Inventor to Simulation Flex

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Class summary

In this session you will learn about the interaction between Inventor Professional and Simulation Flex software. We will focus on using Inventor models via direct integration for stress analysis, code checking, mechanical simulation and computational fluid dynamics (CFD). You will get overview of the Simulation Flex products and functionality.

Key learning objectives

At the end of this class, you will be able to:

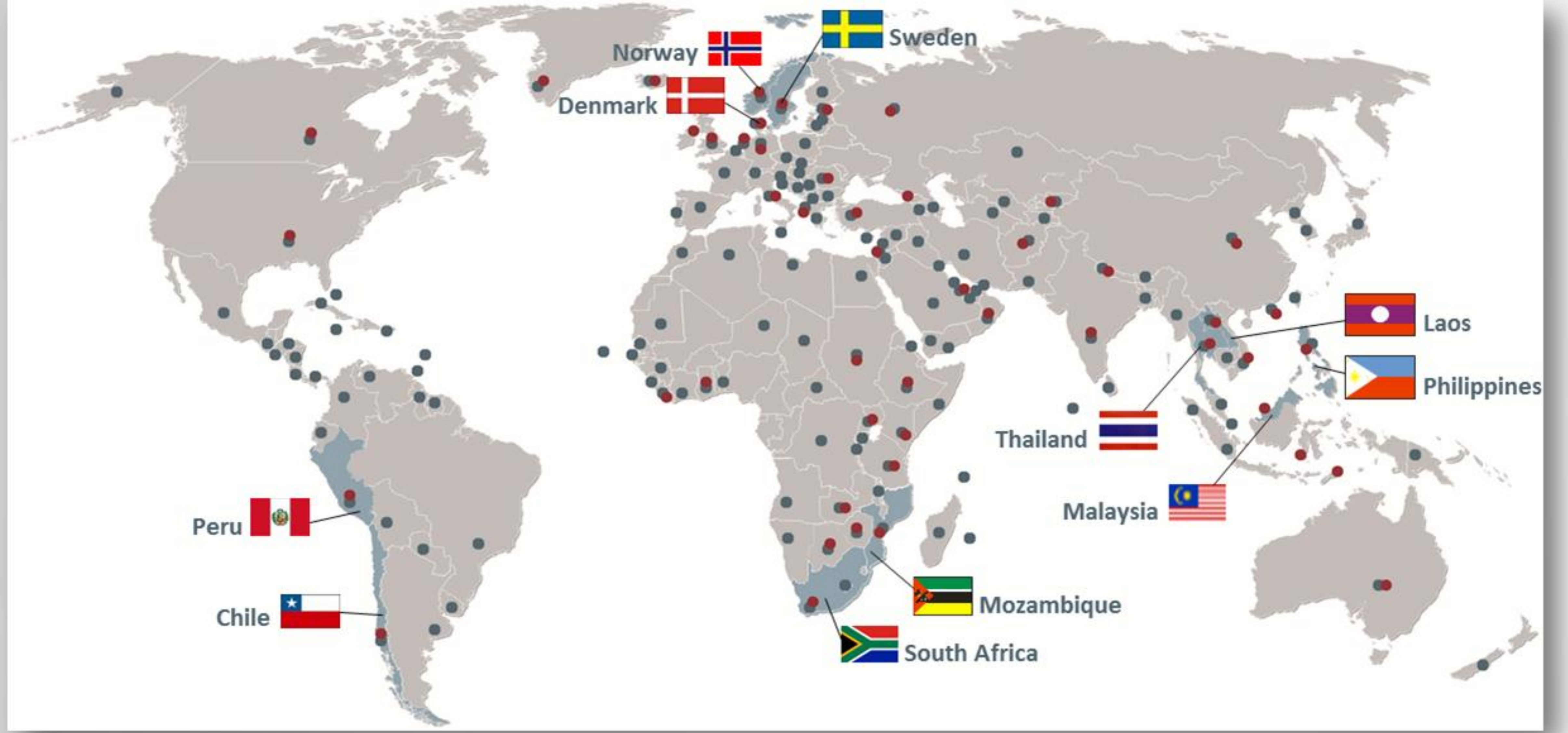
- Differ functionality and types of analysis available in Inventor Professional and other Simulation products
- Transfer Inventor models to Robot Structural Analysis and conduct code check
- Transfer Inventor models to Simulation Mechanical and conduct static stress and buckling analysis
- Transfer Inventor models to Simulation CFD and conduct flow analysis

About the Company

Norconsult

Norconsult is Norway's largest and one of the leading multidisciplinary consultancy firms in the Nordic region. Our services are geared towards community planning and design, and we have become a leading player both nationally and internationally.

More than 50 Years of International Experience


Norway
Sweden
Denmark
Laos
Philippines
Thailand
Malaysia
Peru
Chile
Mozambique
South Africa

● Countries where we have permanent offices

● Countries where we have had projects in 2012

● Countries where we have had projects since 1956

10 000 Projects

2 900 Employees
82 Offices
11 Countries

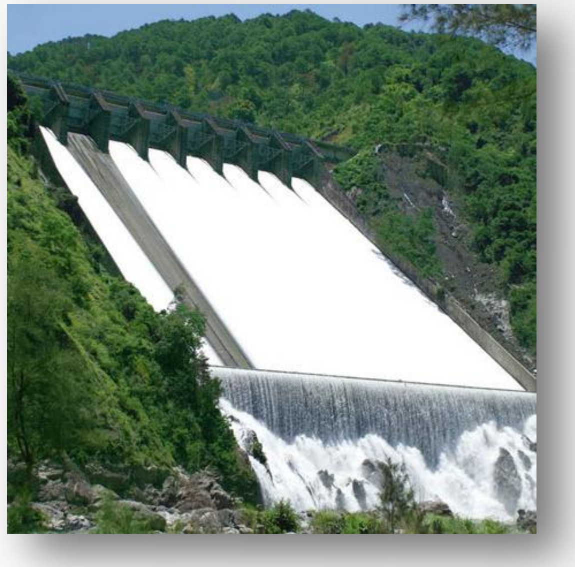
Business areas

Architecture

Buildings

Environment

Energy



Industry

Oil and Gas

Planning

Transport

Risk Management

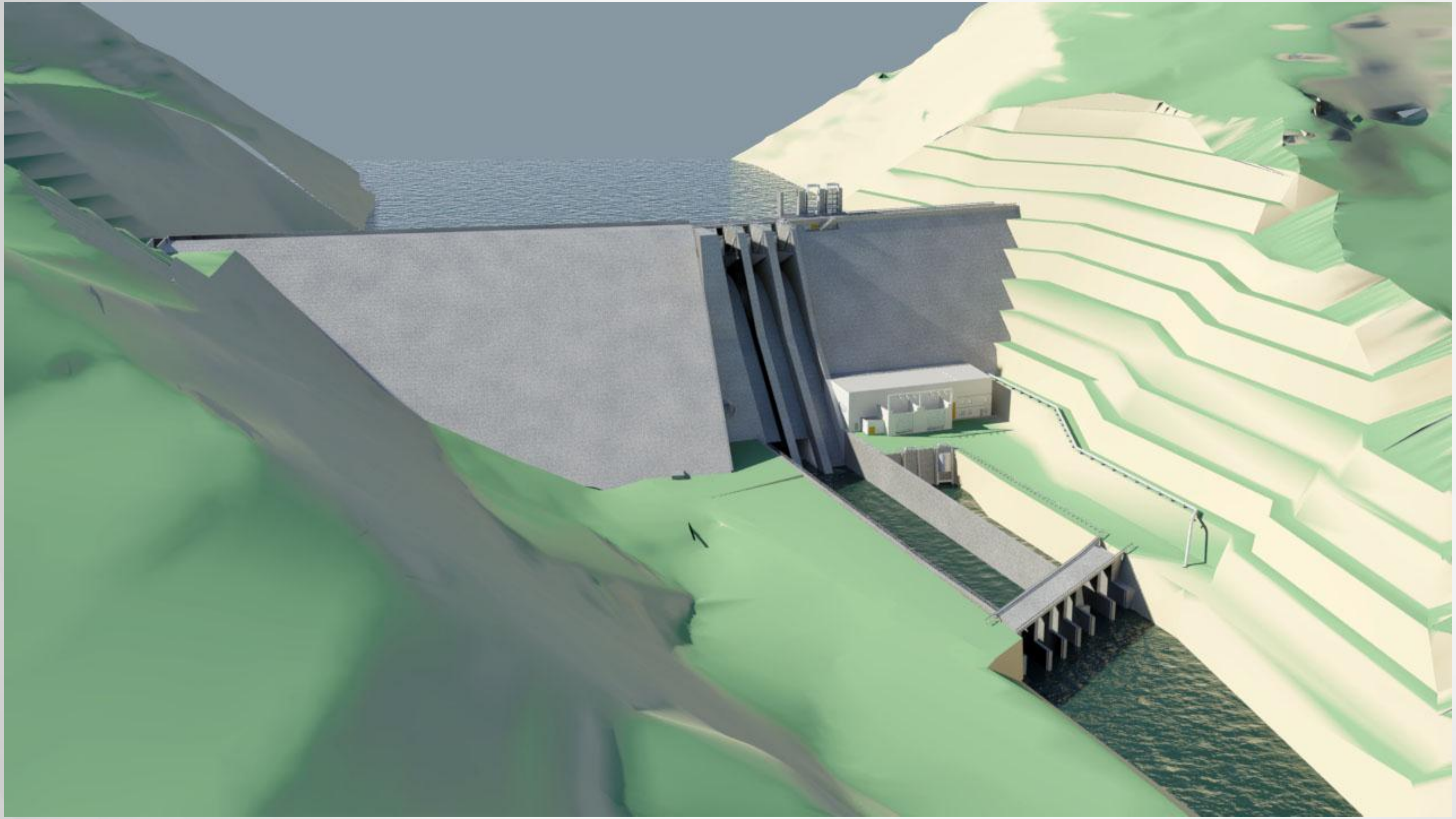
Water

Hydropower Energy

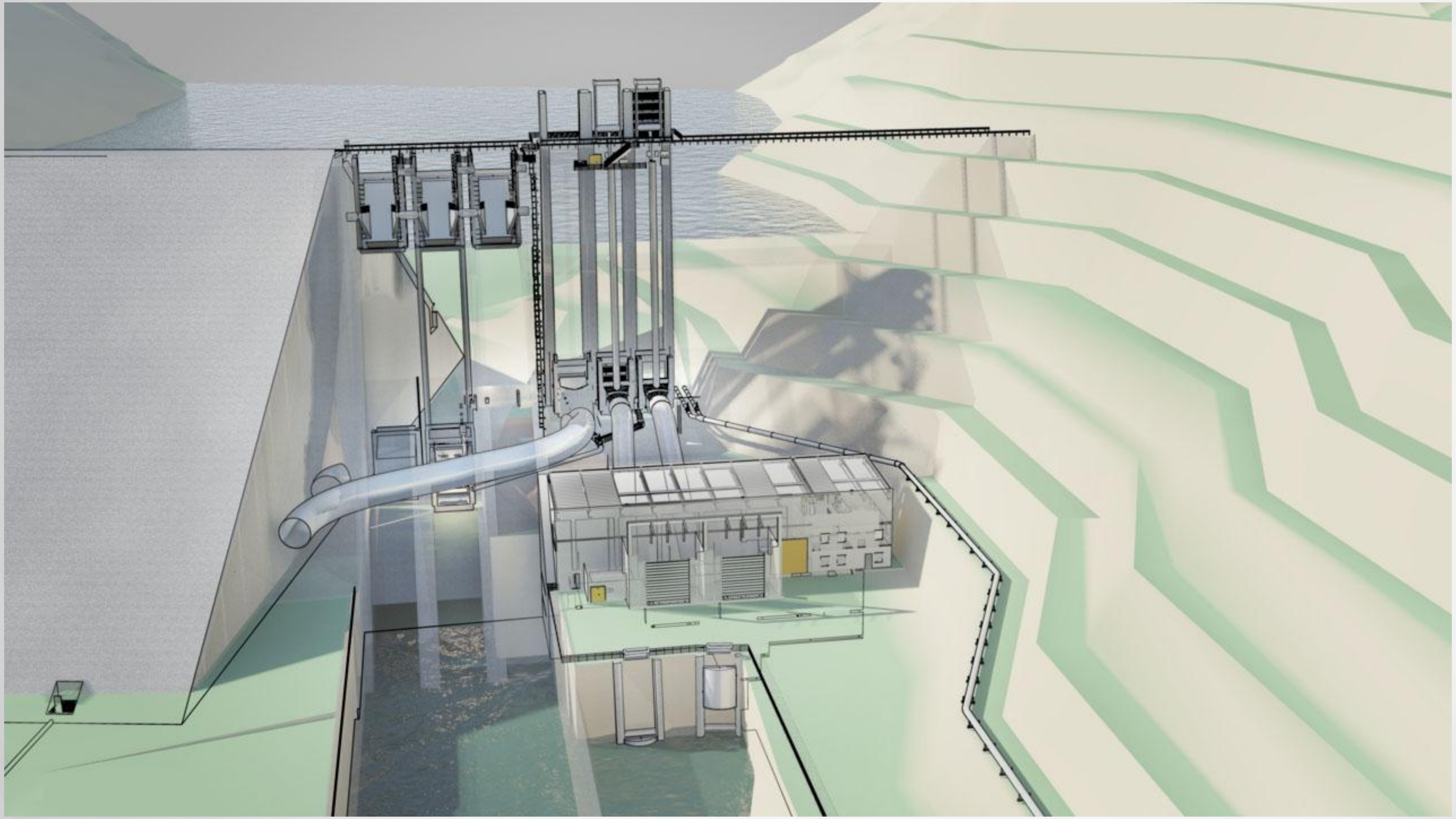
Typical Projects

Typical Projects

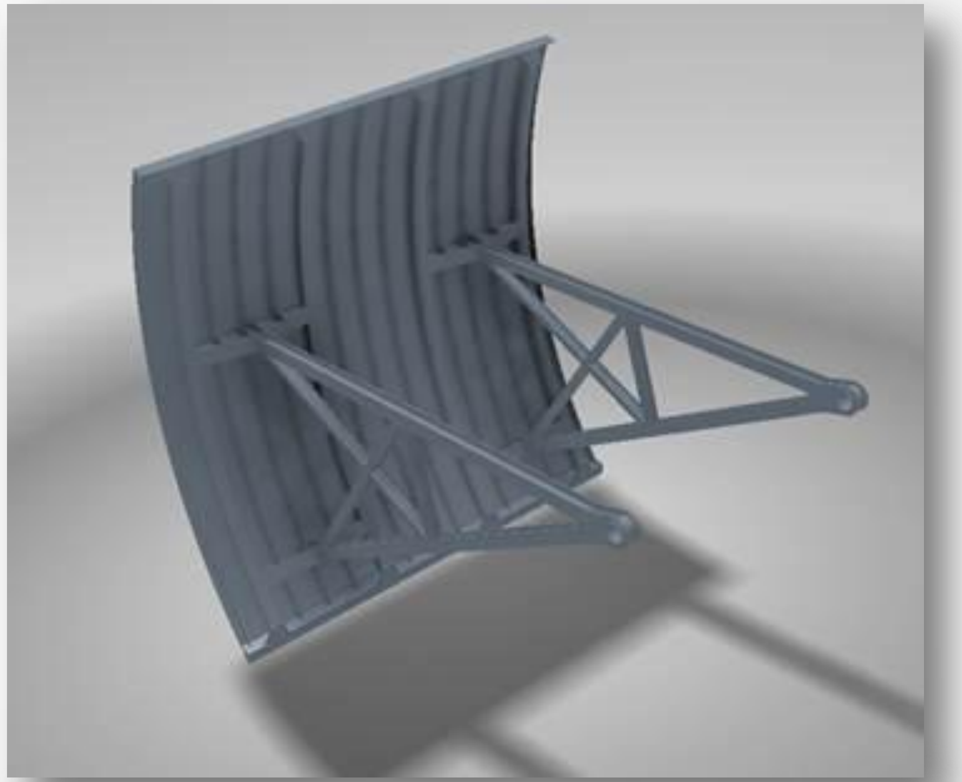
Typical Projects



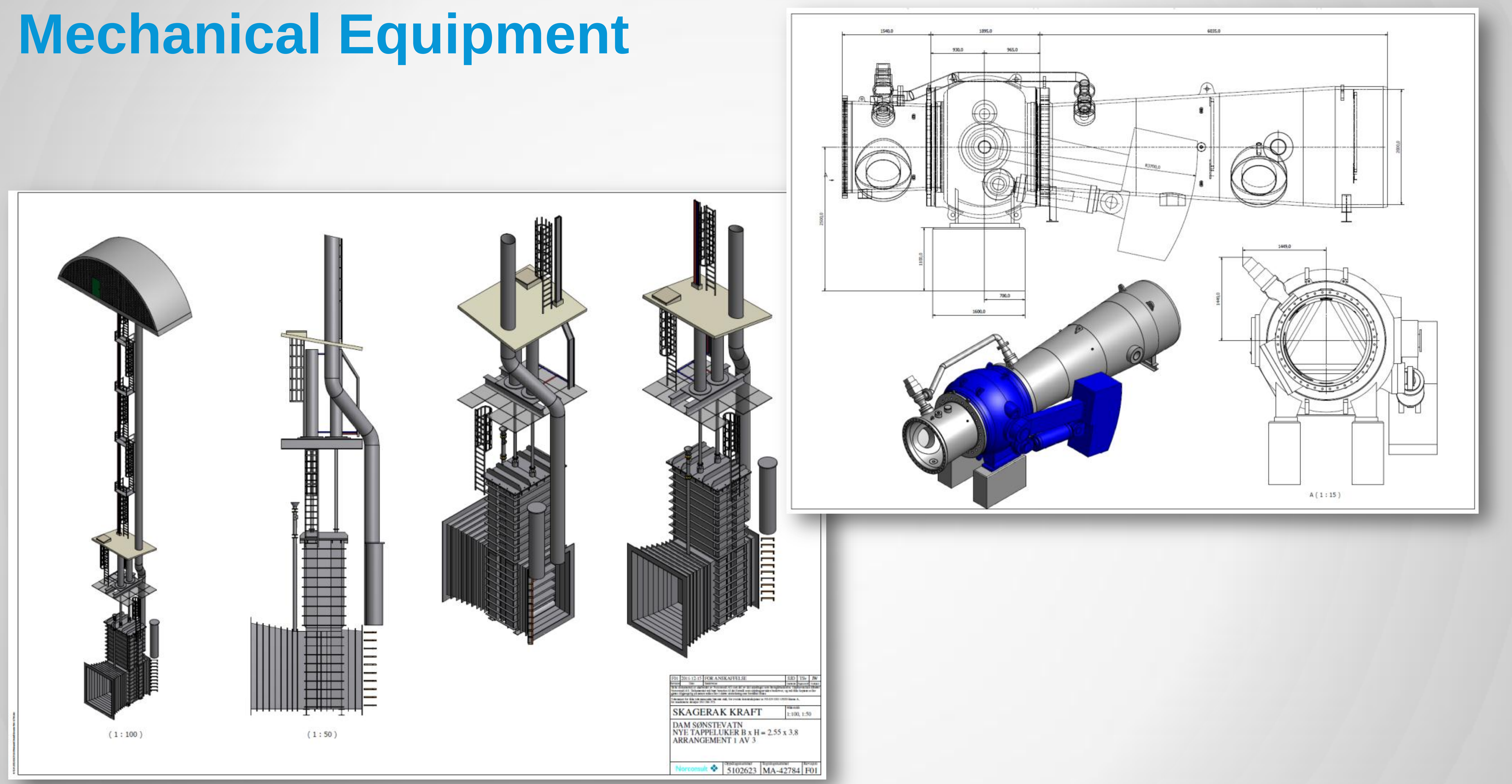
Typical Projects



Hydropower Gates



Mechanical Equipment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6035.0
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Norconsult

F01 | 2011-12-15 | FOR ANSKAFFELSE | SJD | TSv | JW

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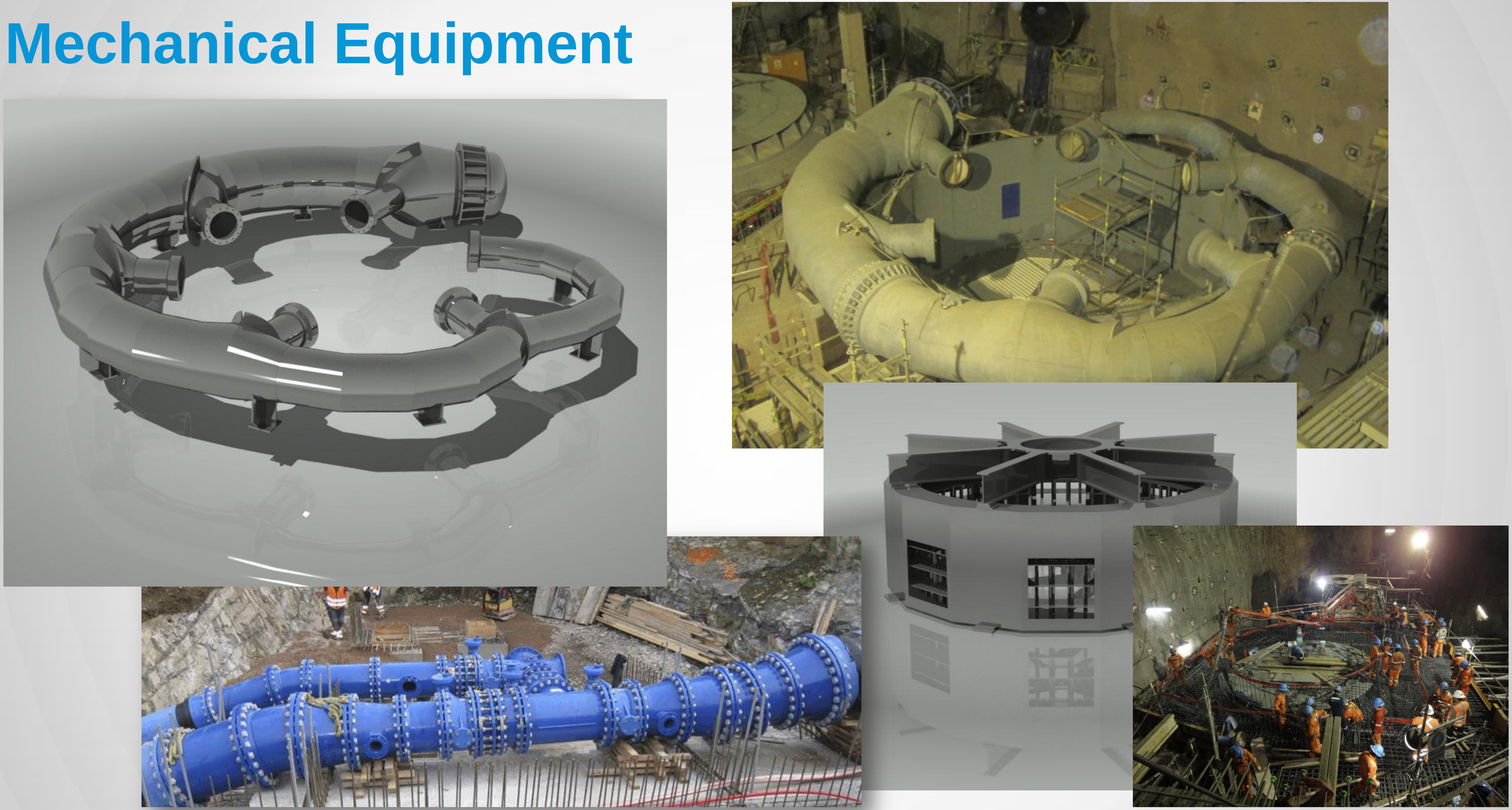
5102623 | MA-42784 | F01

Mechanical Equipment



Autodesk Simulation Flex

Simulation Flex

AUTODESK®
SIMULATION FLEX
AUTODESK.

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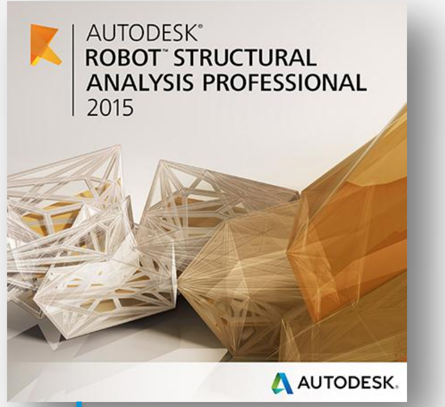
AUTODESK®
ROBOT™ STRUCTURAL
ANALYSIS PROFESSIONAL
2015
AUTODESK.

AUTODESK®
SIMULATION
MECHANICAL
2015
AUTODESK.

AUTODESK®
SIMULATION
CFD 2015
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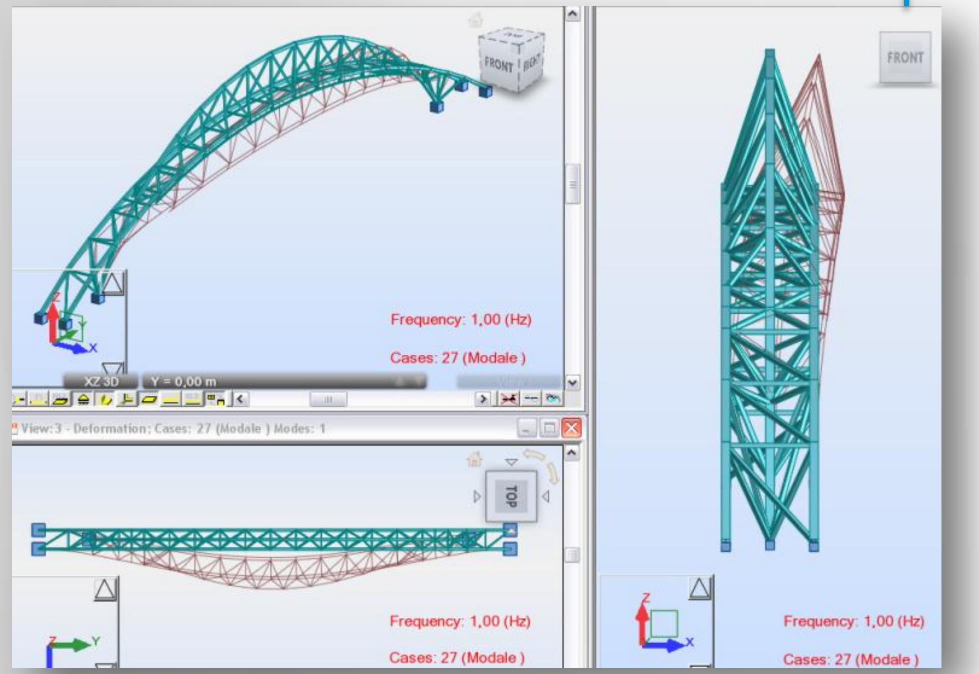
FRONT
TOP
XZ 3D
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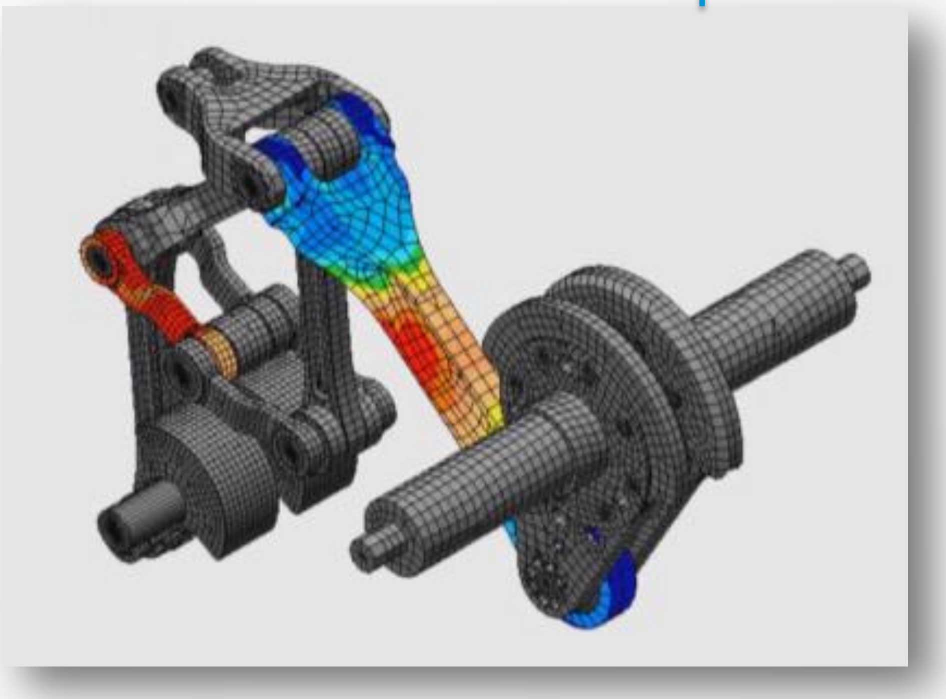
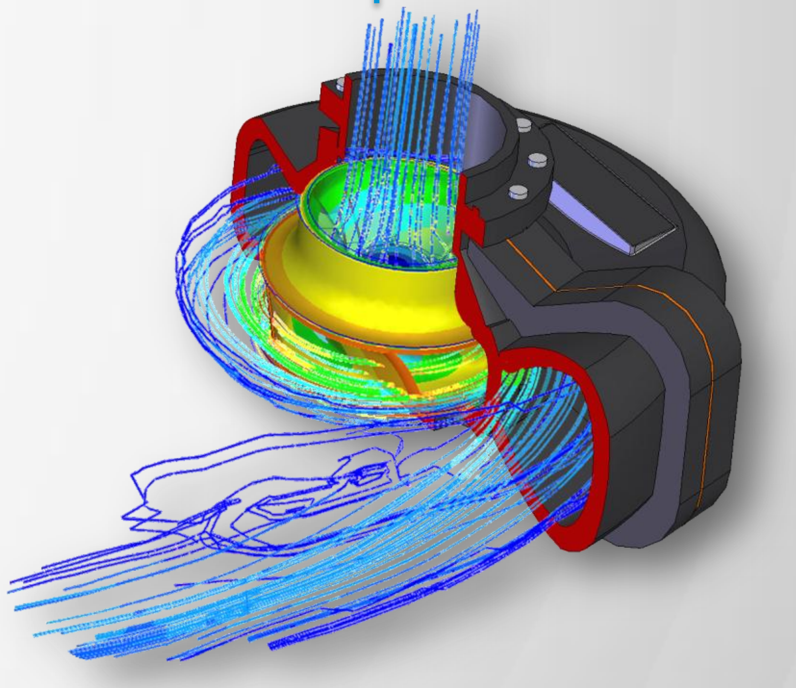
Cases: 27 (Modale)

View:3 - Deformation; Cases: 27 (Modale) Modes: 1

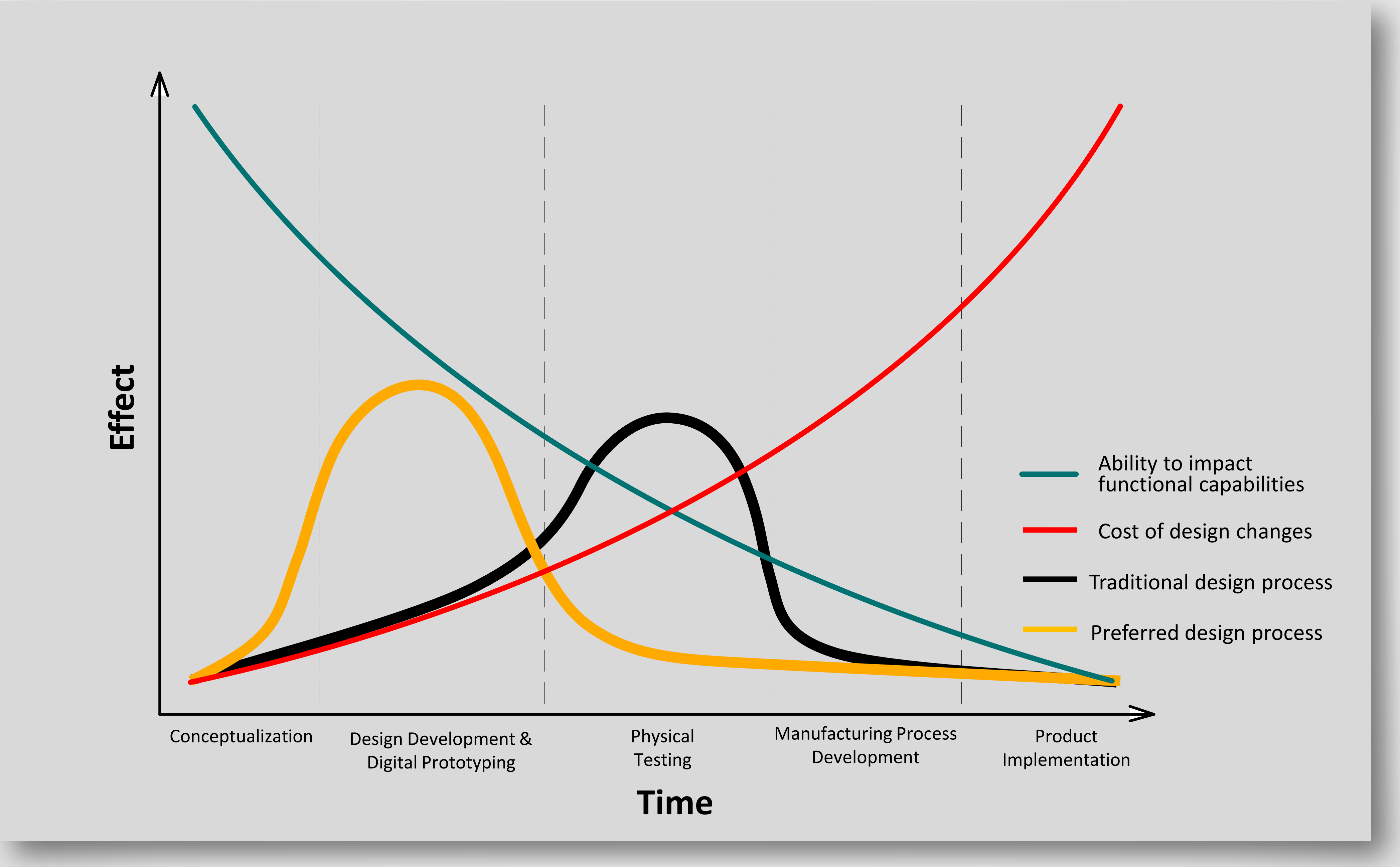
Frequency: 1,00 (Hz)
Cases: 27 (Modale)

Frequency: 1,00 (Hz)
Cases: 27 (Modale)



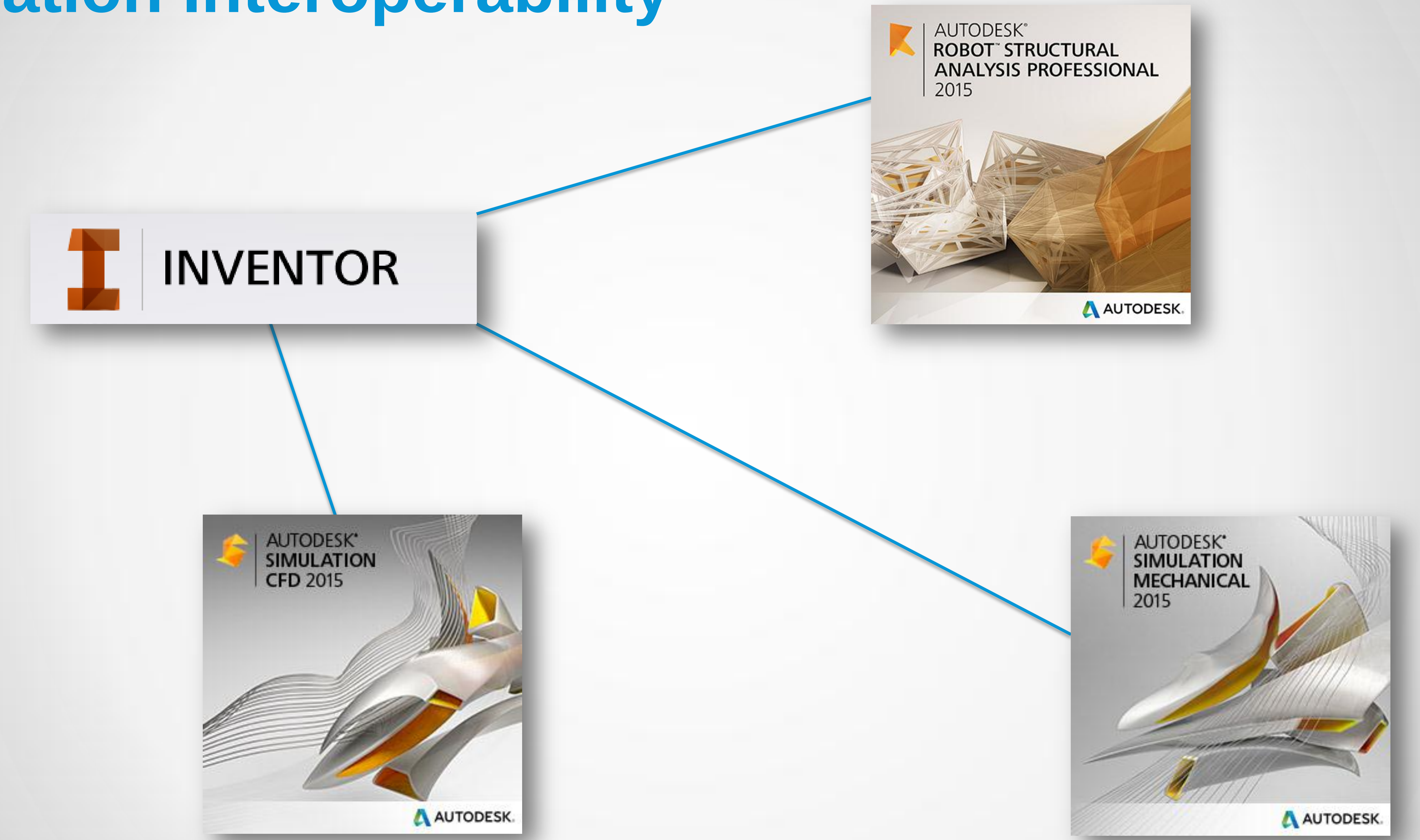


Why Simulation Flex?



Simulation Interoperability

Simulation Interoperability


INVENTOR
AUTODESK® ROBOT™ STRUCTURAL ANALYSIS PROFESSIONAL 2015
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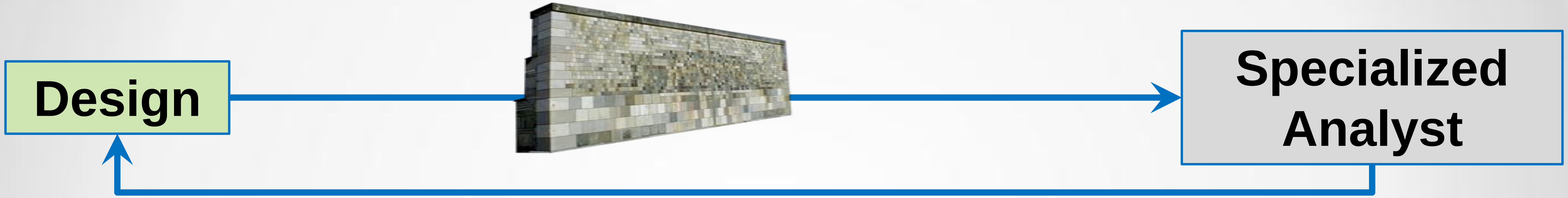
AUTODESK® SIMULATION CFD 2015
AUTODESK
AUTODESK® SIMULATION MECHANICAL 2015
AUTODESK

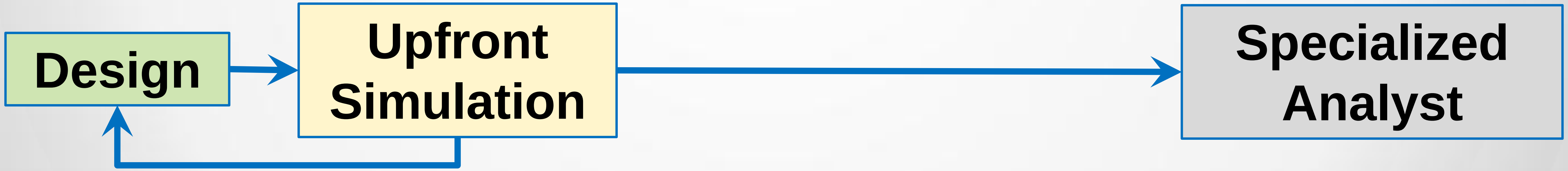
Design Cycle Optimization



Design

Specialized Analyst

Multi-week turnaround



Design

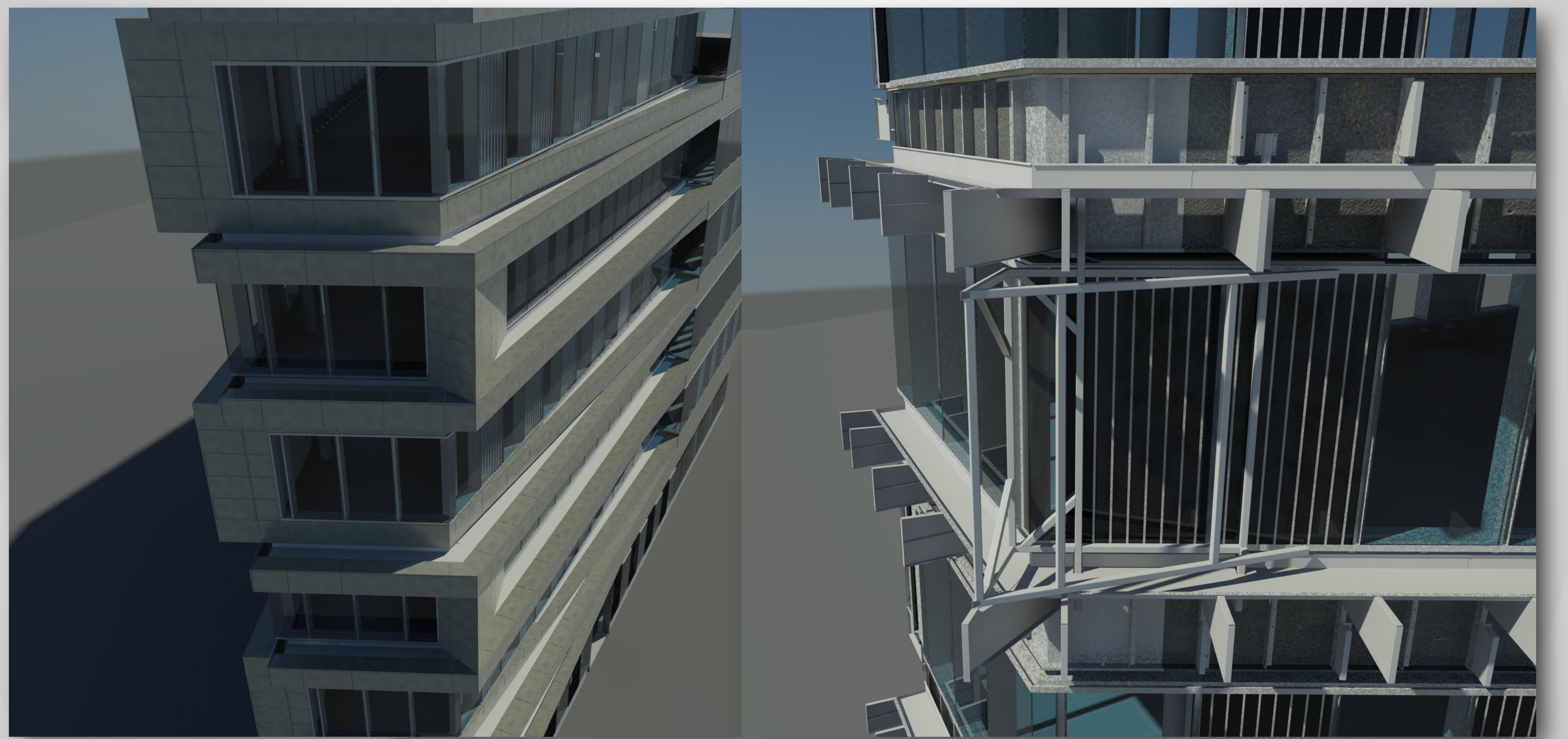
Upfront Simulation

Specialized Analyst

Turnaround = hours

Inventor and Structural Analysis

Inventor and Structural Analysis



Live Presentation

Inventor and Mechanical Simulation

Inventor and Mechanical Simulation

INVENTOR

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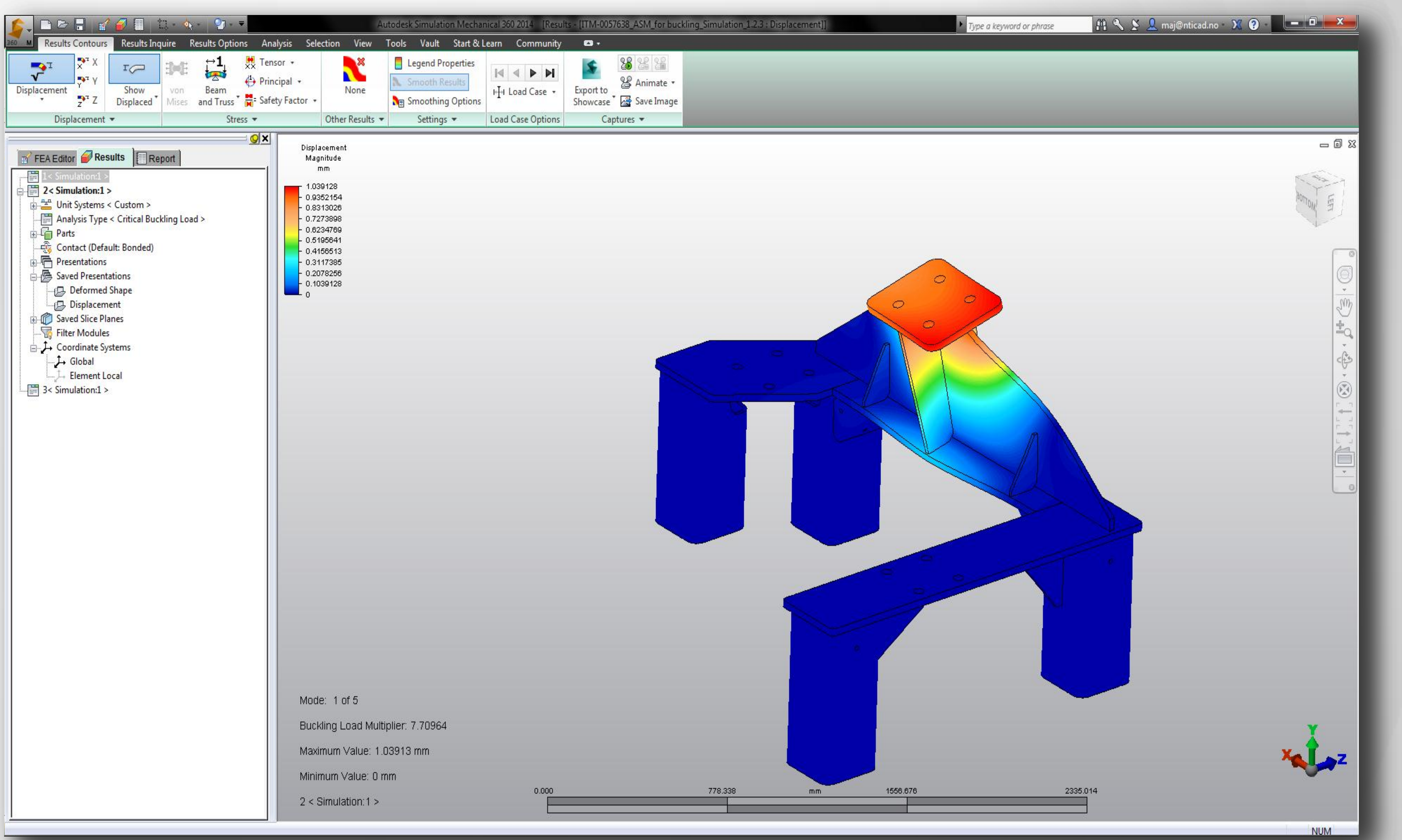
SIMULATION
MECHANICAL
2015
AUTODESK.


Autodesk Simulation Mechanical 360 2014 [Results - [ITM-0057638_ASM_for buckling_Simulation_1.2.3 : Displacement]]
Type a keyword or phrase
maj@nticad.no
Results Contours
Results Inquire
Results Options
Analysis
Selection
View
Tools
Vault
Start & Learn
Community
Displacement
X
Y
Z
Show Displaced
von Mises
Beam and Truss
Tensor
Principal
Safety Factor
Stress
None
Other Results
Legend Properties
Smooth Results
Smoothing Options
Settings
Load Case
Load Case Options
Export to Showcase
Animate
Save Image
Captures
FEA Editor
Results
Report
Displacement Magnitude mm
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0.8313026
0.7273898
0.6234769
0.5195641
0.4156513
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0.2078256
0.1039128
0
0.000
778.338
mm
1556.676
2335.014
NUM

1 < Simulation:1 >
2 < Simulation:1 >
- Unit Systems < Custom >
- Analysis Type < Critical Buckling Load >
- Parts
- Contact (Default: Bonded)
- Presentations
- Saved Presentations
  - Deformed Shape
  - Displacement
- Saved Slice Planes
- Filter Modules
- Coordinate Systems
  - Global
  - Element Local

3< Simulation:1 >

Mode: 1 of 5

Buckling Load Multiplier: 7.70964

Maximum Value: 1.03913 mm

Minimum Value: 0 mm

2 < Simulation:1 >

Live Presentation

Inventor and Fluid Dynamics

Inventor and Fluid Dynamics

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SIMULATION
CFD 2015
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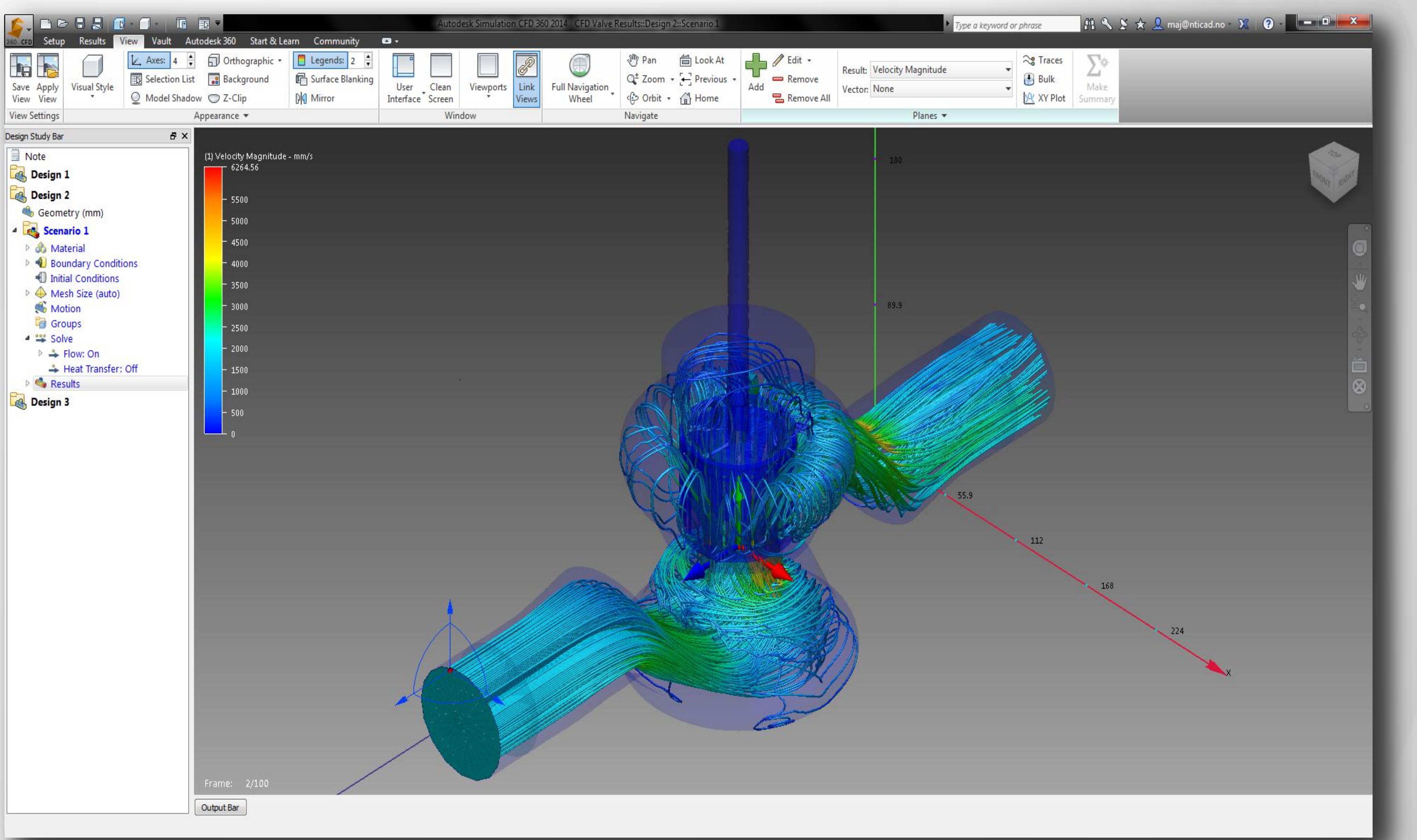
Autodesk Simulation CFD 360 2014 CFD Valve Results::Design 2::Scenario 1
Setup
Results
View
Vault
Autodesk 360
Start & Learn
Community
Save View
Apply View
Visual Style
Axes: 4
Orthographic
Legends: 2
Selection List
Background
Surface Blanking
Model Shadow
Z-Clip
Mirror
User Interface
Clean Screen
Viewports
Link Views
Full Navigation Wheel
Pan
Zoom
Orbit
Look At
Previous
Home
Add
Edit
Remove
Remove All
Traces
Bulk
XY Plot
Make Summary
View Settings
Appearance
Window
Navigate
Planes
Design Study Bar
Note
Design 1
Design 2
Geometry (mm)
Scenario 1
Material
Boundary Conditions
Initial Conditions
Mesh Size (auto)
Motion
Groups
Solve
Flow: On
Heat Transfer: Off
Results
Design 3
(1) Velocity Magnitude - mm/s
6264.56
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
180
89.9
55.9
112
168
224
X
Output Bar

Result: Velocity Magnitude

Vector: None

Frame: 2/100

Live Presentation

Recap Questions

- Which of Simulation Flex products has direct integration with modeling software?
- Which integrated Autodesk Simulation products can be used to conduct code checking?
- What type of analysis can be performed using Simulation Mechanical?
- What unique functionality has Simulation CFD?

Thank You for Joining

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Kristoffer Bugge

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The End*

*Actually, there are few more slides

Session Feedback

- Via the Survey Stations, email or mobile device
- AU 2014 passes given out each day!
- Best to do it right after the session
- Instructors see results in real-time

Survey:
Excellent:
Good:
Fair:
Poor:

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