

Lifecycle visualization concept

Immersive digital mockup for realistic design validation

Benefits

- Leverage your existing investment in Teamcenter's lifecycle visualization solutions and processes while utilizing the same JT data used for other processes
- Reduce or eliminate physical prototypes by using digital models and environments that have the same immersive realism without the time and cost of prototyping
- Dramatically improve product quality from a user perspective by validating ergonomic aspects like sight lines, reachability (using Jack™ technology) and clearance measurements

Summary

Teamcenter® software's visualization concept capabilities are provided as an add-on to Teamcenter's lifecycle visualization suite; they are made up of the desktop and showroom modules. Concept desktop enables users to leverage their existing JT™ data to add greater realism to their digital mockups and surrounding scenes directly on their desktop for communication of designs in a "lifelike" real-time fashion. Concept showroom takes it to the next level with support for advanced virtual reality environments for complete immersive interaction with your products in true 1:1 scale.

Is it real or is it a concept?

Teamcenter's lifecycle visualization concept capabilities allow you to incorporate real-world product appearances throughout the entire design process. Product development companies can use Teamcenter to rapidly validate the detailed appearance of their products in the intended use environment without waiting for the real-world products or prototypes to be built.

Eliminate physical prototypes

The lifecycle visualization concept add-on enables you to virtually prototype all product variations to reduce and even eliminate the need for physical prototypes. These digital prototypes can be complete representations of the real product including colors, textures, lighting variations and even behaviors that allow visual validation that is as lifelike as the real thing so everyone can understand what the product will look like and how it will work in its use environment.



Tractor model courtesy of JCB.

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Benefits *continued*

Concept desktop:

- Streamline decision-making to get better decisions throughout the development process; enable every stakeholder to easily relate to the product using realistic images and interactive 3D environments
- Create high quality marketing collateral directly from your existing 3D JT data; eliminate the no need to wait for product to be fabricated or photographs to be shot; enable professional photographic images to be created and reproduced for each product option or last minute product change

Concept showroom:

- Provide a believable, real-time, visual experience using today's interactive immersive hardware systems
- Get a feel for dimension and scale by easily integrating with 1:1 scale, large-format displays for formal and informal digital design reviews

Features

Concept desktop:

- Add-on to lifecycle visualization professional or mockup service levels
- Advanced appearance workspace for creating and controlling colors, textures, lights and shadows for an object or environment
- Behaviors and triggers to create realistic combinations of actions that can be interactive with the user or the environment
- Presenter feature to playback a series of scenes or model variants
- Scene workspace to organize the elements of the virtual environment for easy editing and management

The process of conceptual design for new product introductions is an iterative one including evaluation of product aesthetics, functionality and human interaction against customer requirements. Traditionally, companies have had to develop expensive physical prototypes and mock them up in a physical environment to simulate how a user sees and interacts with the product. It is often cost-prohibitive and sometimes impossible to build all of the product variations that should be considered in the conceptual validation process. Teamcenter provides an easy way to allow these evaluations to happen continuously by incorporating realism into the JT models that are used for everyday visualization and traditional design reviews.

Add realism to streamline decision-making

Teamcenter overcomes the limitations of the physical world by allowing design teams and decision makers to review many more variations in a fraction of the time it would take to build prototypes. The behavior of mechanisms like automatic doors or retractable seats can be incorporated into the simulations as can turntable rotations and animated appearance options.

Experience your designs with real-time interactivity

The lifecycle visualization concept add-on provides the high realism required for effective decision-making with real-time interaction that is not possible with traditional photorealistic rendering software. It provides true interactive control, even on large assemblies, to create an immersive digital mockup environment. When combined with the concept showroom module, the possibilities are endless. Concept showroom enables virtual products to be reviewed in life-sized virtual environments for true 1:1 scale realism. People can walk up to projected displays and get a "feel" for the actual size of the product.

Design realism for any industry

Concept showroom adds a high degree of product realism that is often missing from traditional design reviews. Teams evaluating new ideas are able to weigh design alternatives against voice of the customer requirements by providing immersive evaluation environments for focus groups and other stakeholders who normally don't relate well to CAD images. Concept showroom is ideal for validating the reach requirements and sight lines in automobile interiors and airplane cockpits. In addition, the true interactive, full-scale view makes maintenance training possible before putting someone to work on a multi-million dollar engine's valuable hardware.

Consumer product design relies on the aesthetic elements of a product to catch a customer's eye. Successful manufacturers use the concept desktop module to add realism throughout the development process so teams can make decisions in true product context. Designers can eliminate hundreds of visual appearance prototypes, thereby significantly reducing cost while speeding time-to-market.



Model courtesy of General Motors.

Features *continued*

Concept showroom:

- Add-on to lifecycle visualization professional or mockup service levels; includes all functionality of lifecycle visualization concept desktop
- Support for high-end virtual reality (VR) displays such as CAVES and Powerwalls
- Support for interaction and tracking devices used to manipulate objects in immersive environments. Supported devices include: Intersense Wand and Head Tracker and any device supported by the VRCO-tracked interface
- Preview modes for use on the desktop (remote from the VR environment) to review how presentations will appear
- Environmental reflection maps to reflect actual 3D environments in a scene
- Support for PC clusters to render portions of the scene (Powerwall, CAVE, etc.) with multiple computers driving multiple projectors (typically one computer per individual projector).



Medical device manufacturers work closely with doctors and other health care professionals to develop products that work in some of the most difficult conditions. Screens need to be visible and human interfaces need to be clear and intuitive. The lifecycle visualization concept add-on significantly improves this part of the review process so more people can see and provide feedback.

Even retail companies use Teamcenter to prove out their store displays and merchandising ideas. They can evaluate many more layout concepts in a fraction of the time it takes to mock up a physical shelf.

Hardware note:

Certain functionality supported by lifecycle visualization concept, such as Phong shading, pixel and vertex shaders, shadowing and bump mapping, requires graphics card support that is available only on systems with certified graphics hardware.

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