How many computer programs does it take to run a law firm? The answer depends on the size of the firm. Small firms run 12 or more applications. Large law firms may run more than 100 applications, and some firms use as many as 400. Moreover, there can be many variants of the same application, such as multiple calendars, contact managers, and litigation support programs.

The explosion in the number of applications is a major factor driving technology expense. Large law firms not only have more applications; they spend four times as much on technology as smaller firms. As law firms look for ways to trim budgets, they are well advised to examine the number of programs they use. The value of each program must be determined with organizational needs in mind.

Part of the reason why larger firms spend so much more on technology is the complexity of large, multi-office environments. However, this does not explain why lawyers in larger law firms need more software titles to represent their clients' needs. Moreover, it is doubtful that an attorney in a larger firm has four times the technological capability of his smaller-firm counterpart. The converse may be true—less may be more. Lawyers who rely on a smaller suite of software may become more familiar with the applications and more proficient in using them; similarly, information technology (IT) personnel can support the reduced technology suites with a greater degree of reliability and efficiency.

How did we come to have an excessive number of applications? What is driving the need for more computer programs? The primary reason may be simply a lack of coordination and management—in many firms, attorneys and staff select applications by personal preference. Since law firms tend to accommodate individual preferences more than organizational needs, law firm size becomes the most significant factor driving the number of computer programs—simply because there are more individuals to accommodate.

Cost, Utility, and Value

In order to assess the value of consolidation, it is necessary to understand technology costs and utility. The theory of total cost of ownership (TCO) was first proposed in the mid-1990s by the Gartner Group, a consulting firm based in Connecticut. This eye-opening theory showed that acquisition costs represent approximately two-fifths of total costs when the costs of management, integration, support, and training are included. Accordingly, the theory offers a simple rule-of-thumb valuation whereby the TCO can be estimated by multiplying acquisition costs by a factor of 2.5.

In addition, law firm management should also factor marginal cost into the equation. As more applications are added to the firm’s application roster, costs must take account of marginal utility. It is likely that the 401st application will serve a small constituency. However, since the firm must ensure that all software is operable without conflicting with existing applications, marginal cost is significantly increased.

Overall systemic complexity rises with each additional application. As a result, the “80/20 rule” is driven with perverse logic: while 80 percent of use may be served by 20 percent of the application suite, such 20 percent of use causes 80 percent of the cost.

Step One

The first step in any convergence strategy is to determine the number of applications that are available on the network, together with the number of registered users. In a manner similar to the well-reported strategy of convergence of outside counsel utilized by E. I. du Pont de Nemours and Company, the initial requirement is an inventory of the software suite. This inventory should not be limited to authorized and licensed applications; it should include all software loaded on network servers and desktop equipment.

Step Two

The second (and easiest) step is to ask attorneys and staff members whether they use all the software registered to them or installed on their computers. Many firms undertaking this approach have been pleasantly surprised at the number of applications their personnel are willing to give up. This simple step can yield significant savings in licensing, support, and administration costs.

Step Three

The next step recognizes that not all applications have the same degree of importance to the firm; for example, we often talk about mission-critical applications. By attributing a value to each software application, it is possible to turn analysis into cost savings. One useful classification schema divides applications into the following types:

"Firms with excessive numbers of applications have an accounting time bomb ticking away in their server rooms."
Enterprise-Wide
Available on every desktop computer, applications in this category include operating systems, office productivity suites, and messaging platforms.

Specialty
Designed to serve a particular practice group, administrative support department, or work team in the firm, applications in this category include litigation support and billing software.

Individual Preference
Selected by individual lawyers or staff members according to their personal preferences.

Prohibited
Removed from firm-supported computers as a matter of policy.

For each class of application, the firm should determine the level of support offered, the method of installation, whether applications and data will be restored in the event of failure, and whether applications will be available from outside the office through some form of remote connectivity.

Step Four
The final and most complex step in achieving convergence of applications is to understand how the software market is changing from stand-alone application silos to integrated modular components. This approach underlies the evolution of portals, whereby technology systems are redesigned from the top down to present user interfaces customizable to reflect the work needs of individuals, practice groups, administrative support departments, firms, and clients.

Applying Web-based application architecture can reduce the number of discrete computer modules. This architecture allows software functions to be shared by different modules, such as a single database platform that can support the firm’s document management, knowledge management, and litigation support needs, or a single spell-checker program and legal dictionary that can be incorporated into any application.

Conclusion
As we become more dependent on software applications and data created within proprietary formats, law firm management should be aware that the cost of migrating a software system could exceed the expense of purchase and installation. Firms with excessive numbers of applications therefore have an accounting time bomb ticking away in their server rooms. The danger can be defused by planning or by radical surgery (known to technologists as the “forklift” upgrade).

As law firms assess their future needs—likely focusing more on the “information” than the “technology” side of the IT equation—controlling computer expense may be the key to success in other important strategies, such as knowledge management.
The role of a law firm Executive Director (ED) has become increasingly demanding. Partners expect management to retain profitability in a time of economic downturn. This means that law firms and their EDs must manage expense lines aggressively.

Large, Complex Organizations

The increased size and multi-dimensionality of firms present the first challenges to management. According to a white paper published by Hildebrandt International, “Rapid growth in competition over the last decade or so has led law firms to become relatively complex organizations.”

Hildebrandt observes that organization structures and governance processes [of firms] have not kept up with the corresponding growth in numbers and complexity. The simple structures of the past no longer function in firms with a diverse range of clients, practice areas, and multiple office locations. Management must devise new, integrated structures that enable efficient decision making and provide appropriate representation of practice groups and regional offices.

Every firm needs to adopt an organizational structure that supports its particular strategic objectives and ensures coordination and integration throughout the organization. The “best practices” of one firm may be inappropriate for a different firm.

The ED has to work with upper-level management to set up organizational structures and implement them. Leadership must be integrated across industry and practice groups, multi-office locations, the executive committee, operations management, and directors of the support staff departments.

According to Hildebrandt International, “Effective coordination and integration [are needed] in an organization as it grows and develops, including geographically ... Clients want a consistent one-firm approach if they are to use several offices of one firm.”

Right now there is a wave of mergers among law firms. A number of midsize and large firms have merged with equals or acquired smaller firms to diversify, strengthen, or fill gaps in their practice or geographic client base in an effort to enlarge their client base and remain competitive.

Perhaps not coincidentally, seminars and institutes aimed at law firm CEOs and CFOs have been proliferating. The seminars facilitate knowledge sharing and competitive intelligence gathering among attendees. For example, Glasser LegalWorks sponsored the Law Firm Executive Director & CFO Forum held at the Citigroup Conference Center in New York City in October 2002. This gathering attracted 125 law firm chairpersons, executive directors, and chief financial officers as well as accountants, bankers, and consultants. In panel sessions, several executive directors offered the following advice based on their experiences with mergers and acquisitions:

John Feldkamp, New York office executive director of the Wall Street firm Brown & Wood, stressed that the key to success in its merger with Chicago-based Sidley Austin was to focus on the big picture, e.g., the benefits of the merged entity rather than employee concerns over potential layoffs. They determined best practices by looking to the accounting firms as models.

William Bachman, executive director of litigation firm Bingham Dana, spoke about fast growth through acquisition. Successful mergers are revenue driven, he pointed out. He

2 Id., at 2.
3 Hildebrandt, supra at 21
warned of the fatigue factor of people working on the merger who also have to keep running the firm. He also cautioned that the upper tier of a firm is usually clearer on the benefits than the lower tier. This presents communication challenges, because anxiety increases when there is a lack of information. Bachman warned against over promising rosy economic results.

Francis Fee of Morgan, Lewis & Bockius, which has handled numerous acquisitions, stressed the importance of performing due diligence and thorough economic analysis. There has to be a strategic fit.

Brad Hildebrandt, renowned consultant to law firms, had some additional advice for executive directors of merging firms:

- Mergers involve lawyers and clients, not staff.
- There must be a business case for the merger.
- The big issues in mergers are conflicts, culture, and basic values.
- The problem of integrating systems should not be underestimated.
- The balance sheets reveal the philosophy of the firms.
- Mergers are a three-year deal.
- Don’t over-promise by saying there will be no cuts.
- Don’t over-forecast revenues.
- Don’t load up on expenses the first year.

**Economic Pressures**

Sometimes during hardship it is difficult to get team members to work toward the same ends. Internal pressures from partners can pose stresses for legal administrators. Law Office Management & Administration Report surveyed law firm leaders on this issue and published the results in December 2002. One respondent explained, “As profits become more difficult to maintain, lawyers become increasingly difficult to manage.”¹

Partners expect management to maintain profitability. “Firms often use profits per partner to determine how well they are doing.”² Also, while partners may leave many of the management details to their leadership, they often have a difficult time accepting changes made to achieve cost reductions, if they affect services the partners are accustomed to receiving. So the ED and Chief Financial Officer have to find ways to reduce costs, while convincing partners of the benefits. When real estate costs are rising, technology upgrades are necessary but costly, and associate salaries are high the firm can save by reducing support staff and operating expenses.

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Most knowledge management (KM) initiatives in law firms include developing a taxonomy. A taxonomy organizes information into groups or categories that indicate relationships. The purpose of a taxonomy is to order the intellectual assets of a company in such a way that employees can quickly locate useful information. A good taxonomy not only helps manage “what you know”—it also helps you discover what you don’t know.

Developing a taxonomy is a time-consuming, iterative process. It requires patience, persistence, and the right mindset. There are numerous assistive technologies available. Each has its pros and cons, and it is a good idea to evaluate the various tools so that you can select the one that best meets your firm’s needs.

Determining how broad and how deep the organizational categories of the taxonomy should be is not easy, particularly where they overlap. However, developing categories for the taxonomy is only part of the picture. End-user interaction also needs to be considered. You will need a technology that allows users to interact with the taxonomy through a combination of browsing and searching. As a result, it is best to consider the method for developing a taxonomy in conjunction with the technology for using it. You can develop a taxonomy in several ways:

**You Can Build It**

Creating a taxonomy from scratch may sound daunting, but it is a common approach. Many firms already have starter taxonomies built on their intranets, whether they realize it or not. For example, a firm’s document management system (DMS) can lend some useful ideas. You can also get ideas for taxonomy by looking at Web sites for legal research, state and federal courts, law firms, and libraries. You don’t really have to start from scratch.

Building your own taxonomy offers the most flexibility—different practice groups within a firm may want their portion of the taxonomy organized in particular ways. The risk lies in confusing users who need to draw information from multiple areas of the taxonomy. However, there are best practices that allow for flexibility while maintaining consistency in depth and breadth. For instance, you don’t want folders that have only one or two documents in them. If this is the case, it is advisable to move these documents to a broader category. Similarly, you do not want a category that has 100 documents in it. In this case, you may want to consider creating subfolders and dividing the documents into more specific subcategories.
You Can Buy It

Purchasing a taxonomy typically means purchasing a portal or similar system with an embedded legal classification system. Examples include the LexisNexis Portal, powered by Plumtree, SV Technology’s LawPort, and taxonomy and indexing tools developed by Granite & Comfrey Ltd., which is now owned by Tikit Group.

There are also numerous products that automatically generate a taxonomy based on your content. The idea is that you put all of your documents in a single location that the product can “read” and index. Using artificial intelligence algorithms, pattern-matching technologies, phrase and concept extraction, and neural networks, the system then generates a taxonomy based on those documents. Because the technology utilized varies by vendor, outcomes vary as well.

This approach is one of the fastest methods for building a taxonomy. However, people sometimes do not like the taxonomies that these systems build. Although the generated categories may represent the “truth” about what your document body contains, the taxonomy must be meaningful to the users, not the computer. You will probably want to customize any taxonomy you purchase, but at least you will have a starting point.

Vendors specializing in automatic categorization tools and taxonomies include Semio (recently purchased by Entrieva), Autonomy, Inktomi (recently purchased by Quiver), and Verity, to name a few. Software generates a taxonomy by “reading” your content. The resulting directory of folders is intended to be a starting point that should be further refined by a corporate taxonomist.

Semio, for example, uses industry-specific lexical files, a pre-built taxonomy structure, and legal thesauruses to automate the categorization process. By making adjustments to these input files, you can manipulate the result. It is likely you will repeat this adjustment process and rebuild the taxonomy many times before you are completely satisfied with the end product. This provides the human touch that is necessary for a taxonomy to truly work.

The forthcoming release of West km™ (in April 2003) combines multiple automated classification techniques and manual assignment to organize your content into West’s KeySearch™ taxonomies (a hierarchy of legal topics that identifies West key numbers and terms most relevant to your topic and creates a query for you). The KeySearch taxonomies and their associated queries are customizable and allow you to simultaneously locate internal documents from your firm and publicly available information on Westlaw®.

You Can’t Ignore It

Most firms consider a taxonomy to be part of an overall KM strategy. The taxonomy often maps to a larger interface such as an intranet or portal. The majority of taxonomy-building tools work with other Web-based technologies. It is important to find technologies that are modular and open—allowing the greatest flexibility in choosing tools that work best for you. Most vendors work to support this model. The grid below shows some major portal vendors that work with others’ taxonomy, categorization, and search tools.

This table is not meant to contain an exhaustive list of integration partners but demonstrates that a good product is capable of respecting other vendors’ strengths. It also indicates that these companies have a core competency that they are focusing on, rather than trying to be all things to all clients.

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WHAT IS E-Learning?

BY CINDY DIAMOND

The e-learning paradigm provides a new approach to how law firms access knowledge and capture best practices. E-learning systems deliver multimedia learning solutions via a firm’s technology infrastructure, establishing virtual training environments that transcend distance and time constraints. Simply put, e-learning solutions utilize current advances in technology to bring learning to people.

The e-learning market in the United States, starting from zero in 1996, is currently estimated to be worth approximately $1.2 billion. Experts estimate that e-learning expenditures will reach $10-12 billion by 2003, at which time e-learning will become the predominant way companies train their employees.1

In law firms, information technology (IT) departments are implementing e-learning solutions to challenges associated with computer training, help-desk workflow, technology rollouts, and application conversions. International Data Corporation estimates that e-learning’s share of the overall IT training market almost doubled from 4 percent in 1999 to nearly 8 percent in 2000.2

At a recent Webinar (a Web-based seminar) sponsored by LawNet, e-learning consultant Elaine Pomfrey cited technology-training problems as the impetus behind the creation of Littler University at Littler Mendelson. When the law firm realized that only 10 percent of its computer potential was utilized and only three trainers were supporting 30 offices, an e-learning solution was implemented to provide customized learning profiles for each job type.3

Law firms implement e-learning initiatives in other departments as well. In the United Kingdom, Eversheds implemented Eversheds.complete (www.eversheds.com), an e-learning training environment that helps attorneys stay current in various practice areas and offers a framework for external client training.

Similarly, e-learning instruction on legal research applications is a solution to scheduling difficulties associated with traditional library-based training. Amy Wharton, an intranet and professional development librarian at Winston & Strawn, created freestanding training modules on the firm’s intranet. She is also collaborating on the development of Winston & Strawn’s Learning Management System (LMS). An LMS is a comprehensive e-learning software package that can be used to create courses and curriculum, establish personal learning accounts, provide access to training, and track enrollment and scheduling.

Benefits

The most compelling force driving e-learning is cost savings. Eighteen months after implementing Littler University, 40 percent of the firm had enrolled and the firm realized $51,000 in savings. Similarly, Hewlett

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1 Kenneth A. Leeser, Law Firms Increasingly Choose E-Learning to Solve Technology Training Challenges (Oct. 1, 2001) available at http://www.11rx.com. (Click the Archives tab and use the text box to search by author or title.)
4 Savvy Law Firms Still Fight Lawyer and Staff Attrition With Smart Training, Compensation & Benefits (May 2000), at 7.
5 Id.
Packard saved $5.5 million (including travel expenses) when the company switched to online training to train 700 engineers.

Quantitative cost savings associated with e-learning include costs associated with face-to-face instruction—such as compensation, travel, workplace absence, and replacement labor—as well as facility costs. Intangible savings may flow from a better knowledge base among employees, enhanced productivity, and improved job satisfaction. Additional factors such as workplace efficiency and speed of adaptation to changing job requirements have an impact on the bottom line as well.

In addition to providing economic benefits, e-learning offers advantages of flexibility and convenience. These factors can be particularly crucial in law firms, where client work results in scheduling difficulty and last-minute conflicts.

E-learning environments can provide a personalized approach to training. Users can choose their own learning path through various offerings. E-learning modules are self-paced and learners can replay sections as needed.

E-learning can help decrease law firm attrition rates. According to a large-scale 2001 National Association for Law Placement, Inc. (NALP) study titled *Lateral Associates: Why They Leave and What Makes Them Stay*, professional development was the single most important factor affecting job change. Similarly, a 2001 study by The Hay Group titled *The Retention Dilemma: Why Productive Workers Leave and Seven Suggestions for Keeping Them*, suggests that creating career-building training opportunities during the first two years of employment can increase the likelihood that employees will stay with a firm 15 years or more.

Law firms benefit when they use e-learning to preserve best practices and capitalize on knowledge management initiatives. In the traditional classroom approach, the learning environment vanishes with the completion of a training session. In e-learning environments, the insight and know-how communicated in professional development training are captured and can be reused infinitely. In essence, e-learning systems create a repository of expertise with a knowledge base that continues to grow. Firms are guaranteed a consistent set of the most current practices that can be disseminated quickly and efficiently across the firm.

Strategic Approaches

E-learning solutions range from basic systems to comprehensive programs. The simplest systems present traditional online help materials as a demonstrative “show-me.” Employees benefit from this just-in-time knowledge by accessing small chunks of information on a particular topic. A larger curriculum is presented to learners through self-paced multimedia, CD-ROM, or Web-based asynchronous training modules. The most sophisticated e-learning scenario is the synchronous classroom providing collaborative learning in a real-time atmosphere.

E-learning environments offer provisions for various types of learners. Visual learners benefit from colorful e-learning environments containing video and still images. Audio clips enhance the learning experience for aural learners. Kinesthetic learners are among the most successful e-students, because interactive online sessions challenge learners with hands-on applications of new skills. The effectiveness of e-learning depends on the skill with which developers use technology to create appropriate curriculum. The quality of e-learning is in its content.

To determine if e-learning solutions can further a firm’s business goals, a needs assessment and performance analysis are required to clarify several items: the firm’s learning culture, operational areas that may benefit from learning support, required functionality, technology limitations, and budgetary constraints. With clear business objectives in mind, a firm can generate an e-learning strategy tailored to meet the needs of management and—most importantly—end users.

For more information about e-learning consider the following:

Learning Circuits, an online magazine about e-learning published by The American Society for Training & Development (ASTD), is available at www.learningcircuits.org.

Case studies, research reports, in-depth technology articles, and expert columns are available at www.elearningmag.com.

Dr. Margaret Driscoll (professor at the University of Massachusetts in Boston) offers expert advice in her book *Web-Based Training—Creating E-Learning Experiences* (Jossey-Bass), 1998.
The High Cost of Doing Business

At the Glasser seminar, various law firm executives furnished the following examples of what they and their firms have done to decrease overhead:

Lee Miller, co-chairman of Piper Rudnick, LLP, discussed how his firm had achieved a stronger organization by changing from decentralized to centralized management following Piper Marbury’s merger with Rudnick & Wolfe.

Stephen Wells, executive director of Mayer Brown Rowe & Maw, told of reducing nonlegal head count expense (e.g., secretarial, word-processing operations, and office services staff) by 50 percent. This expense accounted for the highest overhead expense at the firm, after real estate and technology.

Abe Isenberg, executive director of Brobeck, Phleger & Harrison, LLP, detailed Brobeck’s well-considered multiyear plan to increase the efficiency of support staff while maintaining the culture and values of the firm. Brobeck reduced head count by 27 percent, while improving secretarial performance with training, team building, technology, and access to information. Secretaries saw their administrative role upgraded in the firm. Experienced floater secretaries were used instead of temporary staff. Even though the overall number of support staff was reduced, Brobeck achieved an increase in productivity and an upgrade in secretarial skills and responsibilities. Brobeck’s plan is a good example of how to make reductions more palatable to partners, lawyers, and support staff.

Lee Ann Black, executive director of Latham & Watkins, LLP, explained how Latham had outsourced their office services department and spent more money on technology to reduce dependence on clerical staff. They replaced old photocopiers with new multifunctional machines that scanned, copied, and faxed documents, and purchased fax servers to channel incoming facsimile copies directly to desktops. These measures reduced dependence on clerical and office services staff. Latham reduced its support-staff-to-attorney ratio, thereby saving $7 million a year.

Douglas Benson of Orrick, Herrington & Sutcliffe, LLP, engineered Orrick’s move of its global operations center from San Francisco to Wheeling, West Virginia. On the West Coast, Orrick had faced recruiting problems (e.g., competing with technology companies), high salaries, and rising real estate costs. The move to West Virginia offered huge savings in salaries and rents, which produced a return on investment in two years, despite the costs associated with severance, recruiting, and the new facility.

Danilo DiPietro, head of Citigroup Private Bank’s Law Firm Group, forecast an excess capacity of attorneys and staff in firms for 2002 that depressed profit margins and made it difficult to maintain the revenue growth that law firms experienced in 2000 and 2001. At the CEO/CFO seminar, DiPietro said that 2002 has seen only modest growth in law firm collections, and the growth has been driven by rate increases rather than new business. Law firm management is finding it difficult to pass along increased costs to clients, especially when clients also face economic pressures.

Models of Success

Beyond managing operations, finance, and technology, and presiding over mergers, what makes for a successful law firm ED? A few of the CEO/CFO forum participants gave the following opinions:

Earle Yaffa, managing director of Skadden, Arps, Slate, Meagher & Flom, LLP, commented that the job of running the technology of a firm is just the bread and butter of an ED. The real challenge is to play a significant role in strategizing where the firm is going. He believes that compensation for the ED should be tied to the results of the firm.

Eric Seller, financial director of Paul Weiss, Rifkin, Wharton & Garrison, LLP, added that the ED must understand the firm’s strengths and weaknesses. The ED must work with the CFO to shape the firm. Seller asked attendees to think about whether they are crisis managers or growth managers.

Aiello Bianca, managing director of Chadbourn & Parke, LLP, stated that the ED could be involved in long-term and strategic issues so long as operations and systems are in place.

Margaret Poster of Willie sees a role for the ED in building a bridge between the professional and support staff. The ED should drive management to make strategic decisions rather than being bogged down in day-to-day roles.

The Bottom Line

The bottom line is that executive directors need to be involved in all levels of their firms—improving organizational structures, integrating units, determining compensation, achieving cost savings, and providing vision for the future direction of the firm. These are difficult tasks even in the best of times. The individuals who spoke at the Glasser LegalWorks seminar provided outstanding examples of success.
As a sociologist and teacher of city and regional planning, Manuel Castells is interested in the Internet as a social phenomenon. According to Castells, networks flourish because their flexibility and adaptability enable them to outperform vertically organized entities such as corporations and bureaucracies.

**A Business Model for the Internet Age**

In Castell’s view, the evolving organizational model for businesses today is the network enterprise. A network enterprise is based on a flat hierarchy, a teamwork system, and open, easy interaction between workers and managers across departments and levels. Businesses and bureaucracies can use the network enterprise model to overcome their historical disadvantage—difficulty in coordinating functions and focusing resources on goals and tasks.

**Markets Without Borders**

The Internet is creating a global, independent, and interconnected financial market that is the key to the new economy. Capital now flows across markets, making regulation by national governments or stock exchanges difficult. International financial movements can originate in any market and spread across national economies. The overall result is a structurally determined increase in market volatility. This systemic volatility brings about the emergence of a new kind of business cycle, with sharp rises and falls of market valuation regardless of the underlying soundness of enterprises.

**Self-Programmable Labor**

In the information economy, labor is more important than ever. There is a premium on “self-programmable labor”—Castell’s term for highly educated workers who are able to take initiatives. Self-programmable workers are able to expand and modify knowledge and skills throughout their careers, since job-specific information quickly becomes obsolete. Such workers are well suited to the flexibility of the network enterprise. The need for flexibility is also affecting employment patterns, as temporary work, part-time positions, and self-employment replace the traditional model of a long career with a single employer.

**Private Space in Cyberspace**

A major battle is shaping up over privacy and liberty in cyberspace. In the United States, the content on the Internet is protected by the First Amendment right to free speech. This has prevented the United States government from directly censoring content on the Internet. However, governments around the world are instituting cooperative policing of the Internet in order to combat cybercrime and assert control over information flow (the latter being the more important motive). To this end, governments secure, identify, and store communications—often using techniques developed by businesses to promote online commercial transactions—and prohibit encryption technologies that citizens could use to protect their privacy. The real danger is that the pervasive gathering of information by governments and companies may result in a completely transparent society, with no privacy, and therefore no liberty.

**The Digital Divide**

In the United States, the “digital divide” between those who have access to computers and the Internet and those who do not is narrowing as computer prices fall and the online world becomes integrated with work...
and school. However, the children of better-educated, more affluent parents continue to have more exposure to advanced technology. For example, a new gap is emerging around access to high-speed broadband, which will be required for numerous important services.

In many other countries, the Internet is developing in ways that create a deeper digital divide. While key urban centers, globalized sectors of the economy, and privileged societal groups are networked into the online world, less developed regions and less privileged people are marginalized. Crucial infrastructure is located primarily in countries with strong economies. Dedicated systems are being built, but only for preferred clients (i.e., those who can pay). Internet service providers and content providers are similarly concentrated, and as a result the information and services available online may not be as responsive as they could be to the needs and interests of the rest of the world. It’s interesting to note that income inequality, societal polarization, social isolation, and poverty have not yet diminished as use of the Internet has spread.

The Network Society
Castells fears that many countries lack the responsive social and political institutions and widely distributed educational resources that offer the best hope for adapting to changes that are coming at Internet speed. He points out that “the new model of development requires leap-frogging over the planetary digital divide ... It is in the shared interest of humankind that such a model emerges while there is still time.” (p. 271). He concludes by stating that “as long as you want to live in society ... you will have to deal with the network society.” (p. 282).