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DIGITAL INDUSTRIES SOFTWARE

Dealing with design challenges

We surveyed over 800 computer-aided design (CAD) users to find out about their projects and challenges, and how industry trends and technology advancements impact them. Here's what they said.

Top five CAD challenges:

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Working with imported CAD data **56%**

System performance with large assemblies **34%**

Finding and re-using existing design data **30%**

Dealing with complex geometry or surfacing **30%**

Quickly creating accurate drawings **29%**

But the top five CAD challenges are only the beginning. Respondents report facing difficulties in every stage of product design, especially four process areas. Consider:

Creating the initial design

49% of users ranked being able to rapidly create initial designs as a significant concern

40% said it is a top priority to be able to re-use existing designs

Using imported CAD data

Working with imported CAD data was users' number one CAD challenge.

Need to work with imported CAD data: **99%**

One in ten always work with imported CAD data

The ability to easily work with imported data is a main concern: **40%**

Late-stage design changes

Responding to late-stage change requests is a top challenge: **20%**

Must be able to quickly and easily make late-stage design changes: **37%**

Sometimes receive last-minute change requests: **95%**

Always experience last-minute change requests: **25%**

Collaborating upstream and downstream

22% said that collaboration with internal teams/design and manufacturing partners is a top challenge:

20% identified design for manufacturability specifically

13% cited creating realistic renderings for sales and marketing

17% said being able to easily prepare models for simulation is a primary concern

History-based modeling: powerful but inflexible

History-based, or ordered, modeling is a structured modeling process, where a history tree of features with parent-child relationships is created to define the model. This requires preplanning for design intent, including dimensions, parameters and relationships.

62% of respondents agreed that history-based modeling can be powerful but inflexible, and as a result concept design is slowed by time-consuming preplanning, imported models often have to be recreated and making late-stage design changes is difficult.

Synchronous technology: fast and flexible

Synchronous technology combines the speed and simplicity of direct modeling with the flexibility and control of parametric design. Surveyed users also reported that synchronous technology helped them solve some of their top challenges:

90% of respondents agree that modeling is faster and more intuitive
- Faster modeling and more intuitive

66% agree that working with imported models is easier
- Easier working with imported models

73% agree that it is easier to make changes even late in design
- Easier making late design changes

Best of both worlds

93% of users reported using a combination of synchronous and history-based modeling combines the best of both options, and allows them to balance design speed and control by choosing the paradigm that is most appropriate for their design task.

Synchronous modeling + History-based modeling

Solid Edge

Want to learn more?
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