LIVING NETWORKS

ANNIVERSARY EDITION

LEADING YOUR
COMPANY, CUSTOMERS,
AND PARTNERS IN THE
HYPERCONNECTED ECONOMY

ROSS DAWSON

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Leading Your Company, Customers, and Partners
in the Hyper-Connected Economy

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What Business Leaders Say About *Living Networks*

"I'm not sure that even Ross Dawson realizes how radical—and how likely—his vision of the future is. Ideas that spread win, and organizations that spawn them will be in charge."
- **Seth Godin,** author, *Unleashing the Ideavirus*, the #1 selling e-book in history

"Dawson is exactly right—pervasive networking profoundly changes the business models and strategies required for success. *Living Networks* provides invaluable insights for decision makers wanting to prosper in an increasingly complex and demanding business environment."
- **Don Tapscott**, author, *Wikinomics*

"Ross Dawson argues persuasively that leading economies are driven by the flow of information and ideas. The ideas in his own book can position any individual or company at the center of that flow. It's a fast read, fun and full of examples."
- **Thomas H. Davenport,** Professor and Director of Research, Babson College, and author, *Competing on Analytics*

"*Living Networks* is a fast-paced tour of today's business frontier. Rich with examples drawn from a myriad of settings, every page forces the reader to ask "How can I use that?" Beware! This book will make you think!"
- **David Maister**, author, *Managing the Professional Service Firm*

"This is the most accessible introduction to the role of networks and networking I have yet seen. Ross Dawson speaks from his own experience in a language which will make it clear to managers what steps to take next. Networking with own staff, customers and professional peers is here to stay."
- **Napier Collyns,** co-founder, Global Business Network

"This is one of the most exciting books I've read in several years. Ross Dawson deftly examines the evolution of networks, organizations and strategy. He has more than succeeded in his intent, which is to produce a practical business book that shows business people how to leverage networks."
- **Melissie Rumizen,** author, *The Complete Idiot's Guide to Knowledge Management*

"The author has demonstrated that the success of his first book was no mere flash in the pan. His book is the one I would choose as a guide to understanding and action for the practical business person."
- **Bill Godfrey,** Editor, Change Management Monitor

About *Living Networks*: Anniversary Edition

Living Networks is being relaunched in its Anniversary Edition five years after its original publication by Financial Times/ Prentice Hall in November 2002, to revisit the foundations of our networked age.

Free chapter downloads of *Living Networks*:
www.livingnetworksbook.com

Ross Dawson's *Trends in the Living Networks* blog:
www.rossdawsonblog.com

About Ross Dawson

Ross Dawson is globally recognized as a leading authority on business strategy. He is CEO of international consulting firm Advanced Human Technologies, and Chairman of Future Exploration Network, a global strategy and events company. Ross is author of the Amazon.com bestseller *Developing Knowledge-Based Client Relationships*, and over 100 articles and white papers. Strong demand for Ross's expertise has seen him deliver keynote speeches on six continents and consult to leading organizations worldwide such as Ernst & Young, Microsoft, Macquarie Bank, Morgan Stanley, News Corporation, and Procter & Gamble. Ross's frequent media appearances include CNN, Bloomberg TV, SkyNews, ABC TV, Washington Post and many others.

Services to leverage the Living Networks

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Ross Dawson speaks at conferences and corporate meetings worldwide and works with senior executives as a strategy leader and facilitator.
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Deep research into technological, social, and business trends to support clients' strategic thinking and decisions.

CHAPTER 5

Distributed Innovation

Intellectual Property in a Collaborative World

Innovation and intellectual property increasingly dominate the economy. As technology advances, no firm has the resources to stand alone, and collaboration with others is becoming essential. This means that new business models are needed for developing intellectual property and sharing in its value. Open source software provides us with valuable lessons that can be applied to many other aspects of business and innovation.

Does driving in the rush hour get you down? Don't worry. IBM's alphaWorks unit is market-testing Blue Eyes, which uses an infrared camera to monitor drivers' eyes and faces. It sounds an alarm if the driver closes his eyes or appears sleepy, and can make automatic adjustments to the mirror and seating position based on his retina signature. It can tell if the driver is smiling or frowning, and if he appears unhappy, the car can be programmed to play joyful, upbeat music.[1]

AlphaWorks is responsible for identifying promising technologies created by IBM Research's eight labs worldwide, and taking them into accelerated development of commercial products. To do this it gives open access to selected software at the early stages of development. A sophisticated community of software developers downloads the sample code, works to apply it in their own projects, and provides early feedback and participation on potential products. The technologies under assessment are available to the alphaWorks community for free under a special license, and 40% of those posted to the community have subsequently been incorporated into IBM products or licensed to third-parties. This is an impressive success ratio in a business where 10% is considered a good batting average.

Innovation is the throbbing heart of the twenty-first century economy, consistently pumping new revitalizing activity through the system. The opposing force is commoditization—probably the single most powerful force in business today—which rapidly takes what was distinctive and profitable and rapidly makes it commonplace and marginal, sucking out the vitality and profitability.

Unless you and your company can innovate consistently in every domain of business—creating valuable content and ideas, developing new products and services, enhancing client service, changing business models, and more—you are slowly dying. At best you are wheezing on a life-support machine, and that's not a fun existence. But as we shift into the living networks, there are four ways in which the whole nature of innovation and intellectual property is changing.

Innovation and intellectual property increasingly dominate the economy. For the last two decades copyright industries such as film, music, and software have grown at three times the rate of the rest of the economy. They added around $680 billion to the US economy in 1999, and generated more exports than aircraft, automobiles, computers, or agriculture. In 2001 the US Patent and Trademark Office granted over 166,000 patents, well over double the number granted in 1988.[2]

Greater complexity means collaboration is essential. To innovate today you must be increasingly specialized. With an exponential increase in the pace of innovation and depth of scientific knowledge you have to go

correspondingly deeper in order to be at the forefront. Innovation—now more than ever—stems from bringing together different fields of specialization. In addition, the best individuals are often choosing to work independently or in small elite groups. The bottom line is you can no longer rely completely on your own resources to innovate. Even IBM, with an annual R&D budget of over $5 billion, and 3,400 research staff including five Nobel Prize winners, recognizes that it doesn't have the breadth and depth of expertise to innovate alone, and actively collaborates with partners and customers. The same issues apply within organizations. Research, manufacturing, marketing, and sales departments are all equally responsible for innovation, but in order to do so must work closely together, as well as with customers.

Changing flow is reshaping the role of intellectual property. If you can copyright it, someone can make it into a digital file. A file that flows ever-so-easily through the networks, creating perfect copies indefinitely. If you're in the music, publishing, or film industries, embrace change or be swept away. The world of patents has traditionally been one of the stickiest and most turgid, but the networks are promising to create the early eddies and flows that could turn it into a powerful economic torrent. And the rich collaboration that is at the heart of the living networks is enabling humanity to be immensely more creative, vastly enriching every sphere of innovation and intellectual property.

We need new business models. Most importantly, we need to find and apply new approaches to sharing the value created in collaborative ventures of all kinds. This is where the most wealth will be generated in the emerging economy. This may mean changing how intellectual property is applied, as in the open source software movement. It could result in networks of independent professionals playing a far larger economic role. It certainly will result in greater wealth creation for those innovators who are able to collaborate effectively.

Let us now explore these drivers in more detail, and what we need to do to be successful in this unfolding environment.

The brave new world of intellectual property

In 1421 the government of Florence awarded the world's first patent to Filippo Brunelleschi for a means of bringing goods up the usually unnavigable river Arno to the city. He demanded and was duly awarded legal protection for his invention, being given the right for three years to burn any competitor's ship that incorporated his design.[3]

Fast forward almost six centuries, and the global economy is dominated by intellectual property, and the flow of information and ideas. This "property"

exists in the space of our minds rather than under our feet, yet it is by far the most valuable economic resource that exists today.

The US Constitution gives Congress the power "to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive right to their respective Writings and Discoveries." There are two key points here. Intellectual property gives innovators the right to benefit from their works. However the primary intent is to promote progress and the public good, thus giving legal protection for only a limited period, and also making inventions publicly available as a basis for further innovation.

Not all information and ideas are legally protected. The term "intellectual assets" is used to describe all valuable information and ideas. "Intellectual property" is the subset of information and ideas that can be and are protected by law. Every one of us has information or ideas that are intellectual assets. But they are only intellectual property if you can successfully sue someone for copying or using them without your permission.

There are four types of intellectual property, each with their own characteristics, and each of which is affected differently by the advent of the living networks. *Copyright* represents the world of information. Anything that can be digitally represented, including words, images, sounds, and software, can be copyrighted. *Patents* cover the universe of ideas. If an idea is novel, useful, and non-obvious, it can be patented. *Trademarks* are words and images that are associated with particular companies, and are protected as part of that firm's unique identity. *Trade secrets*, as the name implies, are protected by non-disclosure, and fall under a different section of the law to other intellectual property. To complement these core types of intellectual property, *contract law* is often useful for protecting the value of ideas when other legal remedies do not apply. In this chapter we will mainly look at the world of copyright and patents, as they are the most affected by issues of distributed innovation and collaboration.

The copyright battlefield

The Recording Industry Association of America (RIAA), in a belated response to Napster and other music file-sharing systems, in early 2001 announced with big fanfare a new system to protect digital music files called the Secure Digital Music Initiative (SDMI), at the same time offering a prize of $10,000 for anyone who could crack the technology. However the fine print of the competition stated that any successful attempts could not be publicly disclosed. As a scientist more interested in advancing his field rather than collecting prize money, Edward Felton, a professor at Princeton University, intended to present his crack of the SDMI to his peers at the

USENIX Security conference. The RIAA allegedly threatened to prosecute Felton, sparking off a long and complex legal tussle. Since then SDMI seems to have fallen by the wayside, with the music industry moving onto to new technology-based approaches to protection.

Copyright protects information. Whether the content is words, music, movies, software, or images, if they can be copyrighted they can be digitized. And as you know well, anything digital flows freely through the networks. The result is an ongoing battle engaging copyright owners, consumers, distributors, and technology firms, with all parties using both technology and legislation to further their cause.

It is networks created from immense connectivity that are transforming copyright industries. When content flows freely, new business models are required. Chapter 8 examines in detail the implications of the networks on content distribution, and proposes new approaches for these industries. In this chapter we will focus on how content and other intellectual property can be developed collaboratively.

Collaboration is the future of innovation. Those that excel at working collaboratively will win big in the unfolding world of intellectual property.

Patents run amok

Holger Balsum, a computer science graduate student at the University of Munich with a background in genetic sequencing, used his expertise to earn $10,000 for a couple of hours work, in the process throwing a wrench in the works of a major genomics firm. For an invention to be patented, it must be novel. This means that if anyone can identify work that predates a patent's filing, the patent may be rescinded. Internet firm BountyQuest offers cash bounties on behalf of its clients, to anyone that can identify this "prior art" on specified competitors' patents. When Balsum saw featured on BountyQuest's website a patent by Incyte Genomics on databases for storing genetic sequencing information, he immediately knew where to find the evidence needed to claim his reward. The networks had once again brought together highly specialized knowledge with its application.

As you saw earlier in this chapter, the intent of patents is to provide legal protection for useful and novel ideas. This rewards innovators, and society benefits by being able to use and build on the ideas. So far, so good. But the reality is sometimes a little different.

British Telecommunications holds a US patent for hyperlinks. In a world in which almost half a billion web surfers click on hyperlinks most days, it's a little like holding a copyright on the word "hello". The patent is being

challenged in court, but for now it holds.[4] In a similar vein, in 1998 the United States Patent and Trademark Organization (USPTO) decided to allow patents on business methods. The most egregious examples of patents granted under this scheme include one for "one-click" shopping by Amazon.com; and a patent for reverse auctions, in which people nominate the prices they are prepared to pay, held by Priceline.

The heart of the issue is the quality of patent examination and grants. Specific inventions that are truly novel and non-obvious should be protected, but when mistakes are made and patents that are too broad in scope are granted, it can be both a license to print money for the grateful patent holder, and a severe dampener on innovation in the field. When in late 2001 President George W. Bush opened the way for federally funded research into stem cells, it came to light that a quiet biotechnology firm called Geron held patents that covered virtually all embryonic cell lines existing at that time, as well as the methods to produce them. As such, in principle they own the results of almost any future research in the field.[5] Recently the USPTO has promised to lift its game through hiring, training, and improved processes. That they and their sister organizations around the world do so is critical to global innovation.

One of the most important emerging issues in intellectual property is patent pooling. Increasingly, working technologies are based on whole sets of patents, that are often owned by many firms rather than just one. As such, unless these patent holders work together, technology users would have to get separate licenses from each company. This would be so complicated that the technologies would probably never be used, and all the companies would suffer. The solution is for the owners of the interlocking patents to pool them, and create a body that handles client licensing and payments to the patent holders.

This is not a new concept. In 1856, a pool of sewing machines patents was established by the Sewing Machine Combination.[6] However in a networked economy based largely on competition between standards, patent pools are becoming a critical tool. Recent patent pools include those for MPEG-2 video compression, the DVD-ROM format, and the 1394 high-speed bus that Apple has trademarked as FireWire.[7] This illustrates how collaboration in innovation can take place both before and after legally protected intellectual property is created.

The above examples illustrate some of the key facets of patent strategy. How can you convince the patent office to grant you an overly broad patent? How can you block your competitors? How can you draw together the range of patents necessary to implement advanced technologies? Strategic positioning in patents is becoming a driving factor for many companies' innovation programs. However collaboration is often becoming the centerpiece of that strategy.

Innovation and collaboration in the networks

On a stinking hot day the cool breeze of the airconditioner provides welcome relief. But ironically, until recently it has contributed to making the planet hotter. One of the prime culprits in global warming was Freon®, which for decades ran our refrigerators and air-conditioners, all the time contributing to the depletion of the planet's protective ozone layer. In 1990 a US federal law gave DuPont, which owned Freon, five years to develop and start manufacturing an environmentally-friendly substitute.

To meet this hefty challenge, DuPont's Center for Collaborative Research and Education created a global network comprising over 30 universities, laboratories, and corporates, allocating tasks among the participants and creating forums for them all to collaborate effectively. It took the network just four years to create not only a new refrigerant, Suva®, but also a new manufacturing process for the product. All the participants in the network received licensing streams from the results of the project.[8]

Collaboration is the future of innovation. Those that excel at working collaboratively will win big in the unfolding world of intellectual property. The advent of the networks changes how information and ideas—from their seminal conception to crystallization as legally protectable property—flow, merge, and evolve. First we need to understand some of the different forms and stages that innovation takes.

The different modes of innovation

Classical music and improvisational jazz are good models to understand the different modes of innovation. Classical music is almost always created by a single person, neatly and accurately written out, and then performed by an orchestra attempting to be faithful to the letter and spirit of the score. Jazz is volatile, created in the instant by a group. Traditional forms of jazz often involve musicians performing solos in turn to a backing structure. The more exciting and exploratory forms of jazz, funk, and soul music are created as a group, with no musical leader.

In my psychedelic funk band *Transceptor*, we generate all our musical ideas in completely improvized "jam" sessions. In any good jam, each musician listens to and responds to what the others are doing, and the music takes a life of its own, shifting unpredictably, with everyone contributing to the evolving shape. The musicians' laughter that often accompanies the end of a successful jam reflects the joy of being part of a spontaneous creative process that transcends what any individual could achieve. We later review our improvizations, and create albums by developing the best material into structured songs that are frequently remarkably close to the original jams.

This is exactly the way that creative teams need to work in order to tap the potential of collaboration. Ray Ozzie, when he conceived of the peer-to-peer software Groove, was explicitly trying to create a tool that would allow collaboration in the same way as jazz musicians find a common groove. In a world in which innovation is the primary field of play, we need to shift from idea generation by individuals to collaborative idea generation, simply because it makes so much more possible.

In exactly the same way as my band's process for creating music, innovation can be separated into two phases: idea generation and idea development. Collaboration is essential to both of these phases, but in quite different ways. Idea generation must be free-flowing, whereas idea development needs to be structured. We will look at some of the implications of this later in this chapter.

How the networks change innovation

In the US alone, there are over two million enforceable patents. Only around 5% of those make money. The rest sit dormant, the documents quietly gathering dust on a shelf for the 20 year duration of the exclusive patent rights, or lapse due to lack of maintenance payments. Some of those patents are not applied because they don't have a real commercial application. Probably many more are neglected because the patent holder is not interested in exploiting them, and they haven't managed—or perhaps even tried—to match them with a company that could profitably apply them and would be prepared to buy or license them. This is not just a problem for the company that forgoes revenue on its portfolio of patents. It also means that part of the intellectual property landscape is unavailable, potentially squelching innovation by other companies. Because of the complexity and sheer number of existing patents, information about intellectual property has tended to flow extremely poorly. The promise of the next phase of the networks is that this flow will become far more fluid, resulting in better exploitation of our existing intellectual property, and a faster pace of innovation.

The list of the 60 founding sponsors of virtual technology marketplace yet2.com reads like a who's who of corporate innovation, featuring firms such as 3M, Boeing, Dow Chemical, Du Pont, Ford, Hitachi, NTT DoCoMo, Philips, Procter & Gamble, Siemens, Toyota, and their global peers. Many of the members are primarily interested in selling or licensing their wealth of patents. Each of these firms owns literally thousands of patents, only a small proportion of which are being commercially applied.

To keep things simple Procter & Gamble has chosen to list every single one of its patents on yet2.com, so as and when anyone expresses interest in buying or licensing one, it can then decide what it wants to do. Procter &

Gamble's chief technology officer, Gordon Brunner, says he is trying to shift from Research & Development to "Connect & Development," facilitating connections both inside and outside the firm in order to accelerate the development and commercialization of intellectual property.[9]

Online exchanges facilitate the easy flow of intellectual property in many ways. A rival to yet2.com, Patent & License Exchange (PL-X), provides a wealth of tools and services that help decongest the traditional stickiness of the patent universe. Eastman Chemical was trying to conclude the sale of a patent to a German firm, but the buyer wanted assurance that the patent would remain valid after its purchase. Transactions on PL-X automatically include this insurance, so the firms chose to execute the sale online. Other PL-X tools include advanced intellectual property valuation models that help firms to negotiate prices more effectively, instead of being thrown by the difficulty of valuing these highly intangible assets.

The open source generation

Cybernovelist Neal Stephenson—who is also a software programmer—likens computer operating systems to vehicles. For Stephenson, Apple is like a sleek and stylish but expensive sedan, and Microsoft Windows an ugly and temperamental stationwagon. Linux, however, is a space-age tank that never breaks down, is easily maneuverable, and can drive a stack of miles to the gallon. To boot, these supertanks are waiting by the side of the highway with their keys in the ignition for anyone who cares to jump in and drive away, no questions asked and nothing to pay.[10]

Open source software is one of the most intriguing—and important—developments in recent economic history. Products based on highly-skilled labor working for free may have seemed unlikely to become a major force in a capitalist society, but that is exactly what is changing the entire shape of the software industry.

The flagship open source product is the Linux operating system kernel, which by 2000 had taken the number two position for computer server operating systems with 27% of the market, not far behind Microsoft NT. In fact in the important but less visible web server software market, open source software Apache is dominant, bagging over 60% of installations on active sites.

Open source software is a dramatic force in its own right, but what is most interesting is the model it presents for other parts of the economy. We will examine the defining characteristics that help us to understand how and why it works, and how it can be applied to other fields of intellectual property and business.

How and why open source works

The oft-told tale of how a young Finnish programmer called Linus Torvald revolutionized the software industry has already reached the status of a legend. Geeks talk with hushed reverence of the coder who in 1990 built a basic operating system kernel, informed people on a bulletin board of what he was doing, and started incorporating the best suggestions into his system. Within a few years the free software was one of the major players in its field. Source code is what programmers write. For a computer to run a program, the source code first has to be "compiled" into object code, in which form it cannot be read or changed. Commercial software is generally available only in compiled form, so it can be executed, but is inaccessible to programmers. In the open source software movement, a program' s source code is distributed, so programmers can modify it at will.

The central point is that open source software is not given away, it is licensed. When you use open source software, you must abide by the terms of the license, just as with commercial software. The difference is that open source licenses specify that the software can be used without payment, and that any modifications made to the software must be distributed under the same license. You may have got the software for free, but if you make any improvements you have to give those away for free too. At last count there were 17 kinds of open source licenses in use, ranging from the radically libertarian (anything associated with this software will be free forever!) to more tempered ones that allow scope for commercial exploitation of some modifications. Heated debates rage within the developer community over which kinds of license should be used, however the core principles apply across all of them.

At this point we hear disbelieving mutterings. In our money-driven society, what on earth motivates skilled programmers to give away their time for free, to create something valuable without reward? There are different answers for each of the groups that participate in open source development. However the core driving motivation for most developers is very simple: they want to use the best possible product. This goes to the heart of the distinction between source code and object code, which is the ability to make modifications to software.

If you buy a commercial software package and it has bugs or doesn't quite do what you want, you can either live with it or complain to the vendor in the forlorn hope it will do something about it. On the other hand, if you have the source code, you can do what every natural-born programmer loves to do: go inside and tinker with it. Given the sense of community that software developers feel, it's only natural to share your improvements with others, because you know you'll be able to benefit from others' work. At that stage all it takes is using the right software license and having a system to coordinate people's work, and an absolutely fabulous product can be created. For example, systems administrators using the Windows NT

operating system often get frustrated with its lack of stability. If they identify a bug and inform Microsoft, then in due course they might get a fix, together with an invoice for the new improved version. With Linux, they can fix the bug themselves, or alert a community that itself has a vested interest in fixing the bug. The accumulated result is the supertank that Stephenson describes—rock solid and admirably suited to its users' requirements.

Eric Raymond, the popular voice of the open source movement, famously declares that "given enough eyeballs, all bugs are shallow," meaning any problem is easy to fix with enough smart people looking at it.[11] This raises another critical aspect of the open source system—that it is extremely effective at improving an existing product, but not at creating a new one. Someone must establish a core product that is already sufficiently clearly defined and developed on which people will want to spend their efforts. Only this can create what Raymond calls the "plausible promise"[xii] that developers' contributions will result in an excellent and useful final product. In other words, a leader must create the initial project.

In the case of Linux, founder Torvalds did the development work that provided an initial foundation for the operating system. It was flawed in many ways, but it provided basic functionality, and there was indeed the promise that—given sufficient effort by enough talented people—it could become a viable operating system kernel, more powerful and robust than the alternatives currently available. The project did not emerge on its own, but was born from one person's inspiration.

It would be nice if all it took to get great software was to give it an open source license and throw it open to everyone in a free-for-all. But that would be a recipe for disaster. Everyone would develop their own versions with their own enhancements, and no one piece of software would take the best of what was developed in the community. Some kind of central process or leadership is essential. Just because someone offers a contribution to the software, doesn't mean it should be included. The best open source development is a strict meritocracy in which only the neatest bug fixes and most useful contributions are incorporated. That selection can be done by an "enlightened despot", as Linus Torvalds is often described, or committees formed by developers that have demonstrated their merit through the quality of their contributions. There is very strong structure in all good open source projects. Ultimately, participants need to respect the central

What has become clear through the increasing diversity of the open source movement is that intellectual property is not an all or nothing proposition. There doesn't need to be a stark choice between total protection, or release to the public domain.

figure; Torvalds and other successful open source leaders are often described as charismatic.

One of the core requirements of any distributed development project is that it can be partitioned into distinct, definable tasks. Software development meets the bill admirably, in which much of the work required is identifying and fixing specific bugs. These tasks can readily be done independently of any other project activities.

Commercial open source software

In mid-2000 Sun Microsystems announced it was transferring its office software suite StarOffice to an open source license, making 7.5 million lines of code freely available in the biggest open source release ever. This full-featured office suite includes word processing, spreadsheet, and presentation software, running on Windows, Linux, and other operating systems. Not only can it import and use files from Microsoft Office, but it also has an open XML-based file format that allows any other software package to use its files seamlessly. When a pre-release version of the software came out, incorporating open source enhancements, over 700,000 copies were downloaded in the first two months.

In this case, the strategic intent of Sun was pretty obvious: it wanted to break the Microsoft Office monopoly. A high-quality, robust software package, with files fully interchangeable with the market leader, is a pretty compelling proposition when it's free. Sun will open up many lucrative opportunities if it can break Microsoft's stranglehold on PC office software, and its associated grip on operating systems. When in May 2002 the renamed OpenOffice launched its solid version 1.0 for free download, incorporating the work of over 10,000 developers, Sun announced that it would sell a commercial version of the software, still named StarOffice.[13] For the extra $75, users get a few more features and better support. The reality is that many companies feel more comfortable paying for software, partly because it demonstrates that it's a viable proposition for the vendor, who will continue to support the product.[14]

It's not just software companies that get involved with open source. Dresdner Kleinwort Wasserstein (DrKW), the investment banking arm of German financial services giant Allianz, after spending $5 million and three years developing a systems integration toolkit called Openadaptor, decided to make it available under an open source license. Complex software applications sprout like mushrooms in investment banks, and integrating these both internally and with clients' systems is an ongoing challenge for the banks' IT departments. Opening the license for Openadaptor not only gives DrKW the possibility of tapping into external developer expertise, but it also makes the software something its competitors will consider for use.

It's not that they especially want to make life easier for their competitors, but if everyone in the industry uses the same tools to integrate with their clients' systems, then it saves cost and effort for everyone. And it doesn't hurt that they have more experience with the tools than anyone else.[15]

Both Sun and DrKW have engaged the open source software firm CollabNet to run their open source projects. This recognizes that open source projects do not happen by themselves, and require expert central guidance. For a start, software developers have literally thousands of open source projects competing for their attention and efforts, so projects need to be promoted to them effectively. Effective tools are required to allow developers to collaborate, and structure is required to ensure the best work is incorporated into the software project. Communities work best when they know what's happening and feel engaged, so clear communication helps to build a disparate group of programmers into something more like a coherent team.

IBM's alphaWorks, mentioned at the opening of this chapter, doesn't use an open source model, but still taps the expertise and input of developers outside the company. Promising early stage technologies are licensed on a free 90-day basis with no support, so clients and the developer community can find out what's coming, and start to integrate it into their development work if they find it useful. The value to alphaWorks

In order to attract this elite to participate in creating intellectual property, it is essential to offer them an appropriate share of the value created.

is firstly in the feedback and input they receive from their developer community, both in terms of how they want to see the software enhanced, but also simply in what generates the most interest. Also, releasing products very early in the cycle enables them to dramatically accelerate the product development cycle, creating software and tools that are the most relevant and suited to their clients' needs, far faster than through the usual channels. This dynamic unit, initiated in 1996, has just 10 staff, and is deliberately engineered to have a start-up mentality within an $88 billion company. Xerox has paid alphaWorks the compliment of copying its initiative, establishing its own alphaAvenue arm with the same business model.

Applying open source lessons to other fields

Innovation is being stifled by large corporations, overly restrictive legislation, and how technology is being implemented, according to Stanford University law professor Lawrence Lessig. Not just a persuasive speaker and writer, Lessig is taking concerted action to preserve the "commons" of ideas and innovation.

Lessig's latest initiative is Creative Commons, a non-profit organization that gives people free access to customizable intellectual property licenses.[16] These licenses enable writers, artists, software developers, and other creative people to choose the exact terms on which they make their work available. For example, they might specify that their work can be used freely, but only with full attribution and not for commercial purposes. Alternatively, they might make it available for free to non-profit organizations, but charge fees to corporate users. Just as in the open source model, these licenses will be legally binding to users.

What has become clear through the increasing diversity of the open source movement is that intellectual property is not an all or nothing proposition. There doesn't need to be a stark choice between total protection, or release to the public domain. The variety of open source licenses now available attests to that, as do examples like Sun's dual policy of selling StarOffice while giving away the source to create OpenOffice. Creative Commons has taken the concept of flexible licensing, applied it to every domain of intellectual property, and made it freely available to everyone. The result can only be a vastly more propitious environment for collaborative innovation, in which people can readily build on others' ideas and content rather than having it all locked away by rigid legal structures. At the launch of Creative Commons, technical book publisher Tim O'Reilly spontaneously announced that he would give all his company's authors the option of moving their copyright to the Creative Commons after 14 years.

Open source thinking can be applied to completely different domains in business. Rob McEwen, chairman and CEO of Canadian gold miner Goldcorp, believed his company's 55,000 acre stake had massive potential, but didn't know how to access it. When attending an information technology seminar at MIT, McEwen drew inspiration from the session on open source software. He did what was previously unthinkable in the mining community—exposing all of their geological data online, and announcing a competition for the best analysis of where they should mine next. All four mines the company has drilled on the winners' advice have hit high-grade ore.[17]

One clear application of an open source approach is to solve problems that can have massive benefits and inspire many to action, but don't interest large companies. In early 2000 a group of MIT Media Lab students proposed an initiative called ThinkCycle, that is dedicated to applying "open source problem solving" to help under-privileged communities. The cycle starts with getting clearly defined design challenges. These are often provided by non-governmental organizations who are familiar with the on-the-ground problems facing developing countries. A community website including collaborative tools provides a forum to provoke awareness of

critical issues, allow design teams to form and work together, and propose workable solutions. One of the outputs from ThinkCycle has been a low-cost intravenous drip flow control system to facilitate cholera treatment.[18]

Often the most valuable interaction and interchange of ideas takes place before any legally-protectable ideas and content is created. Before the Internet was born, and way before it was accessible by the public, bulletin board systems (BBS) were the first technology tool that allowed a large number of people to gather "virtually" to exchange ideas and opinions. The name was apt, for the systems acted just like boards on the wall where participants could post notes, and respond to others' notes. Nobody could see the others stopping by to stick up their notes, but all could read what everyone else had written. Howard Rheingold, one of the first hosts of the early San Francisco online community The Well, evoked those early days in his book *The Virtual Community*, describing how "real" communities changed when they had an open, online forum for discussion.[19]

Online discussion forums have blossomed since the Internet became a popular tool, but many of the most dynamic and interesting are private, invitation-only forums. Rheingold's private Brainstorms community brings together some of the more interesting people on the planet—including many writers and authors—into a common space. One of the most basic principles of the community—and one that can only work in a private space—is "You Own Your Own Words" (usually abbreviated to YOYOW), which means no one can use others' words outside the community without permission. This rule allows writers to express themselves freely and bounce ideas around with others, without having to worry about their words being stolen before they can refine them into a form in which they can be sold.

As you discovered earlier in this chapter, open source is founded on users being the primary source of innovation. Open source software exists because users know what they want better than their suppliers do. They are the ones who are the first to discover problems, identify potential improvements, and develop ideas on what will work better for them. In Chapter 6 we will explore in more detail how to involve your customers in innovation processes.

Implementing distributed innovation and shared value

At a scientific convention in Hawaii in 1972, Stanley Cohen from Stanford University and Herbert Boyer of the University of California met for the first time in what proved to be the beginning of a long friendship and collaborative partnership. Their joint work on a process for cloning genes

in microorganisms resulted in three patents that formed the foundation of the nascent biotechnology industry. Stanford University ended up as the sole owner of the patents, reaping over $150 million in royalties as a result.

The real reason for distributed innovation is simply that you can no longer be self-sufficient. You must bring together more and better resources than you can hope to have inside a single organization. This means that distributed innovation models must address how you attract the best people to collaborate with you in your projects. In order to attract this elite to participate in creating intellectual property, it is essential to offer them an appropriate share of the value created. Those that can best implement new models and approaches—both to organize work effectively, and share in the value created—will be the most successful in the network economy. There are five key action steps companies and individuals must take to implement distributed innovation, as shown in Table 5-1. We will examine these issues from the perspective of the individual in more depth in Chapter 10.

IMPLEMENTING DISTRIBUTED INNOVATION

1. Design processes to match the type of innovation required
2. Create structures to access and coordinate top global talent
3. Provide a share in the value created
4. Negotiate based on differing objectives, risk appetite, and power
5. Be open throughout the process

Table 5-1: Action steps to implementing distributed innovation

1. Design processes to match the type of innovation required

What are you trying to do? Do you need to come up with startlingly new and different ideas, or do you have to develop the seed of an idea into something useful and workable? Clearly both phases are necessary elements of innovation, but it is important to understand what you want to achieve, and then apply the appropriate approaches.

As you have seen, the collaborative structure of the open source model can be perfect for developing robust and refined products, but only once the initial core has been defined. MIT's ThinkCycle begins by establishing clearly formulated problems. Every open source project starts with an idea, an intention, and some code. Once a basic idea is in place, distributed development processes can bring a wide range of expertise to bear.

Idea generation is by its nature more unstructured, but systems and processes can help to create better results. British telecom firm BT implemented "BT Ideas" in 1996, providing a process and online forum for

staff to submit ideas. This is being used in many ways, including focused idea generation campaigns around specific needs. When the CEO and directors spoke at one internal event, all were asked to end with a request for ideas on their chosen issue. The CEO received 100 sorted responses to his request within a few hours. BT now intends to get participation in the system from its partners and suppliers.[20]

2. Create structures to access and coordinate top global talent

Pharmaceutical giant Eli Lilly established InnoCentive LLP in order to tap outside talent in its research and development initiatives. InnoCentive takes research tasks that have been clearly defined by its "seeker" companies, which include Eli Lilly and other large firms, and posts them to a global community of thousands of scientists. Each problem has a specific reward attached. One graduate student at the University of Georgia won $30,000 for synthesizing an amino acid, while an Indian scientist earned $75,000 for his solution to another synthesis problem. Problem solvers must sign a confidentiality agreement, which gives them access to complete data and specifications on the problem, and hand over all intellectual property rights to the solution.[21] The seeker companies can access global talent to address specific research problems, match the reward to how much a solution is worth to them, and only pay if they get precisely what they need.

The heart of open source is bringing together vast global expertise in focused projects. Companies are now trying to implement similar approaches in their commercial research and development, and coming across the same challenges as open source. You need to attract the best participants. SourceForge, the largest site for open source software development, lists over 40,000 current projects. There is immense competition to get top developers to work on your project. In a commercial environment, getting the best people involved should be centered on financial rewards. However other issues can be highlighted, such as the opportunity to work with the best people on the most exciting projects, and personal career development. Innovation exchanges like InnoCentive will develop further, so it often makes most sense to access the largest pools of innovators rather than trying to create your own.

In addition you need to create structures that allow diverse groups to collaborate on projects. Fixing software bugs is eminently suited to distributed projects. In order to apply similar approaches in other domains, you need to be able to break down a project into clear and distinct tasks. For example, drug synthesis is usually a multi-stage process, so Eli Lilly and its peers in InnoCentive can isolate specific issues within the overall drug development process, and get outsiders to participate in these.[22]

Leadership is critical both in establishing the structures for the innovation process, and often in running projects. Linux and every other successful

open source project has had a combination of a good leader or leadership team, and straightforward processes. The less that a distributed innovation team depends on an individual—usually working largely by force of personality—the more that clear structures and processes are required. CollabNet, mentioned earlier in this chapter, does very well by performing exactly that role for hire in software development.

3. Provide a share in the value created

There are basically two ways of getting rewarded for work. You can get paid for your input, for example by a salary, hourly rate, or fee for service. Or you can be rewarded for the value of the final output, such as a commission, profit share, or success fee. Things are relatively straightforward if you pay contributors to intellectual property by their input. Most R&D employees must sign over to their employers the rights to everything they create, and in return get paid a salary with probably a bonus if their efforts result in the company hitting the jackpot. Magazine journalists get paid salaries, or if they're freelance, by the word. However for distributed innovation, you are specifically trying to get the best to participate. They may want payment for their time and effort, but if they believe in their ability to create value, they will also demand a share in that to get their participation. Be prepared to offer specific reward models.

In the dot-com heyday, everyone wanted stock options. That was the way to get rich. But this is a very indirect way to profit from your contribution to intellectual property. As many discovered, it depends not only on the vagaries of the stockmarket, but also on the ability of the management team to run the company. Increasingly, top innovators are asking for a stake in the intellectual property itself. This means that if the company goes down the gurgler through no fault of their own, they still own a potentially valuable asset.

4. Negotiate based on differing objectives, risk appetite, and power

Money isn't always everything. Actor Keanu Reeves chose to forgo part of his profit-share in *The Devil's Advocate* in order to get the chance to work with Al Pacino.[23] Negotiation is based on the fact that different people and organizations have disparate motivations. This is what allows you to find win-win solutions. The greater your flexibility in creating value sharing agreements, and the more you recognize the different situations of the parties involved, the greater your ability to attract the best players to participate in your ventures.

The reality is that in any negotiation, the primary variable is relative power, which is basically how much one party needs the other. Today, many government organizations that issue tenders for consulting work specify that any intellectual property generated in the engagement is owned by the client. Take it or leave it. If you're a run-of-the-mill actor, musician,

consultant, or programmer, you need the gig more than the project director needs you. However if you're a star in any of those fields, you can pick and choose between offers according to how much it pays and how well it progresses your career.

Any endeavor is risky. But when more than one player is involved, each has something different at stake, varied perceptions of how risky the venture is, and unequal appetite for that risk. Balancing participants' different attitudes to risk can allow the creation of innovative value sharing models.

5. Be open throughout the process
Humorist Art Buchwald sold the idea for the film *Coming to America* to Paramount Pictures in 1983. The agreement gave Buchwald a share of the film's net profits, as defined in the contract. Since the film grossed $350 million, but booked an official loss of $18 million, Buchwald felt he hadn't received his share of the rewards, and took Paramount to court. He lost the case, but the judge found the contract to be "unconscionable" in not representing the true profitability of the film. The studio's costs had been defined in the contract, and it was impossible to know its true financial situation.[24]

One of the most dramatic trends in a connected economy is towards transparency. Information always escapes, and attitudes around the world are rapidly shifting towards expecting and demanding transparency in all things. In the case of distributed innovation, it is essential to provide transparency in order to get the best people to participate. Trust is invaluable, but transparency can be almost as good. For example, the SKA Global consulting network, discussed in detail in Chapter 9, provides full disclosure of all accounts to its members. Patent pools are completely transparent to their members. Agreements must be unambiguous at the outset, so all participants are fully clear on what their responsibilities and potential rewards are. The more precise the contracts, the easier it will be to attract the best people to participate. Over time, it will become standard to have complete accounting transparency in any collaborative project.

Any network that forms to create valuable intellectual property will need to establish effective systems and approaches. Each industry is at a different stage in implementing shared-value projects. Before the advent of open source, the software industry was very much based on development within single companies, or sometimes by lone programmers. In consulting and professional services, these kinds of loose networks have been around for some time, but are just now beginning to become more common. However the industry in which these principles have been the most developed and used is movies, with profit-sharing contracts first implemented in the silent movie era, and featuring throughout its history.[25] Let's see what we can learn from Hollywood.

How Hollywood does it

Spike Lee, the first African-American film director to hit the big time, got his break in 1986 with his first commercially released movie, the critically-acclaimed *She's Gotta Have It*. To scrape together the funds to shoot the film, he managed to secure an $18,000 grant and brought in some private investors. However what really allowed him to produce a superb film on a shoestring budget was the time-honored tradition in the independent film industry of making deferred payments to his creative talent.

The life of an independent film producer is all about how to do a lot using very little money. You're very lucky indeed if you have enough money to pay the wages of the director, actors, camera operators, and technical and support crew. As an alternative you can offer deferred payments, which means the actors and crew get paid when you get paid. The film distributor sells the rights to screen the film, usually taking around a quarter to a third of the revenue as commission and paying the rest to the filmmakers. In most cases investors (and any outstanding invoices!) are paid until break-even point, with subsequent profit allocated between investors, the film producer and director, and the actors and crew.

The crux of the system is the order in which contributors are paid, and what proportion of any profits people receive. Sometimes these are dealt with by oral promises, but any producer that wants to attract good creative talent will have to offer contracts that specify payment priorities and profit shares.

In this system of deferred payments in independent films, the producer plays the central coordinating role, designing a set of offers of later payment or profit share to his or her creative team that attracts the desired talent, but doesn't exceed the pool of benefits available. In order to do so, the producer must consider the motivations and risk appetites of each member of the team. Some need to pay the rent, so are only interested in payment now. Others are looking for the big break in their career. A deferred payment system, however, requires trust in the producer. If it does well, will we get paid? The movie industry is a very tight community, and everyone will know others who have worked with the producer before. The relative power in this situation depends on whether the film has been pre-sold, looks like it's likely to get good distribution, or somehow inspires people's belief. Spike Lee's faith never wavered through all his trials in funding and filming *She's Gotta Have It*, and his passion carried his entire team with him.

Turning to films produced by the major studios, we see very similar approaches, except for the relative power and risk appetite of the participants. Film studios have plenty of dollars to spend—in fact arguably a large part of the role of studios is providing financing. As such, most of

the workers on a major production will be contracted on a daily rate. The studio has the negotiating power, so they choose to take on the risk and potential upside on the film, and pay whatever fixed cost is required to get a talented crew. The story changes once we get to the stars who can make or break a film, and hold the power in a film.

The field of movie profit-sharing contracts is extremely complex and contentious, but also highly instructive. As you saw in the case of the Buchwald film, so-called "net profits" contracts define a profit-sharing pool, not by the true profitability of the film, but by taking the revenue to the studio net of distribution fees, and subtracting specified costs, usually print production, advertising, overheads, and interest expenses. The director, actors, and crew are allocated "points" which entitle them to a share of the profit-sharing pool. In most major productions offers of profit-sharing are an addition rather than replacement for upfront payments, demonstrating its nature as an additional incentive.[26]

You know you're a big star when you can negotiate a "gross" contract. In its simplest form, this pays a fixed percentage of the gross revenues from the box-office and other sales, either from the first dollar or after a certain threshold has been reached. As such, this is at the top of the hierarchy of payments being made to contributors, and forms part of the costs deducted from the profit pool, which leaves lower-ranked participants with less to share.

The variety of possible ways of allocating revenue or profits in the film industry allows for fine-tuning of the risk and reward. The producers of *Forrest Gump* tried to sell the film to the major studios with no success until its star talent—director Robert Zemeckis and actor Tom Hanks—unusually agreed to work for no upfront payment, but in return demanded a share in the "first dollar" gross. Paramount was happy to fund the film with the lower amount at risk, and in return was prepared to forgo part of the profit.[27] Zemeckis' and Hanks' belief in the film was rewarded when it grossed $660 million at the box-office. On the other hand, those that were due to share in the film's net profits lost out—according to Paramount's accounting system there were none.[28]

Vital Connections: Chapter 5

In this chapter, you have seen how the world of innovation and intellectual property is shifting in the networks. Ideas flow freely, both before and after they can be legally protected. New approaches such as open source software provide models that business can adapt in order to successfully implement distributed innovation.

In Chapter 6 you will discover how in the living networks, an organization is its presence in the flow of information and ideas. Marketing, customer feedback, sharing knowledge are becoming new domains at the very heart of organizational success. Other pressing issues concerning intellectual property and sharing value will be explored later in this book. In Chapter 8 we will examine in detail the new world of content distribution, Chapter 9 will cover how professional networks work, while Chapter 10 will look at capturing the value of intellectual property from the perspective of the individual.