modeFRONTIER streamlines the design process with powerful workflows, innovative algorithms and sophisticated post processing tools. Its multidisciplinary design enabling technology, critical to successful new product development today, keeps it at the forefront of engineering technology.

New User Profiles enable multidisciplinary engineering practices to consolidate specialized expertise and streamline teamwork by allocating software resources where needed. Depending on the step of the engineering problem at hand, it is now possible to access different functionalities within the same installation through dedicated modules (modeSPACE and modePROCESS) or directly in modeFRONTIER, according to the profile of the user.
The four profiles available for the DATA SPACE area provide a tailored set of tools to perform design data analysis and mining required at each step.

Understanding the data trends and attributes impacting the design space, is crucial to the preliminary design exploration and the post processing phases of the often-large amount of data generated at runtime.

The four profiles available for the DATA SPACE area provide a tailored set of tools to perform design data analysis and mining required at each step.

**DATA VIEWER**

**Understand complex datasets in modeSPACE**

Analysts can prepare for design reviews and show data using sophisticated, interactive charts while other team members continue their work using modeFRONTIER. At the same time managers can monitor the status of the design process by viewing results in modeSPACE, without affecting the work process.

**DATA INSPECTOR**

**Post processing essentials at your fingertips**

When basic data analysis is needed, the Data Inspector profile provides the complete set of modeFRONTIER post processing charts included in the modeSPACE standalone application.

**modeSPACE**

The design space environment is now also available as a standalone application - modeSPACE - that enables efficient license and role management within teams. This module includes the sophisticated set of modeFRONTIER tools for data analysis and investigation of problem characteristics both in the post-processing and in the pre-optimization phase.

**DATA INTELLIGENCE**

**Make the most out of advanced data analysis**

Sometimes data needs more focus. Analysts can now create and edit post-processing charts, train RSMs (Response Surface Methods), and exploit advanced MVA (Multi-Variate Analysis) tools, directly from the standalone module. The improved RSM wizard, now including the automatic training feature, assists the user in the creation of highly accurate response models to be exploited for interactive what-if analysis and response prediction. Also, the new RSM Evaluation Chart helps compare metamodels based on the approximation quality.

**DATA EXPLORER**

**Full-scale design space exploration**

DOE (Design of Experiments) experts can now set up and execute a Design Exploration Workflow in modeFRONTIER and also enjoy the full set of tools dedicated to data analysis in the modeSPACE module. The new Sensitivity Analysis Tool, the RSM Evaluation Chart and the improved RSM wizard offer an environment tailored to effective design space exploration. This reliable support base assists analysts in understanding multidisciplinary attribute roles, finding correlations, performing impact analysis by executing the automatically-trained metamodels or carrying out advanced MVA.
modeFRONTIER provides teams with enhanced flexibility in performing advanced optimization, and process integration and automation. User Profiles respond to different expert needs and facilitate effective workload balance within design teams. Each profile focuses on specific sets of design optimization and integration practices to boost engineering productivity.

**AUTOMATION DESIGNER**

*Get your MDO workflow into shape*

Integrating the different physics domains involved in MDO (Multidisciplinary Design Optimization) studies requires specific expertise. Integration experts can build, edit and run efficient multidisciplinary workflows for the team, accessing modeFRONTIER or the modePROCESS application.

**SINGLE DISCIPLINE DESIGN**

*Enhanced design solutions for domain experts*

When focusing on a single analysis domain, users can create, edit and run single discipline optimization projects exploiting the whole range of modeFRONTIER algorithms together with up to three direct integration nodes. By including domain-specific tools in the workflow, created directly through modeFRONTIER or through the modePROCESS, engineering teams can exploit the prediction capability of simulations further. Advanced analytics tools guide designers and let them concentrate exclusively on relevant design parameters. Product performance targets are reached sooner, reducing manual iterations and respecting critical design constraints.

**modePROCESS**

modePROCESS is an independent desktop application intended for describing processes in the form of graphical workflows, that specifies which parameters and simulations are required to solve an engineering design problem.

**MULTI DISCIPLINE DESIGN**

*Unlock the power of MDO*

The most complete profile dedicated to teams dealing with complex, multifaceted design projects, often involving the closely interrelated engineering of systems and subsystems. Unlock the full power of modeFRONTIER and create, edit and run highly-structured multidisciplinary optimization projects with the support of the best-in-class MDO platform. modeFRONTIER provides new advanced features for project complexity handling, such as the dedicated panel for workflow setting (Workflow Global Properties), the Design Space Node, the improved Subprocess Node and many more.

**OPTIMEAZY**

*Find the optimum with one click*

For users seeking a rapid but sophisticated optimization experience, Optimeazy offers a tailored license module to run one-click optimization projects with the ESTECO proprietary algorithm pilOPT. Create, edit and run workflows - accessing modeFRONTIER or modePROCESS - to run preliminary optimization or save time when knowledge of the problem characteristics is scarce. The hybrid, multi-strategy pilOPT algorithm needs only a reduced number of runs to reach the optimum, making the use of computational resources more efficient.
## modeFRONTIER Profile Selection

### Profile Summary

<table>
<thead>
<tr>
<th>Profile</th>
<th>Functionalities</th>
<th>mS</th>
<th>mP</th>
<th>mF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DATA VIEWER</strong></td>
<td>Analytics charts [VIEW MODE]</td>
<td></td>
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<td><strong>DATA INSPECTOR</strong></td>
<td>Analytics charts [VIEW AND EDIT]</td>
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<td><strong>DATA INTELLIGENCE</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>DATA EXPLORER</strong></td>
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<td>✓</td>
<td>✓</td>
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<tr>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
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<td>Workflow [CREATE, EDIT, RUN] Analytics charts Design Space Exploration Integration package medium</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>MULTI DISCIPLINE DESIGN</strong></td>
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<tr>
<td><strong>OPTIMEAZY</strong></td>
<td>pilOPT workflow [CREATE, EDIT, RUN] Integration package small</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### LEGEND

- **Analytics charts:**
  - statistics charts
  - RSM Charts
- **Analytics tools:**
  - statistics charts
  - MVA (clustering + SOM* )
  - RSM
- **Design Space Exploration:**
  - DOE workflows
  - Sensitivity Analysis
- **Integration Packages:**
  - SMALL: 1 any CAD/CAE node
  - MEDIUM: 3 any CAD/CAE nodes
  - LARGE: 7 any CAD/CAE nodes
- **Robust Design & Decision Making:**
  - MORDO
  - MCDM
- **pilOPT workflow:**
  - DOE
  - pilOPT
  - 1 Integration Node

### EXTRA Toolbox

- CAP
- GRID
- EASYDRIVER

### NPE Packages

- SMALL (32)
- MEDIUM (128)
- LARGE (512)