

# INPUT<sup>®</sup>

# Research Bulletin

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A Publication from INPUT's U.S. Information Services Market Analysis Program

## Telecommunications The IT Career Path of the Future? An INPUT Commentary

In recent years, a popular song warned, "Mothers, Don't Let Your Sons Grow Up To Be Cowboys"—an admonition that herding cattle was a dead-end career. Today, the song title might be changed to add, "...Tell Your Sons and Daughters To Be Telecommunications Experts Instead!" The changes in title and lyrics are not subtle. First, remove sexist references. Second, don't just warn of a futureless career, but also offer a viable alternative. And what an alternative it is.

### The Telecommunications Industry

In INPUT's September 1993 report on the U.S. market for telecommunications services (*Telecommunications—Information Services Opportunities & Trends, 1993-1998*), several key observations were offered:

- The telecommunications industry is entering a period of significant readjustment as the telephone and cable industries converge.
- The demand for (telecommunications) services, coupled with the growth of competition, will place strains upon the capabilities of internal information systems departments.

- Within the next three-year period, even greater opportunities will emerge in competitive local network applications, and systems and network integration. These will result from the efforts of Congress and federal, state and local regulatory bodies to disentangle the issues between local and long-distance carriers.

As a result of the growing demand for telecommunications skills, capabilities and services, the demand and expenditures for information services in the telecommunications market sector is forecast by INPUT to grow at a compound annual growth rate (CAGR) of 17% from 1993 to 1998. This growth rate is the highest of any of the 15 market sectors tracked by INPUT, and five points higher than the U.S. average growth of 12%.

Network services, one of eight information services delivery modes tracked by INPUT, is also expected to grow at a 17% CAGR and, as with the growth in the telecommunications market sector (versus other U.S. industry groupings), this growth rate is the highest of all eight delivery modes.

Where there is growth, there is opportunity.

## What Do You Want to Be When You Grow Up?

All children have heard this question. In their early years, the answer is "a cowboy or a princess." Later, sports and entertainment figures are popular choices. However, when the practical realities of earning a living can no longer be ignored, doctors, engineers and market researchers become logical choices.

INPUT suggests that telecommunications expert or specialist should now be added to the list of desirable careers.

The world of communications is changing, and as noted in INPUT's recent MAP Research Bulletin, *The Bell Atlantic/TCI Merger—The New Telecommunications Paradigm?*, the growing business and consumer demand for access to communications resources is forcing regulatory changes at all levels—federal, state and local. These changes, in turn, are allowing telecommunications service providers greater freedom to compete, while business will benefit by having more telecommunications options from which to choose.

More services offered by providers, such as the RBOCs and cable companies, mean more jobs for those with the skills to conceive, design, implement and market both basic and enhanced communications offerings. More service or technical options for users will require more in-house skills to evaluate, select and implement such options. And for those who provide communications-based software and hardware products, there will be a growing demand for the telecommunications skills needed to develop and sell such products.

In short, telecommunications skills of all types will be needed in this decade and beyond, and those skills are in short supply.

## Climbing on the Electronic Superhighway Bandwagon

Bill Clinton and Al Gore were elected to the nation's top executive jobs in 1992. Although

the economic slowdown and health care costs were the most visible issues in their campaign, another topic has gained the attention of the business community in the last year—the electronic superhighway.

There are questions of precisely what it is (a 500-channel conduit for television programming?) and who will pay for it (the proposed government investment is only a fraction of what will be required to make this capability a reality), but these are issues that will be resolved, because both the business community and the consumer population need it and want it. Equally important, the regulatory climate will allow it, and technology can deliver it. Cost and the timetable for implementation will remain the most significant issues, but they *will* be resolved, because the time for such a resource has arrived, and the economic, functional and competitive advantages (in the worldwide market) are simply too significant to ignore.

## The Winds of Change

Telecommunications change, both conceptual and technological, is occurring at many levels. Examples of this change include:

- The growing acceptance of the electronic superhighway as a necessary national resource
- The increasing importance of international telecommunications, as domestic and foreign cost-effective, reliable and far-reaching communications resources expand to serve the growing global marketplace
- The emphasis on LAN-, WAN-, MAN- or network-based client/server applications as pragmatic solutions to corporate downsizing efforts
- The fact that many economists and businessmen recognize and accept the possibility that, long term, U.S. employment may never return to previous levels and many

functions (e.g., programming) may be relegated to distributed cottage industries linked by networks

- The implications that the convergence of telecommunications providers, such as Bell Atlantic and TCI and Time-Warner and U S West, will provide new and expanded services, and offer users (at all levels) a choice!
- The rapid pace of technological change, which is shortening the delay between concept and availability and pushing the horizons of telecommunications capability farther and farther out

What do such changes mean to people choosing a career path, or those considering a change in career direction?

### Telecommunications Demand and Individual Opportunity

Market demand, the political and regulatory climate, and technology are all converging to elevate to a higher level the perception of value for telecommunications skills. In the past, the supply of such skills was limited, and there were few institutions with formal programs to produce academically trained graduates to enter this market. Most telecommunications skills came from experience. Most people who acquired this experience usually started with an engineering (electrical) or scientific degree or no degree at all. Businesses did not typically provide internal training to create telecom specialists because the training was too specialized and usually removed from the business' core activities.

But times are changing, and now that most colleges and universities have added telecommunications courses to computer science and engineering department curricula,

and 20 institutions offer Master's degrees in telecommunications, the number of telecommunications-trained professionals will slowly increase, as happened with computer programmers in the 1970s when computer science courses were first offered.

The market for such skills will include businesses and service providers such as the RBOCs, cable companies and long-distance carriers such as AT&T and MCI. These entities will continue to consume entry-level professionals and, through the natural progression of experience and training, produce qualified experts. The same holds true for Bellcore, IBM and other basic research or manufacturing groups.

The business community, service providers and technology developers will all have need of telecommunications skills in the 1990s. If an individual is looking for opportunity, the telecommunications industry is a good place to start.

Information services users and vendors (including outsourcers, systems integration firms and consultants) planning to take full advantage of the application delivery alternatives offered by the growing spectrum of telecommunications capabilities should not delay in adding or obtaining the requisite telecommunications skills. These skills are in short supply, a condition that INPUT expects will continue for the next five to ten years.

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This Research Bulletin is issued as part of INPUT's Information Services Market Analysis Program. If you have questions or comments on this bulletin, please call your local INPUT organization or Robert L. Goodwin at INPUT, 1881 Landings Drive, Mountain View, CA 94043-0848, (415) 961-3300.

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