Morgan Stanley Digital Day

Helping Capital Goods Companies Solve Digitalization Challenges

Olivier Ribet
VP Industry High-Tech
@oribet
Olivier.ribet@3ds.com
Dassault Systèmes at a glance

### Company OVERVIEW

- A **Scientific** company
- One global R&D / **64 labs**
- **15,000** passionate people
- **210,000** enterprise customers
- **12,600** partners
- Majority shareholder control
- **€3,065.6 million*** revenue
- Operating margin: **31.2%***

*Figures as of FY 2016 / Non-IFRS

### Delivering VALUE

- **3DEXPERIENCE Platform**

### Increase Domain LEADERSHIP

- **Brand Value Creation**
- **Acquisitions**

The 3DEXPERIENCE Company

Continuous investments in **Scientific** and Experience Innovation Companies
Capital Goods Companies | a selection of Digitalization Challenges

**CHALLENGES**

- To be **FASTER**...
- To be **FLEXIBLE**...
- To be **RELIABLE**...
- To FREE UP design...

**SOLUTIONS**

- ...with a **DIGITAL MODEL**
- ...in the **SHOP FLOOR**
- ...with **PREDICTIVE ANALYTICS & OPTIMIZATION**
- ...with **ADDITIVE LAYER MANUFACTURING**
Digitalization Biggest Opportunities

(Source: Morgan Stanley)

- Decentralized & Large Equipment Base (Utilities, Telco, Transport infrastructures).
- Large chemical plants, O&G platforms, drug & food manufacturing, Semiconductors.
- Large scale industrial products with high number of assembled parts (e.g. Automobile).

Examples of Dassault Systèmes Solutions

<table>
<thead>
<tr>
<th>MOSTLY DISCRETE MANUFACTURING</th>
<th>MOSTLY PROCESS MANUFACTURING</th>
<th>DISCRETE &amp; PROCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connect Robots</td>
<td>Machine</td>
<td>Faster Design &amp; Production</td>
</tr>
<tr>
<td>Deploy Cobots</td>
<td>Digitalization Upgrade Cost</td>
<td></td>
</tr>
<tr>
<td>Keep uptime / reduce downtime</td>
<td>Modularization, Standardization of Plants</td>
<td></td>
</tr>
<tr>
<td>Improve Product Design</td>
<td>Reduce Installation Costs</td>
<td>Reduce Installation Ramp-up</td>
</tr>
</tbody>
</table>
Hardware in the 3D-Loop – Prerequisite for Efficient Lab Tests

- Improving DevOps, Speed + Safety
- through innovative methods

Goal: 1 billion test kilometers in 1 day

Bosch Connected World – Dr Hoheisel
Dassault Systèmes and Capital Goods Industry

<table>
<thead>
<tr>
<th>Capital Goods Industries</th>
<th>Building on VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>► Capital Goods Industries represent 60%+ of 3DS 2016 revenues</td>
<td></td>
</tr>
<tr>
<td>► DELMIA software revenue up +17% exFX in 2016</td>
<td></td>
</tr>
<tr>
<td>► QUINTIQ software revenue up +23% exFX in 2016</td>
<td></td>
</tr>
<tr>
<td>► Acquisition of Ortems (Agile Planning &amp; Scheduling) in 2016</td>
<td></td>
</tr>
<tr>
<td>► Bridging value from Users to Teams to Enterprise</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Companies who adopted 3DEXPERIENCE Platform in 2016</td>
</tr>
<tr>
<td>► VALMET ➔ pulp, paper and energy</td>
<td></td>
</tr>
<tr>
<td>► DCNS ➔ Marine &amp; Offshore</td>
<td></td>
</tr>
<tr>
<td>► AIRBUS ➔ Aircraft manufacturing</td>
<td></td>
</tr>
<tr>
<td>► DOOSAN (Bobcat) ➔ Compact Heavy Mobile Machinery</td>
<td></td>
</tr>
<tr>
<td>► GE POWER ➔ Power generation</td>
<td></td>
</tr>
<tr>
<td>► ERICSSON ➔ Telco equipment</td>
<td></td>
</tr>
</tbody>
</table>
3DEXPERIENCE Business Platform

**3D MODELING** Applications

- Industrial Design
- Real Time Rendering
- Mechanical Design
- Cyber Systems Modeling
- City Modeling
- Material Science

**Virtual + Real SIMULATION** Applications

- Systems Simulation
- Ergonomics Simulation
- Multi-physics Simulation
- Manufacturing Simulation

**SOCIAL & COLLABORATIVE** Applications

- Fast ideas sharing
- Ideas & project Management
- Requirement Management
- Social Network

**INFORMATION INTELLIGENCE** Applications

- Social Intelligence
- Customer Knowledge
- Customer Trends
- Connected Objects & Big Data
- KPI monitoring

**PLAY 3DEXPERIENCE**

- High-End Rendering
- User Experience Validation
- Virtual Sales Configurator
Bridging “Digital” and “Physical” with an Experience platform

Multi-scale, IoT-aware System Modeling & Simulation of Connected Experiences

Continuous Experience Value Creation
Internet of Experiences Value | Continuous Experience Value Creation

- **R2V** : Insights from Experience in Life Reality Enriched Design
  - LEARN: Real-time Experience Optimization
  - RUN: Digitally Augmented Operation
  - IMPROVE: Accurate Data Enriched Simulation
  - INVENT: Virtually Validated IoE Design

- **V2R** : Virtually Enriched Experience

**INVENT**
Virtually Validated IoE Design

**RUN**
Digitally Augmented Operation

**LEARN**
Real-time Experience Optimization

**R2V**
Insights from Experience in Life Reality Enriched Design

**V2R**
Virtually Enriched Experience
Software enabled value creation

- Engineering productivity
- Reduced use of materials
- Improved Product Reliability
- Cost Optimization & Waste reduction
- Rapid prototyping & Open Collaboration
Software enabled value creation

- Reduce cost of training
- Minimize safety / security risks
- Optimize Process & Assets
- Reduce cost of Reactive maintenance
- Better planning of costly resources
LEARN

Software enabled value creation

► Continuous software delivery (Agile)
► Enrich simulation models with real data
► Increase reactivity to Real Life situations
IMPROVE

- Reduce cost of ‘over-engineering’
- Faster reconfiguration of assets
- Optimize Operations Management

Software enabled value creation

Physical Controller Interacting With Virtual Master And Real Machine

Virtual Master

Real Machine

Controller
Bridging “Digital” and “Physical” with an Experience platform

Multi-scale, IoT-aware System Modeling & Simulation of Connected Experiences

Continuous Experience Value Creation

VIRTUAL

REAL

City
Plant
Line
Equipment
Sensors & Controllers
Chips