



Digitalizzazione dell'industria e impatto sulle risorse umane: rivoluzione vs evoluzione

Milano – 28.11.2017

ANSALDO ENERGIA GROUP

CDO – Luca MANUELLI

AGENDA

- 20 Years Ago: Ariston Digital
- Today: Ansaldo 4.0
- New And Old Internet of Thing: The Managerial X Factor

AGENDA

- **20 Years Ago: Ariston Digital**
- Today: Ansaldo 4.0
- Internet of Thing Revolution vs Evolution
- Ariston Digital vs Ansaldo 4.0



Merloni Elettrodomestici spa



Who is Merloni Elettrodomestici

- 3rd largest European appliance manufacturer
- Manufactures and sells more than 8 million units per year
- Revenues = 1,4B€ (70% abroad)



Who is Merloni Elettrodomestici

12 factories

30 commercial
subsidiaries
worldwide

8,000 people

15 years of
R&D on
household
appliances
electronics





Merloni Elettrodomestici spa

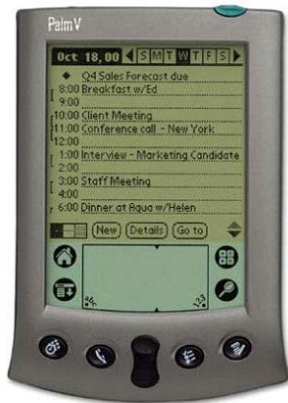
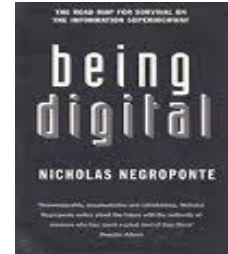




GIUGIARO
DESIGN



INDESIT



ARISTON digital

ARISTON



- **MARKET SCENARIO: INCREASING COMPETITIVENESS**
 - ➔ MANUFACTURERS: OEM vs NO NAMES
 - ➔ CHANNELS: GDO PRICING PRESSURE AND CUSTOMERS' OWNERSHIP
 - ➔ CUSTOMERS: MORE VALUE FOR LESS MONEY

 - **NEW DIGITAL TECHNOLOGIES SCENARIO:**
 - ➔ INTERNET (OF THING)
 - ➔ COMMUNICATIONS (BY POWER LINE)
 - ➔ ENABLERS OF NEW ADDED VALUE SERVICES
- **ARISTON DIGITAL:**
 - ➔ INTEGRATED PRODUCT + SERVICE VALUE PROPOSITION ENABLED BY THE DIGITAL TECHNOLOGY

Smart Appliances



Able through smart sensors and fuzzy logic onboard to generate and record data:

- + Diagnostic
- + Consumption
- + Historical
- + Statistical

and to communicate
(data exchange) with external
world

Ariston Digital System: Key Services



Smart Appliances



Leon@ardo



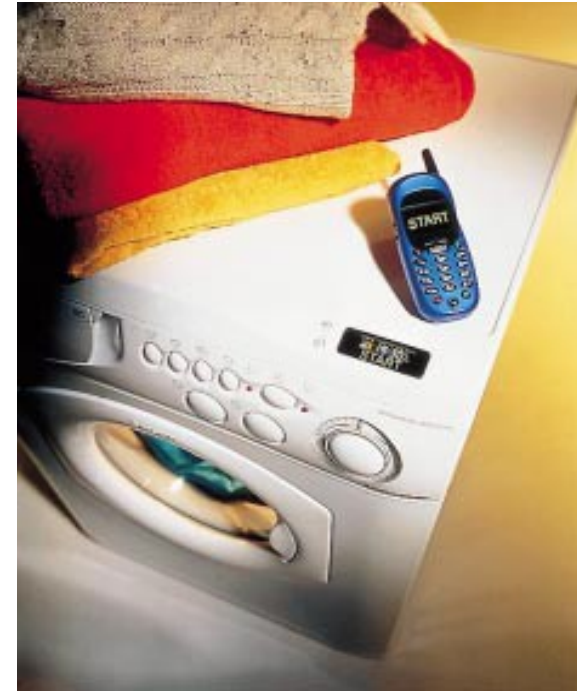
ADSL



- 1. Power Management
- 2. Local Control
- 3. Tele-assistance
- 4. Remote Control

margherita2000.com


- WRAP provides solutions for networked appliances and new services.



Leon@rdo


Margherita2000.com - Microsoft Internet Explorer fornito da Virgilio


File Modifica Visualizza Preferiti Strumenti ?

Indirizzo  http://www.margherita2000.com/sito_uk/it/home.htm

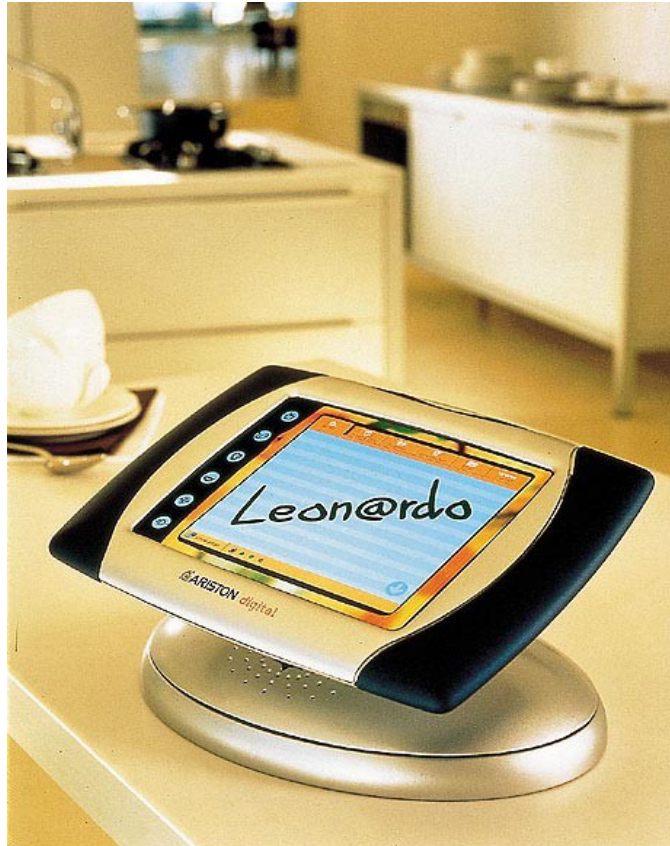
margherita2000.com
the first washing machine on the internet:
she listens to you and she talks back.

Ariston Digital introducing margherita my margherita "digital life" forum



contact Ariston aristonchannel press conference 

Leon@rdo

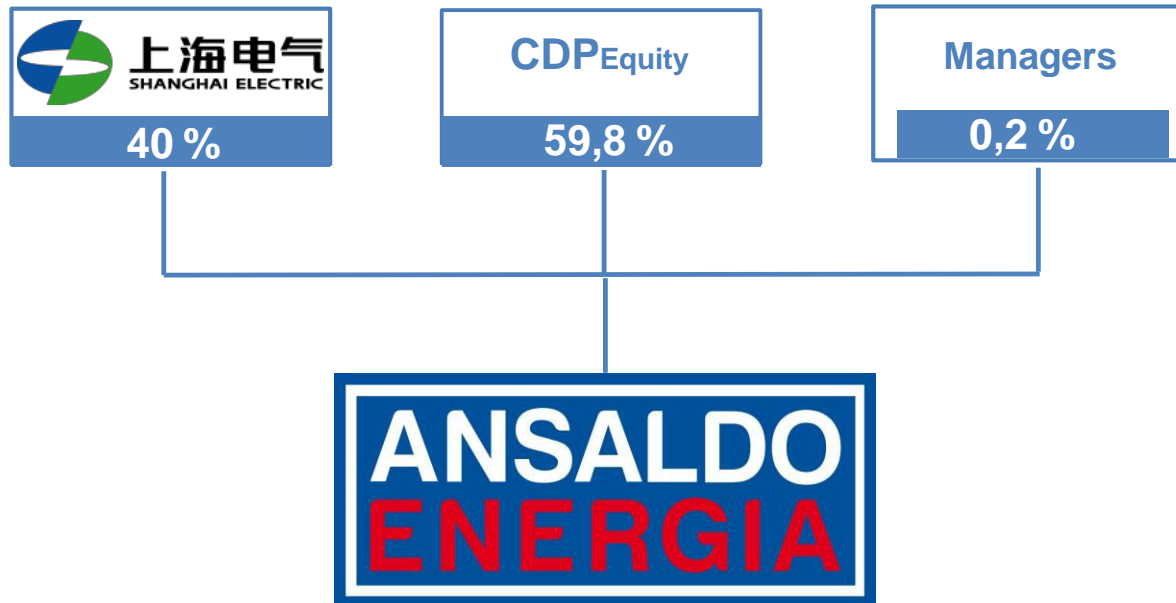


Home Tablet as
Domotic User
Interface for WRAP
web-based services
(e-cooking, smart
fridge, etc.)

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Ansaldo Energia Shareholding Structure



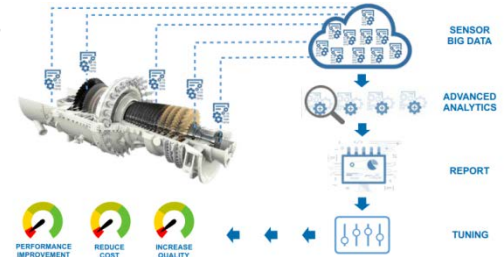


Acquisition of Alstom advanced HDGT technology and Assets Acquisition of Power System Manufacturing

2016

Global leading OEM of GT and ST

TODAY



Incorporation of Joint Ventures with Shanghai Electric Company

2014

1853

Giovanni Ansaldo & Co. established



100 years of Steam Turbine manufacturing

2012

1923

First Power Plant



150th Gas Turbine manufactured

2010

1962

First supercritical 600 MW Power Plant



OSP™ concept launch

2007

1991

Ansaldo Energia established



Total Technological Independence

2005

1995

First Combined Cycle Power Plant based on Ansaldo Energia GT



Comprehensive product and service range

- A leading Italian technology supplier for the power generation industry, specialized in the design, production and installation of gas turbines and steam turbines for gas-fired power plants, as well as maintenance and repair services on its own and third party technology. **AEN** also selectively supply turnkey gas-fired power plants with its own technology
- Achieve a sustainable growth by providing a **Flexible** and innovative portfolio of **Solutions** to match global energy demand

Equipment and plants

45.9% of Revenues

EQUIPMENT



- Gas turbines
- Steam turbines
- Turbogenerators

PLANTS



- Engineering, procurement and Construction (“EPC”) of selective Gas-fired power plants
- Combined cycles
- Open cycles

Service

47.5% of Revenues

AFTER SALE SERVICE



- Long Term Service Agreements (“LTSA’s”)
- Repairs & spare parts
- Field services
- Upgrades

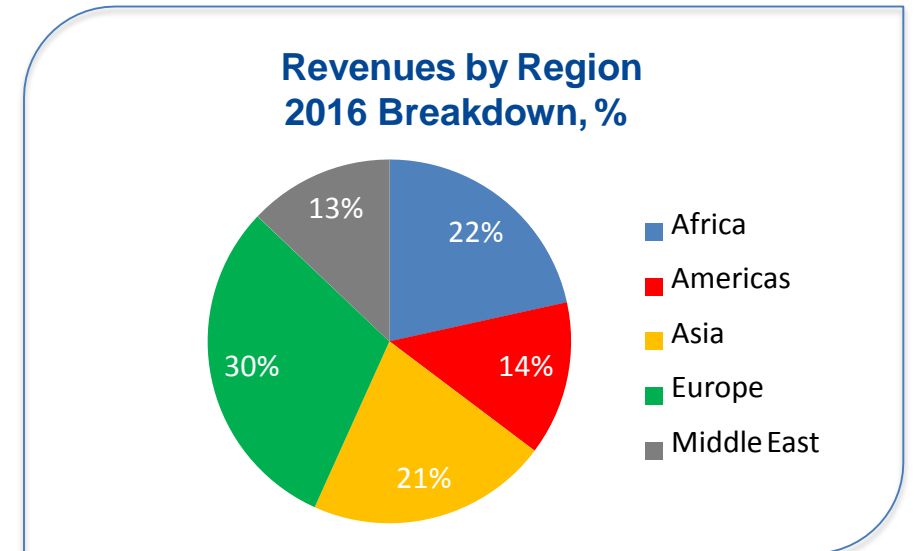
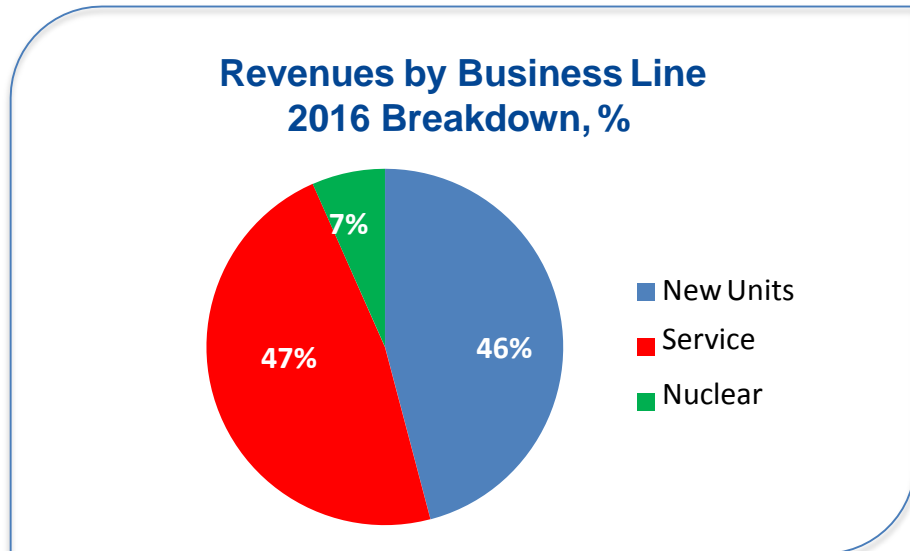
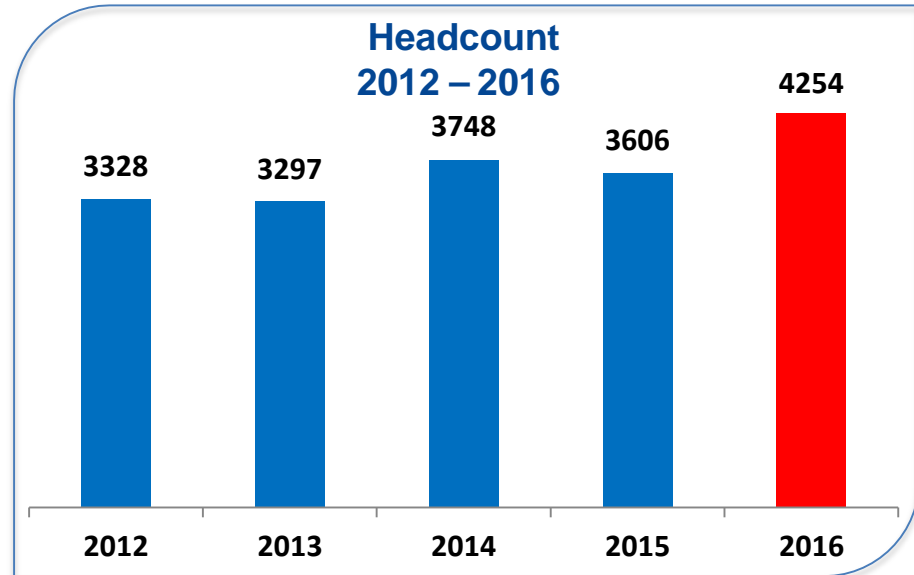
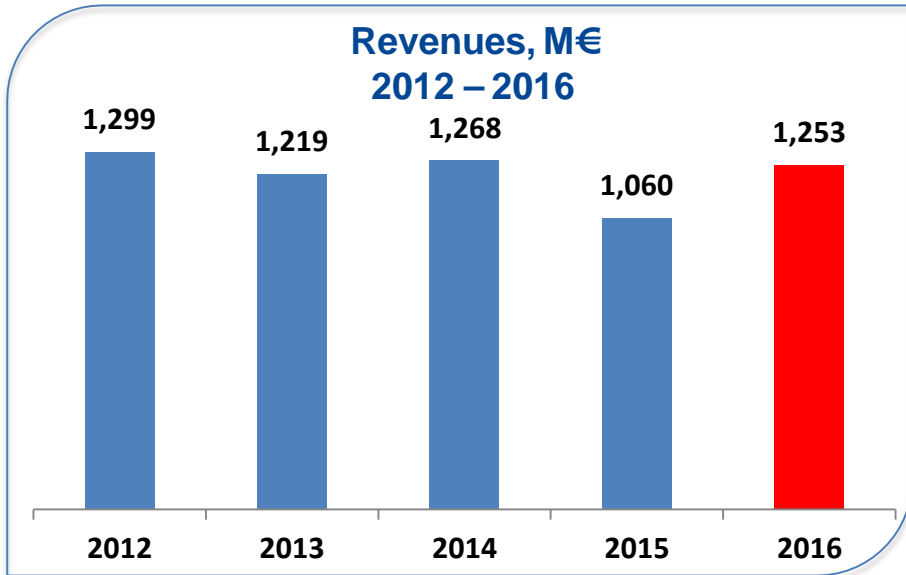
Nuclear

6.6% of Revenues

NUCLEAR



- Engineering services for new and operating nuclear plants
- Engineering and construction of customised machinery for nuclear decommissioning
- R&D activities



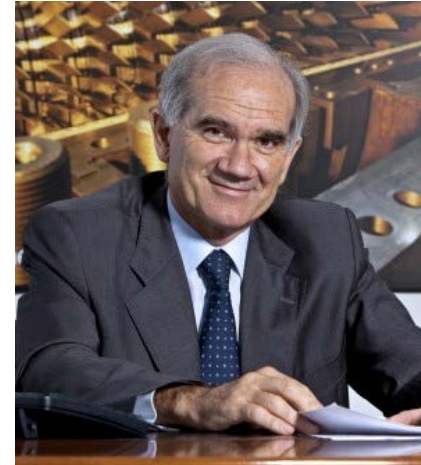
Piano nazionale Industria 4.0



Investimenti, produttività e innovazione

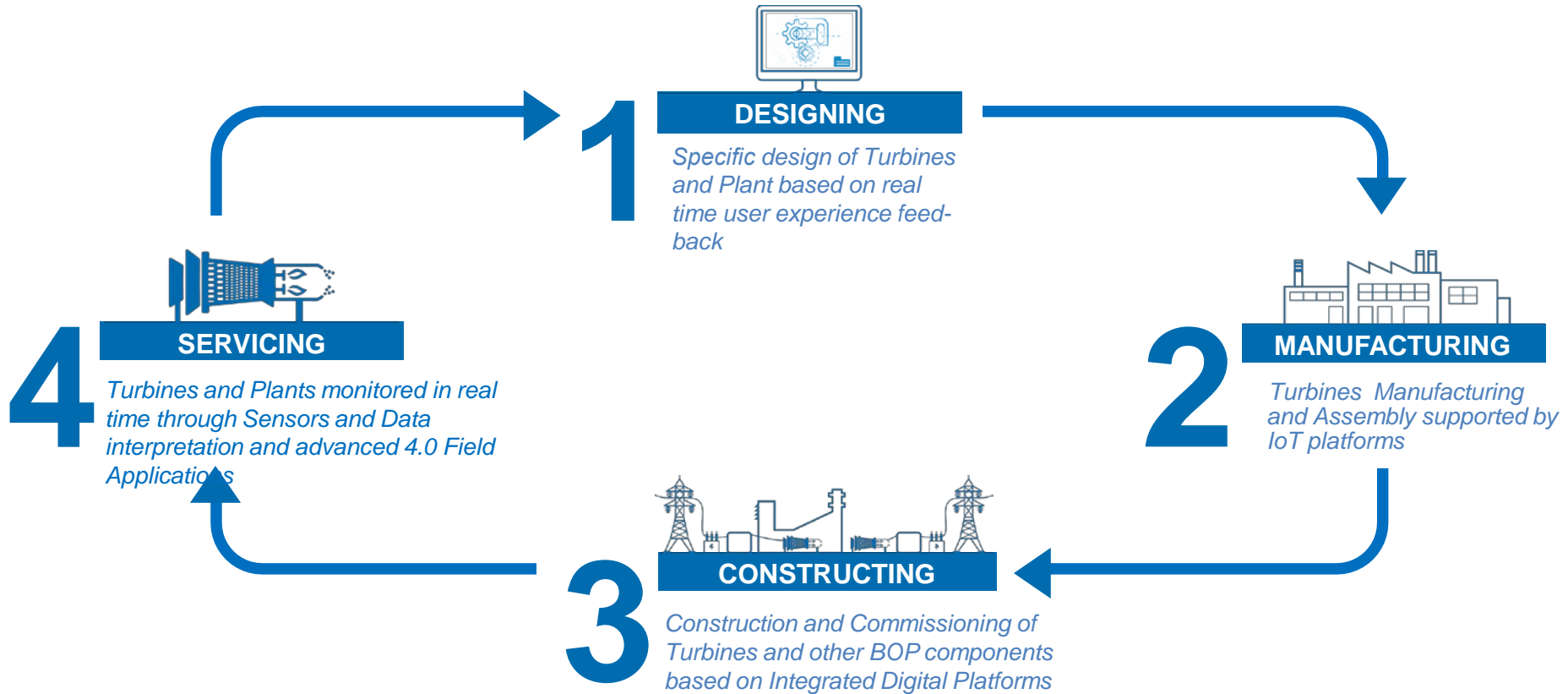


Milano, 21 Settembre 2016



**AEN 4.0: WHEN BITS
BECOME ENERGY**

ANSALDO ENERGIA 4.0 VISION - DIGITAL TWINS KEY BENEFITS





Specific design of Turbines and Plant based on real time user experience feed-back

1

DESIGNING

- Client-need oriented design
- Fast time-to-market
- Right First Time design
- Continuous improvement



Turbines Manufacturing and Assembly supported by IoT platforms

2

MANUFACTURING

- Improved planning and procedures
- Flexible production and supply chain
- Production LEAN optimization
- Simplify testing and certification.

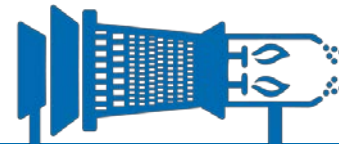


Construction and Commissioning of Turbines and other BOP components based on Integrated Digital Platforms

3

EPC

- Full integration of vendors and contractors data
- More effective planning
- Improved efficiency
- Easy monitoring and on-time delivery

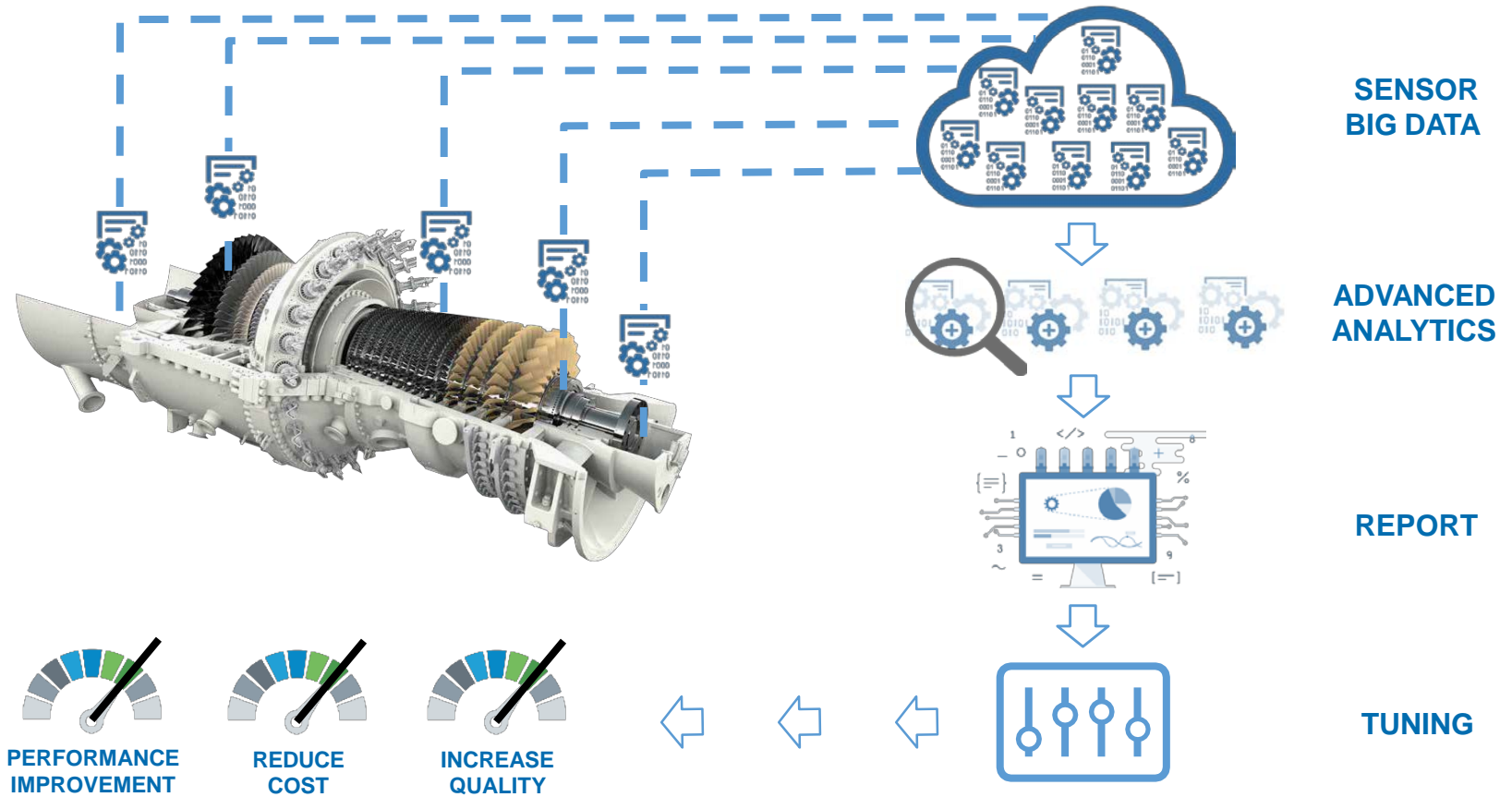


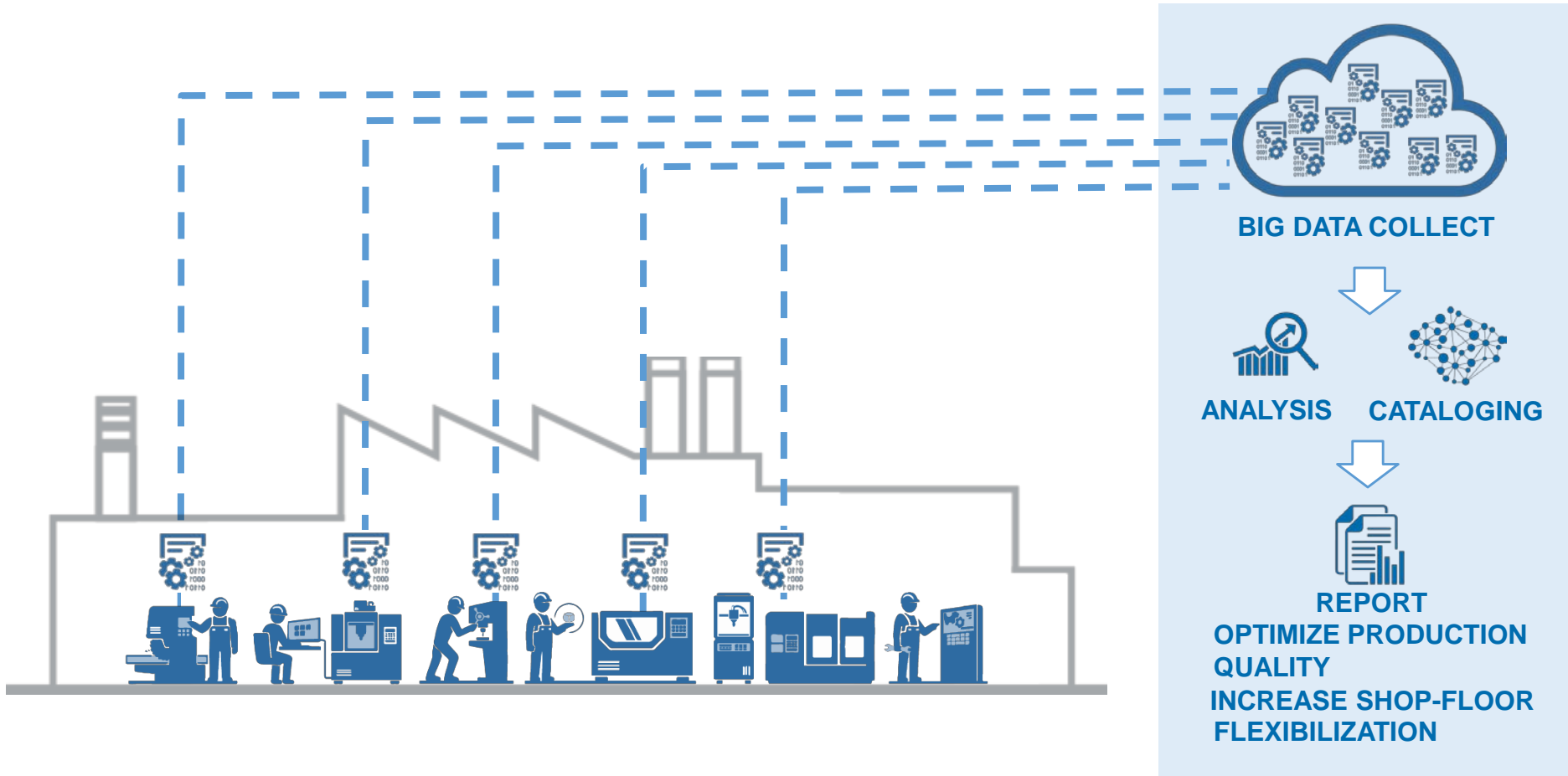
Turbines and Plants monitored in real time through Sensors and Data interpretation and advanced 4.0 Field Applications

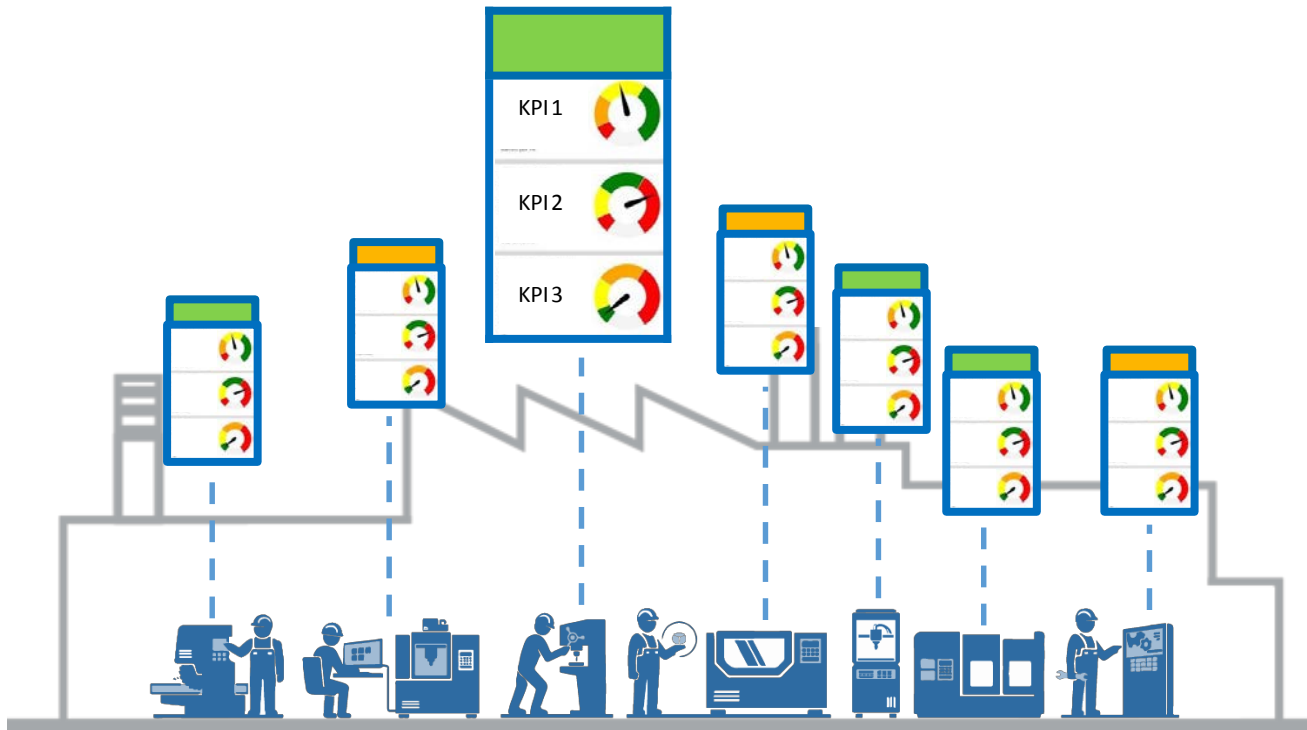
4

SERVICING

- Predictive maintenance
- Optimize asset management
- Smart product upgrade
- Assisted maintenance procedures







BIG DATA REPORT



**REAL-TIME HEALTH
MONITORING OF CRITICAL
EQUIPMENTS AND TOOLS**

**SELF SCHEDULE
MAINTENANCE**

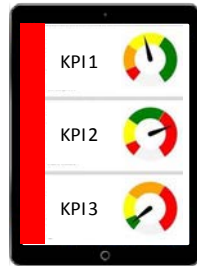


BIG DATA REPORT



**AUTOMATIC IN-LINE
MATERIAL PROVISION**

**SMART TRACKING JIGS
AND TOOLS**



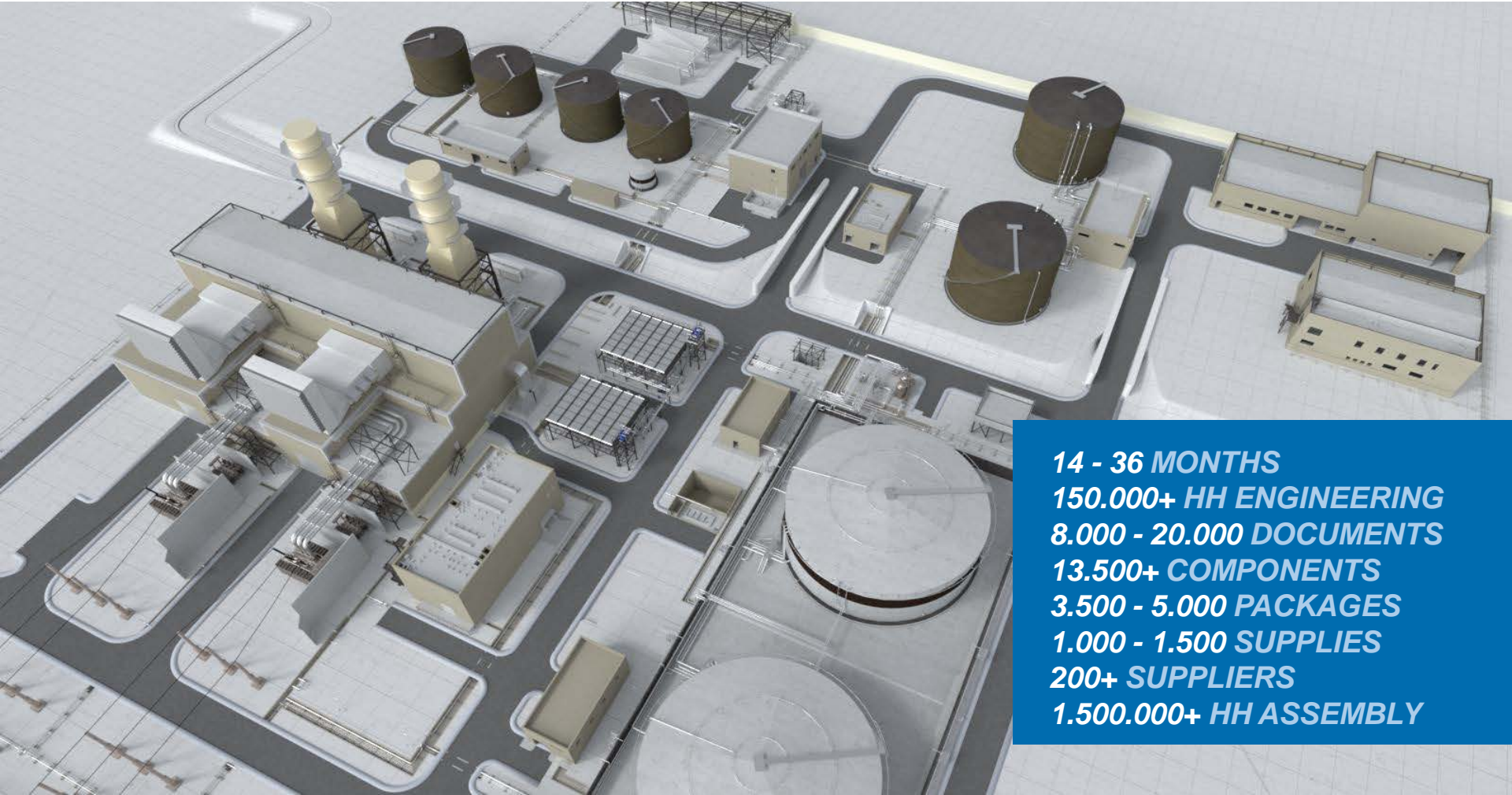
BIG DATA REPORT



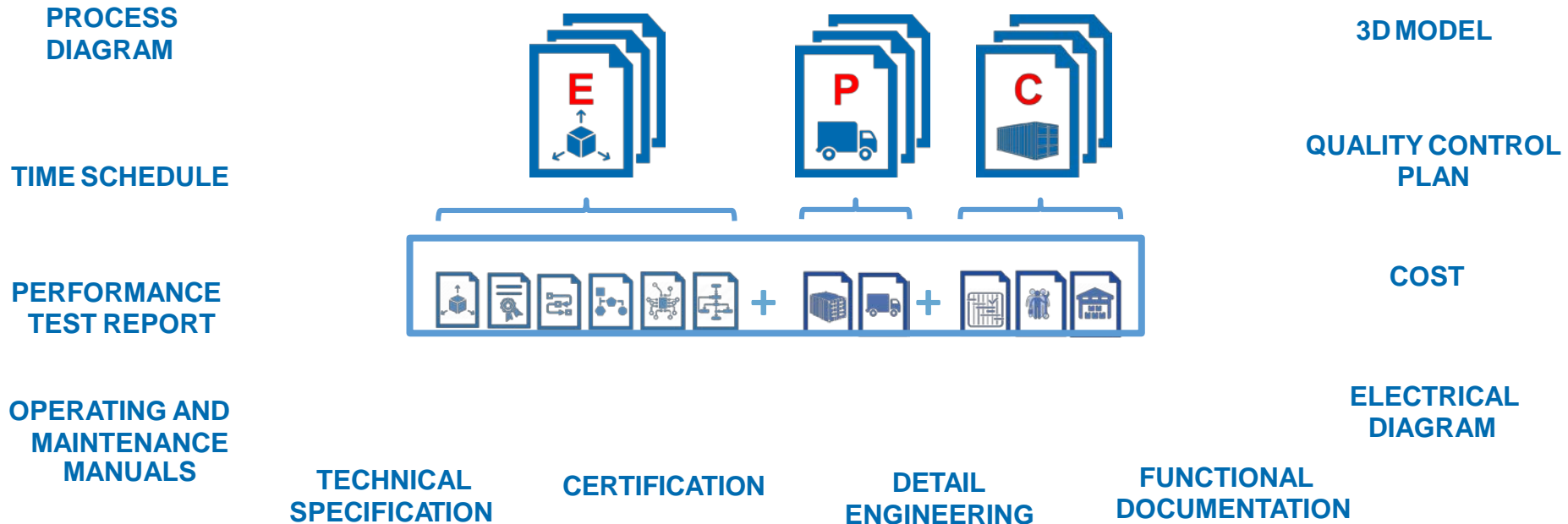
**AUGMENTED REALITY
AND SMART DEVICE DATA**

**EQUIPMENT AND TOOLS
DATA ON SMART DEVICE**

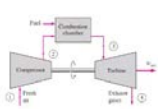
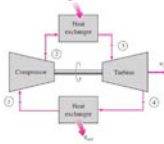
**3D MACHINING
SIMULATION**

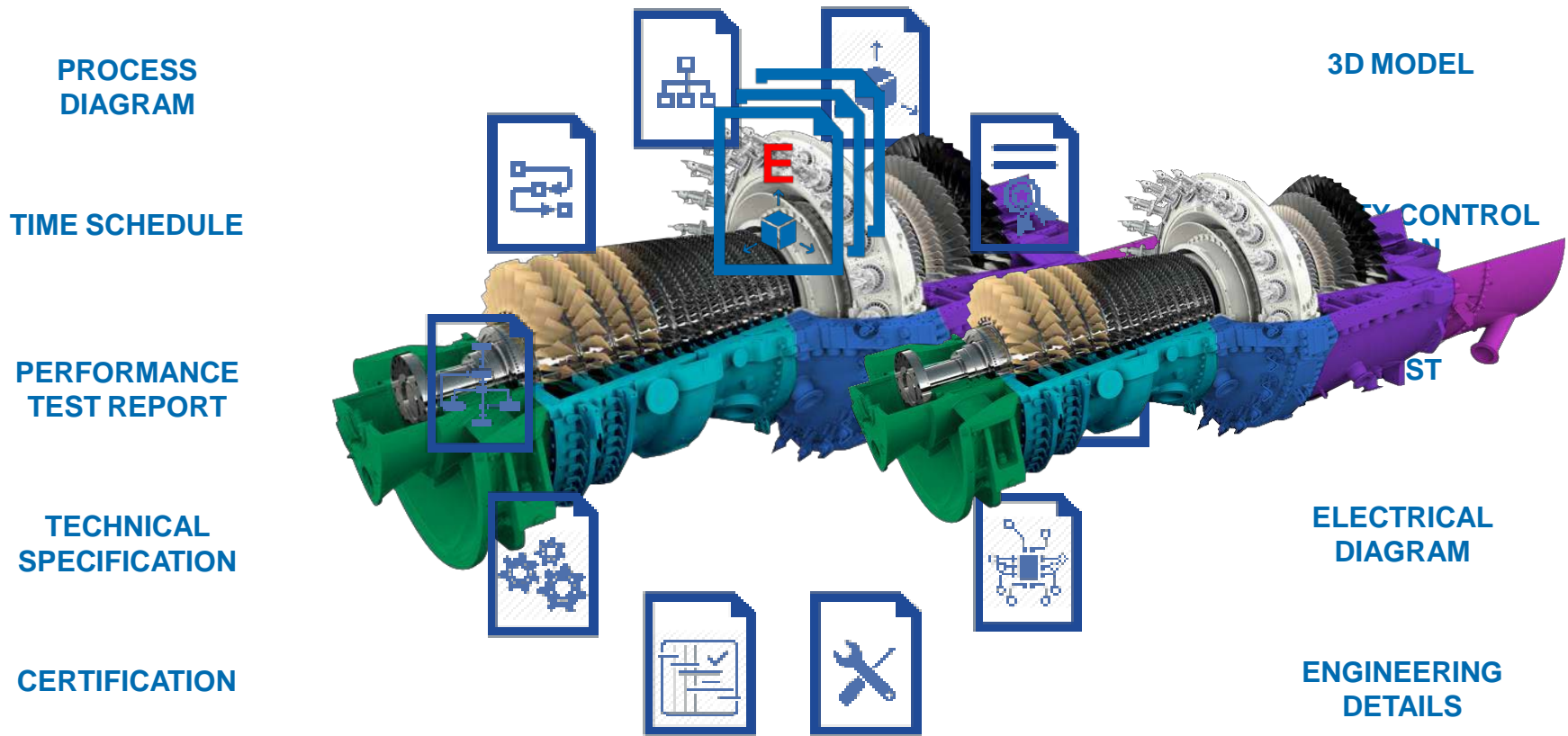


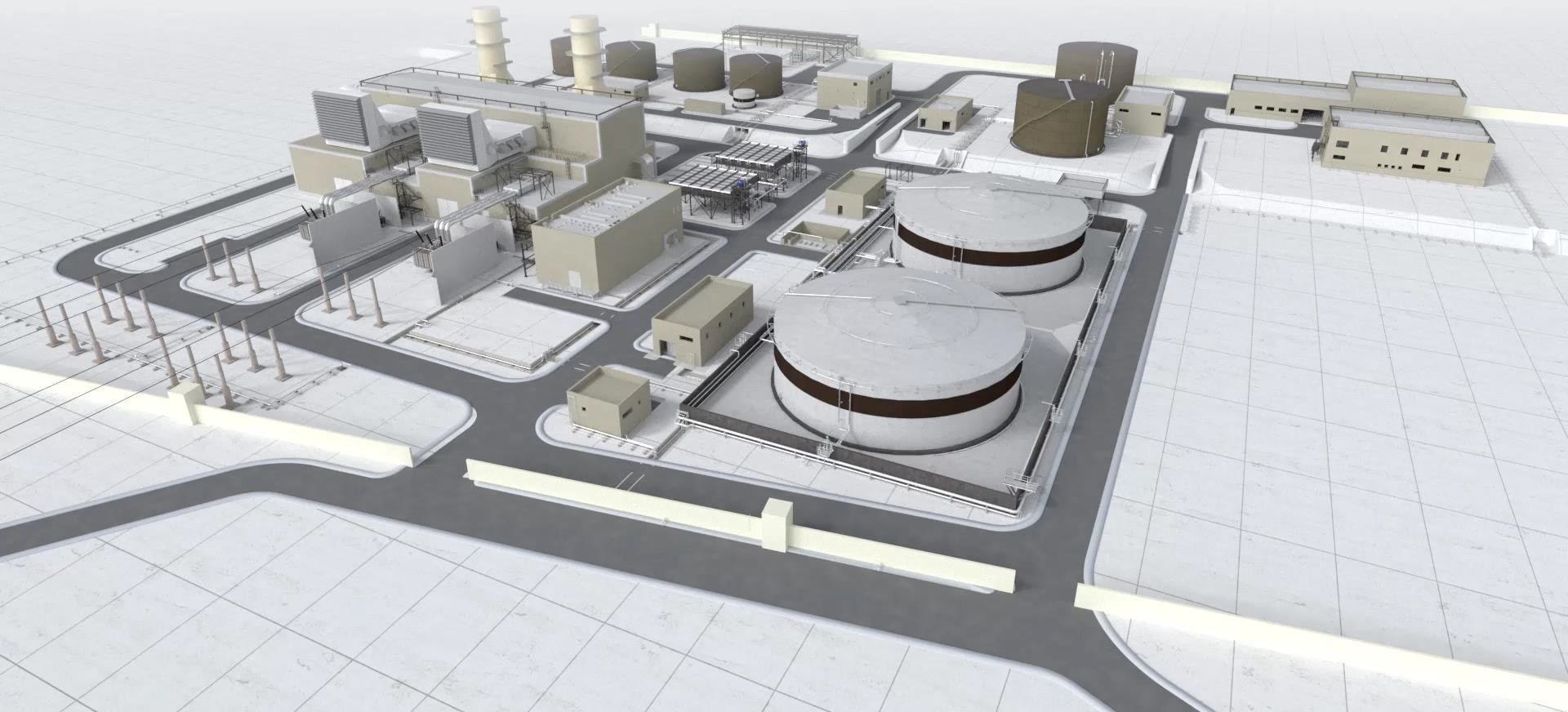
14 - 36 MONTHS
150.000+ HH ENGINEERING
8.000 - 20.000 DOCUMENTS
13.500+ COMPONENTS
3.500 - 5.000 PACKAGES
1.000 - 1.500 SUPPLIES
200+ SUPPLIERS
1.500.000+ HH ASSEMBLY



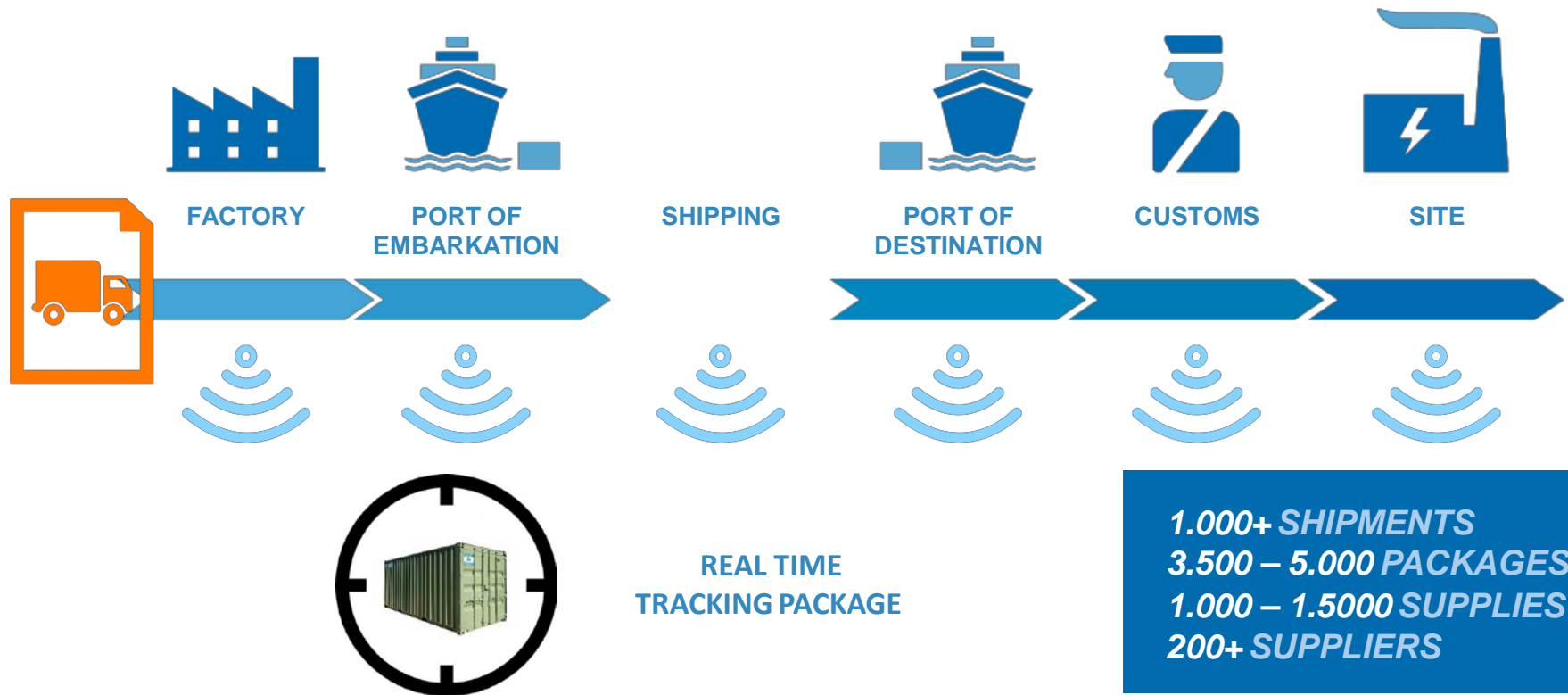
SELECT PLANT ARCHETYP

Open Cycles	Combined Cycles
	
<ul style="list-style-type: none"> OC1 <li style="background-color: #4F81BD; color: white;">OC2 OC3 OC4 	<ul style="list-style-type: none"> 1X(1+1)SS 1X(2+1)MS 1X(4+1)MS 2X(1+1)MS 2X(2+1)MS



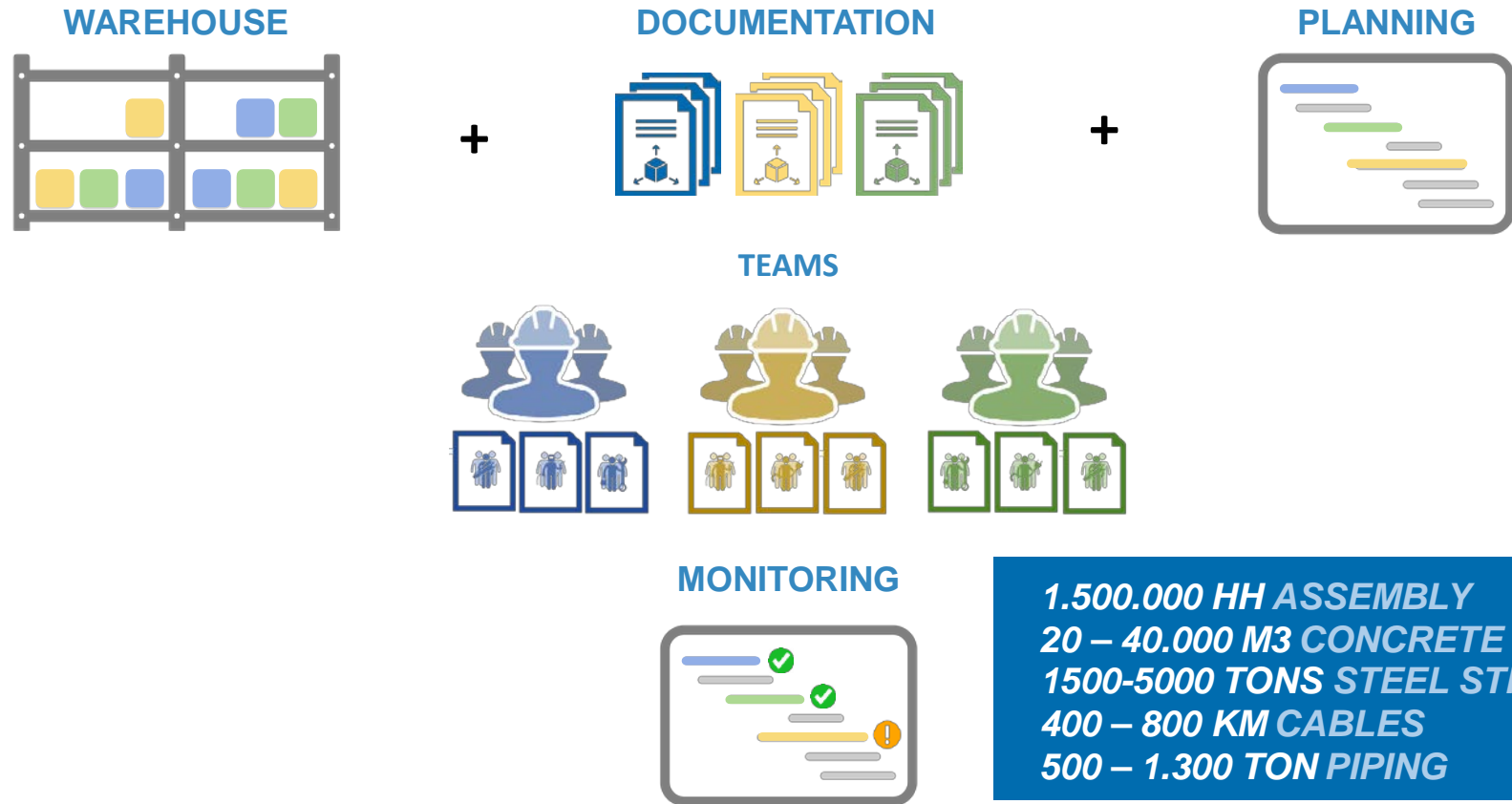






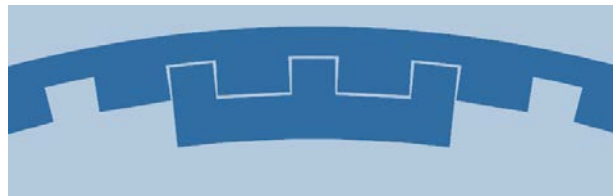
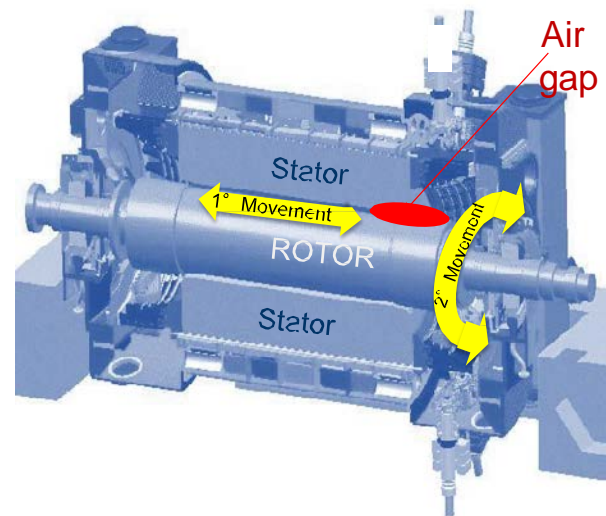


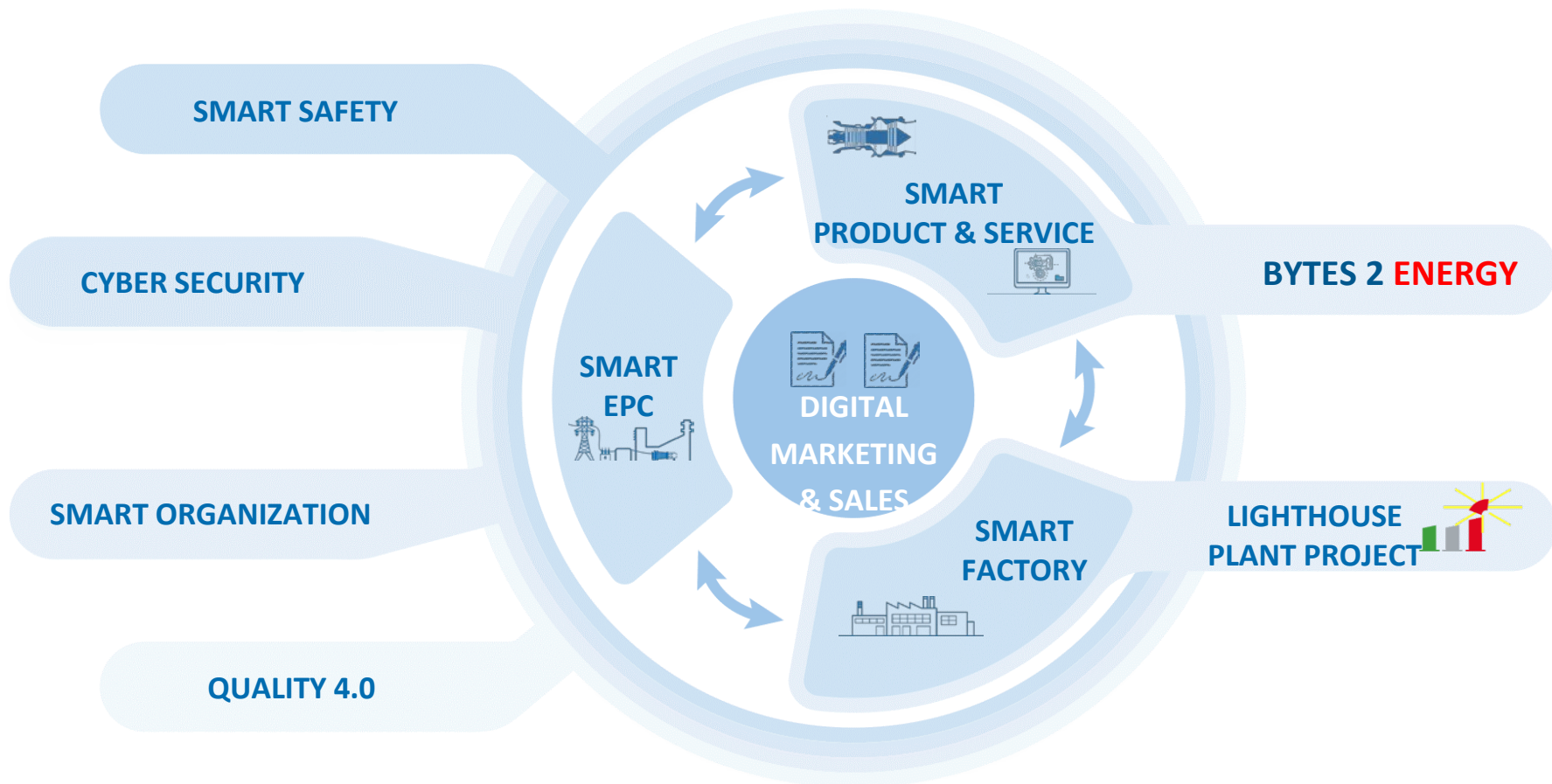
ANSALDO ENERGIA		CONSTRUCTEUR: Ansaldo Energia S.p.A.				A L'USAGE DE LA SOCIÉTÉ ALGERIENNE DE PRODUCTION DE L'ÉLECTRICITÉ S.P.E - SPA				LISTE DE COULAGE	
		Site	GE	Site	Position Axis	Longueur	Largeur	Hauteur	Volume	Unité	Notes
Numero	Detail	Mat	Spéc	Stockage	Axe	Longueur	Largeur	Hauteur	Volume	Unité	Notes
13	1	PVC	COULAGE HEAVY DUTY 2000	STOCKAGE	2000	1000	1000	2000000	2000	1	
14	1	PVC	COULAGE HEAVY DUTY 2000	STOCKAGE	2000	1000	1000	2000000	2000	1	
15	1	PVC	COULAGE HEAVY DUTY 2000	STOCKAGE	2000	1000	1000	2000000	2000	1	
16	1	PVC	COULAGE HEAVY DUTY 2000	STOCKAGE	2000	1000	1000	2000000	2000	1	
17	1	PVC	COULAGE HEAVY DUTY 2000	STOCKAGE	2000	1000	1000	2000000	2000	1	
18	1	PVC	COULAGE HEAVY DUTY 2000	STOCKAGE	2000	1000	1000	2000000	2000	1	
19	1	PVC	COULAGE HEAVY DUTY 2000	STOCKAGE	2000	1000	1000	2000000	2000	1	
20	1	PVC	COULAGE HEAVY DUTY 2000	STOCKAGE	2000	1000	1000	2000000	2000	1	
21	1	PVC	COULAGE HEAVY DUTY 2000	STOCKAGE	2000	1000	1000	2000000	2000	1	
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23	1	PVC	COULAGE HEAVY DUTY 2000	STOCKAGE	2000	1000	1000	2000000	2000	1	
24	1	PVC	COULAGE HEAVY DUTY 2000	STOCKAGE	2000	1000	1000	2000000	2000	1	

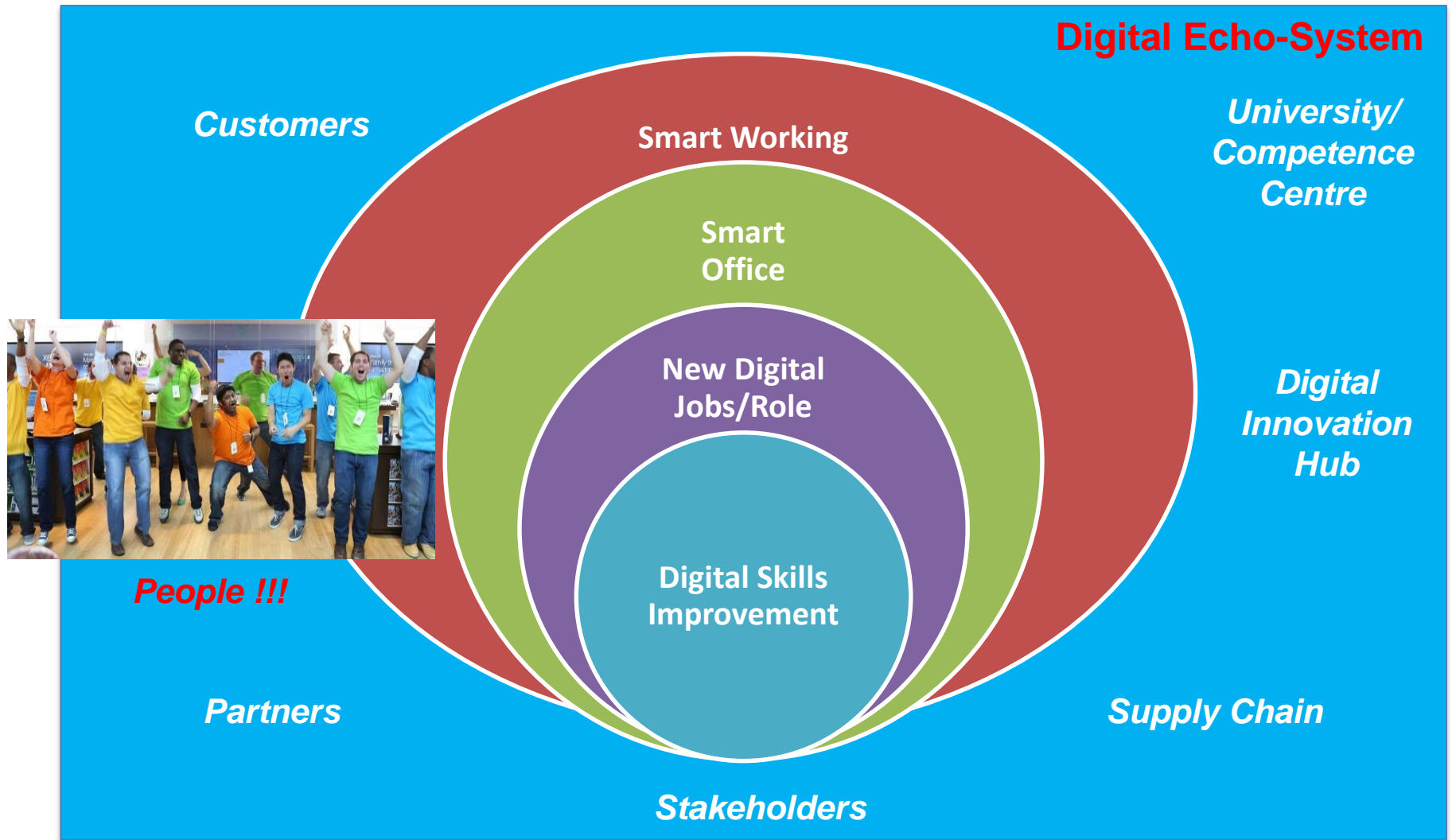


ROBOTIC VEHICLE FOR TURBOGENERATOR INSPECTION**CHECK STATOR INTEGRITY****ADVANCED MULTI-
SENSORIAL APPROACH**

- Computer Vision through TV cameras
- microphone for acoustic analysis
- custom sensors for specific diagnostic purposes

**TIME SAVING****COST SAVING****STANDARD REPORT****NO DISMOUNTING**

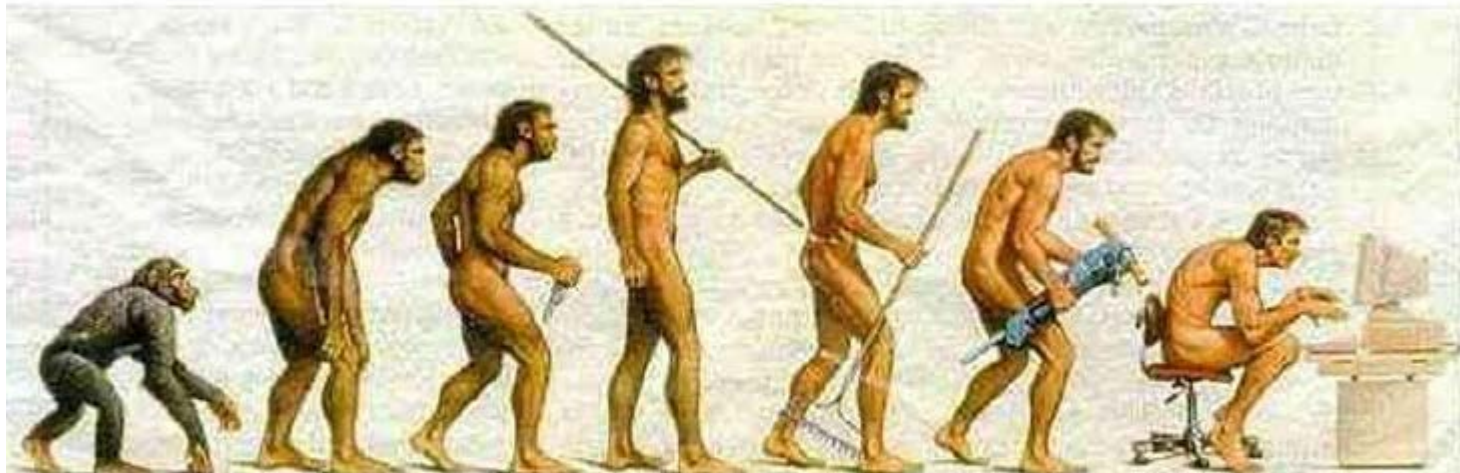




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Evolution



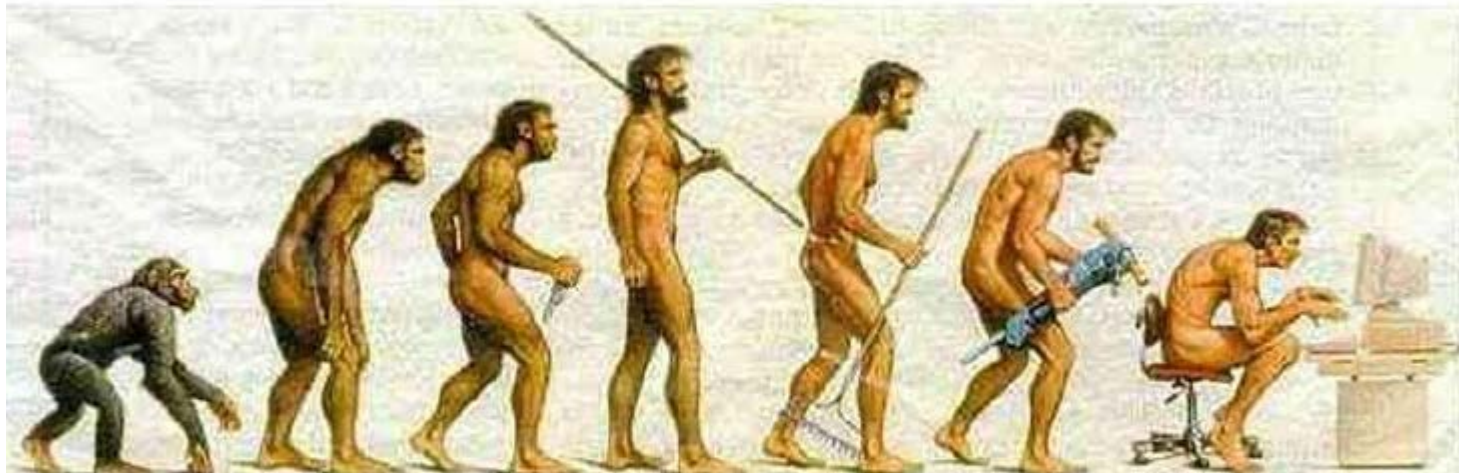
- After 20 years from ***Ariston Digital*** – first Industrial IoT experience – the **Integrated Product+Service Value Proposition enabled by the Digital Technology** is again the key strategic driver of the ***Ansaldo Energia 4.0*** vision in the current Industria 4.0 scenario

Revolution



- **Ansaldo Energia 4.0** today leverage on a set of **mature Digital Technologies**
- **Ariston Digital** leveraged mainly on new **web technology developed in USA** (i.e. Medialab/MIT of Negroponzo, IDEO Design), but with a well qualified, even if **limited Italian know-how supported by leading edge Competence Centers** (i.e. IIT Genova, Saint Anna Pisa). **Digital Technologies** enabling Ariston Digital (WRAP, margherita2000.com and the other smart appliances, leap@ardo) **not enough mature** for a full exploitation in the **mass market** → partial **valorisation** addressed the **USA Appliance Service Business** (WRAP technology sold to SEARS) (as well to develop **new business model** delivering new added value services to its customers.

Evolution



- **Central Role of the Human Capital:** Industry 4.0 Technologies empowering (and not replacing) human resource capacity and competencies
- **Leadership of visionary and charismatic entrepreneurs and managers** (V. Merloni and F. Caio 20 years ago; G. Zampini today) is always one of the **key factors of success**.

Grazie per l'attenzione

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