

# Open Source Development

## The use of the open source development model in other than software industries

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### **Abstract**

During the last couple of years the open source phenomena has got much attention as it has been argued that open source projects can produce better quality technology than traditional R&D. Nevertheless, the open source development model is not only producing software. It also produces the interacting system of knowing, learning and doing, which organizes the community and its relations with other communities. Thus, a number of ingredients of open source development model are not specific to the software industry. The main purpose of this paper is to find out if the characteristics of the open source development model can be implemented in other than software industries. Given that user networks have existed long before open source software and that such communities can be found developing physical products as well, it seems possible that the Bazaar development model can successfully be implemented in other than software industries.

Keywords: open source development model, distributed innovation, open source business models, bazaar model.

## **Introduction**

*“Perhaps in the end the open-source culture will triumph not because cooperation is morally right or software ‘hoarding’ is morally wrong...but simply because the closed-source world cannot win an evolutionary arms race with open source communities that can put orders of magnitude more skilled time into a problem” Eric Raymond 1998a*

*“And whoever has the smartest customers wins” Kevin Kelly 1998*

The basic idea behind open source is very simple: When software is “free” or “open source”, users are allowed to download the software from the Internet and use it without charge. Users are also explicitly granted the legal right to study the software’s source code, to modify the software, and to distribute modified or unmodified versions to others (Franke & von Hippel, 2002). So when programmers can read, redistribute, and modify the source code for a piece of software, the software evolves. The essay, *The Cathedral and the Bazaar* by Eric Raymond, makes a metaphorical reference of two fundamentally different styles of software engineering. On one hand, common in commercial development, is the Cathedral model, characterized by centralized planning enforced from the top and implemented by specialized project teams around structures schedules. On the other hand is the Bazaar model, with its decentralized development driven by the whims of volunteer hackers and little else. In contrast to the serene isolation of the cathedral from the outside, the bazaar is the clamor itself. Anyone is welcome. It is a community by the people and for the people (Raymond, 1998b; Kuwabara, 2000). Hence, the open source software development practice involves two major deviations from the private investment model of innovation as it is conventionally viewed. First, software users rather than software manufacturers are the typical innovators in open source. Second, open source innovators freely reveal the proprietary software that they have developed at their private expense (von Hippel & von Krogh, 2002).

The term Open Source Software was coined at a meeting at VA Research February 3, 1998, and during the last couple of years the open source development model has got much attention (DiBona, Ockman & Stone, 1999; Wayner, 2000; Raymond, 1998b; Raymond, 1998a; Bezroukov, 1999; Kuwabara, 2000). It has been argued, for example, that open source projects can produce better quality technology than traditional R&D; that the software will have longer duration, be more robust, include less bugs; and that it will be more stable and flexible than proprietary software products. In short: guaranteed openness creates software that does not suck (Raymond, 1999; DiBona, Ockman & Stone, 1999; Kuwabara, 2000; Kely, 2001). There have even been suggestions to forbid the use of some commercial products due to their lack of sufficient security.<sup>1</sup>

Gnu/Linux is perhaps the most famous open source project so far. It is the most widely ported system available today and it is further the only system gaining market share besides Microsoft’s Windows (Lerner & Tirole, 2000; Lancashire, 2001). International Data Corporation estimates that Gnu/Linux has between 7 to 21 million users worldwide, with a 200% annual growth rate, and that it will grow twice as fast as all the other server operating systems combined until 2004 (Raymond, 1999). Some even claim that Gnu/Linux is superior to anything the world’s computer industry has ever produced (Kuwabara, 2000). The success is not only limited to Gnu/Linux though. A number of open source software products such as

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<sup>1</sup> “Time to forbid the use of Outlook?” C. Månsson, Letter to the editor. Internetworld, Nr 9. November 2002.

the Apache web server and Sendmail, dominate their product categories (Raymond, 1999). According to IBM's Linux Technology center, Apache is now running 67 percent of all active websites.<sup>2</sup> In total there are over 48.000 known open source projects and some of them have even received venture capital funding (Lerner & Tirole, 2000; Raymond, 1999; Torvalds, 2001). Moreover, during the last couple of years, numerous major corporations, including Hewlett Packard, IBM, Sun, Palm, Handspring and Computer Associates among others, have launched projects to develop and use open source software (Raymond, 1999; Torvalds, 2001; Lessig 2001).

Nevertheless, the recent adoption of all these open source projects is completely overshadowed by the emergence of the Internet, itself the largest single structure humans have ever built (Thimbleby 1998). Perl, the glue that makes most websites run, was developed as an open source project. Also, the single most mission-critical Internet application, the Berkeley Internet Name Daemon (BIND) system, which connects names to IP-addresses, was developed originally as an open code project at the University of California at Berkeley. Together with the public domain protocols that define the Internet, referred collectively as TCP/IP, including the core protocols for the World Wide Web, this free code built the Internet. Hence, the open source mentality was one of the main reasons to why we got here in the first place. Without it the Internet and the World Wide Web could not have been built (Berners-Lee, 1999; DiBona et al., 1999; Raymond, 1999; Locke et al, 2000; Lessig 2001). As a result the need for understanding the challenges and dynamics associated with the use of open source processes has intensified. This interest has been spurred by another fact.

The open source development model is not only producing software. It also produces the interacting system of knowing, learning, and doing that organizes the community and its relations with other communities (Tuomi, 2001). Two of the most influential visionaries of ARPANET, J.C.R. Licklider and Robert Taylor, argued in great detail in 1968 that such online communities would radically transform computer programming but also society, work and human thinking (Licklider & Taylor 1968). In fact, many of the attributes of the Bazaar Raymond identifies – openness, delegation, rapid publishing, flexibility, parallel development, peer review and feedback loops – do not necessary require open source code. Thus a number of ingredients of open source development model are not specific to the software industry and the collaborative approach could be applied to areas beyond the coding of software (Kuwabara, 2000; Stadler & Hirsh, 2002). Yet, there is still a surprising lack of research confirming this statement as a very limited number of empirical studies show that the open source development model can be used in other than software industries.

## **Objective**

The purpose of this paper is to find out if the dynamics of the Bazaar development model can be applied in other than software industries. Open source projects present a novel and successful alternative to conventional innovation models. It also challenges the prevailing views regarding how innovations should be developed, and how organizations should form and operate. Mainstream businesses will in this paper be defined as profit seeking firms that wish to fulfill some need in the market by selling different products. I will not address specific communities as the open directory project, wikipedia.com, nologo.org, and other non profit open source collaborative initiatives. I will also disregard pure play internet firms as AOL and Lunarstorm since their unique characteristics can not qualify them as mainstream businesses. This limitation is critical as the nature of the Bazaar model might lead to substantial

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<sup>2</sup> "Beyond Linux: Corporate coders step up their use of open source", Ed Frauenheim, Wired, December 2002.

rethinking of the organization as a locus for innovation. It might also raise the question of what the purpose of a corporation really is. Hence, the objective is to find out if there can be such a thing as an open source business model within mainstream organizations and if the open source development model can be implemented beyond the coding of software.

## ***Methodology***

The methodology used in this paper is as follows. I will first make a literature review of leading academic research in order to develop a framework for the analysis. I will then use secondary data from different case studies in order to see if the Bazaar development model is gaining attention in other than software businesses. The use of secondary data will clearly limit the findings as it is often biased and has been gathered for a different purpose. Nevertheless, as the objective is to find out if the characteristics of the open source mentality can be applied to areas beyond the coding of software, they will have a sufficient descriptive nature. Further, the qualitative approach used in this paper gives us results in un-measurable and arbitrary terms. Qualitative research, however, allows the building of a more holistic picture of the phenomenon and it will hopefully serve this paper's purpose nevertheless. An analysis based on the findings from the case studies will then be summarized into some conclusions. Also, since this paper will be one of the first written in this area, it is my ambition to give some suggestions for future research.

## ***The Open source mentality***

While media attention to the phenomenon of open source software has been recent, the basic behaviors are much older in their origins. It has been estimated that about half of the operating systems for CTSS, an early time-sharing system at MIT, were developed by the users of the system (Fano 1967) and from the very beginning of computer science, it has been a common practice among researchers, students, and engineers to share source code (Caminer et al., 1996; Kuwabara, 2000). One of the motivations for launching the ARPANET project in 1960s was the belief that by connecting different computing sites, communities of computer programmers could more efficiently share their programs and knowledge (David & Fano, 1965; Abbate, 1999; Naughton 2000).

However, the open source mentality can be traced as far back as the creation of The Oxford English Dictionary, which was mankind's first large scale collaborative open source text project (Winchester 1998). If one also were to include peer-reviewed academic publishing it seems that the mentality on which open source processes is founded is not new at all (Stadler & Hirsh, 2002). Hence, user innovation networks have existed long before and extend far beyond open source software and such communities have also been found developing physical products as well (von Hippel, 2002). For instance all important innovations in snowboarding, windsurfing and skateboarding equipment have been developed by the users themselves (Shah, 2000; Franke & Shah, 2001).

Innovation manufactures rather than innovation users have traditionally been considered the most logical locus of innovation for products and services, because private financial incentives to innovate seem to be higher for them than for individual users. Despite this traditional expectation however, empirical studies of the sources of innovation in both industrial and consumer goods fields have shown that in many of the fields studied, users rather than manufactures are typically the initial developers of what later become commercially significant new products and processes (von Hippel, 2002). Further, empirical studies find that innovation by users tends to be concentrated among lead users of those products and processes.

## ***The Lead User Approach***

Lead users are defined as users of a given product or service type that combine two characteristics: (1) Lead users expect attractive innovation-related benefits from a solution to their needs and so are motivated to innovate, and (2) lead users experience needs that will become general in a marketplace, but experience them months or years earlier than the majority of the target market (von Hippel, 1988). Hence, lead users are not the same as early adopters of an innovation. They are typically ahead of the entire adoption curve in that they experience needs before any responsive commercial products exists – and therefore often develop their own solutions. Since they are familiar with conditions which lie in the future for most users, they can serve as a need-forecasting laboratory for market research. Moreover, since lead users often attempt to fill the need they experience, they can provide new product concept and design data as well.

While traditional marketing research idea generation methods usually collect information on new product needs from a random or a typical set of users at the center of the target market. The lead user process takes a different approach, collecting information about both needs and solutions from the leading edges of the target market and from markets facing similar problems in a more extreme form (Lillen et al., 2002). The drawback with the former method is that the thinking of the respondents is limited by their current experience and environment. Further, the traditional method obtains need information only, and assigns the task of generating ideas for solutions leading to new products to manufacturers. Due to this fact traditional marketing research methods have generally failed to produce radical new product breakthroughs (Eliashberg et al., 1997). Indeed, the value of assigning idea generation to manufacturers is not supported by research (Goldberg et al., 2001). In contrast, the lead user approach allocates idea generation to lead users and collect information on both needs and ideas for solutions.

Though, the benefits of this method are still not generally accepted, the empirical studies have shown promising results. The lead user idea generation method does appear to generate better outcomes than traditional methods (Lillen et al., 2002). For example ideas generated by lead user processes at 3M had forecast sales in year five that were more than 8 times higher than the sales of the contemporaneously funded projects. These funded projects also had significantly higher novelty, addressed more original newer customer needs, and had higher forecasted market share in year 5 than did those from more conventional methods (Lillen et al., 2002).

## ***The toolkit for innovation approach***

A complementary innovation process to the lead user method is the toolkit for innovation approach. It is based on the fact that user needs for a given product type can be quite heterogeneous and that new products and services must accurately respond to user needs if they are to succeed in the marketplace (von Hippel & Katz, 2002). Market researches are of course aware of this and as a consequence they decide to divide the target market into several segments, each intended to address the average customer need in each segment. This approach to the problem is helpful, but it typically falls short of offering each customer a product that is a precise fit to that need. Moreover, segmenting the market and providing solutions for average user needs in each segment is a partial answer that will probably leave many dissatisfied (Franke & von Hippel, 2002). As a consequence users serve themselves by designing their own products from scratch or by modifying commercially available products (Franke & Shah, 2001; Morrison et al, 2000; Luthje, 2000).

The toolkit for user innovation approach builds upon these findings and by using this method manufacturers are in fact abandoning their efforts to understand the heterogeneous needs of their users in detail. Instead they equip users with “toolkits for innovation” to assist them in designing their own new custom products (Franke & von Hippel, 2002). The innovation activity is shifted the user and the company selects those developments which may be of interest to many users and adopts and incorporates these into its next product release. As with the lead user approach the benefits of using this model is not generally accepted. However, it is clear that satisfaction levels among users are significantly higher in those studies where this process has been used (Franke & von Hippel, 2002). Also experience in fields where the toolkit approach has been pioneered, show custom products being developed much more quickly and at a lower cost (von Hippel & Katz, 2002).

Open source software offer this opportunity to users as it is explicitly designed to enable modification by users. Tools for software design and test, ranging from software languages such as C to compilers and debuggers, are also available in open source form on the web. Taken together with the possibility of testing newly written server functionally on one’s own website and the ability to produce and distribute user-developed code on the Internet, these elements comprises a complete toolkit for open source users (Franke & von Hippel, 2002). Indeed, open source software is not designed in response to information about general market or user needs. Instead, it consists of a collage of contributions from individual users, each motivated by an individual need that may represent a need that is widespread among users.

### ***The distributed development approach***

One of the fundamental processes taking place in every organization is the new product development process and in the past decade, the rapid rate of technology progress and changes in customer’s needs have led to significant product life cycle shortening, thereby posing a tremendous challenge to new product development processes (Yang & Yu, 2002). Hence continuous innovation is increasingly becoming a critical success factor for corporate survival and it is clear that innovation can be the core competence as well as the source of competitive advantage for many organizations (Pitta et al, 1996).

However, the prevailing view of this process is the one first implemented by Henry Ford, referred as the technology push model where a company develops a product in forehand of any existing demand. The whole process starts with a broad range of inputs, which are then gradually selected, refined and turned into product. Different ideas, usually developed by the research and design department, compete for the resources within the organization and the new product development process is seen as a series of sequential, interdependent and often overlapping activities (Yang & Yu, 2002). It is a manufacturer centric model that does not include users and their inputs even as they are the ones who decide about the success and failure of a new product. Nevertheless, the model is still common in commercial development (Cooper 2001).

In times of faltering economies coupled with rapid technological change and shortening product life cycles many organizations are forced to shift to new, more efficient and faster product development strategies. So called market pull models have replaced the traditional research and development process. Cross-functional teams, concurrent engineering as well as new technological advances such as computing technology, intranets and the Internet have been introduced into the new product design processes. Moreover, the requirement to meet customers’ expectations has compelled organizations to open up new communication channels and involve customers in the new product development process (Prahalad et al.,

2000; Cooper, 2001). Hence, the development of a new product is not solely down to R&D departments anymore, nor it is down to the organization itself. Instead it seems that the characteristics of the open source development approach are gaining attention beyond the coding of software.

What may be unique to the open source development model is that it encompasses the entire innovation process, from design to distribution to field support and product improvement. No manufacturer is required at all (von Hippel & von Krogh, 2002). This is possible because software can be produced and distributed essentially for free on the web. In the case of innovations embodied in physical products, one would expect that while users would innovate, general diffusion would require the involvement of manufactures. This is because physical products must be produced and physically distributed and these activities involve significant economics of scale (von Hippel, 2001). However, this type of arrangement where users innovate and manufactures produce would not be a new one.

A large body of research has shown that products developed by users are later produced and sold by manufacturers to the general population (Shaw, 1985; von Hippel, 1988). Indeed, the use of toolkits for innovation approach that helps lead users to innovate to address their own idiosyncratic needs is equally applicable to physical products developed by manufactures (Franke & von Hippel, 2002). As advances in production technologies progressively reduce the fixed costs associated with production of products, the toolkits for innovation approach is increasingly becoming more attractive for a growing number of firms. Manufacturers using mass-customized production can often make even single unit quantities of custom products at a cost that is reasonably competitive with the cost of manufacturing similar items by traditional mass production methods (Pine, 1993). This fact suggests a development model where innovations are developed by lead users for their own needs. Later, these lead user innovations become attractive to the general population of users, and are profitably diffused by manufactures (von Hippel, 1988).

From the literature review above it seems that a distributed model of innovation is the most appropriate approach when a user population is heterogeneous. Instead of viewing the users as passive consumers of products produced by manufacturers, the users can profitably be perceived as many potential sites for innovation. The result would be a larger number of novel innovations being generated at a lower cost and at a faster pace at the same time as the diverse needs of the users would be better served leading to higher satisfaction levels. Further, the toolkit for user innovation approach, combined with a situation where a significant number of lead users innovate in order to fulfill their own need, is almost identical to the pure open source development model. As it can be applied to physical products as well, the approach has potential to be widely used. Based on the theories presented in this paper the following propositions are presented:

*P1:* Faltering economies coupled with rapid technological change and shortening product life cycles stresses the need to shift to more efficient and faster product development strategies.

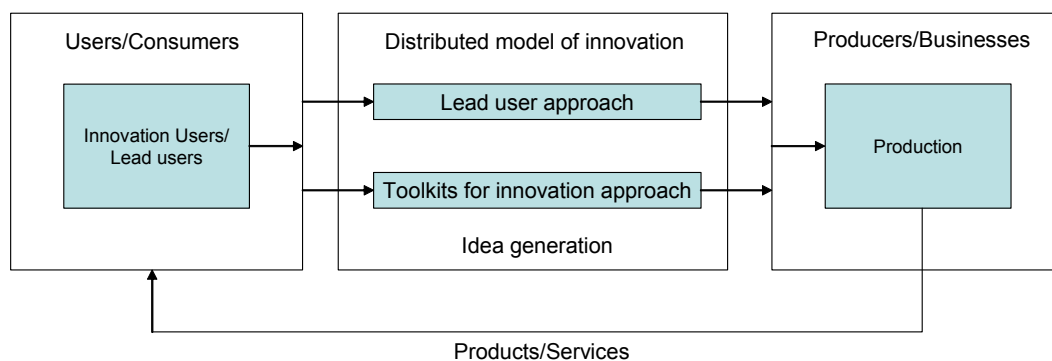
*P2:* A distributed model of innovation is the most appropriate approach when a user population is heterogeneous and when the customers' needs are diverse.

*P3:* Instead of viewing the users as passive consumers of products produced by manufacturers, the users can profitably be perceived as many potential sites for innovation.

$P4 = P1 + P2 + P3$ : A distributed model of innovation would lead to a larger number of novel innovations being generated at a lower cost and at a faster pace at the same time as the diverse needs of the users would be better served leading to higher satisfaction levels.

Hence, there could at least theoretically be such a thing as a Bazaar development model within mainstream organizations. That business model would be an arrangement where the users innovate while the company is mainly responsible for the production and distribution. However, because the model will include a manufacturer it can never completely resemble the open source development model. But apart from that fact it will have enough characteristics to qualify it as a Bazaar. This business model is presented below.

Figure1: The open source business model within mainstream organizations



Source: Fredrik Hallberg

## Case studies

As mentioned above the topic of this research to see if the open source mentality can be used in other than software industries. From the literature review it seems possible but we have still to find examples where the bazaar development model is gaining attention in order to see if the benefits described have any relevance for mainstream organizations. I have chosen to focus my empirical work on this matter within the field of mining and mass produced consumer goods. The reason is that these businesses have very old origins and differ in a great extent from the development of software. It is also often assumed that these businesses would have little to gain from a distributed model of innovation.

### Goldcorp Inc.

“Open Source-code! That’s what I want!” Rob McEwen<sup>3</sup>

In January 1848, a work crew at John Sutter's mill, near Sacramento, California, came across a few select nuggets of gold. Before long, a half-million prospectors arrived there seeking instant riches. The gold rush was on. Some 153 years later, another gold rush broke out at an old mine called Red Lake, in northwestern Ontario. This time, the fortune hunters wielded geological-modeling software and database mining tools rather than picks and shovels. The big winners were from Australia. And they had never even seen the mine. Rob McEwen, chairman and CEO of Goldcorp Inc., based in Toronto, had triggered the gold rush by issuing an extraordinary challenge to the world's geologists: We'll show you all of our data on the Red Lake mine online if you tell us where we're likely to find the next 6 million ounces of gold.

<sup>3</sup> “He Struck Gold on the Net (Really)” Linda Tischler, Fast Company, June 2002, Nr. 59

The prize: a total of \$575,000, with a top award of \$105,000. The mining community was flabbergasted. "We've seen very large data sets from government surveys online," says Nick Archibald, managing director of Fractal Graphics, the winning organization from West Perth, Australia. "But for a company to post that information and say, 'Here I am, warts and all,' is quite unusual indeed."

McEwen knew that the contest, which he called the Goldcorp Challenge, entailed big risks. For one thing, it exposed the company to a hostile-takeover bid. But the risks of continuing to do things the old way were even greater. "Mining is one of humanity's oldest industrial pursuits," McEwen says. "This is *old* old economy. But a mineral discovery is like a technological discovery. There's the same rapid creation of wealth as rising expectations improve profitability. If we could find gold faster, we could really improve the value of the company." McEwen, had one big advantage over his slow-footed competitors: He wasn't a miner, he didn't think like a miner, and he wasn't constrained by a miner's conventional wisdom. As a young man, he went to work for Merrill Lynch, following his father into the investment business. But his father also had a fascination with gold, and McEwen grew up hearing tales of miners, prospectors, and grubstakes at the dinner table. Soon he was bitten by the gold bug too, and he hammered out a template of what he thought a 21st-century gold-mining company should look like. In 1989, he saw his chance. He stepped into a takeover battle as a white knight and emerged as majority owner of an old and underperforming mine in Ontario.

It was hardly a dream come true. The gold market was depressed. The mine's operating costs were high. The miners went on strike. McEwen even got a death threat. But the new owner knew that the mine had potential. "The Red Lake gold district had 2 operating gold mines and 13 former mines that had produced more than 18 million ounces combined," he says. "The mine next door had produced about 10 million ounces. Ours had produced only 3 million." McEwen believed that the high-grade ore that ran through the neighboring mine was present in parts of the 55,000-acre Red Lake stake - if only he could find it.

His strategy began to take shape at a seminar at MIT in 1999. Company presidents from around the world had come there to learn about advances in information technology. Eventually, the group's attention turned to the Linux operating system and the open-source revolution. "I said, Open-source code! That's what I want!" McEwen recalls. His reasoning: If he could attract the attention of world-class talent to the problem of finding more gold in Red Lake, just as Linux managed to attract world-class programmers to the cause of better software, he could tap into thousands of minds that he wouldn't normally have access to. He could also speed up exploration and improve his odds of discovery.

At first, Goldcorp's geologists were appalled at the idea of exposing their super-secret data to the world. "This is a very conservative, very private industry," says Dr. James M. Franklin, former chief geoscientist for the Geological Survey of Canada and a judge in the Goldcorp Challenge. "Confidentiality and secrecy about reserves and exploration have been its watchwords. This was a totally unconventional thing to do." But in March 2000, at an industry meeting, McEwen unveiled the Goldcorp Challenge. The external response was immediate. More than 1,400 scientists, engineers, and geologists from 50 countries downloaded the company's data and started their virtual exploration. When the entries started coming in, the panel of five judges was astonished by the creativity of the submissions. The top winner was a collaboration by two groups in Australia: Fractal Graphics, in West Perth,

and Taylor Wall & Associates, in Queensland, which together had developed a powerful 3-D graphical depiction of the mine.

Red Lake, Ontario and West Perth, Australia are at opposite ends of the earth. But that didn't stop Nick Archibald and his team of geologists at Fractal Graphics, an Australian geoscience consulting firm, from thinking that they could find gold in Canada. "I'd never been to the mine," Archibald says. "I'd never even been to Canada." But when he learned of the contest, Archibald recognized an opportunity for his company. The prize money was appealing, but Archibald knew that winning would give a boost to his own hopes for expansion funds as well. "Our industry has been going through a hard time," he says. "We had been trying to raise venture capital. Any positive news could only be a big help for us." Although the prize money, which Archibald's team shared with Taylor Wall & Associates, barely covered the cost of the project, the publicity has boosted the firm's business. "It would have taken us years to get the recognition in North America that this project gave us overnight," he says. More important, Archibald adds, the Challenge has opened the industry's eyes to a new way of doing exploration. "This has been a big change for mining," he says. "This has been like a beacon in a sea of darkness."

For McEwen, the contest itself was a gold mine. "We have drilled four of the winners' top five targets and have hit on all four," he says. "But what's really important is that from a remote site, the winners were able to analyze a database and generate targets without ever visiting the property. It's clear that this is part of the future." Between the new high-grade discoveries and the mine's modernized facilities, Red Lake is finally performing along the lines that McEwen had envisioned. In 1996, Red Lake was producing at an annual rate of 53,000 ounces at \$360 an ounce. By 2001, the mine was producing 504,000 ounces at \$59 an ounce. On the open market, gold currently trades for about \$307 an ounce. The grade of the ore at McEwen's mine is extraordinarily high, confirming his suspicion that the vein that ran through the neighboring mine continues through Red Lake.

## **Procter & Gamble**

"We haven't made a single change that hasn't started with one of our customers" Ranae Kline, Procter & Gamble<sup>4</sup>

At Procter & Gamble, branding is almost everything. And in the age of the web, almost everything is up for grabs. P&G has turned the Internet into a device for listening to customers and for experimenting with its brands. On the site pg.com you can take part in P&G's efforts to create, test and market its brands. For P&G, brands are the chief medium through which it communicates with customers. Traditionally, that communication has gone more or less in a single direction, with P&G spending billions of dollars a year to tell customers through bold, persistent advertising that Pantene or Pringles (for example) would reliably deliver what their hair needed or what their stomach craved. That model is due for revision, says Greg Icenhover, 38, an associate director of corporate communications at P&G "We've been voted the best marketer of the 20<sup>th</sup> century...but that's because we were the biggest shouters. In the 21<sup>st</sup> century, we want to be the best listeners".

P&G has good reason to be in an experimental mode. The company stumbled badly in 2000, missing analysts profit expectations and causing its famously reliable stock to plummet. More

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<sup>4</sup> "Don't Shout Listen" Fara Warner, Fast Company, August 2001, Nr. 49

to the point, P&G has stepped up its experimentation because it has discovered an ideal laboratory for doing so: the Internet. Unlike many old-economy outfits, P&G is no conglomerate-come-lately when it comes to negotiating the net. As early as 1995, it had 10 websites up and running, and it was also an early player in the banner-advertising game. Recently, some of P&G's biggest brands have all but given up on banner ads. But the company still operates more than 70 websites. And rather than give up on the net as a whole, P&G has turned it into an area for trying out new approaches to branding- new ways to make the shift from shouting to listening.

The site includes two features that would have been almost unthinkable in the old, close-to-the-vest world of P&G. In Try & Buy, which has become the site's most visited section, consumers can purchase new products before they show up in the supermarket or drugstore. Previously only those who were included in a test market had been able to enjoy such perks. And in Help Us Create, P&G conducts virtual test markets where consumers can tell the company which kind of new products it should make, or how it might improve existing products. For a company whose tight control over product development and testing is legendary, all this marks a big change.

P&G's approach to the net and its customers has given them a lot to think about. Back in 1996, they created a site called clothesline.com, which they believed would be better suited to the web than the one blared Tide. In the early days of the consumer Internet, the conventional wisdom of Net strategists was that the web would be a relatively unbranded territory. But P&G listened to consumers and learned that it was okay to be a brand. Web users were typing "Tide" into their search engines, hoping to find a site that didn't exist back then. Further they told P&G that they didn't know who was behind the information they were getting. So in July 2000, P&G followed its customer's lead by launching Tide.com. The insight learned from Tide also led P&G to put several branded URLs, like beautiful.com, flu.com, thist.com, on the auction block.

The new approach to consumers has also fostered a new, more efficient way to sound out customer attitudes toward product innovation. By doing a test online, they can do it for a tenth of the cost in a quarter of the time. In early 2000 P&G launched the site Whitestrips.com as a way to get close to potential customers, to learn more about who they are and to listen in to their responses to their product. Testing via the web enabled the Whitestrips team to build a customer base that was more diverse, and hence more reliable, than most populations are. Using the web P&G is broadening the demographic reach of its research to include people of color, people from nontraditional families, and people in major urban areas. Traditionally, in its test market programs, P&G has focused on putting their products in cities where the "average" U.S household is disproportionately common. But there's no longer such a thing as an average U.S household.

Could traditional branding be a kind of noise, a form of communication that actually hinders a company's ability to listen to customers? These days, P&G is willing to entertain even that heretical notion. In its boldest experiment yet with using the web to reach customers, the company has invested in a site that all but conceals any association with P&G or P&G-style branding. The site reflect.com lets women "brand" their own versions of makeup, perfume and other beauty-care products. It also lets P&G begin to map what may be the next frontier of consumer-product marketing: mass customization. Using interactive software, visitors to the site mix and match various options – colors, scents, skin-care preferences –to create their own brand. Reflect even allows customers to redesign a product as many times as they want.

But handing control over product design over to customers doesn't reduce the importance of listening to them. Rane Kline, 38, manager of the concierge service says: "We haven't made a single change that hasn't started from a conversation with one of our customers...Every meeting, every decision is driven by what we hear from them." People who were paying premium prices for Reflect items expressed disappointment with the thinly branded, homespun look of the company's original packaging. So Reflect rolled out a new look that combines personalization with a strong brand identity. Like the original package design, the new one includes the customer's name, as well as the Reflect logo. The future of mass customization, it seems, lies less in hiding brands than in giving customers a role in shaping them.

Reflect plans eventually to customize almost every product to be found in a woman's (or, indeed, a man's) bathroom. But that's a long way off. While using the net as a listening device has yielded a huge bounty of information for P&G; the company is just starting to drive that data back into its marketing and product-development operations. Meanwhile, fostering two-way communication between the world's largest consumer-products company and its 2.5 billion customers is no small achievement. Greg Icenhower says: "So far the biggest value of getting all of this feedback has been letting consumers know that we're listening".

## **Discussion**

*"People think just because it is open-source, the result is going to be automatically better. Not true...Open source is not the answer to world hunger"* Linus Torvalds

On January 22, 1998 Netscape announced that it would release the source code to Netscape Navigator/Mozilla. Since then little has happened as Microsoft Explorer still dominates the browser market with a market share exceeding 90 percent.<sup>5</sup> Hence, there seems to be little guarantee that a business can reach extraordinary rewards just by opening up its processes and inviting people from the outside to take part in the idea generation process. Still, the two examples published in this paper indicate that the Bazaar development model can be applied throughout different kind of businesses and the benefits these organizations are seeking are the ones outlined in the literature review above. Lower costs, faster development and/or higher satisfaction levels among users are the primary motives behind Goldcorp's and Procter & Gamble's decision to open up their business processes to the public.

The challenges driving Goldcorp to adopt their novel approach were the need to find gold both faster and more accurately since that could improve the value of the company. By using a distributed model for finding gold, they could tap into thousands of minds that they wouldn't normally have access to and as a consequence speed up exploration and improve their odds of discovery. They didn't even have to provide the users with toolkits for innovation as the geologists had their own geological-modeling software and database mining tools. The final result of the approach was a direct financial benefit. Without the use of the open source business model the costs of going through the data could have been too prohibitive for this small start up. It is also uncertain if they would ever have found the vein as accurately as they did without using the Bazaar model. In this case there are strong indications for proposition P1 and P3 to hold. Since Goldcorp's did not intend to address the heterogeneous needs of its users we find no evidence for P2 to hold though. Hence, we can't say anything about P4 either.

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<sup>5</sup> [www.thecounter.com](http://www.thecounter.com)

As with Goldcorp, P&G also had a good reason to be in an experimental mode. But whereas Goldcorp used the distributed innovation model in order to find gold faster and cheaper, P&G used it primarily as a way to address the needs of the consumers more accurately. Hence, the motive was to increase satisfaction levels among the end users of its products. Moreover, by providing users with an interactive software interface, allowing them to design their own custom products, P&G could sound out customer attitudes toward a product for a tenth of the cost in a quarter of the time.

Although it can be argued over the value that P&G receives from asking their consumers. Are the needs of the consumers really that heterogeneous and are P&G really receiving some unique ideas by asking their users? Further, what are the costs associated with mass-customized production in this field? These are questions that need to be answered before we can draw any conclusions. In this case we only have evidence for P1 to hold. Still, the primary purpose for P&G is letting the consumers know that P&G is in fact listening and this translates into highly valuable goodwill for P&G. This motivation can serve as an intention to address both P2 and P3. Hence the motives behind P&G online efforts are to fulfill P4.

These testimonials seem promising but it is still unclear if the Bazaar development is the most preferred one. Could Goldcorp have used the traditional approach of finding gold and were the distributed innovations model really the fastest and the most cost effective one? Similarly, are the users of P&G products really more satisfied when they can make their own design? Was it impossible for either company to use their in-house resources or is the Bazaar development model a reliable and generally applicable way of doing business in the coming digital age? To make qualified answers to these questions we need to have longitudinal data from empirical studies where both approaches have been used within the same company. However, both cases presented in this paper show promising results at least regarding the conformity between the theoretical and practical motivations behind using the Bazaar development model within mainstream organizations. Hence, the theory presented in this paper could well serve as a useful framework for future research in this topic.

## **Conclusion**

The objective with this paper was to find out if the open source development model could be generally applicable and if there could be such a thing as an open source business model within mainstream organizations. Given that user networks have existed long before and extend far beyond open source software and that such communities can be found developing physical products as well, there are strong evidence that this is possible. Moreover since a large body of research has shown that products developed by users are later profitable produced and sold by manufacturers, it seems that the Bazaar with a few modifications can successfully be implemented in mainstream organizations.

Further, a distributed model of innovation seems to be the most appropriate approach when a user population is heterogeneous. Since users can be perceived as many potential sites for innovation, the result would be a larger number of novel innovations being generated at a lower cost and at a faster pace at the same time as the diverse needs of the users would be better served leading to higher satisfaction levels. As the case studies presented in this paper show a high conformity between the theoretical and practical motivations behind using the Bazaar development model the benefits of using the approach seems to be accepted within mainstream businesses. There are also strong indications that the open source development model has been used in the organizations of Cisco Systems, Dell, Palm, Sony, Phillips,

Handspring, Sony-Ericsson and Microsoft. We can therefore expect more companies following their path and this will open the field for more empirical research and better understanding. It is also my hope that this paper will have itself an “open source” nature: that it will stimulate research by other researchers as well.

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