

# LIVING NETWORKS

ANNIVERSARY EDITION



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

**ROSS DAWSON**

# LIVING NETWORKS

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

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- **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!"

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"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](http://www.livingnetworksbook.com)

**Ross Dawson's *Trends in the Living Networks* blog:**

[www.rossdawsonblog.com](http://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.

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# CHAPTER 2

## Emerging Technologies

### How Standards And Integration Are Driving Business Strategy

Standards are the foundation of communication, and of all networks. Building on the existing foundation of powerful standards and connectivity, there are three sets of emerging technologies that are driving the next stage of the networks: XML and web services; peer-to-peer; and network interfaces. In the connected economy, standards and network strategy are at the heart of all business.

The first digital augmentation of human capabilities dates back over five millennia. The invention of cuneiform allowed the Sumerians to record information using a set of defined characters that could be copied exactly any number of times. Reeds were used to inscribe patterns of wedge shapes into clay tablets, which were sometimes baked hard and still exist today, probably showing far better longevity than most digital systems of our age. To create the world's first written language, the Sumerians had to agree on what each cuneiform mark meant. They had to establish standards.

The result of establishing a standard for digital storage and communication transformed Sumerian society. It enabled laws to be written down and standardized for the first time, rather than relying on memory or a judge's foibles. It also gave rise to the first accountants. The government of the day required all business transactions to be recorded, and many of the Sumerian cuneiform tablets still in existence are sales receipts or other transaction records. Platoons of scribes were kept busy learning to read and write the complex script, and then recording sales for tax purposes. Perhaps things weren't really that different from today.

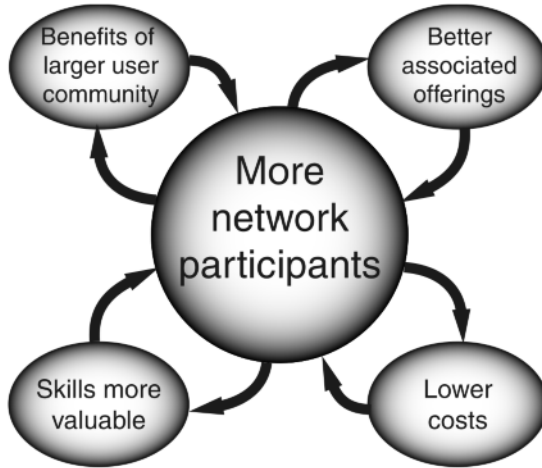
Standards provide the foundation for all communication. Only when a group of people agree that certain sounds or inscriptions denote specific concepts, can they communicate. Just as the standard of language allows people to understand each other, technology standards allow devices or systems to connect, and for information to flow between them. As such, all networks exist only by virtue of standards.

The Internet is not a communications infrastructure. It is a set of standards that allows any computer to be connected and to exchange information. Only once a set of standards is universally agreed can anyone tap into the "cloud" of the Internet at any point, and access or transfer information to anyone else. The World Wide Web Consortium (W3C) proposed standards, and only because everyone has accepted these has a truly global network been born.

In economic and strategic terms, a network is formed wherever there is a common standard that allows connection and communication, whether or not that capability is actually used. Users of Apple Macintosh computers form a network, irrespective of whether they actually communicate directly with each other. Their systems are based on the same standards, which gives them common interests. Everyone benefits from a larger network. The more Mac users there are, the easier it is to share information, the more high-quality software will be written, the lower the costs of hardware and software, and the more valuable their skills will be.

These are examples of *network effects*, the benefits that members gain through a larger network. The most important single characteristic of networks is

positive feedback. In any true network, the greater the number of participants, the more the benefits to those who are connected. In addition, this draws in providers of associated services, further increasing the benefits, and attracting yet more users, as illustrated in Figure 2-1.



**Figure 2-1: Positive feedback means network growth feeds on itself**

These simple dynamics mean that you rarely get an information-based industry that is evenly balanced between competitors. Positive feedback can help your network grow, as in the diagram, or it can accelerate your misfortunes as you lose users and their benefits wane. As soon as there is a clear winner, users will defect to the other network. As such, network-based markets tend to result in winner-takes-all battles (or often winner-takes-most, in which the second-ranked player survives with a sliver of the market). Beta vs. VHS in video, Lotus 1-2-3 vs. Microsoft Excel in spreadsheets, Netscape Navigator vs. Internet Explorer in web browsers, Windows vs. Apple in computer platforms, are all classic examples of network battles. Any not-so-young music lover will have experienced the standards transitions from LP and cassette to CD and onto DVD, or may even remember back as far as the 8-track standard!

In the second half of this chapter we will examine in more detail the world of standards, and the core strategies that businesses need to adopt. But first, we will cover the most powerful emerging technologies today, that are truly bringing the networks to life.

I am sure you are already well familiar with the primary driving forces that have created today's networked world: powerful computing for individuals;

rapidly increasing bandwidth; and mobile communications. We are very rapidly shifting into a world in which we are always richly connected—if we choose.

The next wave of critical technologies are those that enable far greater connection and integration. The history of computing is fraught with incompatible operating systems, competing standards, diverse communication protocols, and different languages. Probably as much has been spent by large corporations on “systems integration” as on hardware and software. We have already seen that standards are the foundation of networks. However if we can find ways to connect and integrate different systems more easily, then smaller pools of connectivity can be combined to rapidly form far larger networks. The reality is that today there are still many constraints on the free flow of information, and the ability for business processes to be linked and integrated. Once systems can be integrated far more easily, business has the potential to shift to become part of a single, truly global network.

**There are three vital sets of emerging technologies contributing to this integration:**

- XML and web services
- Peer-to-peer networks
- Network interfaces

**The language of the networks:  
XML and web services**

On September 23, 1999, the Mars Climate Orbiter—NASA's first interplanetary weather satellite—approached the red planet. At 2:01am Pacific Daylight Time, right on schedule, it fired its main engine in order to slow itself and enter orbit. Five minutes later NASA lost contact as the Orbiter passed behind Mars. It was never heard from again. Subsequent investigations showed that the problem had been caused by one part of the satellite's internal systems using measurements in meters, while another part worked in feet.

This is a fairly common type of communication problem. It's just that in this case it led to the loss of a \$327 million satellite. Businesses may not usually lose quite as much due to one information mismatch, but the accumulated costs of miscommunication between companies are massive. We may be connected, but we're not always communicating. This is the world in which XML (eXtensible Markup Language) is emerging as the foundation for the next level of interconnectivity.



XML is basically a standard for formatting and describing information. If information is sent in an XML format, this can allow any two computers to understand and use it in the same way. HTML is the language used to write web pages—it presents information so that people can understand it when they see it. XML performs the same function for machines.

The essence of how XML works is very simple. Each piece of information in a transmission between computers is given a “tag” that describes it. The XML standard defines the format of those descriptions. For example, if a company’s computer were sending information about the length of a steel bar it is delivering, it might use XML conventions to label the data as follows:

```
<LENGTH_IN_METERS>2.3</LENGTH_IN_METERS >
```

If the computers of the company’s business partners have been provided with the same list of descriptions, then it will always know how to deal with information when it arrives as part of any communication. In the case of the steel bar it could either store this figure as the length of the bar in meters, or convert it to feet if that’s what its systems use. It doesn’t matter if the two companies use different types of computers, different software, different processes, or even whether the computer’s users speak English.

The wonderful part about XML is that you can use it to transmit any type of information you like. If suddenly you agree with your partners that it’s essential your systems can communicate about the color of the delivery box, you can define a new XML tag:

```
<BOX_COLOR>green</BOX_COLOR>
```

It is this power that earns XML its moniker “extensible”. Once you have defined its basic rules, you can extend it however you like. But what happens if another partner has decided to use a tag that says <COLOR\_OF\_BOX>? It could very soon become a Babel of different versions of the language. Clearly it’s critical for industries to collaborate to produce common descriptions of information, so all firms can use these with confidence that all their partners can readily use them in their systems.

### **This standard is built on XML**

Every industry you can think of—and more—has spawned multiple bodies developing XML-based standards for exchanging information. In this thick alphabet soup of acronyms, the health industry has ASTM E31.25 and the slightly more evocatively-titled CISTERN (Clinical Infosystems Interoperability Network) among its standards under development; real estate has RETML (Real Estate Transaction Standard Markup Language) and CRTML (Comprehensive Real Estate Transaction Markup Language);

while the financial services industry proudly sports dozens of XML organizations. Stirring the pot further reveals a mind-numbing total of well over four hundred acronymed standards bodies. Even chess has rival XML standards, including the imaginatively-named ChessML (Chess Markup Language) and ChessGML (Chess Game Markup Language).

As you have seen, XML is a standardized way to attach descriptions to information. However if every organization implements it differently, it

**Implementing industry information standards is in almost everyone's interest, as it makes communicating and integrating with partners substantially cheaper and more effective.**

will be useless for exchanging information. The value comes when all participants in an industry agree on specifically what information they want to communicate, and in what format. Once there is that intent, XML provides a

powerful common foundation to do this easily and effectively. Implementing industry information standards is in almost everyone's interest, as it makes communicating and integrating with partners substantially cheaper and more effective. In Chapter 3 we will examine how standards for exchanging information within industries are being developed, and the role companies should play in this.

While XML-based standards are being applied to highly specific issues of information exchange within industries, they also provide a foundation for general communication issues such as how firms exchange messages and documents, and integrate them into their respective business processes. The emerging dominant standard for these general business applications is ebXML (short for e-business XML), boasting primary sponsors including a United Nations body. Released in May 2001 after 18 months of development, ebXML is now acknowledged as a true global standard, and is being incorporated into many higher-level and industry-specific initiatives. At a lower level still, XML is allowing the development of standards for how computer programs themselves can connect and integrate. As you will see, there are vitally important implications for business.

### **The promise of web services**

“One degree of separation,” was the slogan for Microsoft’s initial \$200 million advertising campaign for its .NET suite of services, implying companies can now be connected directly with their customers, partners, and employees. That is indeed the promise of the emerging technologies called *web services*. However the whole reason that web services enable this direct connectivity is that they are based on open standards, in turn built upon XML. Microsoft is just one of many leading players keen to sell the software that enables these powerful technologies.

Web services are essentially a set of standards that allow computer applications to interconnect. As a result, any programs can link together seamlessly, irrespective of the computers they run on, the operating systems they use, or the programming languages in which they are written. One of the key web services standards allows software to search a global directory of available programs, identify the best fit, and integrate it into its own functionality. There are three key implications of web services.

- **Easier integration inside and outside the organization.**

Integrating systems is often the largest IT expense for a big company. The way that programs designed using web services can interface directly helps make it far easier to integrate applications. This saves costs internally, and smoothes the way for integrating systems with customers and partners. General Motors, Merrill Lynch, and Dell are among the companies that have placed web services at the heart of their information technology initiatives.

- **Modular organizations.** Web services allow what used to be monolithic software packages and business processes to be broken into a set of modules. These modules can now integrate perfectly with each other, requesting information or tasks to be performed as if they were part of the one program, whether they are running on the same computer or on systems on opposite sides of the world. Costs are saved because each of the modules can be easily adapted or reused directly in other applications. Ford Credit estimates it has saved \$15 million by applying these approaches.<sup>1</sup>

- **New business models and structures.** Business processes are increasingly implemented as software. The general acceptance of web services means that it suddenly becomes far easier to share your business processes with your customers, suppliers, and partners. You can now define far more easily exactly what your company is best at, and what others can do better. This not only changes the nature of the company, it also means new models must be found to charge for the services you offer. Google is offering software developers the ability to use web services to access search results and use them in their programs. At the time of writing, this is available for free, but only for a limited number of queries per day. However Google is likely to charge for this service in the future, based on usage.

We will examine these implications of web services in more detail in Chapter 9.

## Peer-to-Peer Pressure

The year 2000 was marked by the explosion of the music file-sharing system Napster. It was pretty hard to miss the news as the company's then 19-year old founder Shawn Fanning hit the covers of *Fortune*, *Forbes*, *Business Week*, and *Time* in rapid succession. Napster's users had created the fastest-growing network in history, in less than one year gathering over 70 million registered participants who shared music files with their peers around the globe.

As history tells, the legal eagles of the music industry swiftly swooped in and began relentlessly pounding away at Napster. They eventually succeeding in shutting it down as a file-sharing system in mid-2001, only to see a host of similar systems such as Kazaa and Morpheus leap in to take its place. By then file-sharing had slipped from the forefront of popular consciousness, but the concepts were already being applied to new domains. The awesome—albeit brief—success of Napster set an inspiring example for others to emulate.

Napster was perhaps most important for how it changed the way people think about the Internet and connectivity. Traditional computer networks are based on a "client-server" structure, in which a large central "server" provides resources to many "client" computers. *Peer-to-peer systems* like Napster allow people or computers to connect directly with each other.<sup>2</sup>

The peer-to-peer structure itself is not revolutionary. The telephone network is, in fact, a peer-to-peer system. Any telephone can be linked directly to any other telephone in the world—all you need to do is to dial the correct number. However the impact of both individuals and software developers changing how they think about the networks is creating a whole new set of tools and behaviors. The shift is towards distributed systems, where resources are spread through the networks rather than centralized. There are five key domains in which peer-to-peer technologies are being applied. Each has the potential to have a major impact on how business is done.

- **Distributed content.** What was revolutionary about Napster was that it meant that everyone who was connected effectively shared parts of his or her hard disks. Instead of being limited to your own storage, you can now have many millions of people's hard disks appear to be part of your own system. Deloitte & Touche UK uses the peer-to-peer software system NextPage to allow easy access to a wide range of information held in different computers and locations both inside and outside the firm. This can substantially improve the productivity of its auditing staff who need to access disparate documents in the course of their work.

- **Distributed computation.** Do you believe that there is intelligent life in the universe beyond our planet Earth? If there is, you can help to find it. The Search for Extraterrestrial Intelligence (SETI) initiative takes an immense amount of data from the world's largest radio telescope as it scans the sky, and submits it to intensive analysis in order to detect possible signs of intelligent life. Since most people use only a fraction of their PCs' processing power, and then for only a small part of the day, the SETI@home initiative taps that unused processing power. Less than 18 months after the system's launch, well over two million PCs in 226 countries were at work, effectively creating a global supercomputer from donated computing power.<sup>3</sup> The same principle is now being applied to a range of scientific endeavors, including cancer research and gene design, which are now competing for people's spare computing power. Companies are also using similar approaches. First Union Bank has implemented distributed processing systems for its financial risk management, a notoriously computing-intensive task.

- **Collaboration.** Ray Ozzie, the creator of Lotus Notes, left the company for some thinking space after it was bought by IBM. In an interview, Ozzie described how he watched his daughter using instant messaging to collaborate with her friends on her homework, and his son playing with his online friends the multi-user blast-and-destroy game *Quake*. He was struck by how *Quake* provided competing teams with an extremely effective collaborative space, and the stark contrast to the very simple tools such as e-mail that office workers have to work together.<sup>4</sup> Ozzie didn't dally, swiftly launching a new company, Groove Networks, that sells peer-to-peer collaboration software. The firm's product, *Groove*, allows any group of people to share and annotate files, draw on the same whiteboard, chat, have voice conversations, browse together, and create a space that enables them to work effectively together. Companies that have already implemented *Groove* include pharmaceutical firm GlaxoSmithKline, which uses the software to enable its researchers to work closely with outside organizations, such as universities and clinical research firms, and Raytheon, which is applying it to help develop collaboration between teams at companies it has acquired.<sup>5</sup>

- **Distributed processes.** Business processes are increasingly distributed across organizations, crossing boundaries and involving disparate teams, as we will explore further in Chapter 3. Peer-to-peer systems can directly connect any group of individuals involved in a process, irrespective whether they're in the same organization or location, or the systems they use. Many of the examples of peer-to-peer systems being used in distributed processes are in supply chain management, but they are also relevant to many other processes. United Technologies, a conglomerate that includes Pratt & Whitney

and Otis Elevator, is deploying peer-to-peer software from Oculus Technologies. The system allows engineers to share information about the products they are developing directly from PC to PC. United Technologies expects use of the system to substantially accelerate the design process.<sup>6</sup>

- **Markets.** A marketplace matches buyers and sellers. For large transactions, a peer-to-peer system can be ideal. Rather than funneling all interaction through a single exchange, it can put buyers and sellers in touch with each other to negotiate terms directly. Liquidnet is an institutional share trading system launched in April 2001, that within 6 months had racked up transactions of over 300 million shares. Institutional investors are anonymously linked to the firms that are on the other side of the trades they want to execute, allowing them to negotiate prices directly. The result is that the vast majority of trades are executed at prices better than could be achieved on an exchange. The investors on both sides of the trade are happy, and neither the stock exchanges nor stockbrokers see any part of the business.

## The interfaces that merge people and technology

The characters in the 1999 cult science-fiction movie *The Matrix* had a small socket built into the base of their skull. To enter the illusion of the matrix they simply plugged themselves into the machine, accompanied by the frisson of a long steel jack sliding deep inside their brain. It will probably be another few years before we can plug ourselves directly into the networks. For now we have to make do with our existing interfaces: computer displays, keyboards, and that ubiquitous symbol of computing, the mouse.

The networks are ultimately about people connecting with other people. The easy bit is connecting the technology that sits in the middle. The difficult part is allowing people to interface more effectively with the technology, to blend into the vast networks comprised of both machines and people. This is critical to move us towards the formation of a true global entity.

Can you touch-type? If so, you're in a small minority. The productivity of two-thirds of the US workforce depends on how well they can use a keyboard to write and enter information, yet only 20% of those people can touch-type. The rest pick their way at varying speeds across the keyboards. What an incredibly artificial and clunky way to have to communicate!

This is the world that is beginning to be revolutionized by the next generation of voice recognition and synthesis. Human communication began with the spoken word and gestures, and that is still most people's

preferred way of expressing their ideas to others. There is certainly a role for written documents, but it is generally far more effective to get the words into computers by speaking rather than tapping at an awkwardly-designed layout of small buttons at our fingertips. It will be a vast liberation for the human race when we transcend the keyboard.

### **Networks bringing people together**

Every conference organizer will tell you that people mainly go to conferences to meet and interact with interesting and useful people. For some strange reason the very same organizer usually designs a conference in which delegates file in and out of darkened rooms to listen to a dizzying succession of speakers, leaving coffee breaks and lunches to strike up random conversations in the hope of fortuitously meeting someone interesting and useful.

To address this problem, researchers at the famed MIT Media Labs have developed a device they call a cricket. Delegates at a conference or other event are each given a cricket, and asked to attach it to their lapel, having programmed it with their profile and interests. When someone who has similar interests walks within range, the crickets “chirp,” suggesting the two people should speak. The technology alerts you to who you are likely to want to speak to, in a natural and unforced way, as part of the natural flow of people in a large group.

In mobile-mad Japan, "proximity dating" has had a big success. As in Internet dating, you complete a profile of both yourself and your desired partner. Instead of suggesting people to exchange e-mails with, the service rings you on your cell phone to let you know that someone with a matching profile is within a few hundred yards of you, and allows you to arrange to meet them. Since high bandwidth mobile technology is now available in Japan, the system can also allow you to see each other on your mobile videophone before you meet.

Video-conferencing is rapidly becoming a standard business tool. For example, investment bank UBS Warburg has set up its major clients so any phone call to them also uses high-quality desktop video. However it's the next generation of technologies that will really bring people around the world together in powerful ways. Talk of teleportation may evoke Star Trek, but the products of start-up company Teleportec allow people to appear anywhere in the world as a 3-dimensional image, to see the room, and hold eye contact with their counterparts. In addition to the obvious applications of meetings and conference presentations, a British bank has experimented with offering financial advice using the system. Virtual reality pioneer Jaron Lanier is working on what he calls “teleimmersion”, which uses multiple cameras and extremely high bandwidth connections to simulate sitting in front of your distant counterpart, also allowing direct eye contact.

Together, the key emerging technologies of XML, peer-to-peer, and the next phase of network interfaces, are integrating the networks and bringing them to life. This makes it essential for companies to understand and apply the strategies relevant to an intensely networked world.

## Standards and network strategy

Whenever you go to a website and are presented with a snazzy animated introduction, you are seeing Macromedia Flash at work. The free Flash Player software that enables people to view these animations is now running

**The basis of any network is interoperability. Only if systems can share information and work together do they form a network.**

on around 97% of PCs that are connected to the Internet. At the outset, Macromedia had a clear-cut challenge. Web surfers would only download Flash Player if there were interesting

websites using Flash, while website designers would only use Flash if a sufficient proportion of their target audience had installed the software. Macromedia makes its money by selling the software for developers to create Flash files, but to make it a viable market it had to give away the Flash Player software.

Along the way, Macromedia made a bold decision. It published the specifications for the SWF files used by the Flash Player software, and committed to keeping these open. This meant that any other company could take advantage of the large installed base of Flash Player software, and sell software to compete directly with Macromedia's Flash software, which was its only source of revenue from the exercise. Indeed, arch-rival Adobe rushed to market with a directly competitive product, based on the specifications made available by Macromedia. The reason Macromedia made Flash open is that it provided an immense impetus to make it a de facto standard for Internet multimedia. If it hadn't released it, others would have come out with competitive formats, and Flash may never have broken through to become dominant. Macromedia may not have all the market for Internet multimedia design software, but having established the standard format clearly gives it a big headstart on all its competitors, and it has guaranteed a total market size almost as big as the Internet.

As you saw at the beginning of this chapter, the basis of any network is *interoperability*. Only if systems can share information and work together do they form a network. Every mobile phone in Europe uses the same standard, GSM, so you can go to any country and make calls and send and receive text messages as if you were at home. In the US, there are multiple mobile communications standards, resulting in several distinct networks of users that can't always link directly.



So who owns these standards? The value of doing so is immense. Just ask Bill Gates. However it takes immense market clout to be able to set an effective standard, to beat out all other competition. Windows is a proprietary technology that dominates the market, but still has significant competitors in some fields, such as Apple and Linux. In order to establish its leading position, it had to publish programming interfaces, so that other companies could create software, in turn making the Windows platform more valuable to users.

In the case of Macromedia, it recognized it may not have the clout to establish Flash as a standard on its own, so opened the way for competitors, enabling it to become an accepted standard. In the games console market, Microsoft's Xbox has joined the Sony Playstation 2 and Nintendo to result in a three-cornered battle. Each is building its own network of users and game developers, and struggling to take market share from the other aspiring standards. Any wins or losses are amplified through network effects.

When a company can't realistically hope to control a market on its own, it will seek to establish alliances, gaining critical mass by getting enough large players together. The DVD format was agreed in 1995 by ten of the largest consumer electronics firms, making it a virtually guaranteed slamdunk success. Sony and Phillips had been promoting their own standard since 1993, with Toshiba working on its own incompatible version. Eventually other industry players brought the two sides together and made them see the benefits to all in establishing a common standard. The patent holders behind the format charge licensing royalties, but have kept these low enough so that they were not an obstacle to DVD being broadly adopted.

The real drive today, however, is towards "open standards". Essentially this means they are controlled by unaligned bodies, that publish specifications so anyone can adopt them and create interoperable systems, and are driven by the interests of the entire community of users rather than any group of vendors. Standards bodies like the World Wide Web Consortium (W3C), the International Standards Organization, and any number of industry organizations fit this bill. However just because a standard is open, doesn't mean it is accepted by everyone. Standards bodies themselves can have competitors. For example Linux is a truly open standard in that it is entirely known and no group controls its development, but it has many competitors as an operating system. The basic standards on which the Internet is based, such as TCP/IP and HTTP, are both open and broadly accepted. That alone is what has enabled the networks to emerge.

Figure 2-2 illustrates how standards can be controlled by single companies, alliances, or standards bodies, and in each case be either in a competitive situation, or have moved towards or achieved broad market acceptance.

There are powerful trends towards both open and accepted standards. Customers understand the value of the larger networks enabled by standards, and the reality is that each industry as a whole benefits from standards. This doesn't mean that Microsoft will suddenly crumble, or the games console manufacturers will open their systems tomorrow. There will always be domains of emerging standards that will see bitter battles to establish dominance.

**Since the trend to open, accepted standards is clear, it is far better to go with it rather than fight it. Long-term success must be based on aligning yourself with these shifts.**

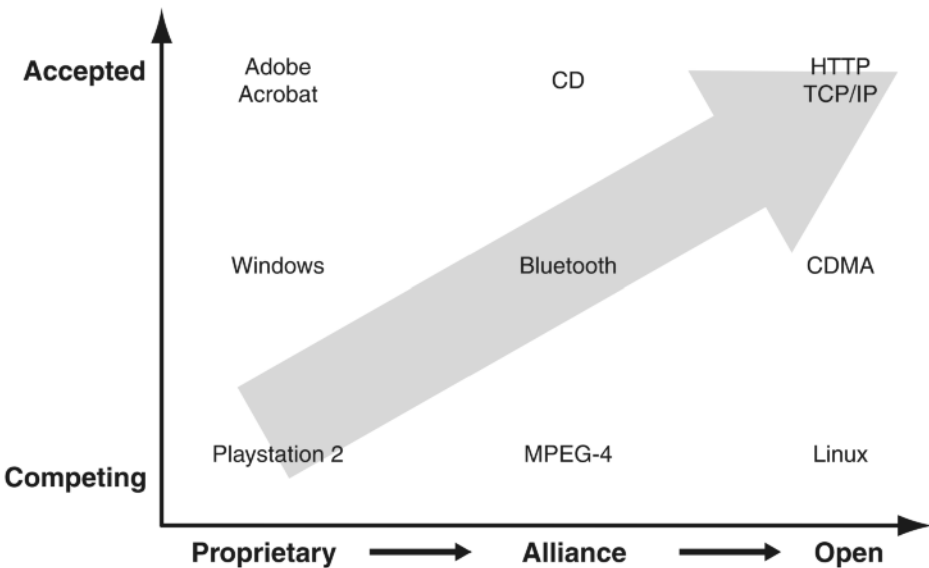


Figure 2-2: The (very) gradual shift to open, accepted standards

Since the trend to open, accepted standards is clear, it is far better to go with it rather than fight it. Long-term success must be based on aligning yourself with these shifts. Over time, the greatest rewards will go to those who provide effective leadership towards standards, while implementing clear strategies on how they are positioned and create value within the unfolding landscape. We will explore this theme of standards leadership throughout this book.

### The essentials of standards and network strategy

American Express launched its Blue card in 1999, within 18 months accounting for 10% of all Amex cards, and expecting to hit 10 million cards issued in 2002. The Blue card is a smart card, meaning it is embedded with a microprocessor that can store and process information, and run multiple applications. The initial function was to provide additional security for Internet purchases. This requires a special smart card reader to be attached to users' PCs, however Amex gave this away for free for subscribers during the initial launch period. Since then Amex has added further functions, and teamed up with retailers to promote the card.

A partnership with Virgin Megastores has put point-of-sale terminals that can be used with the Blue card in all its US stores, and provided discounts to card holders on featured CDs. Another deal with concert promoter SFX Entertainment allows cardholders to order tickets online, and then pick them up at special windows fitted with smart card readers. The Blue card uses open standards technology at its core, but for the meantime American Express is intent on building a network of card holders using its platform, which can gradually be broadened into other applications and markets.

Business strategy changes in a world increasingly based on standards and networks. Executives need to understand and consider positive feedback in networks, how networks compete, and the role of standards in their business model. Increasingly, alliances are no longer a tool for specific situations, but an essential part of doing business. Amex is endeavoring to use its market power to more or less go it alone in building its Blue card network, but it still needs to bring in partners, and has to align its technology with industry standards.

Carl Shapiro and Hal Varian of the University of California at Berkeley have been among the leaders in exploring in depth the new economics and business strategies of networks, notably in their excellent book *Information Rules*.<sup>7</sup> Here we offer four essential steps for managers to develop network strategies. These provide a foundation for what we will cover through the rest of this book.

#### **DEVELOPING NETWORK STRATEGIES**

1. Decide where you want open standards and where you want to own the standard.
2. Participate strategically in alliances and standards bodies.
3. Align your strategies with the evolving standards landscape.
4. Adopt new pricing and business models.

**Table 2-1: Action steps to developing network strategies.**

### **1. Decide where you want open standards, and where you want to own the standard**

When AOL and Time Warner were seeking regulatory approval to merge, key competitors, notably Microsoft and Yahoo!, publicly attacked AOL for keeping its instant messaging service closed. They argued that AOL, in not allowing other instant messaging systems to interoperate with its market dominating offerings such as ICQ, was blocking innovation and consumer benefits, and they demanded that AOL be forced to open its systems. Then Microsoft began to successfully build its MSN Messenger network, helped by including it in its Windows operating system, and Yahoo! Messenger grew through being integrated into some of the firm's other services. Gradually the strident tone changed as the two pretenders started to benefit from having their own significant proprietary networks.<sup>8</sup> All three major players now adopt the rhetoric of open standards, but none seem to be in any special hurry to integrate their systems. Providing instant messaging software is creating powerful networks, that help them to keep their customers in the fold.

Undoubtedly the instant messaging networks will eventually merge, through a combination of other firms providing systems that link them, and the three major players grudgingly accepting the push to open standards from their customers. Users' demand for the benefits of standards are too strong to resist indefinitely. Imagine if you could only make telephone calls to people who used the same phone company. However before we get to interoperability between all instant messaging systems, each key player is going to try to extract the greatest benefits for itself. How they go about it will affect how long it takes to get to open standards.

Do you want a level playing field? A simple question, it would seem. Yet the answer depends on the specific domain, and can change over time, as you've seen in the case of instant messaging. In essence, you will want open standards in every field except where you think you can gain a competitive advantage and dominate the market. Selecting precisely where you choose to compete is now one of most fundamental strategic decisions for every company.

One of the situations in which the decisions are most challenging is when you have a competitive advantage, yet open standards will help to grow the industry and the market. This was the context for Macromedia's decision to open up the Flash standard. The industry leadership role of Ingram Micro, discussed in Chapter 3, illustrates how building standards can strongly benefit a company by making the industry as a whole—including its competitors—more profitable.

## **2. Participate strategically in alliances and standards bodies**

In 1994 mobile telephone manufacturer Ericsson started developing a communications protocol to link mobile phones with their accessories. Ericsson then recognized that the protocol would be of limited use unless it was adopted by manufacturers of all kinds of devices. In 1997 it started to talk to other firms about joining with them to create a standard. The Bluetooth Special Interest Group was formed by an initial core group of Ericsson, IBM, Intel, Nokia, and Toshiba, to develop and promote a wireless standard to link devices within 10 meters at speeds of up to 1 Mbps. Part of the promise of the technology is dispensing with cables inside offices, and allowing mobile devices to communicate with local systems wherever they go.

Ericsson stated to its partners it wanted to make the standard open, and committed to providing the supporting intellectual property to Bluetooth free of any royalties. This necessary foundation for the initiative helped to bring in other key players who both could see the benefit of having an industry standard for short-distance wireless networking, and the potential for benefiting from sharing in the licensing of the technology if it took off. Each firm was watching to see who else would join. Toshiba only signed up after IBM had made the move.<sup>9</sup> The evident clout of the founders quickly convinced other key players like Microsoft and Motorola to join at top-tier status in the group, with over 2,000 firms then joining to gain access to inside information on the system.

The jury is still out on whether Bluetooth will gain market traction before its competitors, however the way the alliance has been developed shows some of the key drivers for those who initiate and participate in standards alliances. Each of the participants in Bluetooth has different objectives. In any alliance or standards body, it's important to understand the motivations of the participants. Sometimes it's quite genuinely simply to create a standard that will create benefits for consumers and the industry, but there are usually vested interests. One of the central issues is how each participating firm's intellectual property will be affected. Careful positioning is required, as we will discuss in Chapter 5. Certainly participating in an alliance or standards body at very least gives you an inside seat on how standards may evolve, and insight into the resulting business opportunities.

## **3. Align your strategies with the evolving standards landscape**

Sometimes business is like a day at the races. You can study the form guide and try to pick the winner, but you know that the unexpected happens more often than not. Do you put all your money on the horse with the lowest odds, or do you place multiple bets so you have a chance of doing OK even if there is an upset? This is the kind of decision that companies have to make when they need to adopt standards to develop or market their offerings, but there are several contenders in the field.

In May 2000, seven major banks joined to form FXall, an online foreign exchange trading system. It allows its large clients to link directly to all of its member banks so they can access research, compare prices, execute transactions, and process trades. The founding banks had tried hard to get the three banks with the largest FX volume—Citibank, Chase Manhattan, and Deutsche Bank—to join them, but they all declined. The following year, by which time FXall had around 30 banks providing prices, the three leaders, together with Reuters, made their move. They formed a direct competitor to FXall, called Atriax, involving some 50 banks around the world. Between the two online systems, the vast majority of global FX liquidity was covered. But clients weren't happy. They didn't want to have to log on to two different systems, and so they either chose the one they thought was better or more likely to win, or just as often decided to wait until a winner emerged. For smaller banks, the costs involved meant they had to choose the one they thought their clients would use, otherwise they could lose business. A couple of banks opted to participate in both. The industry watched to see what would happen—would there be a winner, could they coexist, would they merge? Eventually in April 2002, Atriax closed down. It had been behind FXall on the technology front, simply hadn't gained sufficient momentum, and merger talks had failed. The three founding banks of Atriax joined FXall.

In this case, the competition was to form the leading network of service providers and clients in the industry. Clients ultimately wanted a single network, rather than having the market split in two. Along the way, both banks and clients had to develop strategies to align with the winners. It's a similar situation for content providers, who need to deal with a plethora of standards for music, ebooks, Internet broadcasting and so on, as we will discuss in more detail in Chapter 8. In the case of both standards and customer networks, companies need to develop clear strategies, including contingency plans, of how to align with the evolving landscape.

#### **4. Adopt new pricing and business models**

When Microsoft launched its Xbox games console in November 2001, it was priced at \$299. This was generally estimated to be between \$20 and \$100 below its manufacturing cost, which would result in direct losses of up to \$2 billion.<sup>10</sup> The simple logic was that the money in the business is made by selling games, so it can be worth losing a hefty whack to establish a wide network which then reaps the dough. However the price proved to be not low enough. Within six months the price of the Xbox had been substantially cut in most countries in the world, and then finally in the US, despite achieving reasonable sales. Microsoft was considering profitability for the entire product lifecycle in forcing itself into yet larger short-term losses.

It was easier for Adobe to distribute its Acrobat Reader software for free as a way of building the pdf document format as a standard. Because it's an information-based product, there are almost no costs in distributing as many copies as it wishes. Yet it still needed to make decisions about how to price the full-featured Acrobat software from which it made its revenue.

Presenting a business case for investment has become far harder in a business environment based on standards and networks. The rewards are potentially enormous, but often a very large upfront investment is required for a very uncertain and usually long-term payoff. Pricing strategies must be based on revenue and other benefits over the entire life of the product, but this usually means offering incentives early, and thus starting with sometimes substantial losses.

## **Vital Connections: Chapter 2**

In this chapter you have seen how all networks are founded on standards, that allow people and systems to connect. Three sets of emerging technologies—XML and web services, peer-to-peer, and closer network interfaces—are helping to integrate the networks far more deeply, and bring them to life. As a result, every company needs to develop business strategies that are relevant in a highly networked world.

If truly open standards are in place, then the playing field becomes perhaps not quite level, but certainly a lot flatter. This is precisely when business relationships become the primary source of value. Not just the relationships with your customers, but also those with your suppliers, partners, and industry peers. Throughout Part 2 of this book we will examine how these relationships are changing, and how to lead your customers and partners into new ways of working together.

Part 3 of the book builds further on the foundations of standards and networks strategy presented in this chapter. It examines the emerging flow economy, which is based on the flow of information and ideas, and now encompasses most business activities. We will use a new framework for developing powerful strategies, based on how the central issues of standards and relationships can be combined with connectivity, interfaces, content, and services to create business success.