



Ansaldo Energia

La quarta rivoluzione industriale: quale sarà il nuovo paradigma dell'energia?"

"ENERGY POWER PLANT 4.0" WHEN BYTES BECOME ENERGY



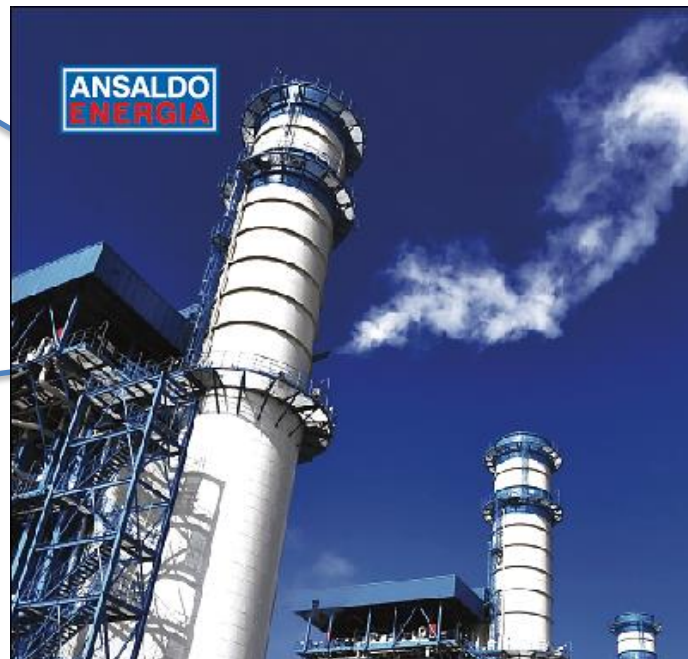
**ADVANCED MODELLING
AND CLOUD COMPUTING**



**ADVANCED
MANUFACTURING
SYSTEMS**



**PREDICTIVE
CAPABILITY**



INTERNET OF THINGS

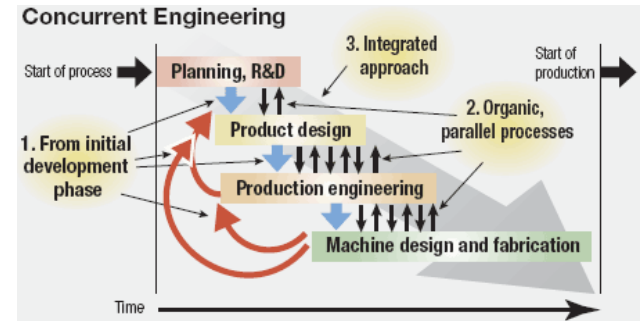
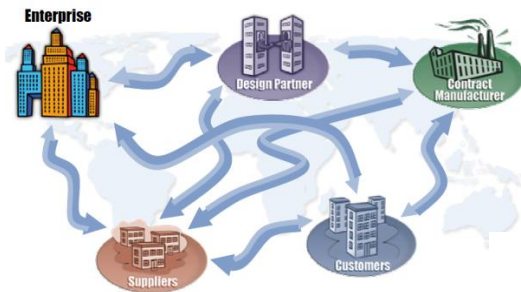


LOGISTICS 4.0



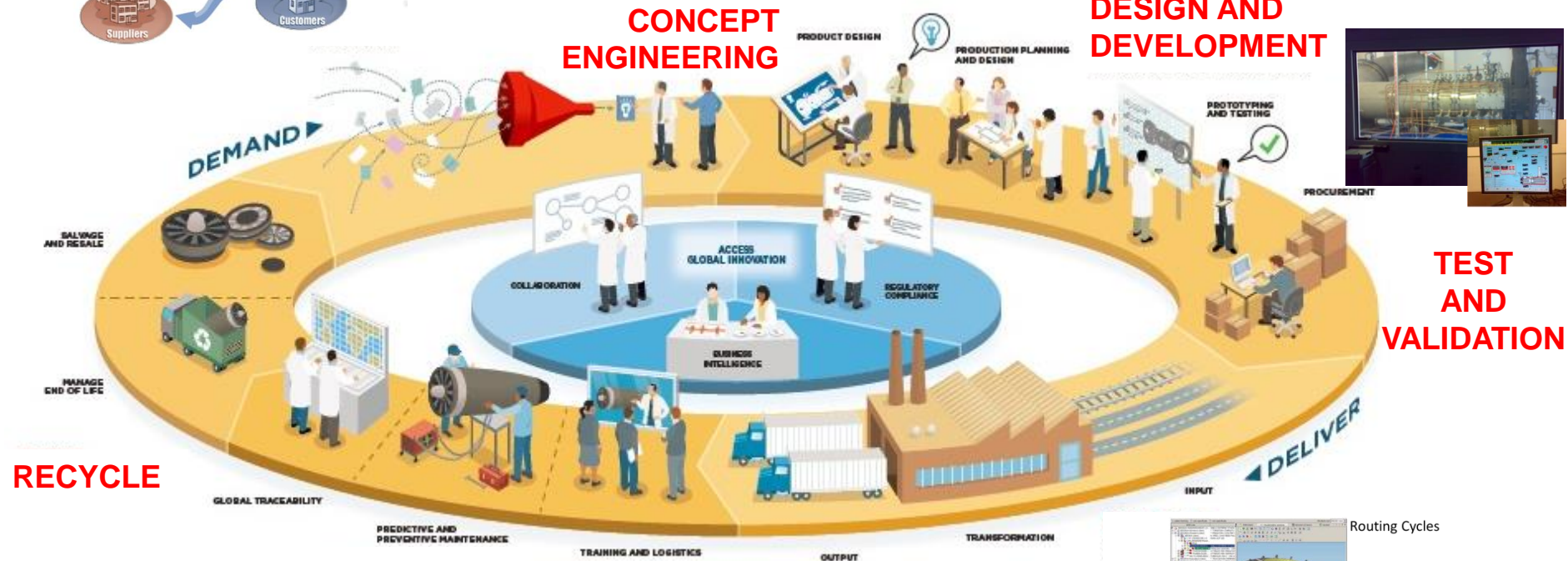
CYBERSECURITY

PRODUCT LIFE MANAGEMENT PLM



CONCEPT ENGINEERING

DESIGN AND DEVELOPMENT

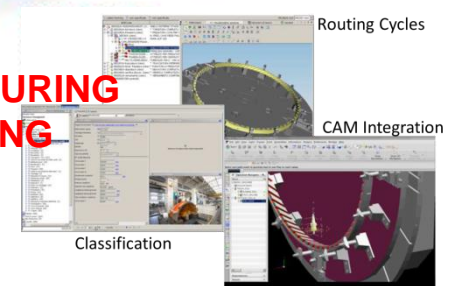


RECYCLE

SERVICE

MANUFACTURING ENGINEERING

TEST AND VALIDATION

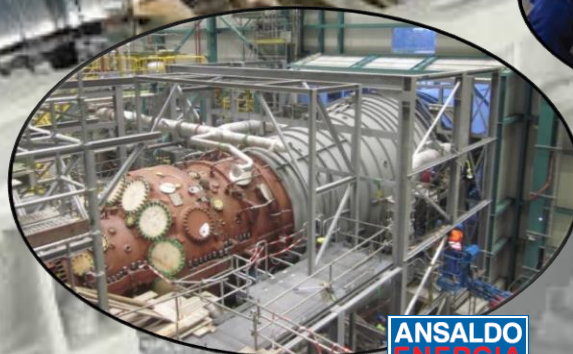




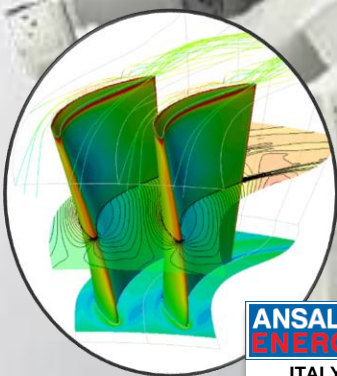
PSM
Ansaldo Energia Group



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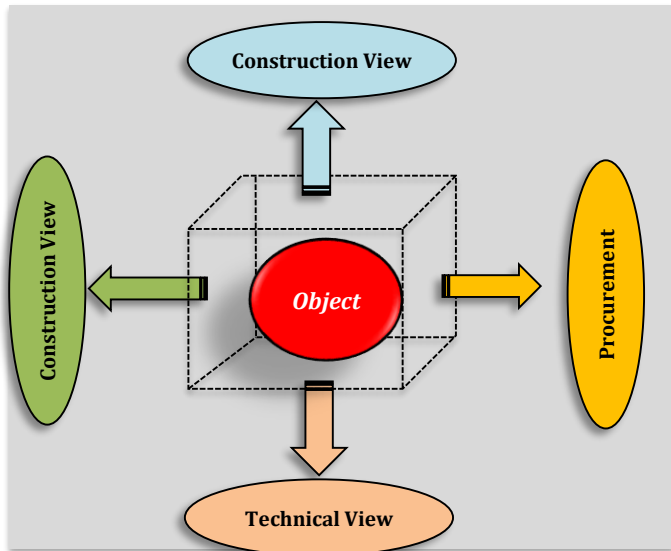
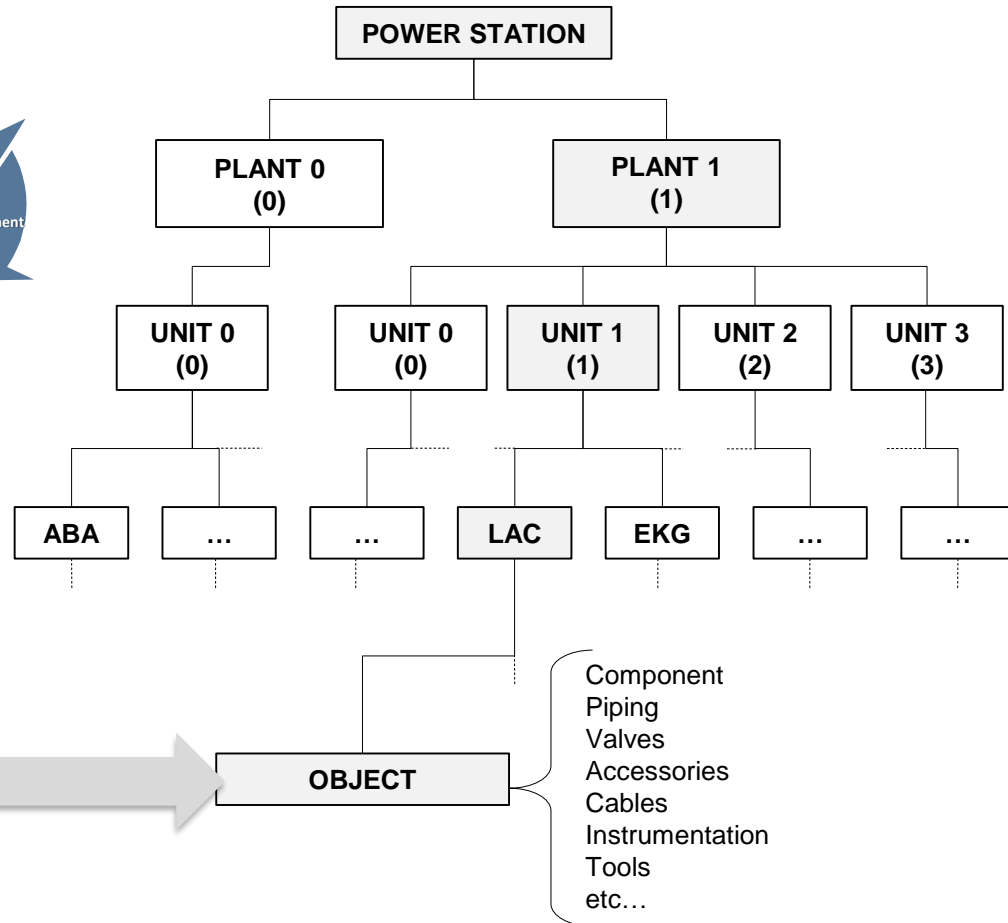
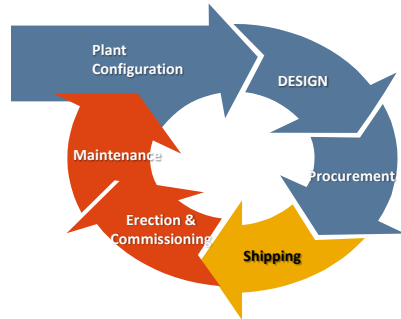
Interconnected systems

- "Internet based co-design"
- "Internet based manufacturing"
- "Internet based service"
- "Predictive Maintenance"

Combined Cycle 1x(2+1)MS

The **Object**, as the «atomic unit» of the Plant Structure. Manage all the Design Data linked to the Object to Properly follow it during the entire lifetime:

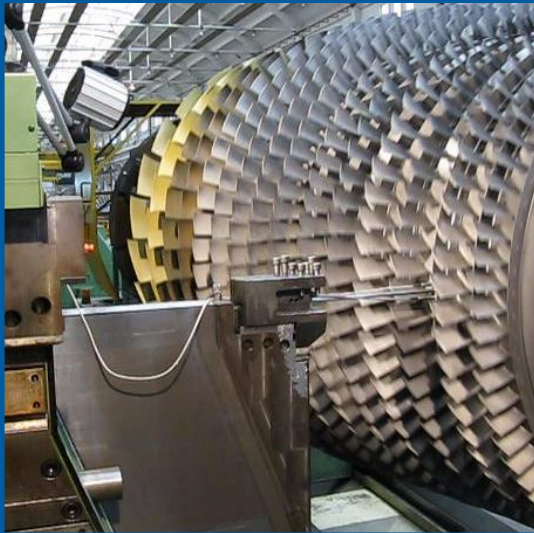
- Design
- Procurement
- Manufacturing
- Test&Inspection
- Shipping
- Installation
- Commissioning
- Maintenance



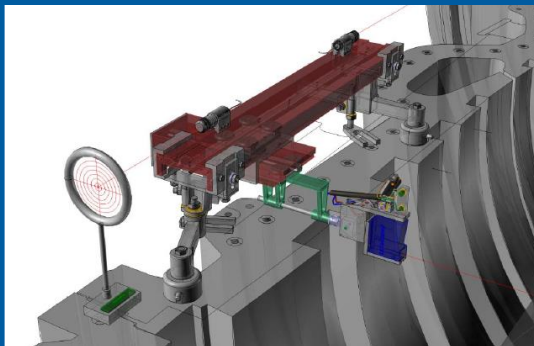
Big Data

Rotor run out: build Up the reference for predictive capability

Factory measurement



Field measurement



- **Outstanding Accuracy**

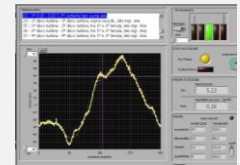
implementing rotor run out measurement with special laser sensor and replacing LVDT system

- **Align the measurement data**

a system for factory measurement and field measurement under the same principle

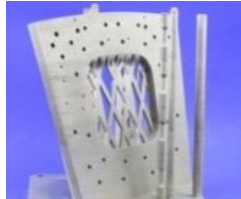
- **Keep track**

of run out rotor behavior in its entire life cycle



Advanced Manufacturing Systems & Repair Network

*Today experience**



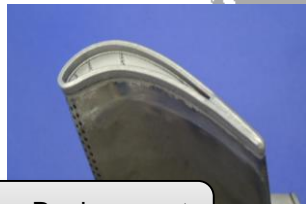
SEV
Dampened front panel



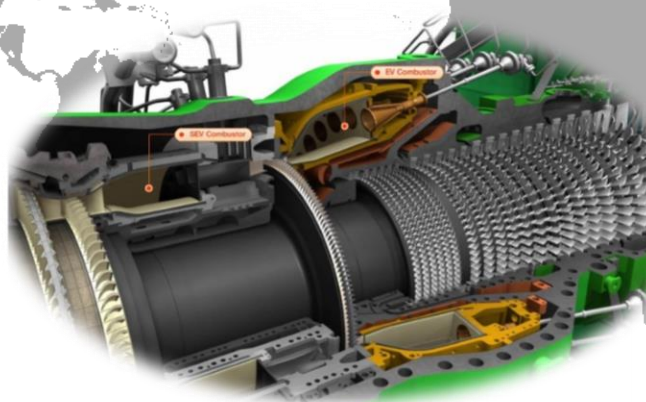
HPT blade with
SLM tip



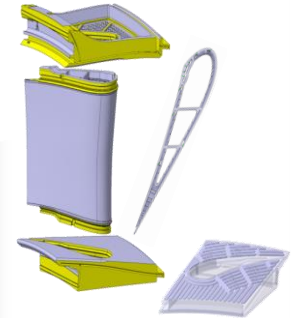
Heat Shields



Tip Cap Replacement
& Squealer buildup



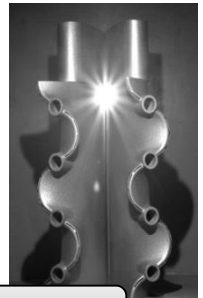
Next Generation Engines



Bi-Cast Vane 1



Fuel Injector Head



Vane Concept Design

**)Full Size GT Test Centre in Birr, Switzerland*

Teleassistance for plants in critical areas



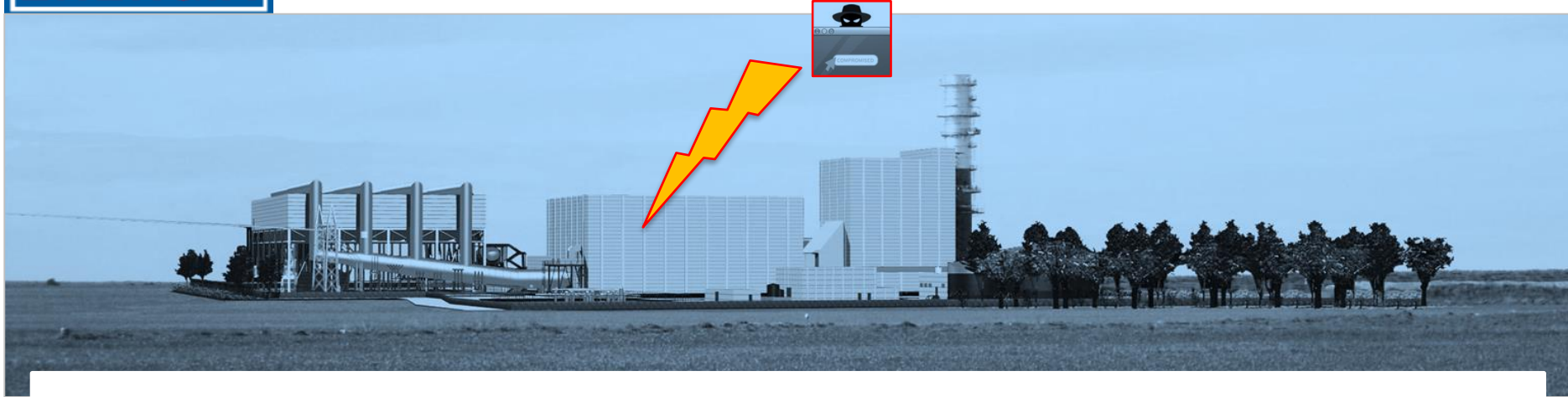
Bi-directional data exchange

Time response shortening

Site personnel reduction

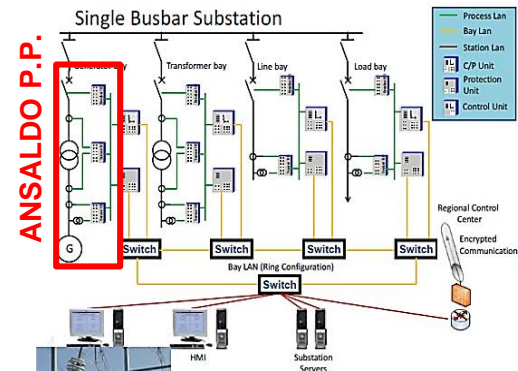
Cooperation among experts in different locations

Improvement of the plant availability



Protection and segregation of PP circuit breaker from Cyber Attacks

- Innovative systems development
- Standard for security of the communication protocols definition
- Leading member of CEI/IEC TC 57



End-to-End secure communication patented package with MV Power Line Carrier Systems - Micro Grids.