

Streamlining the Fuzzy Front-End and Improving the Usability of the Tools Involved

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Abstract : Researchers have spent decades developing tools and techniques to aid teams in the new product development (NPD) process. Despite this, it is evident that there is a huge gap between their academic prevalence and their industry adoption. For the fuzzy front-end, in particular, there is a wide range of tools to choose from, including the Kano Model, the House of Quality, and many others. In fact, there are so many tools that it can often be difficult for teams to know which ones to use and how they interact with one another. Moreover, while the benefits of using these tools are obvious to industrialists, they are rarely used as they carry a learning curve that is too steep and they become too complex to manage over time. In essence, it is commonly believed that they are simply not worth the effort required to learn and use them. This research explores a streamlined process for the fuzzy front-end, assembling the most effective tools and making them accessible to everyone. The process was developed iteratively over the course of 3 years, following over 80 final year NPD teams from engineering, design, technology, and construction as they carried a product from concept through to production specification. Questionnaires, focus groups, and observations were used to understand the usability issues with the tools involved, and a human-centred design approach was adopted to produce a solution to these issues. The solution takes the form of physical toolkit, similar to a board game, which allows the team to play through an example of a new product development in order to understand the process and the tools, before using it for their own product development efforts. A complimentary website is used to enhance the physical toolkit, and it provides more examples of the tools being used, as well as deeper discussions on each of the topics, allowing teams to adapt the process to their skills, preferences and product type. Teams found the solution very useful and intuitive and experienced significantly less confusion and mistakes with the process than teams who did not use it. Those with a design background found it especially useful for the engineering principles like Quality Function Deployment, while those with an engineering or technology background found it especially useful for design and customer requirements acquisition principles, like Voice of the Customer. Products developed using the toolkit are added to the website as more examples of how it can be used, creating a loop which helps future teams understand how the toolkit can be adapted to their project, whether it be a small consumer product or a large B2B service. The toolkit unlocks the potential of these beneficial tools to those in industry, both for large, experienced teams and for inexperienced start-ups. It allows users to assess the market potential of their product concept faster and more effectively, arriving at the product design stage with technical requirements prioritized according to their customers' needs and wants.

Keywords : new product development, fuzzy front-end, usability, Kano model, quality function deployment, voice of customer

Conference Title : ICCIM 2019 : International Conference on Creativity and Innovation Management

Conference Location : New York, United States

Conference Dates : April 22-23, 2019