

Developing a Prototype

Any new idea or invention has to be tested and verified at its initial stages from the point of view of an end-user before taking shape into a finished product and being launched to the market. A Prototype is a complete working model of an innovation, which is built in such a way that it can be tested on various points like design, features, cost effectiveness, usability, user friendliness etc. To produce your idea or innovation as an end product, prototyping is a critical step and an eminent part of the system design process. Developing a prototype in general minimizes the overall project risk and cost. Prototyping an idea rules out the chances of getting deficiencies and errors in the final design of the product. Prototype of an innovation is the first original working form of the idea which clears a path for its future stages or versions.

In order to develop a prototype, a proper documentation of the process, ideas and the flow has to be done initially. The innovation or idea can be a product or a service. A rudimentary design and documentation of these ideas demands thorough understanding and knowledge of the functionality and target audience of the product. The requirements from the end-user point of view are collected with respect to the innovation. The objective of the application or the product, input required, its processing and possible outputs are listed to develop a working model.

There are different types of prototypes depending upon the type of product and its functionality. Low Fidelity prototypes give a static, non-computerized working model, whereas High Fidelity prototypes give a dynamic, computerized working model. Exploratory prototypes are developed to examine the large and complex systems. Experimental and operational prototypes work to validate product specifications and iterations for finalizing the product. The prototypes with little details are the Horizontal Prototypes and that with full details are Vertical prototypes. Similarly Global prototypes provide working models of the entire system and Local prototypes are focused on the single usability or functionality of the product.

A Prototype is developed to show proof of innovation to senior management and investors. The prototype helps these people to get an idea of the final product without actually waiting for the final product. Similarly prototypes are designed to collect the initial user requirements for the improvement of the product and to train the user or to create a marketing demo.

The innovation can range from software, an electronic product or a mechanical component like an automobile part or machine. The design for a prototype can be drawn freehand or by using advanced software like CAD and other design tools. Rapid Prototyping Tools are available today that help create a working prototype which users can interact with and use to judge the functionality. Also the exact expected characteristic of the planned product can be stimulated with these Rapid Tools.

Besides some risks involved in developing a prototype, it might be the first step in launching your idea successfully. The working model may attract investors, manufacturers and even customers as the prototype may serve as a marketing tool for some products. Any defect or malfunctioning of the invention is observed through prototype development and testing which saves time and money than if the invention was mass produced immediately and had to be scrapped due to missed flaws.