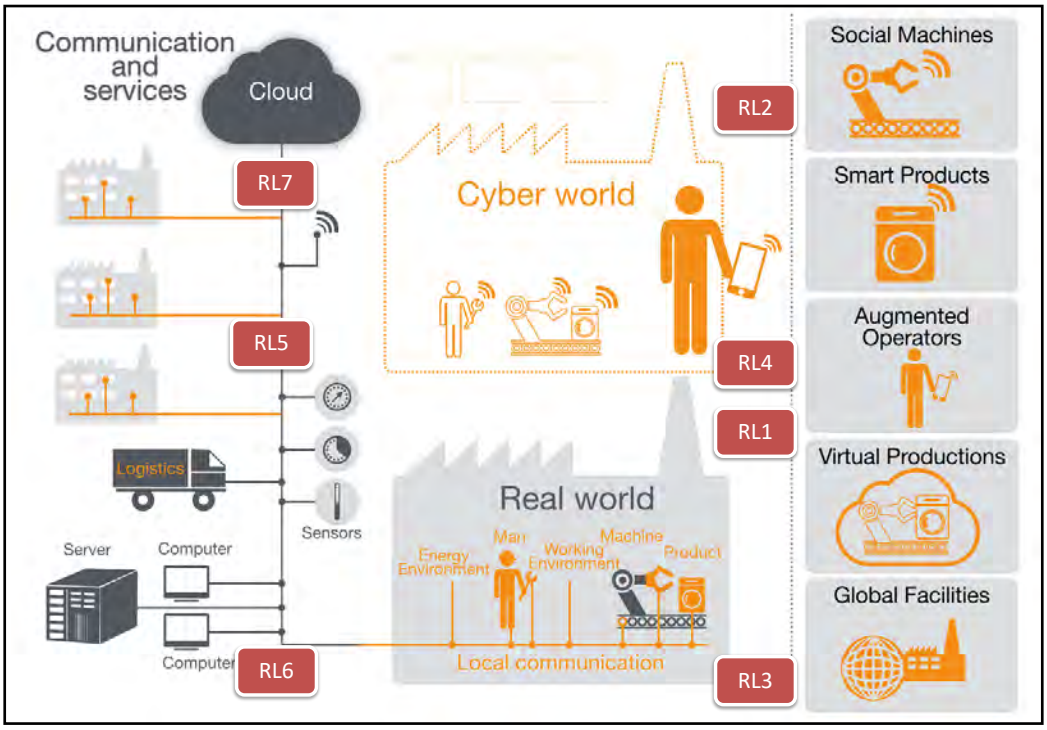

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ESISTE IN AZIENDA UNA FIGURA PREPOSTA A STIMOLARE/GUIDARE IL PROCESSO DI INNOVAZIONE DIGITALE PER LE DIVERSE TECNOLOGIE ABILITANTI?

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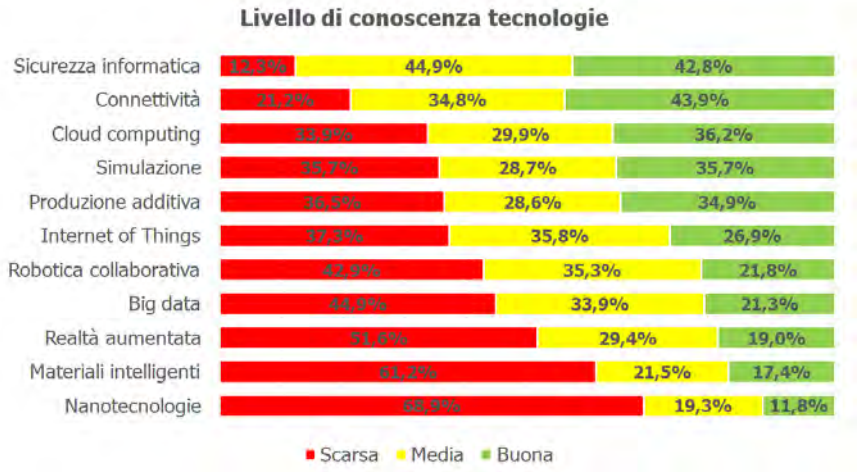
PER CIASCUNA DELLE SEGUENTI TECNOLOGIE, QUAL È IL LIVELLO DI CONOSCENZA DA PARTE DELLA SUA AZIENDA?



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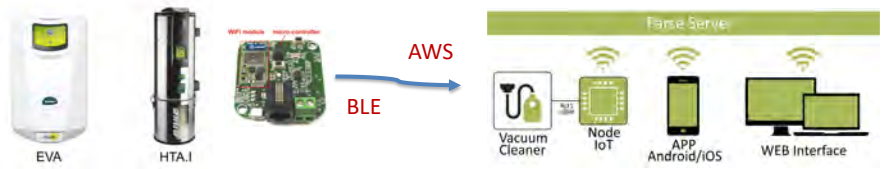
Smart Manufacturing

Cyber Phisical Systems

RESEARCH



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Smart Manufacturing

Cyber Phisical Systems
Internal & External services
Green Data

RESEARCH

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T-Trade Group

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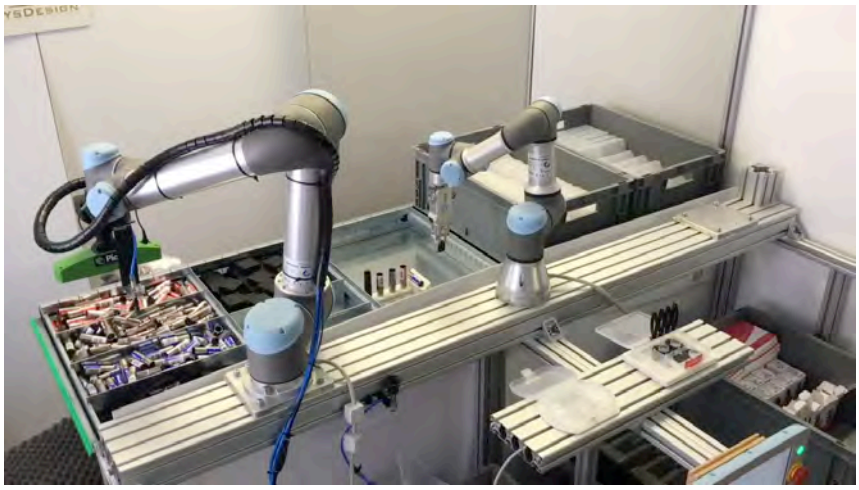
Smart Manufacturing

Robotics and Learning by imitation

RESEARCH



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Benelli

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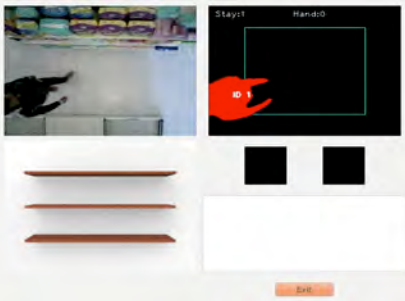
Smart Manufacturing

Smart Logistic & Intelligent Retail Environment

APPLIED RESEARCH

Overview:



Description:

UNIVPM Scientific results

Sturari, M., Liciotti, D., Pierdicca, R., Frontoni, E., Mancini, A., Contigiani, M., & Zingaretti, P. (2016). Robust and affordable retail customer profiling by vision and radio beacon sensor fusion. Pattern Recognition Letters.

Frontoni, E., Mancini, A., Zingaretti, P., & Placidi, V. (2014). Information management for intelligent retail environment: The Shelf Detector system. Information, 5(2), 255-271.

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Grottinilab

Grottini Retail Environments

GfK

P&G

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Smart Manufacturing – People & AR

Augmented & Virtual Reality

RESEARCH

Overview:

Tools:

UNIVPM Scientific results

Naspetti, S., Pierdicca, R., Mandolesi, S., Paolanti, M., Frontoni, E., & Zanoli, R. (2016, June). Automatic Analysis of Eye-Tracking Data for Augmented Reality Applications: A Prospective Outlook. In International Conference on Augmented Reality, Virtual Reality and Computer Graphics (pp. 217-230). Springer

Frontoni, E., Pierdicca, R., Quattrini, R., & Clini, P. (2016, June). Improving the Development of AR Application for Artwork Collections with Standard Data Layer. In International Conference on Augmented Reality, Virtual Reality and Computer Graphics (pp. 435-443). Springer

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DOUCAL'S CALZATURE

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Smart Manufacturing – People & AR

Augmented & Virtual Reality

RESEARCH

Overview:

Description:

UNIVPM Scientific results

Naspetti, S., Pierdicca, R., Mandolesi, S., Paolanti, M., Frontoni, E., & Zanoli, R. (2016, June). Automatic Analysis of Eye-Tracking Data for Augmented Reality Applications: A Prospective Outlook. In International Conference on Augmented Reality, Virtual Reality and Computer Graphics (pp. 217-230). Springer

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INTERMAC

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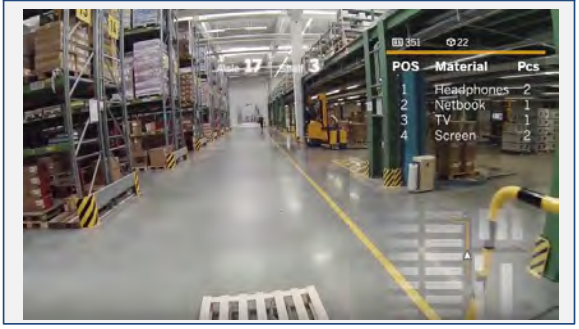
Smart Manufacturing – People & AR

Augmented & Virtual Reality

RESEARCH

Overview:



Description:

- Using Smart Glasses in Intra-logistic
- Orders and all relevant information will be projected into the user field of view – in real time
- Storage –Picking areas real time visualization
- AR-Training on the job
- Machine maintenance
- User generated signals can be voice or gesture based

UNIVPM Scientific results

Naspetti, S., Pierdicca, R., Mandolesi, S., Paolanti, M., Frontoni, E., & Zanoli, R. (2016, June). Automatic Analysis of Eye-Tracking Data for Augmented Reality Applications: A Prospective Outlook. In International Conference on Augmented Reality, Virtual Reality and Computer Graphics (pp. 217-230). Springer

Frontoni, E., Pierdicca, R., Quattrini, R., & Clini, P. (2016, June). Improving the Development of AR Application for Artwork Collections with Standard Data Layer. In International Conference on Augmented Reality, Virtual Reality and Computer Graphics (pp. 435-443). Springer

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qs group Integrated Industrial Automation

ESI SOFTWARE MANUFACTURING SOLUTIONS

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Smart Manufacturing

IoT & Cybersecurity

RESEARCH

Overview:

Description:

- Post-quantic cryptography techniques
- The effort to build "a cryptologically useful quantum computer" is part of a $79.7 million NSA research program titled "Penetrating Hard Targets."
- IoT & Phisical Layer security
- Cloud dispersal for cloud security
- National Cybersecurity Lab activities for Smart Manufacturing
- New legal framework & regulations

UNIVPM Scientific results

Baldi, M., Bianchi, M., Chiaraluce, F., Rosenthal, J. J., & Mose, D. (2015). U.S. Patent No. 9,191,199. Washington, DC: U.S. Patent and Trademark Office.

Baldi, M., & Tomasin, S. (Eds.). (2016). Physical and Data-Link Security Techniques for Future Communication Systems.

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cini Cyber Security National Lab

University of Zurich

LG Electronics

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Competenze
Digital Mindset

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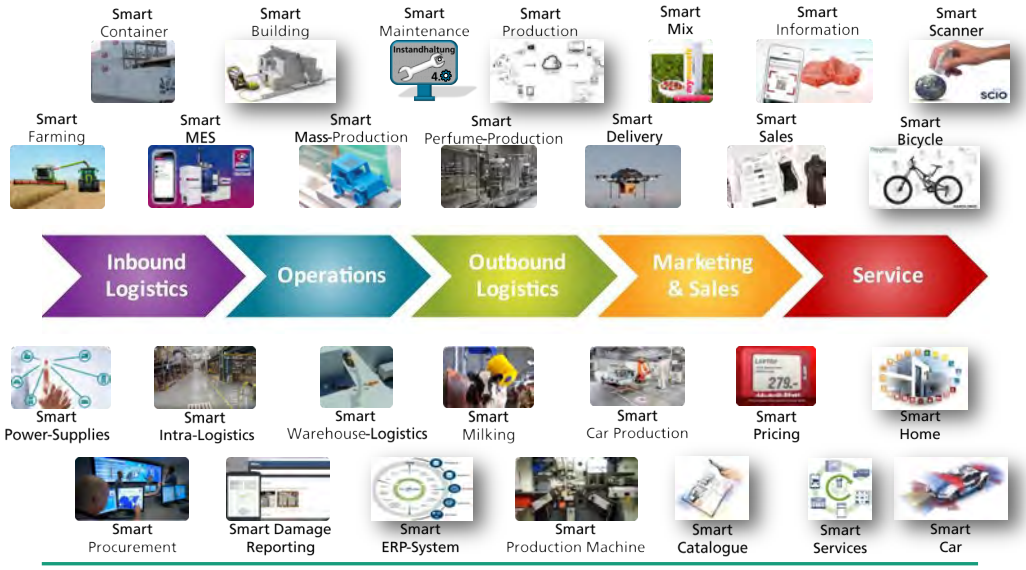
Along the entire value chain



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