

# 4D Simulation and Analysis for Offshore Safety

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## EOS Corporate Overview

- 3D and PLM Software Sales and Services
  - Model Based Enterprise Specialists
  - Focused on Manufacturing and Supply Chain
  - Exclusive Sales and Services Partner for Adobe 3D PDF

- Business Partners



- Adobe



- AutoDesk



- Dassault Systemes



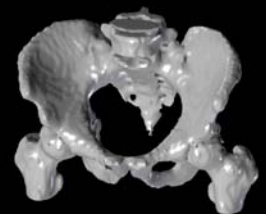
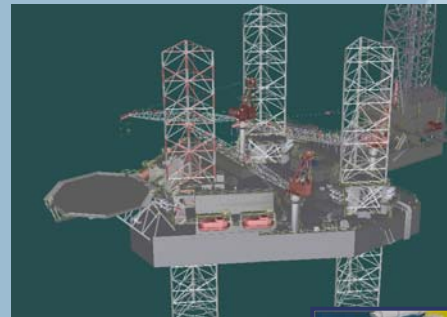
- IBM



- Siemens PLM



- Tetra 4D



## **Norisol Norge AS**

- Norisol is a Scandinavian corporation with offices in Norway, Denmark, Sweden. Norisol has in addition an office in UK, Aberdeen.
- The total turnover for 2011 was approx. 1 000 Mill NOK with 1100 employees.

### **Norisol is an multidiscipline company with core business within:**

- Insulation
- Scaffolding
- Surface treatment

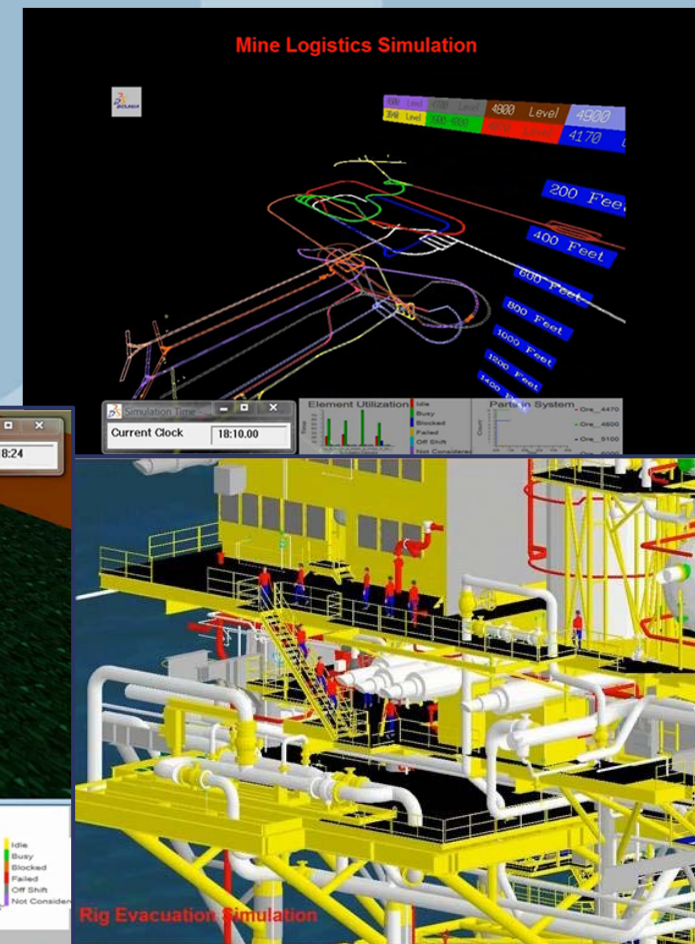
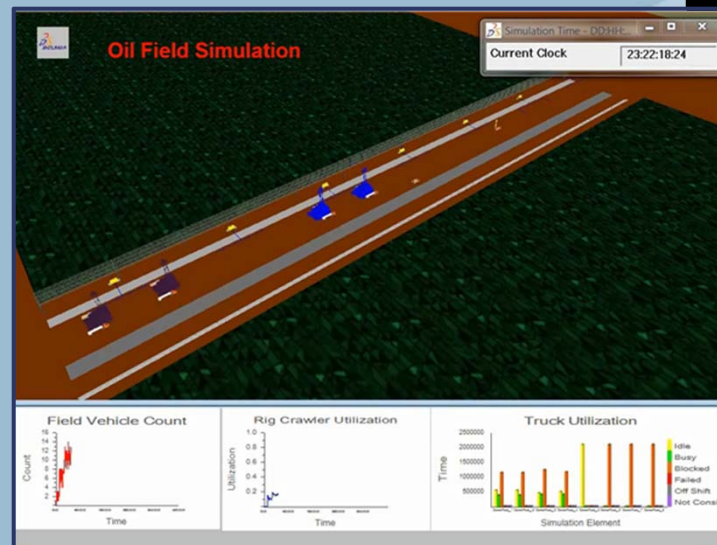
### **Norisol has partnered with EOS to introduce this technology to Europe**

### **Other areas**

- Asbestos removal
- Cold Cutting
- Design and outfitting
- 3D Scanning
- 3D PDF
- 4D Simulation
- Decomissioning work
- Engineering

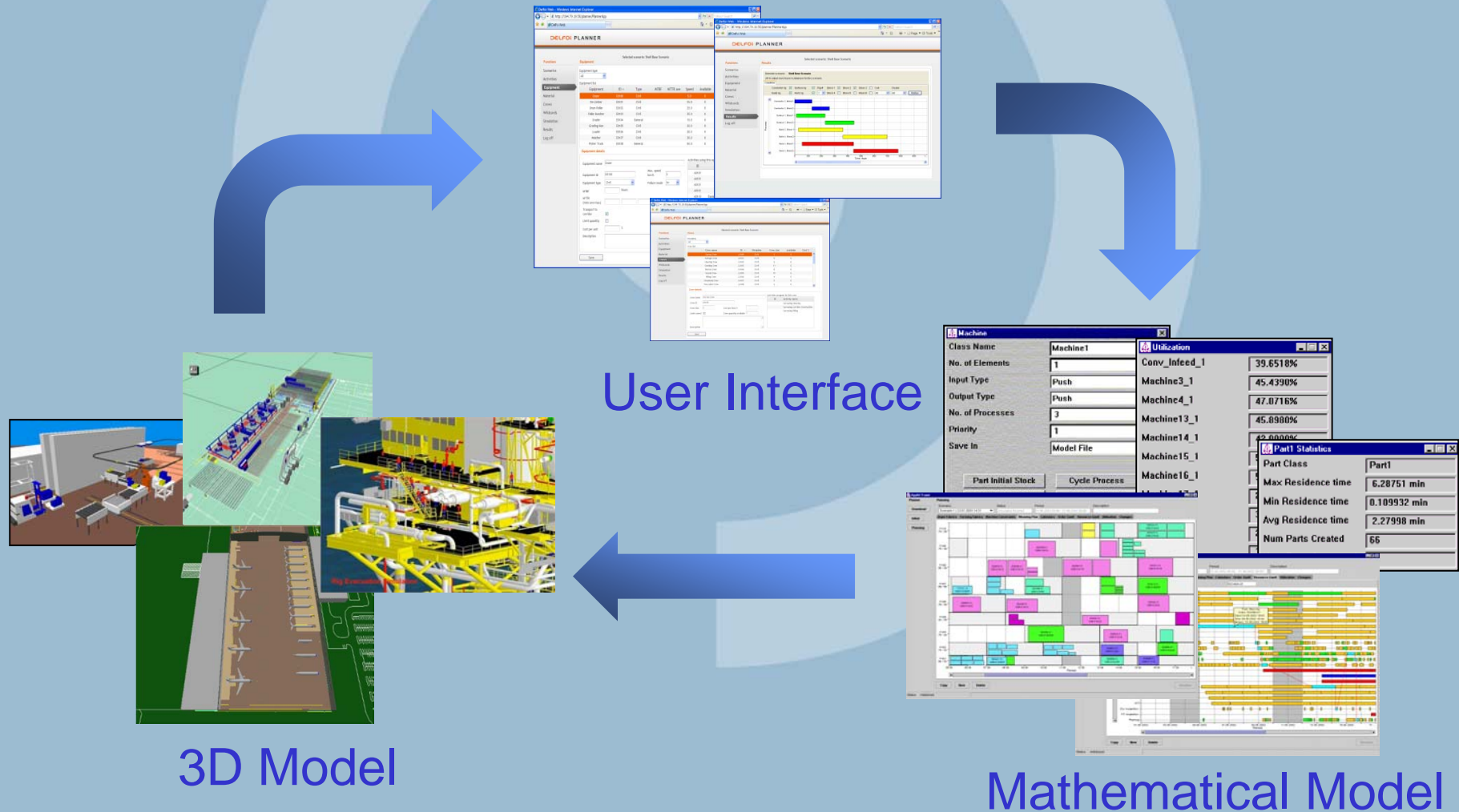
# 4D RISK ASSESSMENT

- 4D Process Simulation & Analysis
  - City, Plant, Assembly Line, Work cell, Individual
  - Aerospace, Industrial, Auto, Defense, Civil
  - Material, People, Energy Use
  - Process Improvement
  - Disaster and Evacuation





# 4D Process Simulation Solution



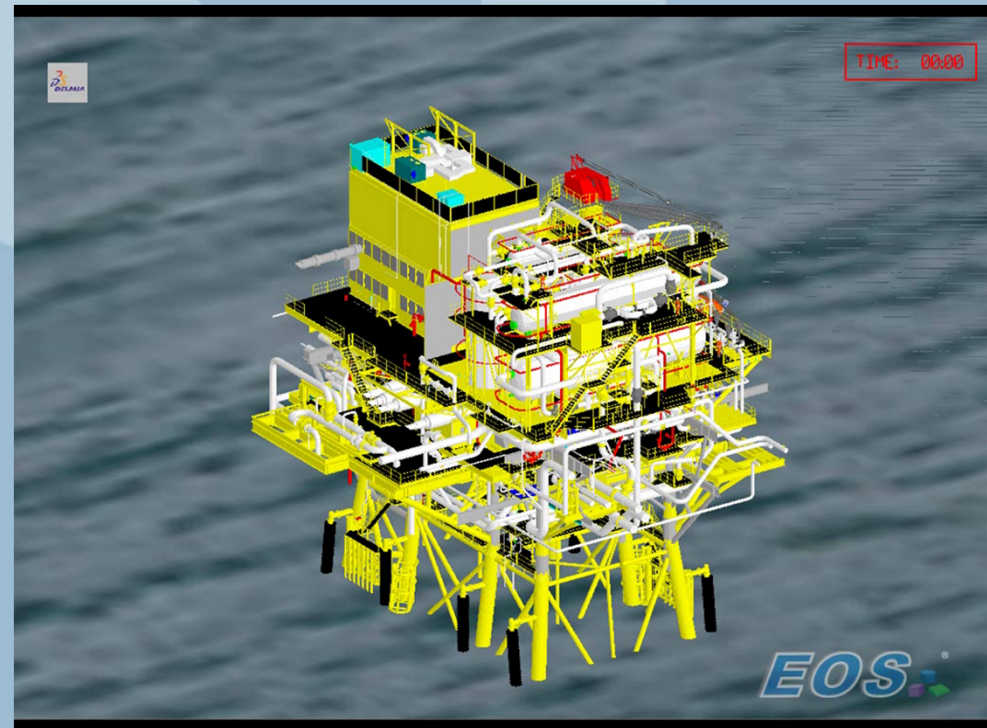
## 4D Risk Assessment – Platform Evacuation

### Challenge

- Optimize offshore platform evacuation

### Solution

- Laser scanned platform
- Modeled platform operations, equipment and procedures
- Included seasons, weather, learning curves and human behavior
- Included random variability, season, time, weather, type of catastrophe
- Enabled analysis of equipment location, routes, response times and procedures

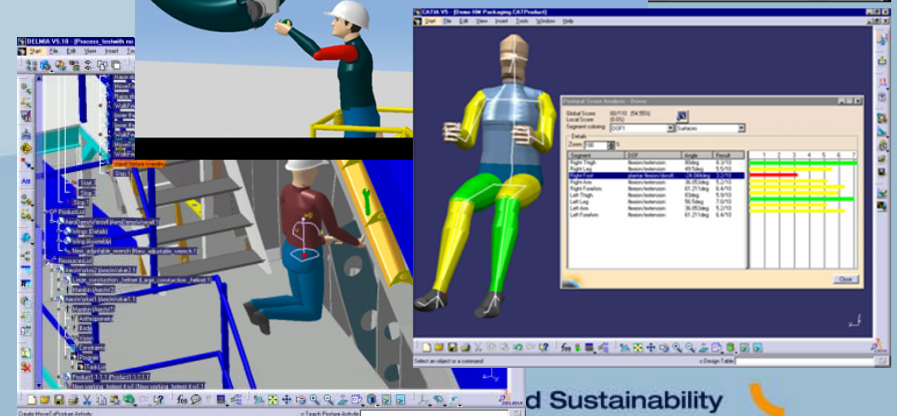
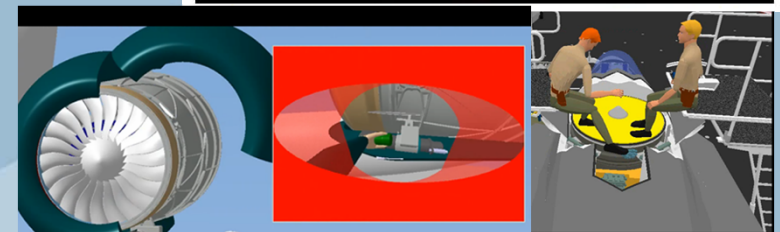


# 4D HUMAN FACTORS ANALYSIS



## 4D Human Factors Simulation

- 4D Ergonomics Simulation & Analysis
  - Dassault Systemes DELMIA Human
  - Fully Articulated Anthropometric Models
  - Process & Environmental Safety Analysis
  - Reach, Vision, & Worker Comfort
  - Posture and Motion Analysis
  - Workload & Activity Balancing



## 4D Risk Assessment – Platform Evacuation

### Challenge

- Reduce soldiers injuries from repetitive trauma dismounting vehicles

### Solution

- Modeled dismounting situations and typical procedures
- Included uniforms, equipment and environmental conditions
- Measured the bio-metric impact of dismounting and validated empirical data
- Developed safe engineering parameters for rapid dismount



# 4D HUMAN SURVIVABILITY ANALYSIS

## 4D Human Survivability Analysis

### Challenge

- Maximize vehicle crew combat effectiveness after a catastrophic IDE blast

### Solution

- Modeled ballistic effects on vehicle and crew
- Included learning curves and human behavior
- Included uniforms, equipment and environmental conditions
- Analyzed the physical and mental impact as well as post-blast acuity



## EOS Solutions

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