

Collaborations build from ground up

The open-source idea spreads from software code to arts, industrial design, more

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When Jonathan Kuniholm began trying to make a better arm prosthesis, he quickly figured out there wasn't much of a commercial market for his innovation.

So he and his partners at Durham's Tackle Design decided to publish their work on the Web. Their goal is to build an online community where others can inspect the designs, suggest changes and share their own creations.

"We want to create a marketplace for these ideas," Kuniholm said.

The Open Prosthetics Project (OpenProsthetics.org) is one of a growing number of efforts that use a collaborative model based largely on techniques made successful by software creators.

For decades, programmers around the globe have joined forces in grass-roots efforts to build, refine and improve computer programs. Known first as "free software" and later as "open-source," because the software's internal code is open to review and revision, the nonproprietary software stands in sharp contrast to products such as Microsoft's Windows, where the code is heavily protected.

Today, people also are using the open-source model to share their innovations in engineering, music, architecture and even consumer goods such as cola and beer. Their motivation generally isn't to make money from the projects, but to share their work and contribute building blocks for future creators.

However, the question remains whether -- and how -- contributors will be able to make money from their shared work in the future.

Wikipedia, run by the nonprofit Wikimedia Foundation, is one of the most well-known examples of open-content development. More than 2 million people have written or revised entries in the Web-based encyclopedia, which is growing by about 2,000 entries every day. Other Web sites allow musicians to contribute parts of songs -- such as rhythm or vocal tracks -- for other musicians to combine in



Jonathan Kuniholm lost his arm in Iraq as a Marine reservist. He is a co-founder of Tackle Design in Durham, which gives away its designs for prosthetics online through The Open Prosthetics Project.

Staff Photo by Ted Richardson

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Projects have variety

Here are some examples of projects using the open-source development model:

ALTRUISM

* The Open Prosthetics Project, www.openprosthetics.org -- shares designs for prosthetic arms.

* Full Belly Project, www.fullbellyproject.org -- shares design for a nut sheller for the developing world.

* Engineering World Health, www.ewh.org -- shares designs for inexpensive hospital equipment and publishes requests for needed designs.

MUSIC

* ccMixer, www.ccmixer.org -- shares music tracks, song samples and remixes.

* Jamendo, www.jamendo.com -- shares completed songs and albums.

* MyVirtualBand.com, www.myvirtualband.com -- shares vocal and instrumental tracks for combinations in new songs.

MULTIMEDIA

* Internet Archive, www.archive.org -- shares videos, music, audio and text files.

new compositions.

"Software was the first incarnation of these hugely collaborative projects. You're seeing that now all over the place," said Greg DeKoenigsberg, senior community development manager for Red Hat, one of the world's largest distributors of open-source software. His job is to find ways for the Raleigh company to advance the philosophy that underpins its business by working with other types of open-source projects.

"Exploring new ways of collaboration is one of the passions at Red Hat and we're looking for any way to make that happen," he said. For instance, the company is co-sponsoring an open video contest.

The spirit of open-source development isn't brand new, but it's spreading. In 1985, paraplegic engineer Ralf Hotchkiss published a 154-page book with nonproprietary designs for manufacturing wheelchairs in the developing world with local materials. Since then, the technology has been used in 45 countries, according to Whirlwind Wheelchair International, the organization that grew out of Hotchkiss' work.

But the Internet has vastly increased the number of people who can collaborate on a project, while reducing the time it takes to produce results, said Jesse Crossen, a partner in Tackle Design and member of The Open Prosthetics Project. The effort and its Web site are a side project for the partners at Tackle, an industrial design and engineering firm.

"In the past, designs were shared, but only at the speed of paper mail or correspondence," he said.

The Internet also has democratized design, he said. Major collaboration used to be the domain of professionals, occurring within or between companies. Today, the open-source model allows amateurs to make contributions, as well.

"We're entering the world where the notion of a hobbyist creator is becoming really strong," DeKoenigsberg said.

New licensing structures also have been critical to the success of open-source creative models, he said. Much like specialized licenses that have governed the use of free software and reference content, free licenses by a San Francisco group called Creative Commons can be used to protect publicly available artistic, educational and scientific works.

The licenses allow creators to specify whether the public can modify their work or use it commercially, and whether they must give credit to the creator.

The field of open-source content has exploded in the five years since Creative Commons' creation, DeKoenigsberg said. Creative Commons estimates that in June, 140 million Web pages carried its licenses, up from about 5 million two years ago.

"People had been looking for a mechanism that allows them to share their stuff but still reserve some rights," he said.

But while altruism and pride drive many of the current creators of open-source design and content, money soon may be part of the mix, observers say. It's still unclear whether and how small creators will simultaneously share and commercialize their ideas, DeKoenigsberg said.

Some businesses also might try to capitalize on open-source projects by adding value to content they didn't create.

Red Hat, for instance, has successfully built a business around open-source software. The company makes money by testing the community-built products and providing services and support for its customers.

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"Savvy businesspeople will figure out how to make it benefit them," DeKoenigsberg said. "First we have to build the creative commons, then we can figure out the business models to profit from it."

One early entrant to the open-content market is Wikia Inc., a California business that hosts wikis, dynamic Web sites that can be edited by anyone. The wikis are free for people who want to contribute to them, and Wikia makes money by selling advertisements in the margins.

The founding engineers at The Open Prosthetics Project would be thrilled if a prosthesis manufacturer appropriated one of their designs.

"If you come up with a great idea but never do anything with it, it doesn't have much value," said Chuck Messer, a Tackle partner and member of the project. "It's really the execution that makes an idea valuable."

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