

# **THE INFORMATION WEAPON**

**Winning  
Customers  
And  
Markets  
With  
Technology**

**William R. Synnott**

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Winning Customers and  
Markets with Technology

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**WILLIAM R. SYNNOTT**

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# THE INFORMATION WEAPON

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*To Mark and Amy*

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# PREFACE

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A profound change is occurring in the business world; the competitive power of technology has been discovered! After 25 years of relegating computers and information technology to the back office as a cost cutting productivity tool, the business community has discovered that technology has an exciting untapped potential as a competitive force in the marketplace. Leading companies such as Citicorp, American Express, American Hospital Supply, Sears Roebuck, Merrill Lynch, American Airlines, and others are gaining a significant competitive advantage through smarter use of their information resources. How these and other excellent companies are turning technology to competitive advantage has become an issue of considerable interest to business and information managers alike.

This book addresses this new and exciting trend by looking at how successful companies are using information technology as a competitive weapon, what new strategic planning methodologies are working for them, and what management initiatives are needed to put a firm's information resources to work successfully in today's information society.

In most companies, a huge gap between corporate strategy and information technology strategy prevents the vision of competitive technology from being realized. This book was written to help bridge this gap. It shows how leaders in the leading edge companies are sharing the vision of information technology as a competitive weapon and are seizing the opportunity to put their information resources to work innovatively to beat the competition. They are doing it through strategic planning that truly integrates business and information technology planning, through technology architecture that assures a responsive and supportive technology infrastructure, and as technological engines of change. These four forces—*vision, strategy, architecture, change*—combine to create *the information weapon*.

**Vision.** The vision of information resources as a competitive force is the primary requisite for gaining competitive advantage through technology. Part I discusses the transformation occurring today in information resource management and the new role of the chief information officer (CIO), working closely with top management, to achieve the information weapon vision.

**Strategy.** Corporate and information systems strategy must be effectively merged if the vision of competition through technology is to be achieved. Part II examines strategic planning methodologies and also reviews a powerful competitive planning model useful in the continuing search for innovative information weapons. A number of case examples and strategies provide insight to how leading firms are using technological innovation, new information services, and productivity strategies to gain advantage in the marketplace.

**Architecture.** Part III zeroes in on the difficult and complex problem of ensuring a responsive and facilitating technology infrastructure in the face of the increasing decentralization of information resources. Just as the CIO needs to be involved in strategic business planning, the chief executive officer (CEO) needs to provide direction and support to technology architecture. An architectural framework is described to drive architectural planning to assure a consistent and coordinated technical foundation capable of responding quickly to business needs and competitive initiatives.

**Change.** Change must be added to death and taxes as inviolate certainties. Nowhere is this more true than in technology. Technology is one of the most potent forces of change in business today. Yet, it has only scratched the surface. In the next decade, we will see technology move into the mainstream of business as this maturing industry slowly but inexorably transfers from control of the technocrats into the hands of business managers. Part IV suggests four major engines of change that are impacting the business landscape today, changes that can be channeled into opportunity by alert change agents who share the information weapon vision.

This book is not a technical treatise, it is a *management* book. It deals with the application of information technology from a management perspective, equally useful to CEOs and CIOs and to anyone bent on using technology as a growth and profitability lever. If only one or two ideas result in furthering this goal for the reader, then this exercise will have been well spent.

Finally, my thanks to the friends and colleagues who contributed to the ideas and strategies used in this book; to the careful typing of the manuscript by my secretary, Joyce FitzGerald-Galloway, to the able guidance and

editing of John Mahaney and the staff at John Wiley & Sons, and to my wife Suzanne whose patience tolerated the weekend retreats and early morning writing that led to this work.

W. R. SYNNOTT

*Wellesley Hills, Massachusetts  
March 1987*



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**PART I**

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**INFORMATION RESOURCE  
MANAGEMENT**

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# THE INFORMATION WEAPON

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The information society is an economic reality,  
not an intellectual abstraction.

JOHN NAISBITT (1)

The information age is upon us. The first “megatrend” reported in Naisbitt’s book of the same name was, in fact, the change from an industrial to an information society. According to Index Systems, a management consulting firm: “The transition from the industrial era to the information era is evident by looking at the shifting numbers of workers from the farm (now 3% of the workforce), to the factory (now 12%), to the office (now 65%)” (2).

There is no question that we are no longer an industrial society; we are an information society, and one that is growing rapidly. In 1985 the information industry made up 3.3% of the Gross National Product (about as much as the auto industry). It has been predicted that in 1995 the information industry will constitute 6% of the Gross National Product, making it the largest industry in the world. Moreover, data processing and communications, a \$300 billion industry today, is expected to reach \$1 trillion by the early 1990s.

What does all this mean to business? The information society is having a profound impact on business and competition. The need for information has created an unparalleled growth in the demand for information systems and technology to support business and customer services. A great wave of information technology and electronic delivery of services is engulfing the business world and bringing new meaning to *winning customers and markets with technology*. Consider these developments:

- *Customer Terminals*. In the 1970s, employees were put online; in the 1980s, customers are going online. The trend to put terminals in customer spaces is accelerating. When American Hospital Supply (3) first put terminals into their customers’ spaces (in this case, hospitals) in 1978, it was basically a ploy aimed at moving their back-shop opera-

tions to the customer; in other words, it was a cost-cutting strategy. However, by doing their own order entry, the hospitals soon found they could lower expensive inventory costs. The more they used the system, the greater the savings and likelihood of expanded use. As a result American Hospital Supply's sales soared as their competition became "locked out" of the hospital supply business. What started as a cost-cutting measure became a powerful new *information weapon*, so powerful, in fact, that American Hospital Supply was sued by their competition for unfair advantage. Competitive advantage is obvious when the competition sues.

Since then hundreds of companies have turned to the competitive strategy of putting terminals in customer spaces. Banks have terminals on midtown and business district street corners; retailers put terminals in stores as sales aids; the airlines even put terminals in their competitors' locations. *Customer terminals* have become one of the most potent competitive strategies of the information age.

- *Electronic Data Interchange*. In 1984 General Motors instructed their suppliers to install terminals to conduct their business with GM electronically or face the prospect of losing future business (4). All four major U. S. automakers (GM, Ford, American Motors, and Chrysler) have since notified suppliers of their intention to fully implement an electronic data interchange (EDI) network. The suppliers have overwhelmingly gone along. The EDI network today is putting intercompany transactions online, linking suppliers, manufacturers, distributors, and retailers in an "electronic chain" that eliminates paper processing and speeds up business transactions. More and more, players in the chain do not have a choice. They either go online or lose the business to their competitors who do so.
- *Electronic Funds Transfer*. The Sears *Discover* card, introduced in 1985, has already become one of the largest money-card systems in this country. Not only is it accepted on bank automated teller machine (ATM) networks throughout the country, but major national companies such as American Airlines, Holiday Inns, Budget Rent-A-Car, and Hospital Corporation of America extend discounts of 20–50% to Discover cardholders (5).

Businesses (e.g., Sears, American Express, and Merrill Lynch) have discovered that the movement of money electronically can be done by anyone, not just banks. As a result, a whole new financial services industry has emerged, which is almost entirely focused on the use of "electronic" money. Debit and credit cards can be used to obtain cash and conduct financial transactions at automated teller machines and point-of-sale (POS) terminals everywhere. And almost all of the major U. S. banks are competing fiercely today to sell their cash management services to corporate customers via personal computers (PCs)

located in the corporate Treasurer's offices. Dozens of pilot tests of "home banking" (banking from home over a PC) are under way all around the country. The bulk of all money movement in the United States today is not by cash or check, but by electronic transfer, and every indication is that this trend will continue in the rapidly growing service economy.

What these developments have in common is *electronic delivery*. As the use of communications networks and terminals grows and computers become ubiquitous, it will be the electronic delivery systems that serve the information age, provide competitive force, and create major changes in the way business is conducted, managers manage, and products and services are sold. In a recent issue of the *Harvard Business School Bulletin*, Nancy O. Perry summed it up well:

. . . IS [Information Systems] now touches every business activity of a company offering a product or service—from conceptualization, design, and production, to marketing, distribution and support. As a result: IS has become a critical component of corporate strategy planning and competitive advantage. (6)

Information systems, or information technology (IT), as it is referred to in this book, is truly a competitive force—an *information weapon*—that is opening up new ways of doing things better, faster, and cheaper. The firms that are able to grasp and exploit these new information technologies will excel and lead the competition as we move into the 1990s.

## THE SERVICE INDUSTRIES

As noted, fully two-thirds of the U. S. population is now engaged in information services of one kind or another. The information sector is huge. It includes government, education, health and medicine, financial services (banking, insurance, brokerage), transportation, entertainment, travel and leisure, information, management, professionals (doctors, lawyers, accountants, engineers), and so on. Because IT tends to be applied heavily to the services sector (government and the financial services industry are the largest users of information technology), this book focuses primarily on the service industries. Also, because this author's background and experiences are in banking, the reader may find a liberal number of allusions to banking examples. This is not to suggest that manufacturing and other industries cannot benefit from the information weapon; on the contrary, we are seeing increasing growth in computer-integrated manufacturing (CIM), the imbedding of information services within manufacturers' prod-

ucts, and the increasing use of communications networks by multinational corporations to promote global markets. But the phenomenal growth in the services sector is driving the increased need for information services. *Nation's Business* recently reported the following statistics on growth:

- Services now account for nearly 70 percent of the gross national product.
- Of 25 million jobs created since 1970, 22 million, or 88 percent, were in the services sector.
- Nine out of 10 jobs created between now and 1995 are expected to be in services.
- The service sector is given principal credit for pulling the nation out of the 1982–83 recession, the worst economic downturn since the 1930s depression. (7)

The service industries' rapid growth has resulted in a tremendous need to move information, transactions, and money in an accurate and expeditious manner, thus fanning the growth of electronic delivery and information systems. As we seek new ways to develop and implement these information weapons, we need to focus on the transformation that occurred as we moved from an industrial to an information society.

Dr. Stanley Davis of Stanley M. Davis Associates (Brookline, Massachusetts) provides a useful model for thinking about product/services planning in a service-oriented information society (8). Dr. Davis suggests that in an industrial economy we strive to produce standardized goods for mass markets (e.g., Ford's mass-produced black passenger automobile of the 1930s), whereas in a service economy, the focus shifts to the development of customized services for mass markets (e.g., PC spreadsheet programs that can be tailored to a wide variety of users). Davis's model compares the differences in these two economies in terms of four dimensions: scale, time, mass, and space (see Figure 1.1). An industrial economy typically looks for economy-of-scale (EOS), involves long lead times, deals in tangible goods, and is bounded (by the factory, the home, or the office). A service economy seeks flexible scale (serving both large and small simultaneously, i.e., EOS at the individual level) and fast turnaround time, deals in intangible services, and is unbounded (electronic delivery, for example, has no bounded space).

From a technological perspective, the Computer Era of the past was characterized by centralized processing (scale), traditional project life cycles were long (time), the focus was on hardware (mass), and physical delivery was bounded [e.g., stores (space)]. The Information Era of the future will see processing decentralized (scale), systems development automated to effect fast turnaround (time), a focus on less tangible software

|       | Industrial Economy | Service Economy |
|-------|--------------------|-----------------|
| Scale | EOS                | Flexible        |
| Time  | Lagtime            | Realtime        |
| Mass  | Tangible           | Intangible      |
| Space | Bounded            | Unbounded       |

*Figure 1.1. The Davis model. Adapted from Stanley M. Davis, 2001: Management, forthcoming, 1986 Stanley M. Davis Associates, Boston, Massachusetts.*

and information “assets” (mass), and unbounded services [e.g., electronic delivery (space)]. A case in point is the trend toward “electronic” banking today. Electronic banking aims to provide customized services through self-service banking, for a mass market that is serviced individually and distributed globally through distance-insensitive electronics. It serves consumers and corporations alike (scale), online service is instantaneous (time), it deals in intangible services (mass), and it delivers the bank to the consumer (space).

Davis’s model thus provides a useful way to think about forging new information products and services that fit an information economy.

To business, the rapid gains in technology offer opportunities for innovating new technology-driven services; lowering production costs, thereby leading to lower prices; and utilizing new electronic delivery systems that provide a competitive edge. The explosion in end-user computing is providing management with information access and use never before possible. There is belated recognition that global communications networks offer opportunities to break into new worldwide markets. The enormous power of technology as a strategic weapon is just beginning to dawn on most senior managers. Information technology (IT) is still a baffling phenomenon for those who are being overtaken by the tidal wave of technological change. Many have tried to avoid these changes, because their experience is rooted in a different time, an age of intuitive-based management rather than the research-based management style of the information age. But technology is here, like it or not, and businesses will be information-driven in the future, giving rise to major cultural, political, and structural changes in the organization.



## THE INFORMATION ERA

Information managers are also feeling the impact of the transformation to the information society. Consider these trends:

- Data processing (DP) is rapidly changing from centralized data-center management to decentralized computing with the trend toward multiple data centers, business-unit data processing, and distributed minicomputers and microcomputers spreading across the organization.
- Traditional systems development life cycles are being made obsolete by the new fourth (and fifth) generation languages and tools which speed up development and information access and allow users to “do-it-themselves.”
- The need to link distributed information resources is making communications and data management the chief challenge of information managers, rather than the management of computers and systems as in the past.
- The old-style DP manager is being replaced by a new breed of senior information executive, the Chief Information Officer (CIO), who understands both business and technology and, operating at an executive policy level, can effectively integrate the two for greater business growth and profitability.

The metamorphosis from the Computer Era of the 1960s and 1970s to the Information Era of the 1980s and 1990s, as shown in Figure 1.2, represents profound and permanent changes in the way technology serves business, in the business manager’s involvement with IT, and in the role of the information manager within the business.

In the Computer Era, technology served the business as a back-office productivity tool by automating clerical processes and saving jobs, and performing record-keeping and accounting chores faster and more accurately; in other words, it generally attacked the cost side of the business. In the Information Era, technology will continue to do that but, in addition, will be used more creatively and innovatively to invent new information services and products designed to attack the *revenue* side of the house.

In the Computer Era, the business manager’s information needs were served through batch processing. Transactions were processed overnight and detailed reports were printed daily and distributed to managers. Since DP managers did not know what information would be needed, they simply printed it all. Managers’ needs were never served by this “information overload.” In the Information Era, managers selectively access the