

# **User-based Innovation**

## Introduction

In this essay I aim to elaborate on the factors that support or inhibit, define and stimulate user-centred innovation. By referring to case studies and assessments about innovation economics, conducted with a clear and systematic theoretical framework, it is clear that the process of locating lead users stands out in the foreground. In order to ascertain the importance of lead users with regards to user-centred innovation, it is necessary to define the role a lead user plays as opposed to ordinary users. This outline will be of relevance when addressing the topic of “self-positioning” or when attempting to create a link between our learned connectional-landscape to the existing market and to ourselves in the essay to follow.

## Origins of User Centred Innovation

Eric von Hippel (2005) remarks on the rapid rate in which innovation is happening, primarily because improvements in computer and communications technology enables users to increasingly innovate for themselves and develop their own products and services. Users then share their innovations with other users by creating user innovative communities (von Hippel, 2005). As a result user-centred innovation emerges. His study also concerns itself with why and when users find it profitable to develop new products and services for themselves, and why it often pays off to reveal their innovations freely for everyone to see and use (2005). According to von Hippel, this process as innovation in action, can be seen most vividly in the development of software and information products, for example in the free and open-source software movement, as well as in physical products such as surgical equipment, surfboards and security features. He also acknowledges that development is concentrated among lead users who are considered to be ahead

of marketplace trends, and whose innovations are often commercially attractive because of their relevance to other users needs (2005). Therefore, it is only understandable that manufacturers seek out innovations developed by such users, as encouraged by von Hippel (2005). He continues to elaborate on the positive impact this will consequently have on social welfare, 'regarded the government (policies, R&D Subsidies and tax credits) realigns resources to finance such development trends, and spurred on by both firms and individual consumers' (von Hippel, 2005, pp.1-2).

### Users

As practice has shown, users selected to provide input data to consumer and industrial market analyses are limited in their insights into new product (and process and service) needs and potential solutions are constrained by their own real-world experience. Which makes them unlikely to generate novel product concepts which conflict with the familiar. To support this statement, studies conducted by Abraham S. Luchins, Robert E. Adamson, and Donald W. Taylor find that typical users of existing products - the type of user normally chosen in market research to evaluate products- are poorly equipped to take on the difficult problem-solving tasks connected with assessing unfamiliar product and process needs (von Hippel, 1986).

Eric von Hippel (1986) states the reasons as to why marketing researchers face serious difficulties if they attempt to determine new product needs falling outside of the real-world experience of the users they analyse. "In the relatively slow-moving world of many consumer products, these products do not often differ radically from their immediate predecessors. Therefore, even the "new" is reasonably familiar, and the typical user can play a valuable role in the development of new products" (von Hippel, 1986, p. 6). However, the lead users' experience is needed for marketing research in fast-moving fields, mainly because of their real-life experience with novel product or process concepts that interest them, and are therefore essential to accurate marketing research (von

Hippel, 1986).

### Lead Users

Current market research analyses are typically not reliable in the instance of very novel products or in high technology products characterized by rapid change. And although the insights of lead users are as constrained to the familiar as those of other users, lead users are in a position to provide accurate data on needs related to future conditions, taking most other users into consideration (von Hippel, 1986). Empirical studies have shown that many of the innovations reported by lead users (both individuals and firms) are judged to be commercially attractive and/or have actually been commercialized by manufacturers. Lead users can therefore be systematically identified by observing two defining characteristics. Firstly, lead users are doing a lot of product modification and product development in various fields. Secondly, this characteristic puts them ahead of the majority of users in their population in regard to an important market trend, and so they also expect to gain high benefits from a solution they develop to meet the needs they have encountered (von Hippel 2005). The greater the benefit a given user can obtain from a needed novel product or process, the greater his effort will be to innovate until he obtains a solution. These perceptions and preferences can be better incorporated into industrial and consumer marketing research analyses of emerging needs for new products, processes and services with the assurance that many of the novel products developed for personal use will appeal to other users too, and therefore possibly provide new product concepts and design data for products that manufacturers would wish to commercialize. Therefore, the higher the intensity of lead users characteristics displayed, the greater the commercial attractiveness of the innovation. Meaning, innovation attractiveness is the sum of the novelty or uniqueness of the innovation and the expected future market demand (von Hippel, 2005).

## Methodology of User Centred Innovation

In addressing user-centred innovation at this point provides insight into old traditional approaches companies have used in working together with their users, and discloses why these have resulted in failure. Touching on the example of physical products such as surfboards, a pioneer in high performance windsurfing, Larry Stanley, described the development of major innovation in technique and equipment, an example provided by von Hippel (2005) for the user-centred (user centric) innovation process, which provides a very necessary complement to and feedstock for manufacturer innovation. Namely, that if users want something that is not on the market and are able and willing to pay for its development, they will innovate. Due to a new enthusiasm for jumping in the sport of windsurfing a new risk was involved, meaning that the higher the windsurfer jumped the greater his chances were of flying off his board in mid-air, thus resulting in injury. Stanley recalled a small experimental board called the Chip, which is built with foot straps that enabled him to control his flight, change direction in mid-air, increase speeds and land. Within two days there were various boards with various foot straps available.” It just kinda snowballed from there”, Stanley states. (von Hippel, 2005).

Times have changed and today a lot of information is gathered from outside the company. Henry Chesbrough (2006) introduced the concept of the open innovation funnel. The supply of information from outside was made more available, which led companies to utilise previously 'unused' ideas for their businesses. Whereby 'unused' ideas are able to escape the funnel and find a new market. In comparison to the funnel model, we now have more resources, meaning that besides the internal RND we are also able to work and profit from external RND. As a result, open innovation is best defined by knowing how to use internal and external ideas optimally i.e. IP, which in turn significantly reduces the pressure to make a profit solely generate from internal research (2003). An exploring the basic process of product and service development one can see

that users and manufacturers tend to develop different types of innovations, due to information asymmetries i.e. they know different things (Hippel, 2005). The main difference is that user-centred innovation is a process that shows an attempt to optimize services and products around how people can, want, or need to work, rather than forcing the users to change how they work to accommodate the system or function. And because of this approach users generate need and context-of-use information. They ‘rely largely on information they already have in stock’ (von Hippel, 2005 p. 24) and therefore tend to develop innovations that are functionally novel or unique. In contrast, manufacturers specialising in a particular type of solution, initially know generic solution information and tend to develop innovations that are improvements on well-known needs that require a rich understanding of solution information for their development. The information a particular user or manufacturer has will be closest to what is required to develop a particular innovation, which decreases the development costs for that particular user or manufacturer (von Hippel 2005).

“The net result is that user innovation activities will be distributed across many users according to their information endowments. With respect to innovation, one user is by no means a perfect substitute for another” (von hippel, 2005 p. 25). Individual users do not have to develop everything they need on their own: they benefit from innovations developed at private cost and freely shared by other users. The information becomes a public good and all interested parties are given access to it (example: open source software) and increases the social efficiency of a system in which individual innovations are developed by individual users, and that multiple user-innovators with similar needs won't have to independently develop very similar innovations. This would result in a poor use of resources from the viewpoint of social welfare (von Hippel 2005). Users often find that others then improve or suggest improvements to the innovation, for mutual benefit. They may also ‘benefit from enhancement of reputation, positive network effects due to the diffusion of their innovation’ (von Hippel, 2005 p. 26), and a general enhancement of the benefits received, which results in a rush to being the first to have made a particular advancement.

This is why von Hippel stresses the importance and function of organized cooperation such as networks and communities, as they provide useful structures and tools for user interactions and the distribution of their innovations. They can increase the speed and effectiveness with which users and manufacturers can develop, test and diffuse their innovations and with which innovators can build larger systems from inter linkable modules created by the community (2005).

## Conclusion

The following statements have shown that users, and more so, lead users are the driving force of user centred innovation. Also, that the goal of a democratised user-centred innovation system, according to von Hippel, is well worth striving for. In physical product fields, product development by users can evolve to the point of largely or totally supplanting product development by manufacturers (however not product manufacturing and distribution). And seeing as users would rather innovate than buy, users have found low-cost niches and encouragement through information communities. Eric von Hippel goes on to further explore the relationship of user-innovation and its dependency on information-communities, by exploring the link between user-centric innovation phenomena mentioned above, to the literature concerned with the economics of knowledge and to the competitive advantage of nations, and the trend to research on the sociology of technology. The findings regarding user innovation could then link to and complement the way that product development is taught to managers (2005). The net result is an ongoing shift toward the democratisation of innovation.

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