PLM - the backbone of the ‘Digital Twin’
Atos at a glance
Digital business transformation is at our heart

We are an Integrated Digital Services Leader

1. Annual revenue circa €12 billion
2. Over 100k employees in 72 countries
3. Your Business Technologists. Powering progress

We are powering progress, and empowering Digital business transformation

Renewing
Providing
Ensuring
Enabling

We deliver a complete value chain of offers and services based on deep industry expertise

Renewing
Customer Experience

Providing
Trust & Compliance

Ensuring
Operational Excellence

Enabling
Business Reinvention

Delivering
Consulting & Systems Integration
Big Data & Cyber Security
Managed Services
Cloud Computing services through Canopy
E-payment transactional services through Worldline

Enabled by our world class partners

We are Worldwide IT Partner for the Olympic & Paralympic Games.

Clients

Facts

Digital Transformation

Key solutions

Clients
Manufacturing in general faces many challenges:

- Cost
- Lack of skilled resources
- Productivity / quality
- Product development & innovation
- Cost of certification / traceability
- Time to market
- Digitisation

‘Servitisation’ offers a different set of challenges:

- Contracting for availability
- Through life engineering
- Cost of service operations
What is a digital twin:

'A virtual model of a process, product or service inextricably linked to it’s physical instantiation’

A Digital Twin requires 3 things:

• A physical product
• A virtual representation
• Connection of data and information between the physical & virtual

Equally applicable to the factory or the product (and the services that relate to it)
But why?

The Twin provides the critical link between the models, processes, data & sensors

The ‘Twin’ is a key enabler for other value add capabilities

- **Product development** – IDC predict 30% improvement in critical process cycle times
- **Product efficiency** – GE’s objective is to gain 20% efficiency from their wind turbines by analysing the configuration of each turbine prior to construction
- Augmented reality promises increased levels of accuracy at rates of 30% faster than achieved today
- Predictive / Prognostic analytics are already delivering benefits in through life engineering
PLM is the Digital Twin’s backbone
The integration of people, process & data

Product Lifecycle Process

- Conception
- Design
- Industrialise
- Manufacture
- Operate
- Maintain
- Disposal

Lifecycle

Engineering

Manufacturing

In-Service

Research

Legislation

Partners

Suppliers

Dealers

Customers

Inputs, Studies

Create, Use,

Collaborate, Share,

Manage,

Disseminate,

Business Tools

• Mechanical Computer-Aided Design (MCAD)
• Electrical Computer-Aided Design (ECAD)
• Computer-Aided Engineering (CAE)
• Computer-Aided Software Engineering (CASE)
• Visualization and Digital Mock-Up (DMU)
• Product Data Management (PDM)
• ...
Product Lifecycle Management
Supports the bi-directional flow of information
The Digital Twin as an enabler

Within the factory:

Product design / evolution:

- Process optimisation
- Real time / historic production status
- Scenario modelling
- Optimised maintenance
- Contextual information for staff
- Improved quality
- VR training

MRO:

- ‘Real time’ system / sub-system / component status
- Prognostic / preventative maintenance regimes become viable
- Obsolescence management
- Enabler for Virtual / Augmented Reality technology & prognostics
Focus on the problem not the technology
  - success requires business, OT & IT to work together like never before....

Understand where the business benefit resides
  - look at other industries where partial twins have been implemented

Define an architecture which uses PLM as the backbone for the twin

Start small, focus on a use case at a time & evolve
  - building a twin is like building any product, it requires engineering disciplines to be applied

Consider the entire process / system & the supply chain that supports

Consider the provenance / ownership of the data being used

Technology should be open and scalable
Thanks

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