

Siemens NX: Enhancing Sustainability

Allowing humans and nature to exist in productive harmony

Key Takeaways

Siemens Digital Industries Software has recognized the growing emphasis on sustainability across their broad client base and has heightened their attention on providing NX users with productive tools in support of sustainability.

NX Sustainability Impact Analysis brings valuable environmental impact assessments to the early stages of the design process.

NX Performance Predictor enables users to simulate parts they are designing in real-time, while exploring different design and material choices.

NX Molded Part Designer provides users the ability to create, manage, and validate their molded part design features in the context of their 3D design data.

With growing societal pressure and regulation, businesses focused on product innovation are prioritizing sustainability in their C-level business goals. According to the United States Environmental Protection Agency (EPA), "Sustainability is based on a simple principle: Everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment. To pursue sustainability is to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations."¹ At the start of a product's lifecycle, businesses face heightened interest in the materials used to manufacture a product, including source (country/region) of the material's origin. As well, considering the end of the product's lifecycle, they turn their attention to how a product is disposed of when it reaches its end-of-life, encouraging material recycling and reuse. In addition, throughout the product's lifecycle, the businesses must consider the environmental impacts that surround the design and manufacture of the product.

Siemens Digital Industries Software (Siemens) has noted this sustainability emphasis across their broad client base and has heightened their attention on providing NX users with productive tools in support of sustainability.²

¹ See <https://www.epa.gov/sustainability/learn-about-sustainability>.

² Research for this commentary was partially supported by Siemens Digital Industries Software.

Among the numerous enhancements to NX for users to manage sustainability, three major capabilities stand out:

- NX Sustainability Impact Analysis provides environmental impact reporting at the heart of the product lifecycle.
- NX Performance Predictor empowers product designers to make the best decisions as they relate to the structural performance of their parts and components early in the design process.
- NX Molded Part Designer provides users the ability to create, manage, and validate their molded part design features in the context of their 3D design data—all fully integrated within their native NX work environment.

NX Sustainability Impact Analysis

NX Sustainability Impact Analysis delivers environmental impact reporting at the heart of the product lifecycle. It provides the ability to see the environmental impact of varied material choices. The capability equips designers with rapid sustainability metrics using EN15804 standards,³ being a CAD solution with artificial intelligence to discern and suggest sustainable material alternatives; offering complete sustainability reporting for digital and physical products.

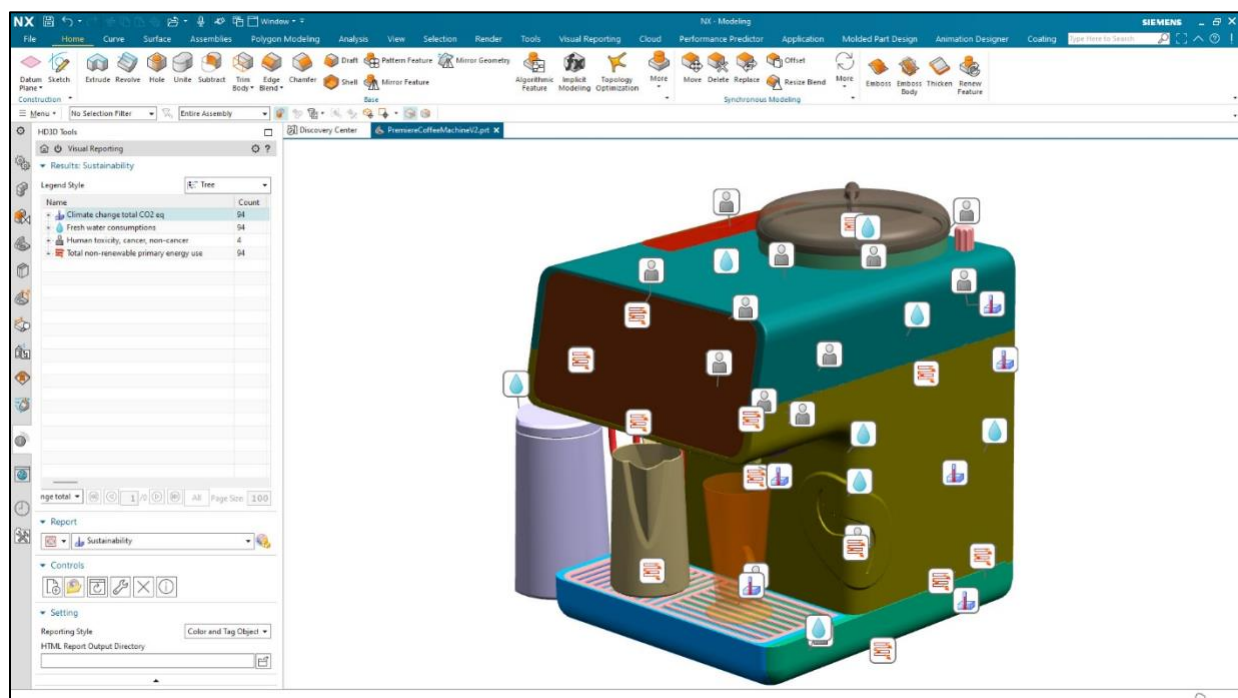


Figure 1—NX Sustainability Impact Analysis
(Courtesy of Siemens)

NX Performance Predictor

Product developers are under extreme pressure to innovate, all while product complexity increases and design time continues to shrink. Often, they face the need to do light-weighting to yield energy efficiency during product use. The need for early phase design guidance becomes clear. NX Performance Predictor enables users to simulate parts they are designing in real-time, while exploring different design and material choices. The capability facilitates designers to make important product decisions, exploring

³ <https://www.usgbc.org/resources/en-15804%E2%80%94942012-sustainability-construction-works-environmental-product-declarations-core-r>

more concepts without the need for prototypes and physical testing. CIMdata concurs with Siemens' advice that this capability doesn't eliminate the need for final simulation but increases efficiency by narrowing options down to the most viable design choices.

NX Performance Predictor provides this design capability through simulation resources embedded within their native NX working environment.

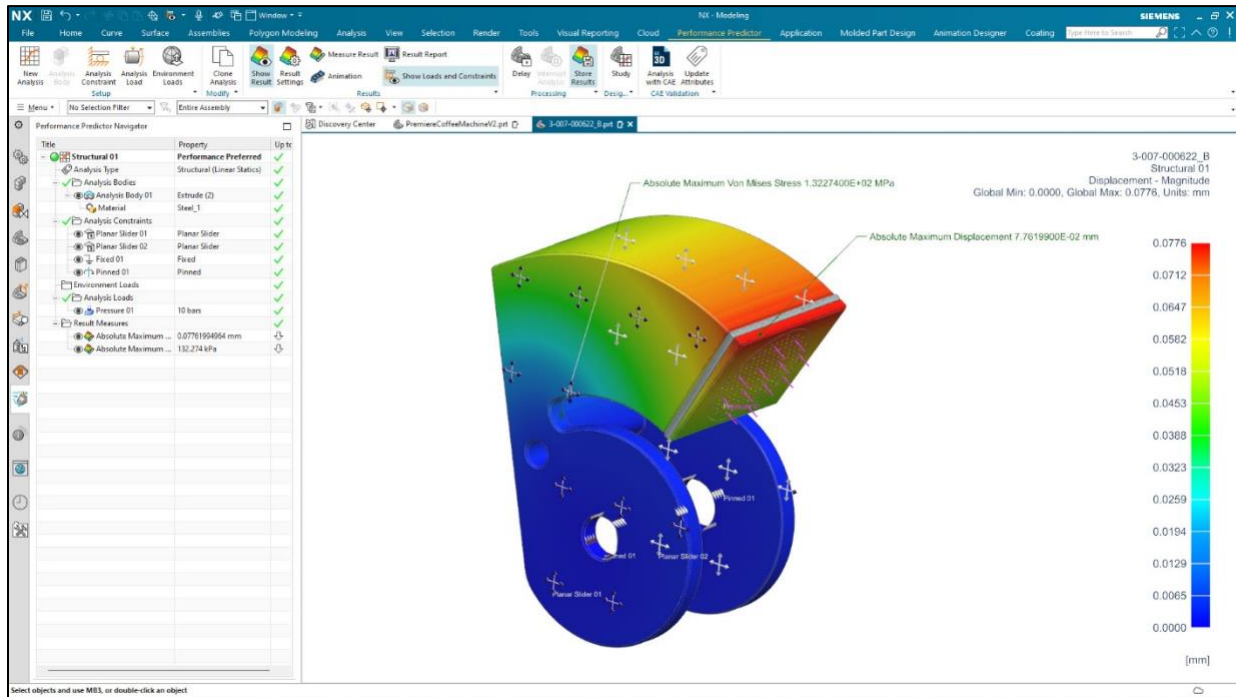


Figure 2—NX Performance Predictor
(Courtesy of Siemens)

NX Molded Part Designer

Because time-to-market is a pressing concern, manufacturers look for ways to reduce the number of design iterations they perform as well as physical prototypes they create as they finalize their product design. NX Molded Part Designer provides users the ability to create, manage, and validate their molded part design features in the context of their 3D design data. The process is fully integrated within the native NX work environment. The tool is flexible to allow features created using Feature Templates and those imported from a 3rd-party tool.

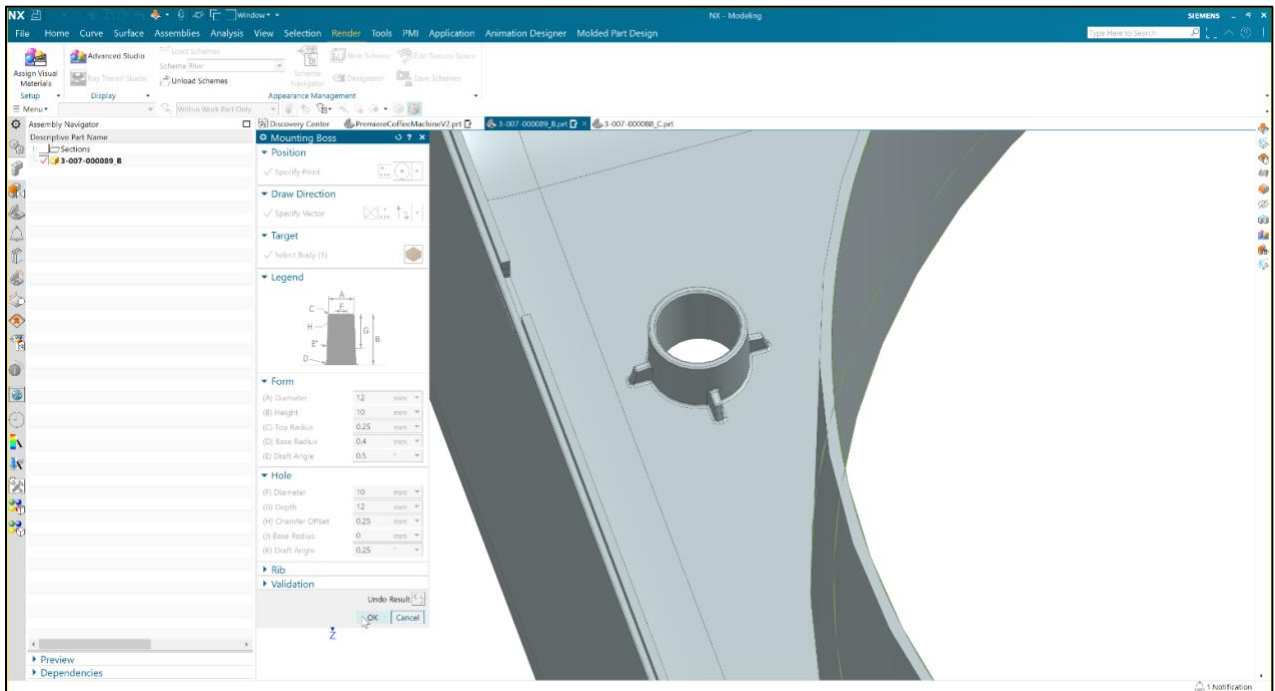


Figure 3—NX Molded Part Designer
(Courtesy of Siemens)

NX Molded Part Designer provides users with real-time feedback on moldability, while adhering to corporate and organizational overall best practices. Results are presented to the user through visual dashboards. The user can quickly determine design feasibility and design options in the context of multiple scenarios, such as moldability, structural analysis, and more.

Conclusion

Product sustainability has become a C-level concern. Siemens has recognized this interest and has responded with numerous enhancements to their NX design solution including three notable capabilities to assist designers to achieve sustainability goals earlier. NX Sustainability Impact Analysis brings environmental impact assessments to the early stages of the design process. NX Performance Predictor enables users to simulate parts they are designing in real-time, while exploring different design and material choices without waiting on physical prototypes and lab testing. NX Molded Part Designer provides users the ability to create, manage, and validate their molded part design features in the context of their 3D design data.

CIMdata recognizes these enhancements to NX will help improve a client's efforts to add sustainability improvements to their product designs. CIMdata commends Siemens for their focus on environmental sustainability.

About CIMdata

CIMdata, a global strategic management consulting firm, provides services designed to maximize an enterprise's ability to design, deliver, and support innovative products and services. For more than forty years, CIMdata has provided industrial organizations, providers of digital technologies and services, and investment firms with world-class insight, expertise, and best-practice methods on a broad set of product lifecycle management (PLM) topics and the digital transformation they enable. CIMdata also offers research, subscription services, publications, and education through certificate programs and international conferences. To learn more, visit www.CIMdata.com or email info@CIMdata.com.