



Democratizing Innovation

by Eric Von Hippel - 2005.

Summary:

This is a book by a professor from MIT on innovation by people. Von Hippel discusses innovation by 'users' and the diffusion of those innovations. To summarize:

- Users are the first to develop many new industrial and consumer products.
- Users are increasingly able to innovate for themselves.
- Users will be an increasingly important source of innovation.
- Manufacturers should systematically search for lead user generated innovation.
- The focus on target markets means that lead users are often regarded as outliers of no interest.
- User innovation is likely to be widely distributed phenomenon and it would be difficult to predict in advance which users have most likely developed very valuable innovations.
- Users who freely reveal what they have done often find that others then improve or suggest improvements to the innovation to mutual benefit.
- One challenge for management is to capture the knowledge being generated by users online during the process of doing and producing.
- Products developed by users become more valuable if they are somehow diffused so that others can benefit from them.
- The innovating user may benefit from the inquiries and diffusions via number of network effects.
- Freely revealing users also may benefit from enhancement of reputation, from positive network effects due to increased diffusion of their innovation, and from other factors.
- Individuals are often strongly motivated to innovate by the joy and learning they find in this work.

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Notes:

Innovation is being democratized. Users are increasingly able to innovate for themselves. Users that can innovate can develop exactly what they want. Individual users can benefit from innovations developed and freely shared by others. Users are the first to develop many and perhaps most new industrial and consumer products.

The ongoing shift of product development activities from manufactures to users is painful and difficult for many manufacturers. Users are often unique and they alone benefit directly from innovations. All others must sell innovation related products or services to users. Many users, from 10 percent to nearly 40 percent, currently engage in developing or modifying products.

Lead users are ahead of the majority of users in their populations with respect to an important market trend. There is a correlation between innovation by users and lead users status. Many of the novel products they develop for their own use will appeal to other users too and so might provide the basis for product manufacturers who would wish to commercialize the ideas. Enjoyment of the innovation process can also be important. New institutional forms such as user innovation communities may emerge. An additional incentive can drive individual user-innovators to innovate rather than buy. They may value the process of innovating because of the enjoyment or learning that it brings them. Individuals are often strongly motivated to innovate by the joy and learning they find in this work.

User innovation activities will be distributed across many users according to their information endowments. The social efficiency of a system is increased if users somehow defuse what they have developed to others. Users often do achieve widespread diffusion by an unexpected means. They often freely reveal what they have developed. Users who freely reveal what they have done often find that others then improve or suggest improvements to the innovation to mutual benefit. Freely revealing users also may benefit from enhancement of reputation, from positive network effects due to increased diffusion of their innovation, and from other factors.

Innovation communities can increase the speed and effectiveness with which users and also manufacturers can develop and test and diffuse their innovations. They appear to be more robust with respect to recruiting and rewarding members than the literature would predict. Users' ability to innovate is improving radically and rapidly as a result of the steadily improving quality of computer software and hardware, improved access to easy-to-use tools and components for innovation, and access to a steadily richer innovation commons. When the cost of high-quality resources for design and prototyping becomes very low, the result is to democratize the opportunity to create.

Users will be an increasingly important source of innovation. Modification of firms' innovation processes to systematically search for and further develop innovations created

by lead users can provide manufacturers with a better interface to the innovation process as it actually works, and so provide better performance. One open information community is the online encyclopedia Wikipedia and others include the many specialized Internet sites where individuals with both common and rare medical conditions can find each other. User innovation is frequent, pervasive, and important. Many users may want custom products. If many users want something different they will be driven either to develop for themselves or pay custom manufacturers to develop it for them.

Individual users can sometimes be more inclined to innovate than one might expect because they sometimes value the process of innovating as well as the novel product for service that is created. Users that innovate do not generally face legal risk if the product they develop fails and causes cost to themselves but not to others. Manufacturers contacted by a user with a specific request will be keenly interested in how many others are likely to want this solution or elements of it.

Stressed-skin panels were introduced in housing construction after World War II. From the 1940s until 1989, 82% of the innovations have been developed by users of the Stress-skin panels and only 18% by manufacturers. Each innovation was an immediate response to a problem encountered in the course of a construction project. A survey studied a sample of 684 individuals with the response rate of 34% who had written new software code and contributed to an open source project. They were asked to list their three most important reasons for their efforts. About 30-35% said it was for a work or non-work need. However 45% said one of their top reasons was intellectual stimulation and 41% was to improve their own programming skills. 61% said their participation was their most creative experience or was as creative as their most creative experience.

A level of challenge somewhere between boredom and fear is important. The experience of flow is gained when one is fully engaged in a task that is intrinsically rewarding. Intrinsic motivation is a key determining factor for creativity. Control over my own work is cited by many programmers as the reason they enjoy creating code as volunteers more than they enjoy coding for their employers for pay.

Products developed by users become more valuable if they are somehow diffused so that others can benefit from them. User innovators sometimes voluntarily reveal what they have developed for all to examine, imitate and modify without any payment to the innovator. Free revealing is a major surprise. It seems to make no sense that people who innovate would intentionally give away information for free that they had invested money to develop. An innovator can simply post information about the innovation on a website without publicity so those who were potentially interested could discover. The innovating user may benefit from the inquiries and diffusions via number of network effects. Others can debug and improve upon the modules they have contributed. Free revealing is of value only if others reuse what has been revealed. We see evidence that free revealing does increase reuse.

Innovation communities are often stocked with useful tools and infrastructure that increased the speed and effectiveness with which users can develop and test and diffuse their innovation. Innovation communities are not restricted to the development of information product. Different users tend to develop different innovations consisting of novel accommodations of pre-existing elements. Such innovators are using their membership in two distinct communities to combine previously disparate elements. The assets of some user will then generally be found to be just the right fit to many innovation development problems.

Most new products developed and introduced to the market by manufacturers are commercial failures. The overall popularity of success for new industrial product is only 27% and 26% for consumer products. This high failure rate represents the huge inefficiency in the conversion of R&D investment used for output. The major reason is poor understanding of user needs. How can manufacturers profitably participate in emerging user-centered innovation processes? High cost resources for innovation support cannot be allocated to the right people because one does not know who they are until they develop an important innovation. The focus on target market customers means that lead users are often regarded as outliers of no interest. The traditional market research focuses on collecting analyzing need information and not on possible solutions that users may have developed. How can manufacturers build a product development process that systematically searches for and evaluates lead user generate innovation?

User innovation is likely to be widely distributed phenomenon and it would be difficult to predict in advance which users have most likely developed very valuable innovations. Information communities may have a rapidly increasing impact on the economy and on the landscape of industry. They will be especially empowering to fragmented groups. Common examples could be found in the medical field in the form of specialized websites where patients with relatively rare conditions and for the first time find each other and also find specialists in those conditions. Patients and specialists who participate in these groups can both provide and get access to information that previously was scattered and for the most practical purposes inaccessible. Users are the heart of knowledge production. One challenge for management is to capture the knowledge being generated by users online during the process of doing and producing.

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