



# modeFRONTIER Orchestrates System Modeling at Whirlpool Corporation

*The optimization platform developed by ESTECO helps Whirlpool Corporation create more consistent models by increasing fidelity and performance*

Trieste (Italy), 25<sup>th</sup> June 2014 – **Whirlpool Corporation**, the world leader in the appliance industry, has used **modeFRONTIER** to drive their product development process. The **ESTECO software** was leveraged to integrate and connect process, component and subsystem models in a **consistent framework** that enables the ongoing connection and engagement throughout the network of design teams worldwide.

“System modeling is where modeFRONTIER really shines,” says **John Mannisto** (Engineering Director, Simulation Based Design at Whirlpool) “**It’s like a symphony conductor** pulling together the individual subsystem outputs to understand the interplay between them. This lets us **explore and discover possibilities we’ve never even considered.**” The **optimization platform** developed by ESTECO in fact plays a key role in **streamlining system modeling tasks** and helps Whirlpool rationalize the whole process and adapt it efficiently to regional peculiarities, providing diversified product lines.

Sophisticated appliance design is underpinned by **complex mechanical and electrical requirements** and demands advanced engineering knowledge in dynamics, structures, fluids, thermodynamics and controls. This calls for an in-depth understanding of both **market expectations and engineering dynamics at system level**. Most importantly, the ability to **evaluate product performance** before identifying specific requirements accelerates the subsequent adaptation to **regional peculiarities**. Balancing individual and team workloads based on such a flexible approach is a challenging task which can only be tackled by the **appropriate mindset and tools**.

modeFRONTIER helps Whirlpool create more consistent models by **increasing fidelity and performance**: this in turn allows for a **larger inference space** for design and continuous connection at a system level to lay down the basis for knowledge capture. The platform “provides us with an **easy way** to combine attribute models – defining subsystem configurations – and evaluate product performance without specific requirements”, says **Greg Garstecki** (Principal Engineer, Fabric Care Advanced Development at Whirlpool). While the **interrelated effects** of the involved electro-mechanical simulation variables are **identified at an early stage**, “modeFRONTIER multi-objective optimization capabilities allows us to reach a **high level of performance** once the product requirements are then set”, points out Garstecki.

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## About ESTECO SpA

ESTECO is a pioneer in numerical optimization solutions, specialized in the research and development of engineering software for all stages of the simulation-driven design process. Perfecting engineering and reducing complexity in the design process is our vision. Founded in 1999, the company is headquartered in Area Science Park in Trieste (Italy) and currently employs 40 professionals and serves more than 250 international clients including BMW, Daimler, Ferrari, FIAT, Ford Motor Company, Honda, Mazda, Toyota. [www.esteco.com](http://www.esteco.com)

## About modeFRONTIER

modeFRONTIER is an integration platform for multi-objective optimization, automation of design simulation processes and analytic decision making. The software provides seamless coupling with engineering tools within different disciplines and its powerful workflow enables the execution of complex chains of design optimization.

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Through innovative algorithms and advanced data visualization tools, modeFRONTIER helps companies identify the set of best possible solutions, while eliminating guesswork and introducing rigor and automation.

### **About WHIRLPOOL CORPORATION**

Whirlpool Corporation is the world's leading global manufacturer and marketer of major home appliances, with annual sales of approximately \$19 B in 2013, 69,000 employees, and 59 manufacturing and technology research centers around the world. The company markets Whirlpool, Maytag, KitchenAid, Jenn-Air, Amana, Brastemp, Consul, Bauknecht and other major brand names, earning the trust of consumers in nearly every country by focusing on what matters most. Focused on embedding innovation throughout its business, Whirlpool has made a long-standing investment to build this core competency. Additional information at [www.whirlpool.com](http://www.whirlpool.com)