

PIANO DEL SISTEMA CONFINDUSTRIA EMILIA-ROMAGNA “VERSO INDUSTRIA 4.0”

BIG DATA MANUFACTURING NELLA TRASFORMAZIONE DIGITALE DEI PROCESSI AZIENDALI

Bologna, 24 ottobre 2017



Operazioni Rif. PA. N.2016-5455/RER, Rif. PA. N.2016-5456/RER, Rif. PA. N.2016-5457/RER
coordinate con le Operazioni Rif. PA. N.2016-5452/RER, Rif. PA. N.2016-5453/RER, Rif. PA. N.2016-5454/RER
approvate dalla Regione Emilia-Romagna con DGR n. 1450/2016 del 12/09/2016
e finanziate con fondi POR FSE 2014/2020 - Obiettivo tematico 8

Guidare la trasformazione digitale nei processi industriali

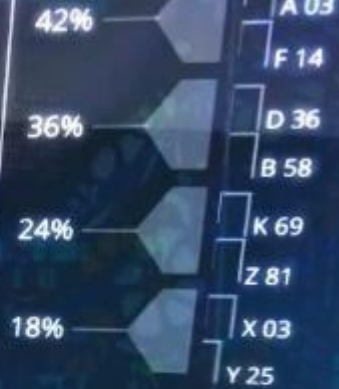
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EY - Industrial Products Leader

Modena 24 Ottobre 2017

Digital SC Strategy

SCR / SCT & Asset Management



Field Force management

Manufacturing 43.8%

55.4% Planning

10.1%

SC Analytics

EY

Building a better working world

Le fasi evolutive della percezione del fenomeno “Industry 4.0”

CONOSCENZA DEL FENOMENO «Industry 4.0» -AWARENESS-

Tavole rotonde, convegni, «story telling»

Google, Amazon, Stampanti 3D, Droni,



REALIZZAZIONE DI ESPERIENZE SPECIFICHE -TEST-

IOT su aree pilota (POC), convegni sui POC, Ritorno alla realtà

Piattaforme IoT, MES, Analytics, ...



VALORIZZAZIONE DEI BENEFICI FISCALI -INDUSTRIA 4.0-

Valorizzare le iniziative che consentono di accedere all'Iperammortamento

Analisi Investimenti, fiscalisti, ...



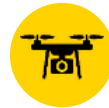
ROADMAP VERSO UN MODELLO DI AZIENDA DIGITALE -IMPRESA 4.0-

Creazione di una Governance digitale, ampliamento dei POC, Piano integrato

Ecosistema Industriale, competenze, partner tecnologici, ...



La trasformazione digitale deve essere affrontata in maniera sistemica, nei differenti livelli con differenti priorità, in funzione delle esigenze di business



Connected User Experience

Assistance with the design and implementation of solutions (wearables, AR/VR platforms & applications) that help you to create new customer value by collecting data and insights from wearables, proximity, motion and behaviour of users



Architect

End-to-end consulting service for the CIO/CTO defining leading practice operations in the production environment, covering the range of IoT/OT operations



Asset Performance Management

Solution delivery using IoT/OT data integration and IoT/OT advanced modeling techniques to help you obtain real-time insight into production processes



Finding New Value

End-to-end consulting from ideation to assistance with implementing smart environments, products, connectivity platforms, analytic models and new services with valuable insights from user experiences



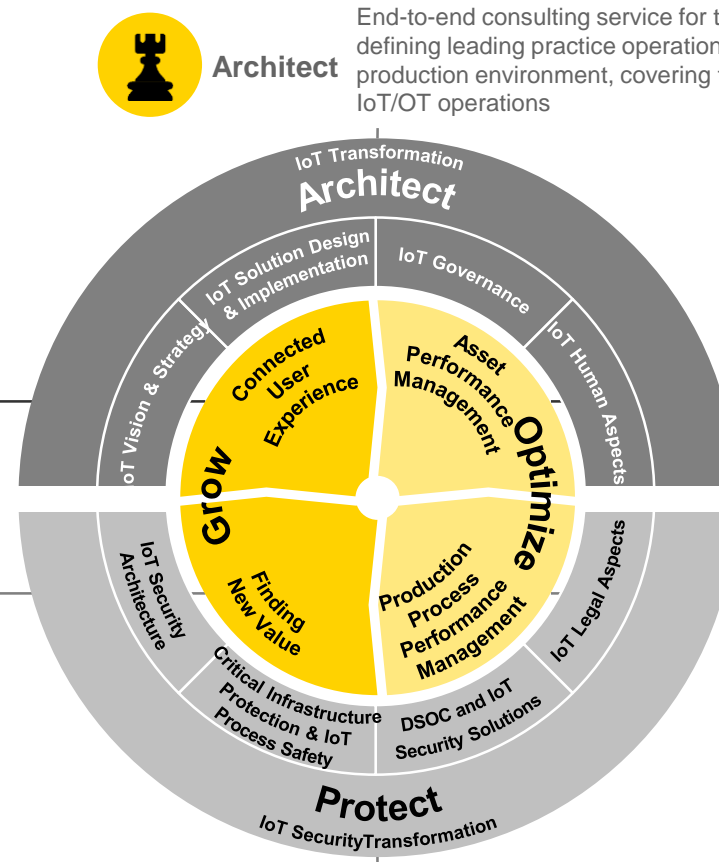
Protect

End-to-end consulting service for the CIO/CTO/CISO defining security risk appetite and help transforming business operations to create a new IoT/OT Security function



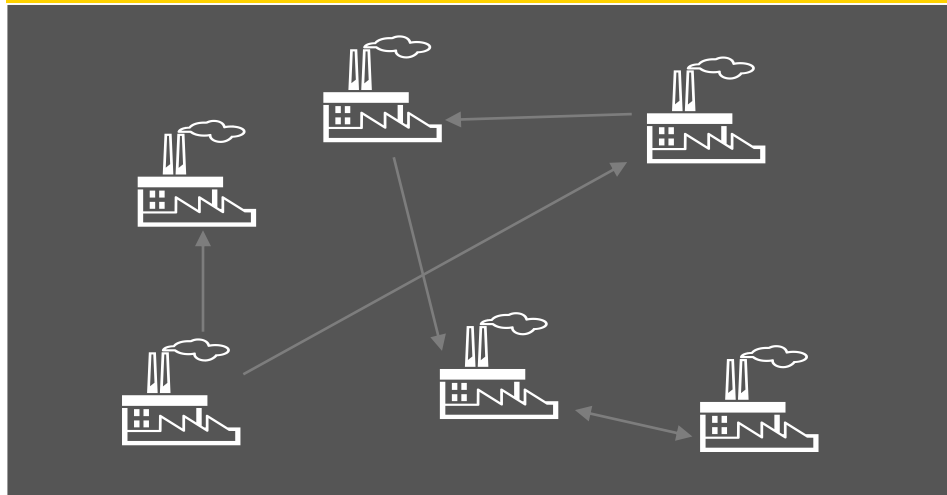
Production Process Performance Management

Assistance with the design and implementation of solutions (platforms, applications) to allow data collection and structuration as well as analytics for industrial processes



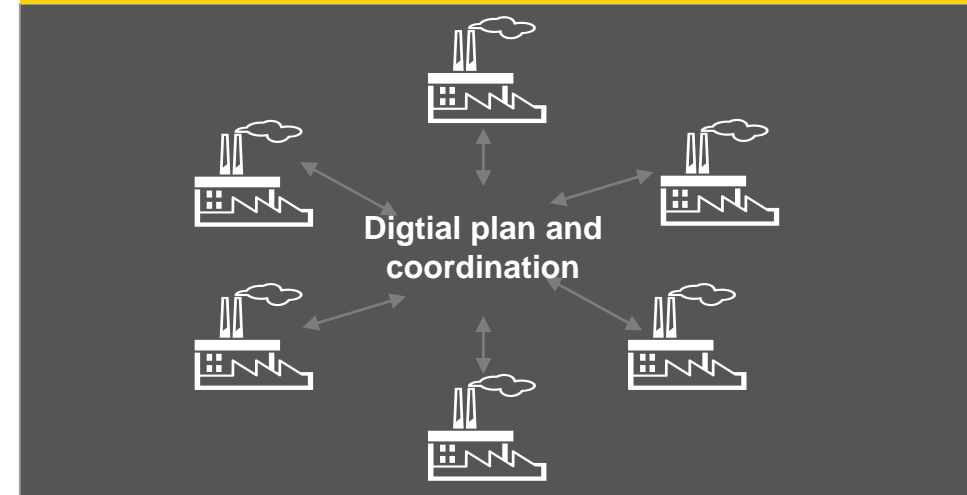
Nelle aziende più evolute, la trasformazione digitale si sta evolvendo verso un modello di trasformazione integrata e coordinata

PLANT-LED APPROACH



Iniziative ideate e sviluppate da stabilimenti o aree specifiche (POC) da esportare nelle altre realtà

COORDINATED APPROACH



Iniziative ideate e sviluppate a livello di Chief Digital Officer da applicare a livello globale

E' importante possedere uno schema di riferimento per classificare le iniziative e definire priorità con un approccio integrato

Initiatives that:

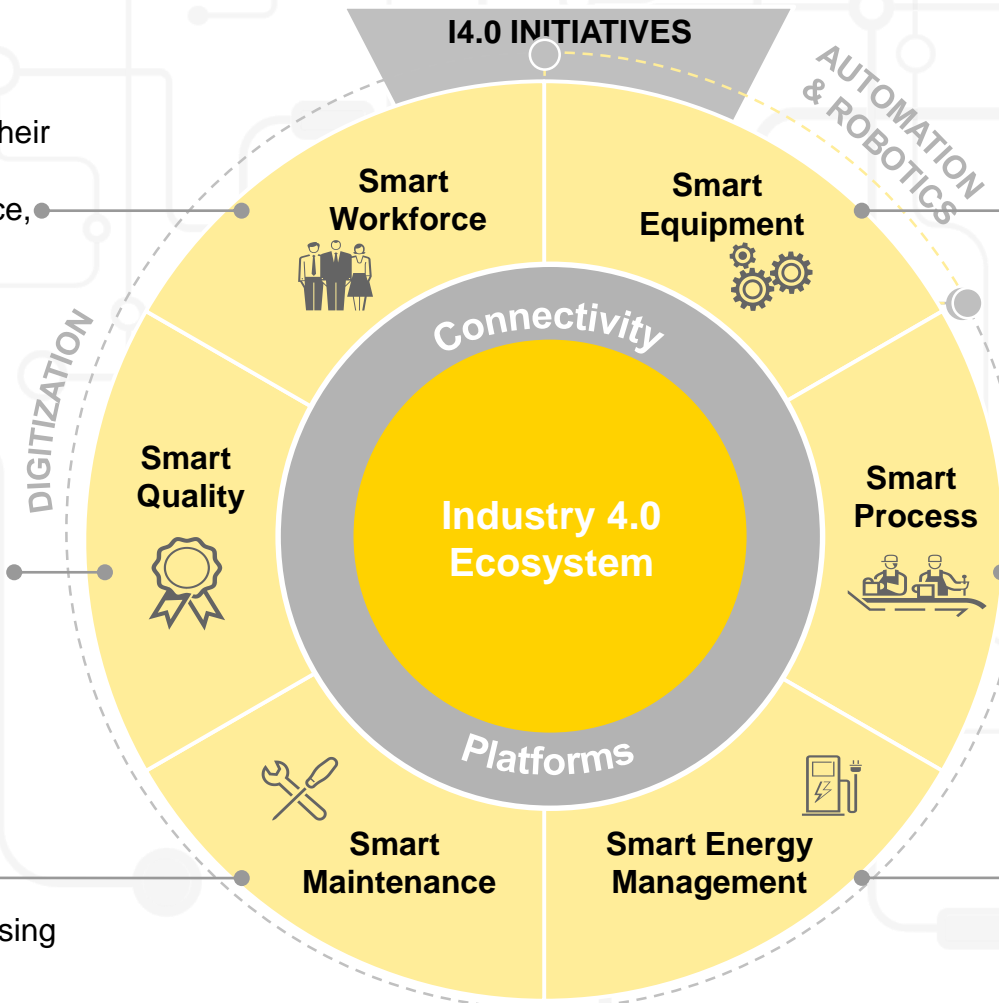
- ✓ Optimize people allocation in relation to their capabilities or their availability
- ✓ Enable team work, increased performance, and improve communication
- ✓ Ensure safety, traceability, ergonomic conditions, and coaching

Initiatives that:

- ✓ Monitor and evaluate the quality performance programs effectiveness
- ✓ Increase efficiency of the processes related to quality control
- ✓ Identify areas of quality improvement

Initiatives that:

- ✓ Monitor equipment's conditions and performances through IoT sensors
- ✓ Improve reliability and OEE while decreasing life-cycle cost
- ✓ Reduce downtime and MRO inventory



Initiatives that:

- ✓ Install and enable equipment that simplifies and/or improves the manufacturing processes
- ✓ Improve equipment performance through connectivity and data collection

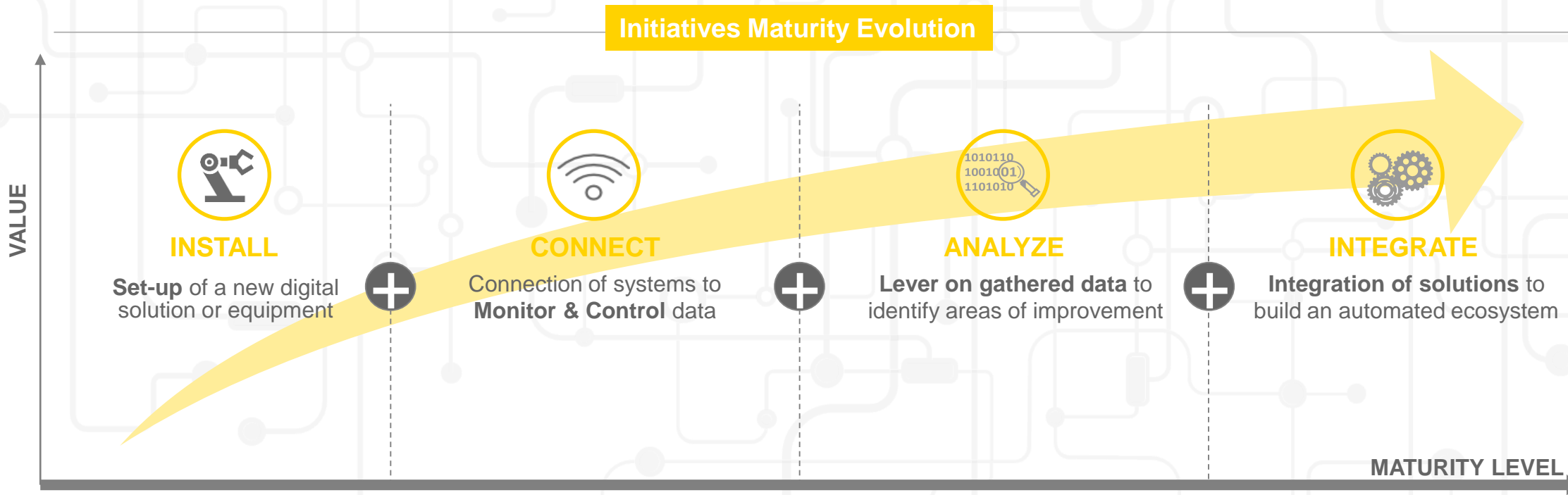
Initiatives that:

- ✓ Improve productivity and effectiveness
- ✓ Enable the virtual simulation of processes
- ✓ Dynamically adjusts its operating sequence or machine settings to eliminate losses

Initiatives that:

- ✓ Introduce systems and technologies that allow to collect energy consumption data
- ✓ Allow to optimize the footprint energy consumption, reducing costs and increasing sustainability

L'impatto delle iniziative Industry 4.0 è direttamente correlato al loro stadio di maturità



EXAMPLE OF AN INITIATIVE EVOLUTION


Set up and **automation of operations** with increase of quality and efficiency

Real time visibility of the state of assets and processes with condition monitoring and remote access

Advanced **data analysis** allow asset optimization, equipment assessments,..

Solution **integrated** cross functional and **automated** enhancing "lights out" factory

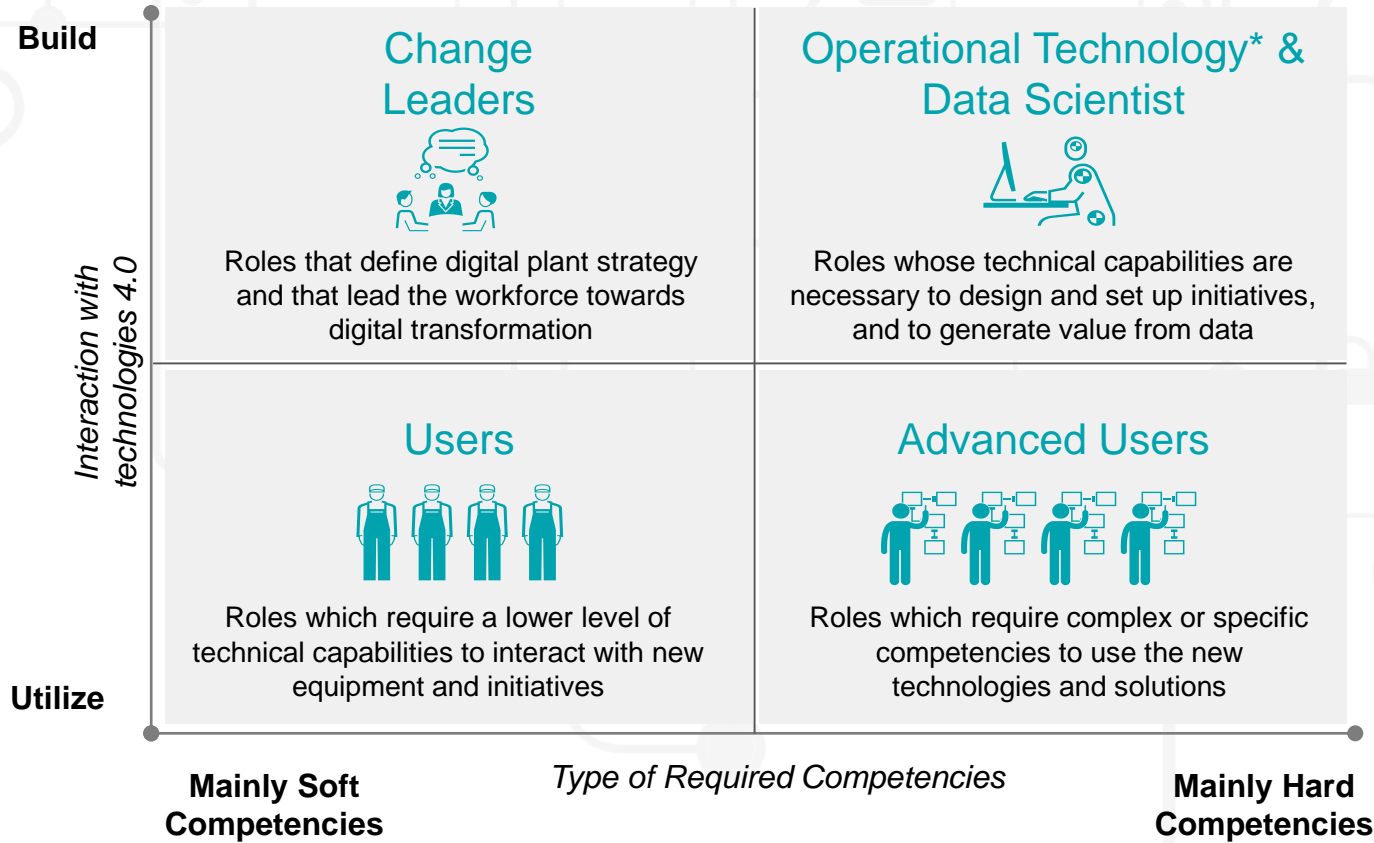
Un esempio di mappatura delle iniziative digitali in una fabbrica

| # | Initiative | Stream |  INSTALL |  CONNECT |  ANALYZE |  INTEGRATE |  INNOVATE |
|----|---|-------------|---|---|---|---|--|
| 1 | Automation and Robotics* | Equipment | ● | ○ | ○ | ○ | ○ |
| 2 | Factory Energy Management System | Energy | ● | ● | ○ | ○ | ○ |
| 3 | CMMS | Maintenance | ● | ● | ○ | ○ | ○ |
| 4 | 3D Data Integration | Maintenance | ● | ● | ○ | ○ | ○ |
| 5 | Assembly Line Status Monitor and Process Database | Process | ● | ● | ● | ○ | ○ |
| 6 | Process Simulate- Team Center | Process | ● | ● | ● | ○ | ○ |
| 7 | Digital Twin | Process | ● | ● | ● | ○ | ○ |
| 8 | Plant Simulation | Process | ● | ● | ● | ○ | ○ |
| 9 | Digital Team Infoboard | Process | ● | ● | ● | ○ | ○ |
| 10 | Infoscreen Workplaces | Process | ● | ● | ○ | ○ | ○ |
| 11 | KO Screw Tracing | Process | ● | ● | ○ | ○ | ○ |
| 12 | Cavity Code Scanning | Process | ● | ● | ○ | ○ | ○ |
| 13 | Global Testplan Strategy | Quality | ● | ● | ● | ○ | ○ |
| 14 | Automatic 50 Appliances Testroom | Quality | ● | ● | ● | ○ | ○ |
| 15 | Automatic Quality 3D Measuring | Quality | ● | ● | ○ | ○ | ○ |
| 16 | Electronic Work Instructions | Workforce | ● | ● | ● | ○ | ○ |

Maturity has been assessed considering the initiative as fully implemented and operative

*6 initiatives currently planned

E' fondamentale valutare l'impatto delle iniziative di digitalizzazione nei differenti ruoli di fabbrica



ESEMPIO

Change Leaders

- Plant Manager
- Area Managers
- Quality Manager
- Manufacturing Engineer Manager

Operational Technology* & Data Scientist

- Operational Technology Specialists
- Data Scientist

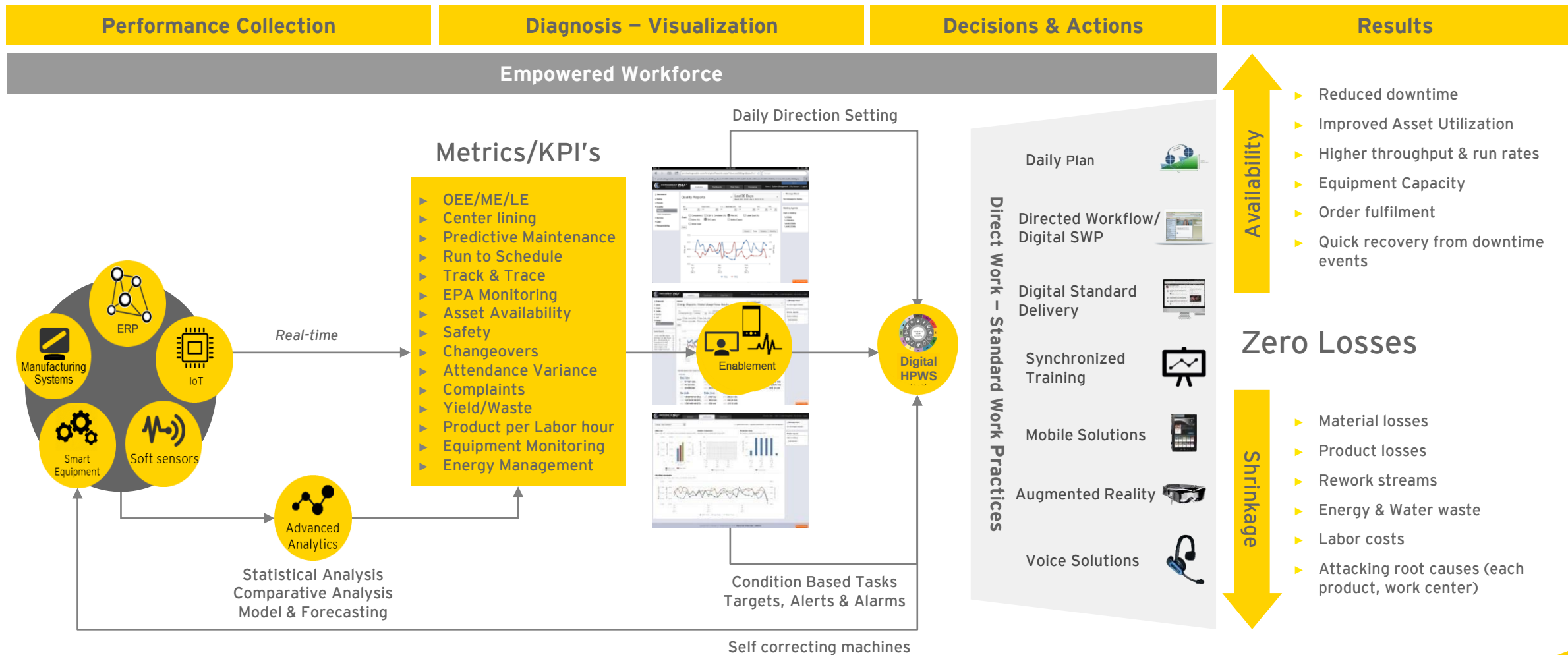
Advanced Users

- Quality Specialists
- Manufacturing Engineering Specialists (Maintenance, Process and Lean Manufacturing)

Users

- Team Leaders
- Team Members

Una tematica ancora spesso trascurata è l'impatto nel processo decisionale che la digitalizzazione richiede alle organizzazioni



E' fondamentale mantenere il controllo dell'evoluzione digitale dell'azienda (RISCHIO DA EVITARE: 4.0 contro gli aborigeni della Papua)





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