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Preface to the fifth edition

The first edition of this book was written and published in 1994, and a second revised edition appeared in 1998. Two years later, there was a third edition at the beginning of a new century, once again taking account of new developments and rapid change. The revision of the fourth edition took this process further. It is a measure of the continuing pace of change that this further revised edition is now needed, and that it was necessary to make changes which were significant, and in some instances extensive. Although *The Information Society* was not, in the conventional sense, a textbook, I know that it has been widely used by students, especially those on courses in information studies, librarianship and communications studies in which a broad understanding of the nature of the information society is an essential underpinning of more advanced work. That was its intended audience, although I always hoped that it would be of wider interest as well.

The original aim of the book remains unchanged. The fundamental argument and structure remain intact. They grew out of the belief that we cannot understand the so-called ‘information society’, which has brought us into the 21st century, unless we have some understanding of how information has been accumulated, analysed and disseminated in the past. We have to distinguish between comparatively superficial changes, which are merely technical, and the great shifts in the paradigm of human communications that have taken place three times in the history of mankind. The third of those shifts has been argued to have created – and still to be creating – the information society. The pace of change is unprecedented; the world wide web, which is central to much of what is discussed here, was
barely mentioned in the first edition, but was the dominant format of the internet by the time that the second edition was prepared. It is now already the subject of historical studies, autobiographical reminiscence and indeed a new mythology. The internet itself is one of the key loci of the paradigm shift, although its growth will soon peak: if the present rate of increase in users were sustained, the number of users would exceed the total population of the world in less than a decade!

Perhaps the most radical change in the 14 years since the first edition was published has been that so much of what was then described in some detail (such as e-mail) is now part of everyday life and needs no description. Indeed, in preparing the fourth edition, I was able to assume that readers had a general familiarity with many of the tools and systems that I was discussing. The world wide web is the first port of call for almost anyone under the age of 30 seeking information, and for many who are older – in some cases far older! – than that. Mobile phones are an essential part of life. Digital television transmitted by satellite has not only revolutionized home entertainment, but also industries as diverse as film-making and sports promotion. Whole areas of economic activity are being transformed by the technologies of the information society, from the complaints services of airlines (now as likely to be in Bangalore as in Birmingham or Baltimore) to the music industry (assaulted, perhaps fatally, by digital copying and transmission).

We are now familiar with the concept of the ‘Google generation’, people born since about 1990 who cannot remember a world in which Google did not exist. They will begin to enter higher education during the lifetime of the present edition of this book. That fact alone makes it all the more important to understand that what is offered here is a study of continuity as well as change. The starting-point is the past, and briefly the very remote past, for which I make no apology. Although much of this book is concerned with the implications of technologies that are still in a dynamic, and perhaps early, stage of development, the social and intellectual assumptions, customs and practices on which they are impacting is very old. Computers and computer networks are only the latest expression of the fundamental human desire to record and to communicate information. It is only in this longer historical perspective that we can begin to understand both the enormity and the limitations of what is happening now and what we are
trying to do. In this context, I have attempted to examine some of the
traditional systems of information provision – by publishers and by authors
– as well as by librarians, and to suggest ways in which they are being
challenged and modified by the use of information technology.

It is, however, central to my view of the information society that the changes
that we are now experiencing cannot simply be characterized as develop-
ments in computing, even though computing is arguably the principal
driver of change and certainly provides the key tool in many of the changes
and developments in information management in the last two decades. But
there is a wider context, some of it much wider than the scope of this book.
Despite all the changes (including some in my own position on, and
understanding of, some of the issues involved), I can still endorse some words
that I wrote in the preface to the first edition in 1994, for most of us the last
year of the world before the web:

The flow of information in society runs through many channels, of which the most
common, and in some ways the most significant, are the mass media. Broadcasting,
in particular, appears regularly in this book as an integral part of society’s information
infrastructure. The underlying argument, which runs throughout this book, is that
new systems of information storage and communication have supplemented rather
than supplanted what existed before. Just as we still use handwriting, despite the
existence of so many mechanical substitutes for it (printing, typewriting, word-
processing, and so on), so we shall continue to use the printed word even though
many other media are available to us. We read newspapers despite the ubiquity of
television. The diversity of media gives us greater power to communicate in the most
effective way once we learn how to exploit it.

It is in this context that I have tried to suggest some of the issues that arise out
of the problem of gaining access to the information which we can so ingeniously and
efficiently store and disseminate. I have explored the benefits of the information
revolution, as well as some of its consequences for those who are disadvantaged and
disempowered by technological change. I have also suggested some of the political
consequences of how we store and process information: how information systems
can be abused as easily as they can be used. Finally, I have brought this back to the
context of the provision of information through institutions and by those with
professional skills in the management of both.
I hope that I have raised as many questions as I have answered; indeed, some of the questions admit of no answer. At a time of such rapid technological development, social evolution and political change, it is difficult to be certain of the present and impossible to make confident predictions about the future.

I hope, however, that at least some of what I have written here addresses issues that are of longer-term significance than today’s management theory or tomorrow’s technological miracle which will be forgotten next year. In essence, this book, like the lectures of which it is a remote derivative, is intended to provoke thought rather than merely to convey fact.

Finally, I should like to thank all of those who have – often without knowing it – contributed to this book. They include at least a dozen cohorts of students, and many colleagues and friends throughout the world. My special thanks, however, are due to James Dearnley who falls into all three categories, and both helps me and forces me to keep up to date!

John Feather
As we approach the end of the first decade of the new century, people over the age of 35 in the industrialized countries are increasingly conscious of living in a world that is profoundly and fundamentally different from that into which many of them were born. In less than two decades, we have seen technological, economic, political and cultural change on a scale which, as a retrospective view becomes possible, is beginning to justify the use of the word ‘revolution’ to describe it. But revolution is a word that we associate with violence, with the storming of the Bastille or the bombardment of the Winter Palace. The 1990s were indeed a violent decade in some places, but our revolution was only indirectly a part of that. It began in the 1970s and is not yet complete; it has been at once less obvious and more far-reaching than a mere change in a regime or even in a whole political system. It has been a revolution in our way of living, which, in one way or another, has affected every human being on the planet.

The symbol of the revolution is the computer, the ‘electronic brain’ of the ‘boffins’ in science fiction films of two generations ago, which now seem far older than their 40 or 50 years. The computer is in every office, on most desks and in millions of homes. Behind the scenes it is involved in almost everything we do, from buying our groceries to making a telephone call. Even after more than a century of almost continuous innovation in the technology of communication, and the invention of devices from the telegraph and the telephone to the television, the computer is perceived, however vaguely, as being in some way different. By understanding that difference, we can begin to understand the new society which the computer
is helping to create, the revolution which it has both inspired and driven.

It is now two centuries since the last comparable revolution was at its height in Britain. The exploitation of the power of steam was creating a new economy, and in so doing reordering patterns of work, social relationships and the structure and political organization of society. The new arrangements which stabilized in the first half of the 19th century were recognizably the successor of what had gone before, but unmistakably different from it. Institutions that survived were changed; many vanished, and many new ones were created. The revolution through which we are now living is at least as great in its significance.

The steam engine was the motive power, both literal and metaphorical, of the industrial revolution; the computer is driving the revolution which is taking us into the third millennium. Why has this machine become so important? What is so special about these devices that has made them the force behind changes far greater than those wrought by any other invention of an inventive century? The answer lies in their ability to simulate skills and attributes that we once thought were unique to ourselves: memory, logic, communication. Machines that are able to emulate, and in some ways to surpass, the intellectual and social capacities of those who make them are both fascinating and frightening. The virtually unlimited production and availability of such devices cannot leave any aspect of human thought and activity wholly untouched.

Communication and memory are central to the human experience. So far as we know, we are the only creatures on earth with a true sense of history, a desire and an ability to remember and analyse events in the past, and to make arrangements that allow us to record our knowledge and ideas in perpetuity, so that they can be recovered and understood by generations not yet born in societies which do not yet exist. Uniquely, we can communicate across time and space and have developed systems and devices that enable us to do so. These developments began in the dawn of human history, with the evolution of language itself (which some anthropologists would argue is the dawn of human history in any meaningful sense) and the later invention of the first systems for recording and preserving language in a material form.

The information-dependent society that is emerging from our revolution
- the post-industrial revolution as some analysts call it - combines both profound change and fundamental continuity. It can only be understood in context. Part of this context is historical: the development of writing, printing and systems of communication. Part of it is economic: the means by which systems for the communication of information have become enmeshed in general systems of social and economic organization, so that information and the means of its storage and transmission have been commodified. A third part is political: commodified information is valorized by more than merely the cost of its production and distribution, for there is a real power to be derived from its possession and a loss of empowerment caused by its absence. These hypotheses about the origins, development and implications of the information society are at the heart of this book.

We begin with an historical survey, which sweeps without apology across much of the history of mankind. In that history, we observe first the development of writing, as people seek to preserve more information than their memories can hold and communicate it to those to whom they cannot speak. We trace the development of different systems of writing until one - the alphabet - emerges and supersedes almost all of the others because it is an adaptable and flexible means of preserving the languages in which we think and speak. Even the alphabet, however, cannot cope with all the concepts that the human mind can invent. Systems were developed which enabled our ancestors to record sound (as musical notation), numeric data and the relationship between them (as numbers and symbols for mathematical functions) and visual representation of size, shape and colour.

In the second phase of our history, a mechanical device - printing - was applied to the chronicling and dissemination of the information which was thus recorded. The invention of printing has been seen as a defining moment in the history of mankind. Certainly, it facilitated important changes in the organization and structure of western European culture, religion and politics, and was to be one of the instruments of European domination of almost all of the rest of the world. In the smaller world of communications, printing had another effect which we consider at length: it was the fundamental reason for the commodification of communications. A printer, we shall argue, needed more than merely skills in order to practise his craft successfully; a printer also needed both capital for the equipment
with which the product was made and distribution systems through which the product could be sold. The printed book was the first mass medium, because it was economically impossible for it to be anything else.

Out of printing there developed the vast edifice of the publishing industry, the first significant manifestation of communications entering the world of commerce. The process of writing, producing and selling printed books was, for 400 years, the unchallenged system of communication between literate people. It became so familiar as to become a paradigm; its vocabulary and some of its customs have been imitated by the producers and consumers of very different media. In this book, the paradigm has been exploited to the full. There is a substantial analysis of the process of book publishing, and of the industry that has developed around it. This is developed as a model of commercial systems for the communication of knowledge and information, which can be applied in turn to the other media that have proliferated in the last 100 years.

The development of those other media - sound, vision, computing, and various combinations of them - is the final historical strand in this study. The history of information and communication in the last 150 years is, in part, the history of the development of new devices and systems which have extended our power to communicate in two ways. First, they have made it more systematic and faster and hence more efficient. Secondly, and more importantly, they have extended the scope of what can be communicated. Above all, accurate representations of visual phenomena - photography, film, video - have become a part of our daily lives. We have moved beyond text and language into the storage and communication of images of the visual world in which we actually live. Other inventions have speeded the transmission of information: the telegraph, the telephone, radio, television. These tools of communication are the building blocks of the information society. An increasingly literate society has, paradoxically, become more dependent than ever on oral and visual communication systems.

Only at the very end of our historical story do we reach the computer, and yet as soon as we do so we can begin to see its all-pervasive effects. The computer has brought together so many of the developments of the past. It has both demanded and facilitated the convergence of technologies, which allows us to combine computing with telecommunications and the
digitization of text and image to permit almost instantaneous worldwide (and indeed extra-terrestrial) transmission of data.

The historical approach in Chapters 1 and 2 is essentially an attempt to sketch the history of the storage, communication and retrieval of information, in terms of media and technology. We turn next to the economic issues that have arisen, which are becoming more acute and which are being more urgently addressed because of the increasing predominance of technology in the process of information provision and the delivery of information services. Information, as has already been suggested, was commodified and valorized by the invention of printing and the consequent development of an industry which used printing as its key technology. Publishing – the paradigm – is in the front line of exposure to change under the impact of the information revolution. The market-place itself is being redefined and extended. Some activities traditionally associated with publishing and others traditionally associated with libraries are being disaggregated and recombined. The new configurations have wide implications far beyond the boundaries of the academic world in which many of them originated. E-mail and electronic publishing are only two of the more obvious applications of the combination of computing and telecommunications which we broadly describe as ‘information technology’.

The printed word, which has been the traditional commodity in the information market-place, was supplemented and to a limited extent displaced throughout the 20th century. The information revolution encompasses all those media that communicate information to recipients. In the developed world, and indeed far beyond it, the most potent medium of all is television, the near-universal domestic source of information, entertainment and social interaction. Broadcasting, first in sound only and then in both sound and vision, has been with us for nearly 100 years. Its ability to transmit information and opinion instantaneously, with great apparent authority and directly to the home, was a force whose power was recognized before World War II and has been consistently exploited by governments, pressure groups and commercial interests ever since it was identified. Radio and television are integral to the information revolution, and yet they are also subject to it. Satellite broadcasting, which is computer-dependent, has brought a new sense of freedom to the television industry,
but, like so many other developments, has also reiterated, if reiteration were needed, the need for huge capital investment to gain access to this key medium of information and influence.

It is not only the mass media that have changed the information marketplace. Broadcasting is, by definition, a public activity. Information, however, is increasingly seen, in some respects, as being too valuable to be public. Stored in databases throughout the world is information with commercial potential to which access is restricted by the ability of the information-seeker to pay for it. Again a revolution is being wrought. The library is the historic paradigm of information storage and retrieval as publishing is of information marketing. Libraries, like publishers, have been in the front line of change. These changes are far from superficial; it is not just that libraries now contain a wide range of media, and are increasingly dependent upon technology both for their management and for the provision of services to users. There are far more profound economic changes, for libraries are part of the increasingly commercialized chain of information supply. Traditionally, the library was merely the customer of the publisher. Now it has the potential to be the publisher’s partner in many enterprises, and librarians are reassessing their attitudes to the cost of information supply. Outside the confines of the institutional library, information providers have few of the inhibitions that have traditionally made librarians look askance at such matters. Information has values assigned to it, and it is provided at a profit to the provider; prices are determined by the forces of the market.

It is out of these economic themes covered in Chapters 3 and 4 that the political themes that predominate in Chapters 5 and 6 emerge. On a global scale, there is a growing gap between the rich and the poor in access to information as in so much else. The technological developments of the last 60 years have made more information more available to more people than at any other time in human history. At the same time, however, the cost of those technologies, and the cost of gaining access to information through them, have made it often difficult and sometimes impossible for information to be obtained by its potential beneficiaries. This is the central paradox and the central political dilemma of the information revolution. As in the industrial revolution, in different ways, the benefits to the majority,
encompassed in the abstraction of ‘society’, are being achieved partly at the expense of weaker and poorer individuals whose skills are becoming outmoded and whose earning power is consequently declining.

The revolution in the communication of information has created what is sometimes called a ‘global village’. Yet instant access and instantaneous transmission depend upon a vastly expensive infrastructure of telecommunications and broadcasting systems on the part of the providers, and the acquisition of appropriate equipment (and sometimes skills) on the side of the consumers. Those who are excluded are the majority of the populations of most of the Third World and significant minorities even in richer countries. Even in the USA, the cabling of the ‘information superhighway’, the optic fibre network which can bring digital communications to the home, was politicized as the provider companies avoided poorer areas of cities to concentrate on the richer areas where demand and profits was higher. The gap between information rich and information poor is increasingly overt.

If that gap is the wider political dimension of the information revolution, its most obvious immediate political consequence has been to change, or to threaten or promise to change, the relationship between the state and its own citizens. Governments, like businesses, cannot function without information, and as they become more complex so do their information needs. Much of this is not only legitimate, it is both essential and benevolent. A modern state cannot function without such basic data as that provided by censuses, tax returns and electoral registers. There is, however, a debate, perhaps not yet sufficiently well articulated, about the boundaries of the legitimate information needs of a democratic state. Information about identifiable individuals is sensitive, and yet there are cases in which its dissemination, perhaps to a tightly defined group of recipients, is clearly in the public interest. In other cases, there can be no such interest, and dissemination is clearly an invasion of legitimate privacy. But there is an increasing number of less clear-cut areas, where the organs and agencies of the state are collecting information of great potential value or harm. The process of regulation – of balancing the general good against individual rights - has begun, but is still embryonic. The whole issue, complex enough already, was at the beginning of the 21st century further complicated by the
growing concern with international networks of both criminals and terrorists; they are also among the beneficiaries of information and communications technology.

Historically, the state has always been a participant in the process of information transfer. It regulates the operation of the market-place through laws that control the dissemination of intellectual property, such as copyrights and patents, and also, in most cases, by exercising a certain level of moral jurisdiction through censorship. The state’s role, however, like so much else, is being transformed by the information revolution. The very concept of copyright, which for 300 years has been the legal foundation-stone of the publishing industry, becomes blurred when the technology of copying is uncontrollably widely available. As the historic functions of publishers and libraries begin to converge in electronic publishing and electronic document supply services, the very nature of copyright will need to be redefined. There are changes too in the general perception of the state's right to intervene by intercepting private communications and controlling the content or availability of those intended for public consumption. These are lively political issues which touch on the fundamental principles of political democracy and an open society.

These three aspects of the evolution of the information society – the historical, the economic, the political – are considered in turn. Each raises its own questions, yet all are interrelated. The questions are not new, but they have all been made more urgent by the power of the computer to store, process and transmit information. In the industrialized countries it is no longer possible to conduct many of the most basic transactions of daily life without using the power of computers. Our greatest tool of information and communication is in danger of becoming our master. Much of this book is concerned with trying to define the issues that are raised by this prospect.

Finally, there is one group of people in society who have a special role to play in the information revolution. Computer scientists and information workers are the engineers of the post-industrial revolution (see Chapter 7). More than any other group, publishers, librarians and archivists have seen their professions transformed; whole new professions have come into existence as governments, businesses, industries and institutions have struggled to reposition themselves to deal with the new technologies of
information and communication. In those parts of the world where the information revolution has made its greatest impact, the information professionals are becoming a larger and larger part of the workforce as a whole. But it is not only those professionals whose lives are being profoundly changed. Patterns of work and patterns of employment are being transformed as radically now as they were in the move from an agricultural to an industrial economy 200 years ago. Manufacturing itself is no longer dependent upon the mass employment of labour as computer-based devices are made which can undertake the routine work of making and assembling parts. We are living in the midst of this revolution. Those who are seeking to enter the information and communications professions - for whom this book is principally intended - need to be able to formulate the questions to which the answers will prescribe the limits of their professional lives. Some of those questions are posed, and a few of the answers are suggested, in the rest of this book.