From Ideas to Profitability

"Innovation is not the product of logical thought, although the result is tied to logical structure." Albert Einstein.

All innovation begins with an idea or a single a-ha moment. However, converting the idea into a profitable product in an economically efficient manner has always been the challenge facing innovators and product designers.

Traditionally product design and development involved creating several iterations of prototypes and carrying out extensive testing before releasing to production. Although an element of design iteration and prototype development will always exist due to human error the cost associated to it can be minimised significantly using product design software. Digital prototyping makes it possible to verify and validate designs prior to manufacturing the first article of the product. Digital prototyping has given design teams the ability to virtually explore a complete product before it is made. Product design tools such as Autodesk Inventor Professional allow designers to quickly assess if a concept or design is worth pursuing. All the design data can be integrated into a single digital model including physical properties and design logic.
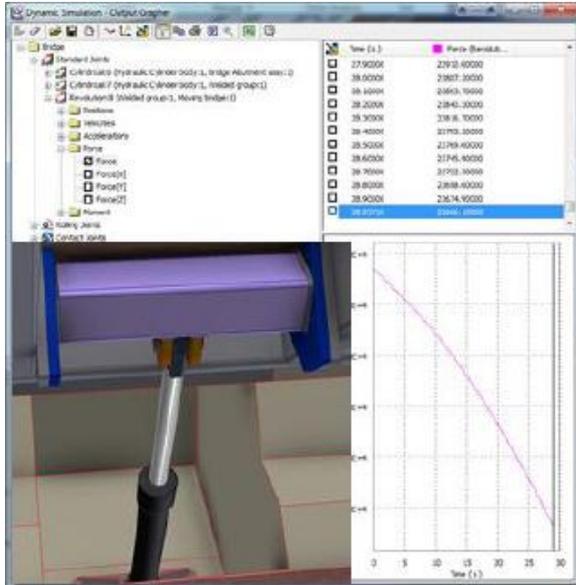
Visual representations allow easy communication of the design intent to all involved stakeholders and accommodate easier buy in from the non-technical partners in the product development process.

In the design phase of a product development cycle designers and engineers tend to have various ideas that need to be communicated and validated as quickly as possible. Reality is that some of these ideas will be worthwhile however some of these ideas will lead to production problems further in the design and development cycle. The sooner the good ideas are identified and capitalized on and the not so good ideas are removed-the faster the product can be released to the market. All of which results in improved organizational results and performance.

Business experts argue that the first thing that you must do is distinguish between productive and unproductive products and ideas. There is nothing to be gained from tolerating defects on the production line or products that will not sell. With this in mind the value of Autodesk Product Design Suites can be clearly seen in the product development process.

The Product Design Suite from Autodesk provides designers all the tools required to minimise the cost associated with developing a product and also increasing creativity and innovation along the way.

Using the Autodesk Product Design Suite to communicate your design intent from 3-D visualisation using Autodesk Inventor to gaining early buy in from clients using real time presentation and advanced rendering tools such as Autodesk Showcase, really accelerate the development process.
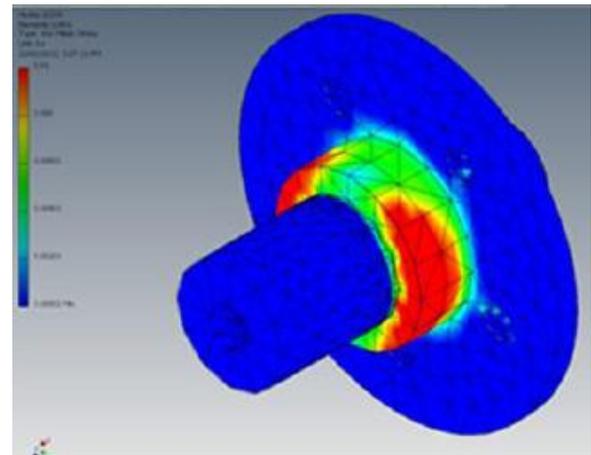

Autodesk Showcase allows designers to present in real time and create alternatives to secure client buy in prior to manufacture.

Design reviews and gateways can be approved using integrated design review tools such as Navisworks Simulate.

Autodesk Inventor's Dynamic Simulation tools allow the designer's to validate and simulate products such as calculating force required in a hydraulic cylinder.

Simulation tools such as Autodesk Inventor Dynamic Simulation make design engineering calculations easier to verify and calculate such as working out the design pressure required in a hydraulic cylinder or the force required in a spring. These simulation tools prevent costly re-work when the design goes to the manufacturing stage. FEA and structural analysis tools allow the designer to check the strength and natural frequencies of a product to ensure safe product design.

FEA and modal analysis tools allow strength validation and verification which can ensure that designs can withstand the required load cases

In my experience, I have worked as a Research and Development Engineer bringing new products to market and I can personally say that Autodesk Product Design Suite gives designers a competitive advantage through improving visualisation, validation and verification and collaboration through-out the design team. This in turn leads to a decrease in product to market timelines and a reduction in the creation of many costly prototypes. To borrow an Autodesk phrase,-the Product Design Suite takes you beyond 3-D to digital prototyping!

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