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EDITORIAL

Information overload

We live in an age of information. There is so much information available that it is sometimes difficult to decide what to do with it. Information technology (sometimes even labelled as science), informatics, knowledge economies and knowledge-based industries are popular phrases, frequently found in speeches and articles that exhort us to face the challenges of the new millennium. While information and knowledge have always been central to most human activity, there is a heightened perception now that information is the key to success in diverse spheres, ranging from commerce to science. The information revolution is, of course, powered by the advances in computer and communication technologies, most dramatically exemplified by the prodigious growth of the Internet. The surfeit of information available, literally at one's fingertips (the click of the mouse may soon be the most easily recognizable sound), is particularly affecting the way science is practised. The days of a leisurely stroll to the library to glance through a week's supply of journals appears to be over; there are simply too many journals in every discipline and even the richest libraries cannot afford to subscribe to all of them. In the unlikely event that a library did stock up its shelves, it would be a foolhardy individual who could suppose that all the printed material, even in a relatively circumscribed area, could be digested by even the most determined reader.

The remarkable expansion of the Internet and long distance access to journals and websites, that provide digests, have transformed the way scientists search for useful information. Leading journals like *Science* now have dedicated 'web watch' pages, which highlight the most useful websites in specific areas. Libraries are increasingly going 'digital' and even 'virtual'. The PubMed initiative spearheaded by the National Institutes of Health in the United States and the alternatives being considered by a consortium of commercial publishers will provide unparalleled electronic access to journals. The issue of who will pay for journals which are freely accessible on the Internet is unclear, but there is little doubt that new paradigms in scientific publishing are emerging.

The generation gap in the area of information gathering is clearly visible in our institutions. The old timers prefer the printed word, which appears at a comfortably slow pace in our libraries; the new generation is more computer-savvy and quick to download the latest offerings from the Internet. Traditionally, libraries housed much of the information that researchers and others needed; librarians were the sole custodians of the books and journals in their charge. The scholarly librarian is an endangered species today, replaced by a new breed of 'information scientists'. This poorly defined term encompasses those who practise scientometrics, database managers and various shades of analysts, who track the course of science and technology. The decline of libraries and the disappearance of the classical librarian have coincided with the spectacular progress in storing and transmitting information electronically. Today, it is becoming common in the developed world, and even in some of our well-wired institutions to access databases and libraries across the globe in a matter of minutes (if not seconds). This ability provides researchers with access to information, which would have been difficult to imagine even a few years ago. Irrespective of the mode of acquiring information, the traditional library or the Internet, there seems to be an uncomfortable glut of knowledge.

There is, however, a growing problem as the amount of information on diverse subjects increases. It is becoming difficult to filter the useful from the useless; the accurate from the inaccurate and the reliable from the unreliable. The traditional whetting of research results by conventional peer review procedures may soon give way (as it already has in some fields) to electronic bulletin boards, where papers are displayed without any editorial interference. One unintended consequence of the growth of this unfettered mode of electronic publishing is that there may be a gradual decrease in the impact of the ubiquitous 'impact factor'. The consequences for the sociology of science will undoubtedly be interesting.

In India, the information industry has suddenly grown; there is even a Ministry for Information Technology.

There has been a sudden spurt in the number of institutions devoted to spreading the new gospel. Magnificently endowed, Indian Institutes of Information Technology (tantalizingly abbreviated as IIITs) are springing up, which will undoubtedly attract hordes of students, who will presumably be trained in a discipline, whose content and contours are still unclear. Even established institutes of science and technology have been quick to jump on to the information bandwagon: sometimes relabelling old programs to invest them with a new aura. To the casual observer, a degree in 'information technology' provides an entry to some of the most successful industries of recent times. The importance of information is undeniable. Few will argue against the virtues of an expanded knowledge base. However, the growing crescendo of drum beating in agencies concerned with the 'information sector', will lead many to conclude that 'information' is the key to many of our problems. Marie Antoinette upon hearing of the restive Parisian mobs in the run up to the French revolution is reported to have remarked—'if they cannot have bread, let them have cake'. Those spearheading the information technology upsurge would appear to be offering information.

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