

# How technology has changed business



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Where did this Internet revolution come from? It seems to have crept up and smacked us right between the eyes. When did all this Internet stuff really begin? How long has it been since those gee-whiz articles about the Internet started popping up everywhere In magazines, newspapers and on TV? When surfing went beyond something that was done outdoors In a bathing hut? Fast forward to today. The Internet Is now the central tool of the Information Age.

Every company and every industry in the marketplace understands the critical importance of establishing an online presence. Today, business completed over the Internet has become far more lucrative than the combined value of traditional transactions for the oil and steel industries. Internet commerce is growing so quickly that it's plainly only a matter of time before it becomes one of the world's largest economic sectors. The Internet as a full-blown commercial medium has already arrived, and will undoubtedly be the driving force for many aspects of our lives In the 21st century.

When Did This All Start? It's simple. Although personal computers and telecommunications ceased to be a novelty In the late 1970s, It was only with the introduction of the first Web browser to the Internet in 1995 that things really began to take off. This new software greatly facilitated access by the average person to the huge volume of available information and services on the World Wide Web. At the same time, advances in hardware were facilitating the marriage of computers, communications systems and multimedia.

Bingo – overnight everyone had the capacity to be digitally wired together through combined audio, graphics and video miscommunication services and access to email and information networks. On the human landscape, the arrival of the Information Age is best represented by the emergence of Bill Gates as the most successful businessperson in the history of world. Only an Information Age could transform a 19 year-old university dropout obsessed with computer software into a middle-aged adult worth more than 100 billion dollars in less than 25 years.

Our Changing World In our old paper-based world, there were approximately 500, 000 words in the English language-roughly the number of words that appeared in the arrest dictionary. But in the electronic-based world, we have a truer measure of the number of actual words used by people today – about 10 billion words according to author Paul Glistler! Search engines such as AltaVista employ information robots to scan Web sites to compile a single index of all the words accessible in electronic form on the Internet.

AltaVista list comprises about 10 billion different keywords. Incredibly, all of the references to any one of these words is available on the Internet almost instantaneously, and at virtually no cost. The search for any single word may yield a just a few seconds! Being connected globally, you now have complete access to enormous indexes at Warp speed without ever having to be on the deck of the Starship Enterprise. Not long ago, if you drove to a major library that contained a few million volumes, you might have time to scan through the indexes of a dozen or so books.

And although each book may have contained two or three hundred thousand words, each index would list only a few hundred. You might turn up a few dozen hits in a few hours of research. The same search on the Internet could dredge up literally millions of references in a matter of seconds. As a result, the Information Age brings with it a whole new set of challenges, not the least of which is an overwhelming amount of information- what we like to call Informal. Futurist Richard Saul Warrant estimates that because of information systems, more than 1.3 trillion new documents are produced each year in the US alone.

The ever-decreasing costs of producing new documents has created a raging torrent of information. Add to this equation that every day, it's estimated that more than eight billion email messages are sent in the US alone. As a direct result of the emergence of information systems, the Internet, and other advances in electronic communications, there has been more new information produced in the last 10 years than in the previous 10,000. Education is Playing Catch-up While the Internet has energized business, education is still struggling to find effective ways to integrate online access into curricula.

While there are many exciting examples of the educational uses of Internet resources, to date the general effect has been minimal for most American students. Much of the problem lies in the fact that the fundamental structure of the Internet clashes with traditional classroom practices. For example, the emergence of an ever-changing, almost organic, information source makes most textbooks obsolete before they are printed. In fact, the Internet and its

World Wide Web have fundamentally redefined the manner in which information is presented.

Overnight, we have gone from the linear, logical, text-based presentation of information, to interactive documents that contain various combinations of text, graphics, sound and motion video that can be accessed in a non-linear manner. Instead of changing traditional educational practices to find new ways to work with, ND take advantage of this new medium, many educators have simply tried to accommodate the emergence of the Internet without changing their traditional instructional practices. Such an approach greatly underestimates the impact that the Information Age will inevitably bring to education.

The Amazing Power of the Internet For most of recorded history, information could only be conveyed over a distance, by a messenger physically traveling that distance. Slow and difficult, or even impossible. In the past century many advances have been made in our communications infrastructures. Despite significant advances in research (reading, data collection), in communications (telephone, radio, TV) and in publishing (books, magazines, newspapers), each of these has remained a very separate aspect of information processing and delivery.

Until recently, each of these media used different technologies to communicate with their audiences. All this has changed. For the first time in history, the Internet has brought the convergence of powerful research, communication, and publishing tools right into businesses, schools and even the homes of ordinary people. Overcoming the Obstacles to Using the

Internet However, there is a problem. The capabilities of the Internet are so new and unique, it's difficult to understand, let alone utilize the full potential of this powerful new three-in-one medium. As educators, we face two major challenges: 1.

Developing mastery of basic information literacy skills so that users are fluent in the new online medium; 2. Creating a viable educational context for integrating online resources and activities into effective instructional practices. Mastery of Basic Information Literacy Skills New information technologies demand a monumentally different approach to teaching, learning and the delivery of curriculum. As an example, suppose a student is asked to write a 500-word essay. If the student has no access to information technologies, writing this essay might involve reading and blending information from two or three sources.

New technologies such as the Internet give students access to literally millions of documents. Working through this much material and reducing the information to a 500-word essay requires a different set of thinking skills. The essence of information literacy encompasses such processes as clarifying the ask; locating appropriate materials; making decisions related to their authenticity; organizing the ideas; using the information to address real life issues; and then evaluating what has been produced.

Creating an Educational Context A well-developed understanding of how to effectively use Internet resources within an educational context has not yet emerged. This is hardly surprising given the speed at which information technologies are evolving. It's time for educators to come together to

carefully consider how, where and when the use of this powerful tool can be systematically taught and effectively used to enhance the teaching and learning process. There are online resources for virtually every curriculum area.

These can provide students with the opportunity to thoughtfully examine a wide range of information and then apply what has been learned to real time projects, products and powerful means for augmenting student learning experiences. The “ Net” Effect on Education Given the range of resources and the possibilities available, it’s easy to understand why many educators believe that access to the Internet can have a profound and positive impact upon education.

In reality, however, despite sincere efforts to introduce and integrate computer-based technology and Internet access into classroom practices, several recent surveys indicate there has been surprisingly little Net effect upon student learning. As the Information Age penetrates deeper into our lives, affecting each of us in a variety of tangible and intangible ways, many old questions about education and literacy need to be revisited. While we used to talk about what it meant to be literate or illiterate, we now need to also ask what does it mean to be informational literate in the Information Age?

What are the skills that a person needs to process the huge amount of available data? What are the skills and competencies that more and more employers are looking for in new employees today? If our schools are still at least partly geared to the Industrial Age, how deep does their irrelevancy

reach? What aspects of schools and learning need to be changed so that 5 or 10 years from now all of our students are informational literate and possess skills relevant to the ever- changing marketplace?