

# Chapter 1

## The Shifting Sands of the Information Industry

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### ABSTRACT

*This chapter examines the shift from the industrial age to the current “information age” by looking closely at the history of the electronic information industry since the 1970s, with special focus on key individuals and companies. Early pioneers developed remotely accessible database search systems and marketed them commercially. The advent of high-capacity storage media and personal computers in the 1980s made it possible for individual consumers to use databases, and in the 1990s, networking capabilities further supported the emergence of the Internet. Web portals developed, and a handful of companies successfully commoditized Web content. The 2000s were dominated by a move from general search engines to value-added “apps,” as well as by social networking, multimedia technology, and mobile consumer electronics. Throughout, the chapter highlights commonalities among the successful companies that have contributed to the strong and rapid growth of the industry as a whole.*

### INTRODUCTION

We often hear that we live in the “information age,” but what does this really mean? Simply put, it means that information is the most valuable actively traded commodity. Consider that in the Stone Age, civilization advanced largely along paths governed by the technological development of stone-working and basic tools. Bronze Age civilization developed similarly, such that even geopolitical boundaries were determined by the extent to which one could control, process, and commoditize bronze. As mentioned in the preface, cinnamon offers an excellent example of how value can be created around a unique good by controlling either its production or its distribution.

As a society, we are just coming out of the industrial age that began with the Rockefellers and Carnegies of the 1910s and 20s. These captains of industry changed the way the world works by running and structuring their businesses in innovative ways, setting industrial and manufacturing benchmarks that earned the United States its reputation as a superpower. Today, however, we see venerable manufacturing

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companies struggling to stay solvent in a changing economic landscape while the upstarts, information commoditization specialists such as Google, Apple, and Microsoft, are thriving. Information is the central resource and value proposition of our time.

Everyone in today's society is connected by the Internet, whether in their home, on their phones, or through public institutions. People use the Internet to network with friends, hold business meetings, and write their PhD dissertations. Many even use it to support their families. According to polls conducted annually by groups such as MIT and the Miniwatts Marketing Group, more than two-thirds of the world's population is now online. With this technology being so ubiquitous, it is no wonder that we commonly call this the information age (Miniwatts Marketing Group, 2010).

But how did we get from the industrial age of the twentieth century to this information-centered state so quickly and dramatically? How is it that information retrieval became one of the most important and lucrative industries in the history of the world? The answer lies in the subtle evolution of the information industry since the 1970s. The following timeline shows how information became increasingly commoditized as new industrial and technological advancements improved the ways in which it could be controlled, catalogued, and disseminated to end users (see Table 1).

In the 1970s, the industry largely consisted of coordinated attempts to overcome the difficulties of cataloging, indexing, and searching large archives of paper or physical material. The natural response was to digitize information and make it accessible through computer-assisted searching: information retrieval in its purest form. In the 1980s, this evolved into databases run on local computers with the aid of large storage capacities on CD-ROM. The push towards networking and interconnectivity, however, was unstoppable, and the 1990s found the emphasis placed upon the development of user-friendly search engines (see Figure 1).

The above graph indicates an overall trend spanning decades: the electronic information industry, which began creating value by organizing large databases and evolved to develop new and innovative ways to search those databases, has become more about offering services directly to the user in the form of specific applications. Consider that the user in the 1970s would use his or her terminal to

*Table 1. Timeline: Evolution of the electronic information industry*

	Digital Press	Online Databases	CD ROM Systems	Internet Portals	Social Networking/ Mobile Computing
	Pre 1968	1968-1985	1985-1993	1993-2000	2000-Present
Major Players	University databases, Publishers' catalogues	Dialog (Lockheed), ORBIT (SDC)	Philips, Microsoft (Encarta), SilverPlatter	Google, Yahoo!, Altavista	Google, Apple, Facebook
Technologies	Paper records, Logical indexing systems (Dewey Decimal &c.)	Electronic databases, Network access, Software-based database searching	CD-ROM hardcopies of electronic databases	Widely available internet access, search engine technology	Mobile computing
Services Offered	Mail-order research, Paper database catalogues	Subscription-based electronic database access and search	Ability to access databases on personal computers	Focus on relevant search results, Indexing "entire" Internet, Web services (email)	Value-added services, Specific "apps" for specialized information retrieval

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