

Abstract

This paper reviews the closed, broadcast-oriented model of human transaction and compares it to more open, participatory models of interaction, such as those employed in the development of free software. Both models are analyzed. The argument is made that the open model can be extended to many kinds of human enterprise, profit-oriented or not, to the benefit of all participants.

Introduction

There are two broadly applicable models that describe how people transact with each other in public group settings. The dominant one, which I call *the closed model*, is characterized by a notion of a producer who provides some product or service desired by a passive audience. There is little or no interaction between the producer and the audience. The product is developed in confidentiality and presented in a tightly controlled manner. Examples of this model can be found in such arenas as public schools and television news.

However, another model has begun to gain acceptance coincident with (and facilitated by) the rise of the Internet. I call it *the open model*. In this model, the production process is highly visible to the receiving audience, and the audience contributes to the product. There is a very high degree of interaction between the two roles, such that they can be interchangeable and indistinguishable. Examples of this model can be found in free software development or scientific research.

At first blush, drawing a distinction between these two models may seem academic. But the differences between the two models are profound and the consequences of their applications are extensive. Each carries its own implicit value system, values that significantly impact the people participating in the interaction. The two models, and their consequences, are examined in greater detail below.

The Closed Model

Everyone is familiar with the closed model. You find it in broadcast media, in politics, and in the way most companies relate to their customers. A social division characterizes the model: the *producers* and the *audience*. The two groups are very distinct and have roles that, by design, do not overlap in any meaningful way.

¹ Special thanks to Sarah Bellingrath and Tim LaMarca for incisive criticism, creative suggestions, and encouragement.

The producers are typically a small, private cadre that creates and distributes a product or service to their large, passive audience. This is “production” in the broadest sense; for example, legislators producing laws for the public, as well as more traditional economic production.

The audience is a much larger group than the producers. It receives the output of the project, which I call the *product*. The producers own the process of their creation exclusively; the consumers produce nothing and own the end product, if anything at all. There is no shared interest, no camaraderie. In fact there is usually no communication at all between these two parties, other than one-way exhortations by the producer intended to create or cajole the audience. In order for the producers to learn what the audience desires, they must resort to indirect channels such as polls or market research. This underscores the intimate connection between the closed model and the notion of a one-way broadcast. The audience effectively has no voice, and the producer effectively has no ears.

The closed model engenders audience dependency and limits choice. The product is simply broadcast to the audience, and the audience participation is limited to either accepting or not accepting the product. This relationship puts the creative impetus squarely on the producer, and establishes a profoundly passive audience. A few pre-approved product choices are offered to the audience, based on their expected likelihood of acceptance. This can lead to the ‘lowest common denominator’ phenomena, in which the lowest quality product becomes dominant simply because a barely tolerable baseline is accepted by an enormous audience.

Projects based on the closed model are not transparent. Often there’s no telling who made the product, what’s in it, or how it was made. This information is considered a vital secret to be known only by the producers. The audience is kept in ignorance, often to their detriment. The audience must depend on the honesty of the producer in announcing their product’s flaws, when the producer is often financially motivated to do just the opposite.

A feature of every closed project is its inherent fragility. For example, sometimes the profit motive does not align with the interests of the audience. When the producers decide it is no longer in their interests to produce a product, they stop. Usually, no one else can continue producing it. In software, this phenomenon is called *abandonware*. Even if the technique to produce the product were shared (which it usually isn’t), there are often legal barriers that prevent other parties from continuing the work.

Additionally, there are the problems of distribution. The producers expect to be paid by the consumers before the product is distributed to them. Sometimes the producers have monopolistic control on distribution, preventing anyone from sharing the product except in producer-approved ways. This limits the freedom of the audience. It puts control in the producer’s hands at the audience’s expense. An example of this can be seen clearly in the way that the film industry releases movies on DVD. Most DVDs are encoded for a particular ‘region.’ For example, North America is region 1. A DVD disc may not be viewed on a DVD player that

is set to a different region. This capability of the DVD format was intended to prevent piracy. While it fails at that, it allows the producer to control who may view the DVD, and prevents the audience from viewing DVDs that are from a foreign region. In effect, the global DVD market is balkanized to the detriment of the very people who actually buy the DVD discs and players.

The most ominous flaw in the closed model is that the producers have interests totally at odds with the consumers. It may suit the producers to introduce copyright and licensing restrictions, intellectual property protection, or planned obsolescence. Perhaps they take the product in a direction that marginalizes or eliminates its usefulness to part or all of the audience. Fundamentally, the producer has a powerful incentive to deliver the least value they can offer for the highest price they can demand (margin products).

Clearly, none of this is desirable. Who wants all of these restrictions, limitations, and conflicts of interest? With the boundary between active producer and passive audience so delineated, and with the balance of power in the hands of the producers, the audience loses.

The Open Model

The open model resolves many of these proximate problems by addressing the ultimate problem: the wall between the audience and the producers. The genius of this approach lies in how it eliminates conflicting interests while improving the circumstances of both parties.

The most successful and practical application of the open model can be found in the free software movement. This model is the subject of Eric Raymond's famous paper, "The Cathedral and the Bazaar."² These days, it is clear that free software projects can be very successful. There are millions of users of free software such as the Linux operating system and the Apache web server.

The GNU Project defines free software this way:

"Free software" is a matter of liberty, not price. To understand the concept, you should think of "free" as in "free speech," not as in "free beer."

Free software is a matter of the users' freedom to run, copy, distribute, study, change and improve the software. More precisely, it refers to four kinds of freedom, for the users of the software:

- *The freedom to run the program, for any purpose*
- *The freedom to study how the program works, and adapt it to your needs*
- *The freedom to redistribute copies so you can help your neighbor*

² Cathedral and the Bazaar: http://www.firstmonday.dk/issues/issue3_3/raymond/

- *The freedom to improve the program, and release your improvements to the public, so that the whole community benefits*

A program is free software if users have all of these freedoms. Thus, you should be free to redistribute copies, either with or without modifications, either gratis or charging a fee for distribution, to anyone anywhere. Being free to do these things means (among other things) that you do not have to ask or pay for permission.³

Free software eloquently characterizes the attributes of the open model:

- *The producers and audience are one.* The producers of free software are programmers. The audience is comprised of the users of the software. Since any computer user can be a programmer, the division (if any) between the two roles is purely at the will of the user. Any user can program if he or she wishes to.
- *Transparent production.* Programmers produce software by writing source code. In free software, anyone may get a copy of the source code, and thereby gain access to the means of production. This is how the audience participates in production. By downloading the source code, making an improvement, and submitting the improvement back to the project, any member of the audience can actively become a producer. At a minimum, the audience is able to review the source code for flaws; there is no way for the producers to keep a flaw in the software against the will of the community. The process by which the software is created and maintained is completely visible to all. Coordination between maintainers and contributors is public, which encourages merit-based acceptance of improvements.
- *Production robustness.* No open project need die as long as someone remains interested in its outcome. If a free software product is no longer maintained, any interested party may obtain the source code and maintain it themselves. This prevents any desired software from being discontinued against the will of the audience. This is exactly what happened when Easel, a company that produced a free software product called Nautilus, went bankrupt. The programming community simply copied the source code for Nautilus and maintained it themselves. In this case, the software outlived the company that initially produced it.
- *Liberal distribution.* Free software is typically projected by a license that grants broad distribution freedom to the audience. The most popular free software license is the GNU General Public License (GPL)⁴. Any software released under this license must have publicly available source code and must allow the audience to share the software as they see fit. The producer relinquishes control of distribution. Thanks to the Internet, free software is readily available simply by downloading and installing it.
- *Superior response to demand.* There is no need for polling or focus groups in the free software methodology. The producers know exactly what the

³ GNU Free Software Definition: <http://www.gnu.org/philosophy/free-sw.html>

⁴ GNU General Public License: <http://www.gnu.org/licenses/licenses.html#GPL>

audience desires because they *are* the audience. They simply create what they themselves selfishly desire in the software. This ensures that the software does exactly what the audience wants. Typically, bug and enhancement tracking systems are made available to the audience that buttress this process. Successful free software projects tend to be very dynamic, exhibiting rapid and continuous improvement.

- *Shared interest.* Because the producers and audience of free software are one, they have a common interest in the development of the software. Furthermore, because of the transparency of the production process, if anyone attempted to modify the software in such a way that benefits the producers at the expense of the audience, anyone in the audience may simply branch the code and maintain the branched code free of the offending modification.
- *Empowerment.* Anyone in the audience may participate in the project if they have something useful to contribute. In this way, the producer's control over production is unlocked. This benefits not only the audience, but also the producers, who gain tremendously from the broad interest and active participation. Additionally, the audience may customize the product in ways only limited by imagination.

This leads to tangible dividends. In the words of Alan Cox, the renowned Linux kernel maintainer:

The open model is faster and more cost effective. It improves more rapidly, and for less investment. It's very hard to compete against a fundamentally more efficient model.

As free software has gained traction over the years, a sophisticated infrastructure has emerged. While a full description is beyond the scope of this paper, it consists primarily of Internet based resources such as:

- Web discussion boards, that allow people to share and discuss the free software in question collaboratively
- Project management sites, containing tools for project participants and maintainers
- Software distribution sites, that allow people to download the software
- Mail lists, that offer technical support for the software

No one sat down and planned these services a priori; they simply evolved over time in reaction to the needs of the community, and are based on what makes sense to the people involved. Usually they are provided in the same spirit of openness as the free software itself.

One may legitimately question whether the open model can be extended beyond the realm of free software. The answer is that it already is. As Scientific American reported in the article "Publish Free or Perish,"⁵ scientists are pushing to open up

⁵ Publish Free or Perish:

<http://www.scientificamerican.com/explorations/2001/042301publish/>

the restrictive scientific publishing process. Journals have long controlled who can read them and who can publish in them. But the low cost of web publishing empowers the scientists to bypass this closed model production bottleneck. Manuals are being released under open model licenses such as GNU Free Documentation License.⁶ The Linux Documentation Project⁷, a repository of hundreds of Linux manuals, is a prime example of this. Music is released under the EFF Open Audio License⁸, and art under the ArtLibre Free Art License⁹. A gallery of open model art can be found at GnuArt.net¹⁰. A growing body of artistic and intellectual creation is being generated under the open model.

An economist might note that the open model seems relevant only to products that are not “rivalrous in consumption” – that is, something that can be shared and retained at the same time, such as a piece of software or an electronic document. (This is a broad subject that deserves serious exploration in a separate paper.) It also suggests a more flexible, dynamic production framework such as is suggested in Patri Friedman’s concept of “Project-Based Living.”¹¹

The open model is reinforced by a built-in value system. It expects a proactive, “do-it-yourself” mentality. In short, self-reliance becomes a crucial quality. Open model projects respond to audience complaints in varying ways, but every project implicitly asks this question of the complainer: *Why not fix it yourself?* While this sentiment may seem like sour grapes to a newcomer, it actually embodies a fundamental ethic of the open model – the idea that the audience really is the producer, and that individuals have the responsibility to contribute. By stepping to the plate and fixing your own grievance, you benefit the project, gain the respect of other participants, and possibly learn something in the process. Not everyone will be interested in this kind of direct involvement; but the right kinds of people are.

At the same time, this individualism is balanced by the support of the community. An open model project comes with the expectation that the audience of the project really will participate in the production process. Sometimes the contribution can be simply suggesting improvements, or assisting newcomers. Even modest participation is welcomed. The community becomes a base of shared wisdom that anyone can tap into or, better yet, offer.

Conclusions

In an article from CFO Magazine entitled “The Beast of Complexity,” an observation was made about the Linux project, which also applies to the open model:

⁶ GNU Free Documentation License: <http://www.gnu.org/copyleft/fdl.html>

⁷ Linux Documentation Project: <http://www.linuxdoc.org/>

⁸ EFF Open Audio License: http://www.eff.org/IP/Open_licenses/20010421_eff_oal_1.0.html

⁹ ArtLibre: <http://artlibre.org/>

¹⁰ GnuArt.net: <http://gnuart.net/data>

¹¹ Project Based Living: <http://www.izzy.com/~patri/projects/lifeofprojects.html>

The software sector could well become a model for other industries. Open-source communities, for example, are fascinating social structures. Similar communities could one day produce more than just good code. Thomas Malone, professor of information systems at the Massachusetts Institute of Technology, sees great opportunities ahead: "The Linux community is a model for a new kind of business organization that could form the basis for a new kind of economy."¹²

What would this "new kind of economy" look like? Building upon the points that Alan Cox made, I imagine one in which a more harmonious relationship exists between the users and makers of products and services. I believe it can also muzzle the predatory business practices that the closed model encourages. Additionally, I believe a much higher level of quality can be expected from open model production. Fundamentally, the open model offers superior economic efficiency since the products are really meant to do what they do. Open model products are "as good as we can make them for now," whereas closed model products are "as bad as they think they can get away with." In many cases, producers offer *vaporware*, which is software that fails to meet the producers' exuberant promises. Vaporware, empty schedules, and broken promises are simply beside the point in the open model. There is little motivation to lie about the status of a project when anyone can just take a look for themselves. It offers a healthier ethical climate for doing business.

It is important to keep in mind that the open model is not utopia. Much of the free "infrastructure" remains to be developed, and the increased liberty demands more responsibility from the participants. Nevertheless, the open model is superior to the closed model because it shatters the division between production and consumption. This leads to increased liberty for both parties, while improving quality and efficiency, and eliminating the inherent fragilities and contradictions in the closed model. It can be most effectively applied to projects in which the product is non-rivalrous in consumption, and that is where it is gaining the most traction. It may be extendable to rivalrous production as well. This model can form an important new approach to *many* forms of creativity and enterprise, possibly *any* form.

The open model generates a social fabric of like-minded individuals who share an interest in the project, and even support each other and newcomers. Direct communication with the producers is available to any audience member, or, in principle, he or she can take the initiative to improve the product. This is the most profound value of the open model over its predecessors: the experience of liberty it offers to all participants. By using the fruits of the open model in our enterprises, we empower ourselves.

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¹² The Beast of Complexity:
<http://www.cfo.com/article/1,5309,5872%7C9%7C%7C%7C,00.html>