



The Importance of Product Design

When was product design not important? Product design has always been important. It is almost a law of nature. When was quality not important? This too is practically a law of nature. The elevation of both areas began back in the 1980s. For industrial design, service firms such as Design Continuum, IDEO, and a couple-dozen others formed into an industry as enabling 3D and surface design technologies also came of age. And user-interface (UI) engineering began its related roots as electronic devices emerged. For product quality, first Deming, Juran, Crosby, and others brought great techniques. Then came Jack Welch at GE, and Six Sigma spread widely a decade later. Currently, factors indicate that the competencies of product design are on the way to their next heyday. Several new groups of design requirements are converging in the same timeframe.

3D Printing & Additive Manufacturing Options: 3D printing emerged in the late 1980s and has been maturing for three decades. In 2018, it turned the corner to also become a production technology. BMW, Audi, Boeing, GE, Stryker, and others started using additively manufactured production parts. Hooray for 3D, but the challenges just grew for designers. Many more important decisions should now be made earlier. As a prototyping tool, manufacturing decisions could wait. But as a production-design tool, all the responsibilities of production design should be taken on if minimizing time-to-market is a goal. Designers also face increased choices when deciding how best to create production parts and assemblies with now six types of manufacturing processes to choose from. The choices directly affect product cost and profitability.

IIoT- & IoT-Enabled Products: Designers are increasingly having to “sensorize” products that will be manufactured in an industrial internet environment. As automated production grows, designs must progressively provide for transmitting data back and forth with factory equipment during manufacture. Materials, finishes, coatings, and other external and surface design trade-offs are becoming more complex to balance the needs of GD&T, inspection, and testing, with industrial internet sensing and interactivity. Further, designs must increasingly accommodate an array of sensors to maximize the value

of information attained after the product leaves the factory and engages the IoT in the customer’s environment. Many corporations are repositioning their product strategy so that the value of the data collected by sensors in IoT-enabled products will eventually overtake the value of the physical product itself.

Industrial & UI Design Needs: The importance of product appearance and the desire of owners to customize interfaces have been growing steadily for a dozen years. Apple’s launch of the iPhone raised the bar and fueled the next great wave of UI design. It didn’t take a wizard to see that good UI design increased revenues and profits. UIs are just part of the overall product design, however. UI real estate requirements get traded off against total real estate, which is the larger subject of industrial design. With most products being sold globally, threading the needle on an industrial (and UI) design that is globally appealing is critical. Recently, corporations and researchers began examining the extent to which good industrial design also affects the top and bottom lines. The impact on revenues and profits is greater than previously thought. A UK Study found good designs also increased exports by 5%.

Environmental, Materials, Miniaturization: Environmental design considerations have been growing steadily, and they increasingly differ by country and region. Design for Environment, Design for Disassembly, Design for Recyclability, and other eco-sphere DFX approaches are evolving. Not counting the many new 3D printing materials and metals, materials available to designers for all types of manufacturing processes are also growing. Then, on the horizon, is a new wave of miniaturization as MEMS and nano components come of age.

Future Product Design Masters: In the future, the best product designers will have mastered the numerous ways of blending appearance, usability, and functionality, with increasingly smaller earth-friendly capabilities and data sciences that enable the majority of the product’s value to be realized after it has left the building. 

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