Computer Generated Imagery (CGI) – at a Glance

Computer Generated Imagery (CGI) means the electronic generation and editing of images, such as those used in movie production, computer simulation and the creation of visual effects. In a narrower sense of the term, CGI is used in conjunction with digital generation of three-dimensional images (whether immobile or moving) for film technology and in special effects for movies. However, CGI is now not just applied in the film industry, but in many other areas too.

In the Film Industry but elsewhere too

The origins of CGI can be traced back to plane simulators and the movie industry ("Star Wars") in the 1970s. A long development followed via movies like "Terminator", "Jurassic Park", or "Toy Story" in the 1990s, before in 2009 "Avatar" became a primarily virtual production.

In the meantime, the high-quality technical CGI applications in the movie industry have long since been discovered by other industries. But the automotive industry especially uses the new communication options with end users. In addition to the combination of films that have really been shot with vehicles fully generated on the computer, as well as the photo-realistic aesthetic of the images and videos, the full configuration of industrial products has already become indispensable to a growing number of industries.

CGI technology is also used for virtual representations of individually configurable vehicles, both online and in car dealers' showrooms. As a result, customers can compose their desired vehicles individually on the screen and visual versions are then driven – in other words a virtual test-drive is provided. This principle can also be translated to furniture, textiles and jewelry and other industrial products.

To save costs, automotive companies are now aiming for their image-generation processes to be carried out with CGI as far as possible. As nowadays at least 80 percent of all images for communications purposes can be created using CGI, the initial costs for data preparation quickly pay for themselves if this process is used in a maximum of areas. After all, high costs for photo productions, complex and time-consuming film shoots and expensive prototypes are no longer necessary.

Impact on the Process Chain

The consistent use of CGI has a potential impact on the whole process chain of a manufacturing company. The most obvious effects arise in marketing products. Only what can be seen in detail will translate into purchases. Today customers are increasing embarking on a digital customer journey. This means that in many areas they are seeing virtual views of products. If we take the automotive industry, they see vast posters created with CGI of new models on public billboards. They watch TV commercials where vehicles and backgrounds are shown virtually. And in dealer showrooms, or at home on their PCs, they configure their favorite vehicle.

More influences of this type will follow and have an impact in many directions. CGI can react to development in the form of virtual engineering. A consistently planned system could even take on the role of product lifecycle management. Furthermore, better options arise as regards change management. Product development can be ongoing until the launch and each change can be immediately transformed into images and videos.

Outlook

It is likely that particularly in the automotive industry technical visualizations with CGI will rise. As a result, in future CGI will no longer just accept vehicle design data, but increasingly kinetic simulation data too in order to be able to reflect the movement dynamics of a vehicle correctly. Instead of just looking at a car, customers will actually be able to *experience and drive* a car without ever sitting in a real vehicle. Because developments are heading towards a full driving simulator which will then at some point be provided to customers as a showroom car configurator.

Other examples of added value require the use of augmented reality techniques. Customers would be able to look from the outside into a vehicle using data goggles and view various different features. The next step would involve customers sitting in cars and gaining a true impression of the interior space and comfort while sitting down. With data goggles various features would be inserted. Then CGI would turn into CGE, or in other words a computer generated experience.

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