

BEYOND Market Research



Most people are familiar with ‘market research’ in its various forms - the informal opinion polls about a person’s feelings or preferences for a certain product, or even the more in-depth look at a person’s reaction to a product and its features. What most people are not as familiar with, however, are human factors studies conducted as part of the product development process.

Human Factors Engineering (HFE) is the discipline concerned with how people use technology. It is the study of the interaction of human abilities, expectations, and limitations with work environments and system design. When HFE is incorporated into the product development process, the result is a safer product that is more effective and more appealing to the user. Where market research is aimed at gathering people’s reaction to a product, a well-designed human factors study can provide invaluable insight into their interactions with a product early, at a time in its development when it is still possible to make adjustments and improvements. Both market research and human factors studies aim to gather information about consumers, but they differ in a few key facets - namely intent, context, and researcher.

Intent

Perhaps the key distinguisher between market research and human factors studies is the objective or intent. Typically, market research aims to provide answers to questions that have a business impact for a product. It is generally used to provide broad conclusions about particular market segments, trends in consumer behavior, and user preferences that help determine what product a company should be offering their intended audience. It may also tell you generally what features consumers may want in a given product and how much of a premium they would pay for those features. Once a product has been decided upon, a human factors study steps in to help determine how that product should be implemented during the development process.

Take for example a company that makes home kitchen appliances. Market research has indicated that consumers would be interested in purchasing a cooking appliance that is portable, can be used indoors, and takes up very little space. So the company implements a development program to design a product that meets those requirements. Over the course of the development program there are several points where a human factors study could gather critical input from the intended users.

The first of these is in defining requirements - not just in the general sense of, “I want a product that does x, y and z” but with a more specific focus on how the users would want the product to accomplish these functions. For example, if the requirement is for the appliance to be portable, how is portability best accomplished? Is a battery-powered appliance acceptable or would the users prefer it to be rechargeable?

A second point is in concept selection. Once several design concepts have been generated they can be evaluated through a human factors study with the target-users to select the most appealing one.

A third opportunity for a human factors study is in validation when the design is essentially complete, but requires a pre-release study to confirm that the finished product design meets the user requirements as they were initially laid out.

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Context

Human factors research often goes places that market research does not - into people's homes, offices and operating rooms - to conduct in-context evaluations. Also called ethnographic research, these studies involve observation and questioning of users as they interact with a product in its context or environment of use. For instance, the only way to know for sure how easy or difficult it is to use a piece of portable medical equipment intended for Emergency Medical Technicians (EMTs) is to observe them in their working environment and see how the close quarters, noise, vibration and lighting levels in the back of an ambulance affect their interaction with the product. Doing this early in the development process yields valuable insight at a point where changes can still be made in the design to address areas of the product that may present challenges. It is often ineffective to simply ask people to tell us what they think the issues are or how to solve them, which is why focus group or opinion poll research can be misleading. Frequently the propositions being tested are not necessarily addressing the right issues, and people are notoriously unreliable reporters of their own behavior. It's important to observe firsthand what the actual problems and opportunities really are.

Researcher

Another key component of human factors studies is that the researcher, typically a human factors engineer or industrial designer, is an integral part of the development team, involved not only in the design and execution of the user research but in the

implementation of study results into the design. This involvement ensures consistency throughout a product development project because the study designer and executor is intimately involved with the concerns of the development. They know what questions need to be answered by the study in order to provide useful, actionable criteria for the design.

Human factors studies are used as part of the iterative development process to identify preferences among different product concepts and product features and to select the best one for implementation into an actual product. They are focused on answering specific questions pertinent to the design of a product, and seek to provide actionable input into the development process. For example, users are often asked to rate or rank their preferences for different design options of the same feature. Once a concept has been selected and designed in sufficient detail to produce working prototypes, human factors studies can then be used to verify that the product actually does what it is supposed to do for the user and that it meets the requirements as were laid out at the beginning of the project.

So data from human factors studies may be used to inform design decisions and to drive feature selection, concept refinement, and validation confidence. It can also then be used by a company as a basis for new marketing or advertising campaigns around those product features that are found to be the most attractive to consumers based on the market research.

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