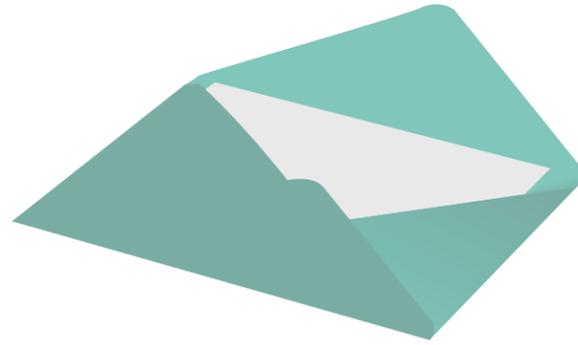


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THE FUTURE OF CAD Emerging Trends in Product Design



The CAD/CAE industry is now able to manage more activities with the help of advanced enterprise or global solutions. The design engineers across multiple sectors are currently working with the new industry standards insisting the middle managers to work with the advanced design patterns. These patterns are also more inclined towards the customer demands as well as their own creative ability.

Simulation Workflow Management (SWM)

Although, the simulation activities carried out using the traditional desktop applications are capable of leveraging the power of global enterprise solutions across boundless data centres, the new technologies will make the complex design simulation task simpler. One of such a method is the Simulation Workflow Management (SWM).

- It is a concept that integrates workflow management with the simulation technology.
- SWM is used across the design industry for simulation purpose.
- It also aims to make the simulation task of a complicated design simpler and readily available through its different features and functionalities.

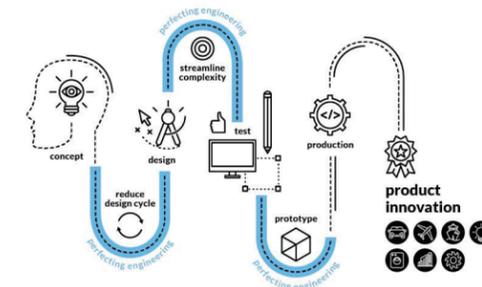
Simulation Challenges

- Simulation, in the traditional approaches,

required computational resources and rigorous data transfers which is not always a good approach as the technology is transforming every day.

- The emerging technologies also challenge the leaders with the large global simulation workflows across the multi-domain environment. However, over the next few years, technologies such as the increased bandwidth, data centre capabilities on a worldwide basis, and the new business technologies will resolve these challenges.

The ESTECO Project



ESTECO, a software provider has gained extensive experience in this area. They align the optimization and simulation techniques with the standard industry. The company also have accepted the norms and the different notations to mitigate these challenges. It is currently working and testing a ground-breaking multi-domain SWM solution.

The application will help different industries to innovate the different customized tools for the CAD/CAE industry.

SWM Making Product Design Easy

Such a technology break-through will be highly beneficial for the people working in the CAD/CAE technologies.

- The technology will allow them to develop and store the simulation workflow process as the people at the different managerial levels controls and tests new ideas and concepts from any other computing device.
- It will help the product and service designers and developers to explore new design alternatives and techniques to achieve them.
- The technology will also be able to maintain a history of their SWM concepts and techniques.

The SWM technology, therefore, makes working in the simulation environment easy for the research and development teams. Moving forward, we can also expect new opportunities in this technology.



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SketchUp: 3D Modeling Across Industries

Adding another innovation in the CAD design technologies is SketchUp. It is a 3D modeling computer program designed to create drawing applications in the field of interior design, architecture, mechanical, civil engineering, as well as landscape architecture. The technology is also widely used in films and video game designs.



Creating 3D Models

Unlike the complicated and difficult to learn computer programs, SketchUp is one of the most intuitive, easy-to-learn, and powerful 3D drawing tool. Not only for the 3D models, but the tool also helps the designers to convert their drawings into animated walk-through. In this way, the designers and managers can have a detailed look at their product. Some of its features are:

- ❖ SketchUp is a web application which helps users to draw almost any drawing using its online library that contains a collection of free model assemblies.
- ❖ The users can draw different LayOut with their functionalities and surface rendering variable styles.
- ❖ It is also loaded with some of the most powerful dimensioning and detailing tools that can work on the edges of the models in high details.
- ❖ The designers can easily scale, format, and add

further precision to the displayed measurements. ❖ It also helps the users to integrate third-party plugins to include added functionalities.

LayOut Supporting Design Details

The SketchUp Pro version includes LayOut which is a powerful tool that supports features for the page LayOut.

- ❖ The tool can carry out vector illustration, slide presentation, as well as features for drafting.
- ❖ It uses different viewports to offer different views of the project model, moreover, they also automatically update as the design model changes.
- ❖ The most promising part of the model created by SketchUp Pro is, they can be used again and again across different projects.

The tool is a highly intuitive platform capable of designing a highly detailed models that can be used across different industries.



Image courtesy: www.sketchup.com || www.theengineer.co.uk || www.ennomotive.com || youtube.com || www.mgfx.co.za || www.esteco.com



Innovation Engineering on its Way

Today's thriving engineering technologies have been surprising us constantly. And, with the changing technologies, we can still expect how things change across different technology domains and industries.

Here are ten most groundbreaking innovations in engineering that gives it a new definition.

3D Printing

The computers here converts the digital image of the model into a tangible physical product. The technology can print almost anything by laying layers of materials with the help of 3D printers.

Floating Train tracks

Researchers are now working to develop steel platforms on which trains can pass. These will have flexible bearings that will let the light rail tracks stay in a line.

A Roof that closes like a Camera

One of the Atlanta's newest stadium, now has a set of eight 500 ton steel petals that unfurl 200 feet above the ground. They can shut quickly in nine minutes shielding the players and the fans from the weather outside.

Replicating the Robot Arms

Robotic arms can now reassemble clones for itself and is cheaper than most of its market competitors.

AquaRefining

The method uses an electrochemical system to dissolve the Lead at room temperature without smelting harmful emission which occurred in the traditional methods.

Genetic Code printing

The new Digital-to-Biological Converter is now able to print genetic code following the digital instructions.

Synthetic Spider Silk

This fabric is developed artificially using yeast and is later spun into fabric using machines. These are the renewable protein-based fibres

now available as a merchandise.

Thin Rail Roller-coaster

Designers are now using durable and less amount of steel to develop the Raptor Track roller-coaster which easily fit into the intended spaces and offers a highly smooth ride.

Floating Wind Farm

Scotland is now using a floating wind farm to generate power from wind. Although they are currently close to the seashore, researchers are working to install them at farther distances where the winds are strong.

Underwater Snake Bots

The technology can be stationed on the seabed to repair infrastructure damages.



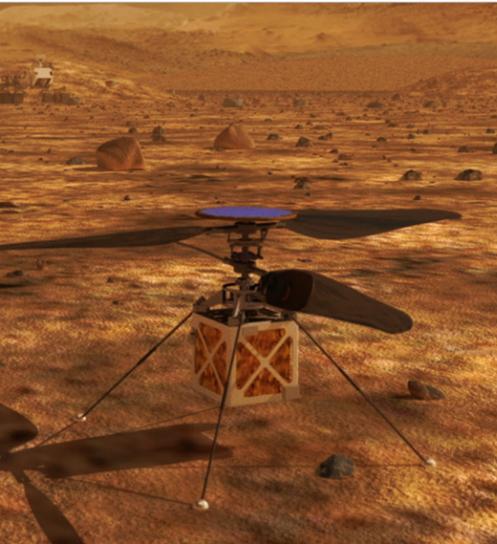
Nasa's 2020 Mission: THE MARS HELICOPTER

NASA is working on its next mission to launch a helicopter to the Mars. The project is scheduled in July 2020. The project is in the development phase at NASA's Jet Propulsion Laboratory (JPL) since the year 2013.

Some of its features are:

- ✈ The Mars helicopter will weigh around 1.8 kg and will be designed to operate in the planet's extremely thin atmosphere.
- ✈ Earth, being several light minutes away, the helicopter will be highly autonomous.
- ✈ It will receive and operate on the commands from the ground to share information.

The Mars helicopter is a high risk - high reward project and if successful, it may open new opportunities in interplanetary exploration.



FOURTH INDUSTRIAL REVOLUTION How Engineers can Stay Prepared

Like the first industrial revolution, which introduced the use of steam in the production industry. The second which included electric power, the third that introduced IT, and the fourth industrial revolution is set to bring new changes in the field of technology. Although it is difficult to define its possible alignment with the engineering world, we can expect some drastic changes in the events and be prepared to embrace them.

Here are five ways in which the engineers can prepare themselves for it:

- ⚙ They need to be more attentive and constantly upgrade their skills to stay competitive.
- ⚙ Engineering professionals have to look for ways that include low production costs and high-profit returns.
- ⚙ It is important for them to stay continuously updated with the technology.
- ⚙ The engineers need to stay open to the changing communication mechanisms and technology.
- ⚙ The revolution may change the ways in which work gets done, therefore staying flexible towards work is important for the engineering professionals.

