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The role of information products and presentation in organisations

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Submitted for the degree of Doctor of Philosophy

City University, Department of Information Science

July 1999

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Dedication

To the memory of my father, Tom Reed, a master of clear exposition (and of the skilful disposition of text and graphics on that old-fashioned medium, the blackboard). He set my feet on the road that led to this research.

Acknowledgments

In postgraduate research, one is on one's own to an exceptional extent; responsibility for the whole enterprise rests solely on the researcher; it is not shared or distributed in the way of most work responsibilities; and while there are real satisfactions in that, it is also a heavy burden.

During this project, I have been fortunate in the support of many individuals and organisations, which, while not diminishing my ultimate responsibility, has lightened the load and cheered me on my way.

Without the organisations which consented to be the subject of case studies, indeed, the research would have been impossible, and my first acknowledgments must be to their past and present members who were my main points of contact and principal informants, as well as to their many colleagues who contributed invaluable information. I cannot speak too highly of the care and meticulous attention which they devoted first to helping me understand their organisations' practice in the area of the research, and then to updating the case studies and ensuring factual accuracy. Visits to the organisations, and discussions with colleagues there, were enlivening experiences, which counterbalanced the times of solitary reflection and writing which make up so much of the business of research.

The case-study organisations

ACTIONAID

Sue Davison, Alison Logsdail, Liz Wintle

CITY UNIVERSITY

Wendy Clifton-Sprigg, Kate Guess, Peter Tinson, David Vinograd

THE CO-OPERATIVE BANK

Chris Smith, Ann Mannock, Gail Ramouz, Jacqui Williams

THE COCHRANE COLLABORATION

Iain Chalmers, Mark Starr

DATASTREAM INTERNATIONAL

Alan Pool, Kate Wharton

Department of Trade and Industry

Liz Maclachlan

London Chamber of Commerce and Industry

Susan Montgomery, Marita Ewins

The NHS Centre for Reviews and Dissemination

Professor Jos Kleijnen, Professor Trevor Sheldon, Julie Glanville

Norwich Union

Roger Green, Helen Campbell, Rod Hall, Camilla Herrman, Barbara Matchett, Kevin Goodings

The Tate Gallery

Gillian Essam, Simon Grant, Beth Houghton, Graham Peters

Individuals

It is a pleasure to give my first thanks to people in the Department of Information Science at City University, above all Dr David Bawden, my supervisor, who paid me the compliment of assuming that I knew what I was about, but provided apposite comment whenever I sought it. I am also grateful to Professor Stephen Robertson, who responded with encouragement when I first put the idea of research on a topic which was not exactly in the mainstream, and to Dr Ian Rowlands for practical advice based on recent experience.

I owe a great debt to another individual with City connections, Professor P K McPherson, who was a meticulous mentor and educator in the second stage of the Norwich Union case study, which depended on the application of his IVM™ software. That particular piece of work could not have been done without him, and it is a pleasure to acknowledge his unfailing support.

The proposal which initiated this research benefited greatly from sound advice given by Hilary Yerbury of the Department of Information Studies at the University of Technology, Sydney. The department (then at Kuring-gai College of Advanced Education) was in the 1980s a pioneer in introducing concepts of information design and information products into information studies, and I am grateful to Mairead Browne, Barbara Poston-Anderson and many friends and colleagues there for giving me the opportunity over a number of years of developing my ideas on the relation between information science and information design.

While I can reasonably claim to be a professional in matters of information management in organisations, so far as the discipline of information design is concerned, I am no more than an interested outsider, who has been privileged for many years to work with professional designers in various contexts. I am therefore especially grateful to information designers who have provided feedback on my ideas from their professional viewpoint, in particular Gill Scott and Conrad Taylor, and members of the Information Design Association who invited me to talk to them about the research. I owe a similar debt to David Sless and his colleagues at the Communication Research Institute of Australia, who provided a friendly and stimulating response to my ideas, on the basis of their many years of experience of helping organisations to manage information and information products.

Finally, it is a particular pleasure to thank two people without whose influence this research would never have been undertaken. Between them, they led me to the disciplines whose shared territory I have been exploring.

The late Professor B C Brookes introduced me, as a mid-career part-time student, to information science, and it made sense of all I had done before and led to everything I have done since that time in the early 70s.

The typographer Graham Stevens, in more than 30 years of shared work, helped me to understand the role of the information designer in the transformation of knowledge into information, and its embodiment in information products; it cannot be better expressed than in the words of Joseph Moxon in his claim for the art of the compositor, who is

> ... ambitious as well to make the meaning of his Author intelligent to the Reader, as to make his Work shew graceful to the Eye, and pleasant in Reading: ... he reads his Copy with consideration; that so he may get himself into the meaning of the Author, and consequently considers how to order his work the better ... as how to make his Indenting, Pointing, Breaking, Italicking, &c the better sympathize with the Authors Genius, and also with the capacity of the Reader.
>
> *Mechanick exercises on the whole art of printing* 1683–4

If the indenting, pointing &c of this thesis are well ordered and sympathize with the capacity of the Reader, then that too is thanks to him.

Declaration

I grant powers of discretion to the University Librarian to allow this thesis to be copied in whole or in part without further reference to me. This permission covers only single copies made for study purposes, subject to normal conditions of acknowledgment

Author's note

In two respects the presentation of this thesis departs from the standards recommended in City University's *Research Studies Handbook* (1998). It is appropriate here to explain why.

The first departure is in the matter of use of the passive voice (and, by implication, the third person rather than the first). The Appendix to the *Regulations* for the physical format, binding and retention of theses recommends that:

> Theses should as far as possible be written in the manner of a formal research report. The style of writing should be objective but at the same time clear, concise and convincing. One way of conveying objectivity is to use the past passive tense ... consistently wherever possible, but not at the expense of clarity and readability

It is a little unfair to the passive voice to give it the rather dubious role of conveying objectivity! It has a real role in life, which Kirkman (1980) explains very clearly, 'The subject position in a sentence is where we normally place (and look for) the theme or focus of that sentence ... By using the passive construction, we move the centre of interest from the 'performer' to the 'undergoer' of the action.' This is the principle which I follow in my use of the passive.

There are also certain guiding principles in the use of the first person in this thesis:

1 Much of it is narrative; the case studies in particular are largely 'stories' of what the subjects do, of events and their results. The narrator, while responsible for telling the stories, remains to one side, letting the subject take centre stage, and does no more than comment from time to time on the action. Third person (and mostly active voice) is the appropriate convention.
2 Similarly when the ideas of other researchers are under review (as in Chapters 3 and 4), the authors must be allowed to speak for themselves; the reviewer's responsibility is to make well-founded connections and present interpretations, and to play fair with the reader.
3 Where I do have to speak of myself, I hope with a reasonable degree of objectivity, is in explaining why certain critical decisions, affecting the subject of the research and how it was done, were taken, and how my own career influenced them. This is particularly the case in Chapter 4. I have been trying

to imagine how one would write the section on 'The process of developing a theory' in the past passive, but find it quite impossible.

The other departure from recommended style is less significant, but of importance in helping readers. It is easier to locate the source of a citation and get back to reading the text without losing the thread of the argument if one has only to turn a few pages to the end of the chapter and scan a short list, than if one has to go to the back of the volume and search a lengthy one. The references to texts cited are therefore placed at the ends of chapters, as well as being brought together in a consolidated list as part of the end matter.

Reference

Kirkman, J (1980)
Good style for scientific and engineering writing
London: Pitman

Abstract

This research looks at how organisations manage that area of their activities whose function is to give essential information to their inner and outside worlds, in the form of 'information products' – print on paper or electronic – through which information is presented for use. It sets information products in a context in which they have not commonly been considered: the organisations which create them; and it seeks to illuminate them with relevant research and practice from the disciplines of information science and information design.

The research was conducted by means of case studies over a five-year period in ten organisations – three for whom information products constituted the main 'offering' and seven where they supported other products. In the early stages it appeared that little had changed since the 1970s, when the author worked in this field. At that time, few organisations had an overall policy for their whole range of information products, related to their key strategic objectives; few made any serious attempt to assess the costs to themselves and their customers, clients or public of badly presented information products, or sought to assess the value of the products in relation to their objectives; and few employed appropriately trained staff to manage this aspect of their activities.

Over the period of the study, however, the practice of all the organisations in these respects advanced in various ways. The experience of developing web sites and intranets brought about a particularly noticeable change in the approach of some organisations to their information products and their place in a strategy for information.

A pilot extension of one case study into a second stage involved the application of a methodology for assessing the value of intangibles. It provided some useful indications of the value of information products in supporting a main product with which they were associated, and of the value contributed by information and knowledge to the main product.

The account of the research concludes with a theory of information products modified in the light of findings from practice, and with proposals for helping organisations deal with the issues of managing information products as part of their overall management of information.

Part 1
Background and methodology

1
The scope of the research, and why it has been undertaken

The area of the research

The research described in this thesis looks at how organisations manage that area of their activities whose function is to give essential information to their inner and outside worlds, in the form of 'information products' (definitions of this, and the other terms relevant to the research are given below). It sets these activities in a context in which they have not commonly been considered: the organisations which create the information products; and it seeks to illuminate them with relevant research and practice from the disciplines concerned with information science, and information design.

Definitions

Most of the definitions used in this research are based on current usage in the fields of information science and information design (for a discussion of the relation between the two disciplines, see Orna & Stevens, 1991 & 1993).

A concept from information science which is particularly meaningful for the present research relates to how human minds transform external information into internal knowledge, and internal knowledge into information which can in turn be put into the outside world (in the form of information products of various kinds) for others to transform into knowledge.

The exploration of this line of thinking by, in particular, Brookes (1980a and b), Farradane (1980) and Belkin (1990), and by Ingwersen (1992), Ginman (1988) and Saracevic (1992), has formed the basis for the following pragmatic definitions of knowledge and information. [1]

[1] The idea of transformation, it is interesting to note, has also entered the literature of information design with the advocacy by Macdonald-Ross and Waller (1976) of the role of the 'transformer' as a critical one in the communication of information.

Knowledge

In the light of this concept, knowledge is the organised results of experience, which we use to guide our interactions with the outside world. It is stored in the mind in a highly structured form, and to be communicated to those who need to use it for their own purposes it has to be transformed and made visible.

Information

It follows that information is knowledge put into the outside world and made visible and accessible through a series of transformations.
From the point of view of the user, information is what we seek and pay attention to in our outside world when we need to add to or enrich our knowledge in order to act upon it. So we can also usefully think of it as the food of knowledge because we need information and communication to nourish and maintain our knowledge and keep it in good shape for what we have to do in the world. Without the food of information, knowledge becomes enfeebled.

Information products[2]

The visible products, print on paper or electronic, through which information is presented for use:

---

[2] The term information product is still far from current; it occurs comparatively rarely in the literature, and when it does, its users come at it from a variety of directions. Elias (1994) for example seems to think of them as products differing from 'straightforward publications', that need aggressive marketing. West and Norris (1997) limit it to multimedia products, and refer to the activities involved in structuring them, and making them readily searchable and capable of further development, from a software engineering point of view. Meyer & Zack (1996) make a strong case for equating the creation of information products (which can be both traditional and electronic) with the processes of creating physical products. And Tiamiyu (1993) looks to the innovative potential in the interplay of technology and 'the flexibility of the human mind' to create new kinds of information products.

Examples:

- Text books
- Manuals
- Annual reports
- Product leaflets and brochures
- Databases
- Current-awareness bulletins
- Research reports
- Data sheets
- Periodical articles
- Instructions for use
- In-house newsletters

(In the course of the research, it became clear that web sites and intranets could be added to the above examples, as information products in their own right, which act also as containers for other information products – 'meta-information products')

The range of products covered in the research stops short of advertising. But there is a continuum between telling and selling. and no sharp boundary between the two; the guiding principle adopted in the research in defining information products is that they should be towards the 'telling' end of the scale, and embody substantial information content which aims to allow users to do something they need/want to do, rather than aiming to evoke feelings and persuade – in other words, the user has an active rather than a passive role.

Transformations

Information products are the end result of the series of transformations of knowledge into information; they also become the starting point of transformation in the other direction on the part of their users, who seek to transform what they require of the information contained in the products into knowledge and integrate it into their existing knowledge structure.

The transformation of information into knowledge, and knowledge into information, forms the basis for all human learning and communication; it allows ideas to spread across space and time, and links past and present in a network that embraces generations and cultures over millenia. By virtue of that quality, it is also fundamental to the working of organisations of all kinds.

The transformation processes are represented graphically in Figure 1.1 (p19)

Information presentation

The activities we engage in to transform knowledge into information; they cover whatever is done to transform information into products that are appropriate in relation to:

- The content
- The people who will use it
- The way in which they will wish to use it

Presentation therefore covers such activities as selection and conceptual organisation of information, writing, editing, design and production. These activities today are often described as the domain of information design.

Information design

A broad definition:

> Everything we do to make ideas visible so that others can make them their own and use them for their own purposes.

A specific definition related to graphic and typographic design:

> An area of graphic and typographic design which is concerned with 'products that have a high information content, where words are the vehicle for much of the information'. The relationship between the designer and the user is to a large extent 'user-driven' in that 'there is a known body of users who desire certain knowledge'; and 'it is the cognitive aspects of the user that are of most significance, though feelings related to the user's need for knowledge ... are also taken into account'. (Orna & Stevens, 1991)

Organisations

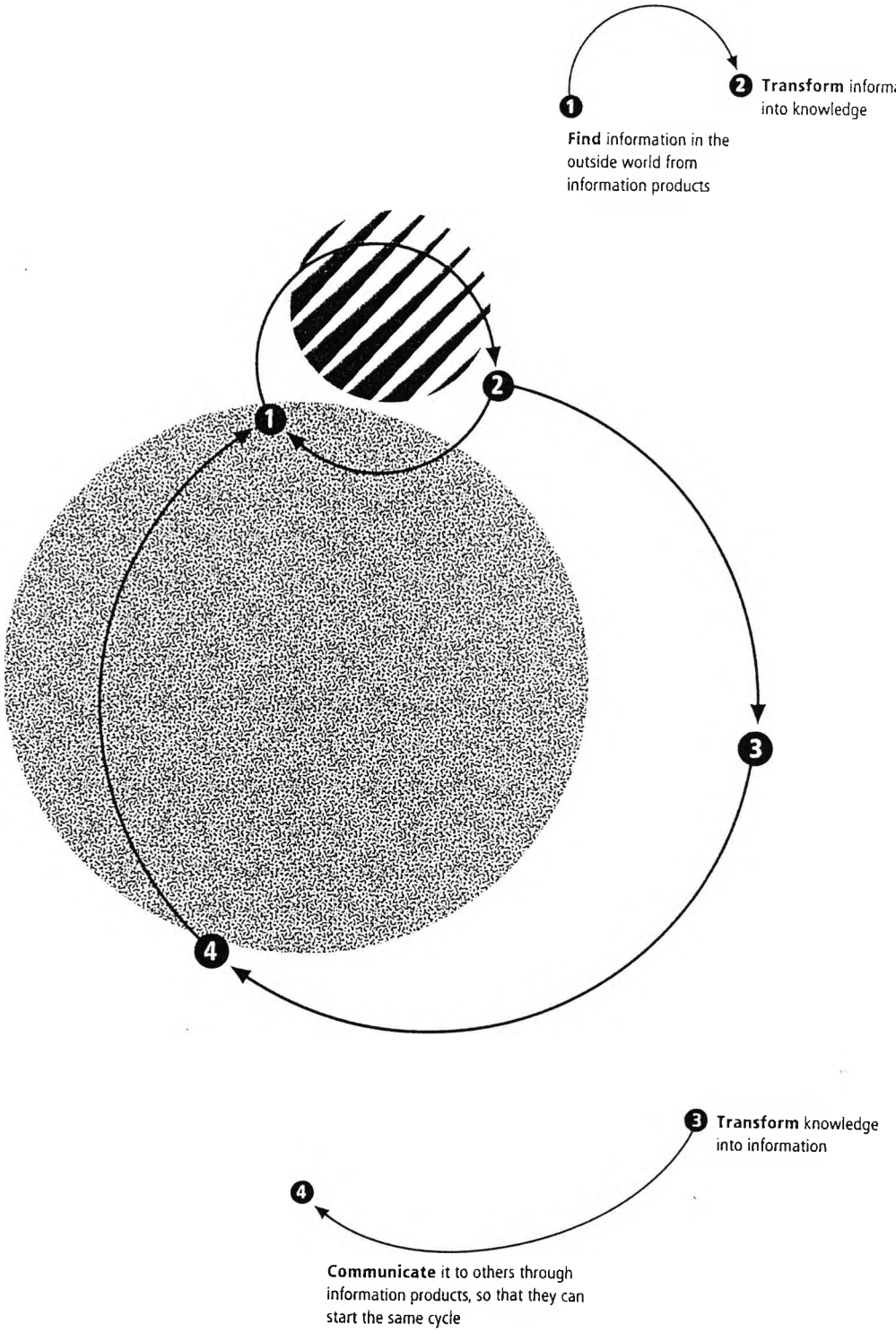
The decisions which organisations make about information products are concerned with *who* to tell, *what* to tell them, and *why*, and their decisions about presentation with *how* to tell them. Thus products and presentation are closely linked and dependent on one another. And the decisions concerning them take place within the context of organisations, and so are affected by their values, goals, structure and culture. So the final definition has to be of organisations.

The minimal definition given below (from Orna, 1999) of the necessary and sufficient conditions for being an organisation has features in common with the conventional information-systems account of organisations, as analysed, for instance, in Checkland and Holwell (1998, pp68–70). As may become evident, however, from subsequent chapters, and from the accounts of the case-study organisations, the orientation is towards the humanistic approach typified by 'soft systems' concepts, which places emphasis on the social nature of organisations,

Figure 1.1

Transformations... information to knowledge, knowledge to information

(From an illustration by Graham Stevens in *Information Management in Museums* Orna and Pettitt, 1998. Gower)



and especially on interactions and accommodations among human beings as their essential characteristic, rather than towards the positivistic, rational decision-making model. 'Interacting, internally, and with its environment' is probably the key item in the following definition:

- A grouping of human beings
- For explicit or implicit purposes
- Creating 'offerings' of products and/or services
- Interacting, internally and with its environment
- Seeking sustenance to keep itself in being
- Having a structure and a boundary
- Embodying both social and technical systems.

I have found this a useful framework in the present research. In the case studies in particular, it helped to focus attention on features of the organisations which condition how they manage their information products, and to see the connections and interactions between, for example, their definition of their purposes; the ways in which they interact within and with their outside world (their culture); their structure; and their information products.

The questions the research seeks to answer

The research questions as formulated in the original proposal wer

1 Is it possible to trace and identify links between, on the one hand, how the processes of creating information products and presenting information are managed, and, on the other, consequences to the organisation, in terms of achievement of strategic objectives in such matters as information flow, communication, cost-effectiveness, efficiency?
2 If investigation suggests that there is a relationship, is it possible to raise awareness of the relevant issues and achieve positive change through action research based on principles from the disciplines of information science and information design?

Research topics

The topics which required investigation in seeking answers to the questions were identified in the research proposal as:

- What organisations do at present in the way of presenting information for internal use and for communication with their 'outside world'

- Whether they have a specific strategy that relates it to their key objectives
- How they relate their information products to the management of their information resources
- Who takes the decisions on information products
- Management attitudes towards information products and presentation
- The people who do the work of creating the products
  How they are trained
  How they do the job
- The technologies used
- The relationship between those responsible for in-house design and production of information products, and those who control relevant IT systems
- How information products are costed
- How they are evaluated
- Whether organisations lose by not exercising unified control over the quality and appropriateness of their information products, and the nature of the loss.

Why the study was undertaken

Organisations of all kinds invest a great deal in creating information products and presenting information. They use the products to promote achievement of their goals; to support other products and services by which they make their living (indeed for an increasing number information products are their main offering); and as key vehicles in their interactions both internally and with their outside world. Without their information products, their business would falter and might well come to a halt.

Apparent lack of attention by organisations

Given the significance of information products for achieving organisational objectives, it was surprising that comparatively little management attention appeared to be given to them. Personal experience suggested that:

- Few organisations had an overall policy for their whole range of information products, related to their key strategic objectives.
- Few made any serious attempt to assess the costs to themselves and their customers, clients or public of badly presented information products.
- Few had an appropriate basis for assessing the value of their information products in relation to their objectives.

- Few employed appropriately trained staff to manage this aspect of their activities. In visual design, in particular, non-designers were often responsible for the design of products, and where professional designers were commissioned, client organisations briefed them inadequately and did not understand the nature of their specialism.

The lack of relevant research

Most of the existing research on information products paid little heed to the organisational context in which they are created; typically, it looked at appropriate ways of presenting specific kinds of content (eg numerical data or lists); at typographic factors affecting legibility; and at methods of testing the effectiveness of the products in relation to the intended audience. While many of the results were illuminating, this kind of research appeared to lack a theoretical base which would relate the products to the originating organisations as well as to the users.

Nor did it pay attention to how and why the information content got into the 'containers', how the decisions were made, who made them, and how they were related to the other things the originating organisations did.

Meantime, research in the field of information management showed, with some honourable exceptions, little interest in the creation of information products as an aspect of information management to which information professionals might have a contribution to make. So far as research on organisations was concerned, while it might have been expected that studies of organisational communication would touch on information products as an aspect of communication, they rarely got a mention in this context.

The researcher's background

It is necessary to say something here about my own situation in relation to the research. During a career of several decades in work connected in various ways with information, I have done many jobs concerned with information products – proof reading and indexing, writing and editing information products, managing their publication, commissioning specialists, and working with information designers. I started in that area, and from it moved into information management. The rather fortuitous combination meant that I had an unusual opportunity of bringing together in my subsequent work the management of both information and

information products, and of being able to relate them to experience of what organisations did.

When I decided that the time had come to undertake another research degree, it seemed appropriate to take advantage of the accidents of career development and to look at a subject which was relevant to so many aspects of my working life, and which had in many ways shaped its course.

An opportunity for qualitative research in organisations

The nature of the topic meant that observation of the practice of representative organisations by means of case studies was the most appropriate method for the practical part of the research – to which most time would be devoted. The decision to undertake the research part-time over a five-year period, so that I could combine it with other work, meant that the case studies could be longitudinal, which would add valuable observation of change over time. I was also able to draw on previous experience of making case studies in the course of writing books, which had made me into something of an 'organisation-fancier'. Making case studies of ten organisations over the five-year period of this research has allowed this taste to be indulged almost to excess.

The content and arrangement of the thesis

This account of the research is divided into two volumes, the second of which is devoted to the full reports of the case studies. The first has four parts: Part 1 (Chapters 1 and 2) in essence deals with What, Why and How. The present chapter has explained what it covers and why it has been done; the next deals with the choice of methodology, and the way it has been applied.

Part 2 (Chapters 3–4) is based on reading, and reflection in the light of experience. Chapter 3 reviews existing research that covers parts of the territory; research that has not been done, and topics that have been little considered; and finally looks at what help is available for the people in organisations who contribute in various ways to information products. Chapter 4 develops a theory of information products, drawing on relevant theory from various sources in organisation theory, information science and information design.

Part 3 (Chapters 5 – 9) discusses the findings about the practice of the case-study organisations. Chapters 5 – 7 bring together findings across the ten organisations in relation to the products themselves; their place in organisational strategies and in relation to information resources; and how the organisations

manage them. Chapter 8 traces significant change and development in the organisations in relation to information products over the course of the research, with particular reference to the effect of developing web sites and intranets. The final chapter of this part presents findings from a different type of case study carried through in one of the original organisations: a pilot application of a recently developed methodology (the IVM™) with the aim of identifying the value contributed to a specific investment product by the information products associated with it.

Part 4 (Chapters 10 – 12) brings the thesis to an end with retrospect and prospect. Chapter 10 considers the significance of the findings about the practice of organisations. It notes key distinctions between those organisations whose raison d'etre is to create and deliver information products, and those whose information products support other products and/or services which constitute the core of their business. It discusses the nature of the products themselves and the effect of the move from print to electronic; the place of information products in organisational strategy and the factors which influence it; the use which the organisations make of key information resources in creating their information products; how they manage the products in the matter of responsibility and decision making, specialist skills, testing and evaluation of the products, and assessing costs and value contributed by them. Finally it discusses the question of whether practice has effects on achieving organisational objectives.

Chapter 11 brings together the findings from the practice of organisations and the propositions for a theory which were developed in Chapter 4. The confrontation between theory and practice leads to a new version of the theory, modified in the light of practice; and concludes with proposals for using it to help organisations improve their practice and get more value from their information products.

The final chapter is a confrontation of a different kind – of the original research proposal with what the research has achieved. It is my own attempt at evaluation, made in order to learn from an interesting and rewarding experience.

Volume 2 contains detailed reports on the case studies carried out in ten organisations:

ActionAid

City University

The Co-operative Bank

The Cochrane Collaboration

Datastream International

The Department of Trade and Industry

The London Chamber of Commerce and Industry

The NHS Centre for Reviews and Dissemination

Norwich Union – in which a further study, involving a pilot application of the IVM methodology was carried out

The Tate Gallery.

All the reports are the product of interaction with the organisations over the period of the research, and all have been signed off by them as factually accurate, with acceptance of the researcher's freedom of comment. Where my comments in the evaluation section which concludes each study have been shown to be based on incomplete information or misunderstanding of the actual situation, they have been modified; otherwise, they stand, even if the people in the organisation with whom I have dealt may not agree with the judgement expressed. It is pleasant to record that all the organisations have been welcoming and ready to devote a great deal of time and careful thought to the study.

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Chapter 2
How the research has been done

Finding appropriate research methods

Decisions about methods for the research were based on a combination of experience-based 'inclinations' related to the character of the research, and support from the literature of organisational research.

The character of the research

The character of the research is essentially practical. It grew from my experience of working in and with organisations on the process of creating information products (on a number of occasions in conjunction with an information-management role), and it aims at an outcome which will be of practical help to people responsible for decisions about information products at all levels. And what I am looking at is essentially a process, whose nature is closely bound up with organisational objectives, structure and culture.

Therefore the research method needed to be oriented to inquiring, as systematically as possible, into how this process is actually managed in organisations. Experience suggested that I was more likely to find something useful by looking closely at the process through case studies in a small number of organisations than by contemplating it from a distance in a large number, by describing accurately rather than by counting, and by letting people tell the story in their own way (though in response to the same questions) rather than constraining them to select given answers. It was an advantage to have had a good deal of experience of making case studies in the course of writing books – though I had to be careful not to choose that method just because experience in a different context made it look an easier option than an experimental and quantitative approach. Fortunately, contemporary thinking about research relating to organisations lends support to qualitative methodologies.

Modern ideas about organisational research

There are three relevant strands of thinking. The earliest is related to action research; the second, more recent, but drawing on many of the same ideas, is the thinking which focuses on organisational behaviour and ways of learning about it; and the third places particular emphasis on qualitative as opposed to quantitative methods (which are also explicitly and implicitly supported by the proponents of action research and organisational behaviour). All the strands involve a search for a model more appropriate to looking at human beings in social systems than the traditional 'scientific' paradigm adopted for many years in social science research.

Action research

The history of action research (Susman & Everet, 1978) began with Kurt Lewin in the United States in 1946, and with parallel but independent developments at the Tavistock Institute in the UK. As a research method, its key feature is the combination of 'generation of theory with change in the social system through the researcher acting on or in the social system ... both changing the system and generating critical knowledge about it.' (*op cit* p586).

The ideas that inform action research developed as a corrective to what were seen as the deficiencies of positivist science which had led to:

> crisis in the field of organizational science ... as our research methods and techniques have become more sophisticated, they have also become increasingly less useful for solving the practical problems that numbers of organizations face.
> (*op cit*, p583)

The crisis has arisen because organisational researchers 'have taken the positivist model of science which has had great heuristic value for the physical and biological sciences and some fields of the social sciences, and have adopted it as the ultimate model of what is best for organizational science. By limiting its methods to what it claims is value-free, logical, and empirical, the positivist model of science when applied to organizations produces a knowledge that may only inadvertently solve and sometimes undermine the values of organizational members' (*op cit* p583)

In contrast to that traditional model, action research is seen as being future oriented and collaborative, as implying the development of the systems being studied so as to modify their relation to the relevant environment, as generating

theory which is grounded in action[1], and as being 'agnostic' and 'situational', in that the consequences of action cannot be fully known, and what happens depends on how the relevant actors currently define the situation. (*op cit* pp589–590)

The legitimacy of its claim to being regarded as scientific rests on 'locating its foundation in philosophical viewpoints that differ from those used to legitimate positivist science.' Those viewpoints include:

- *Praxis* – the 'art of acting on the conditions one faces in order to change them.'
- *Hermeneutics* – the concept of the hermeneutical circle, based on the idea that 'no knowledge is possible without presuppositions', which, in the social sciences, takes the form of gaining knowledge of social systems dialectically 'by proceeding from the whole to its parts and then back again.'
- *Existentialism* – going back to the writings of Kierkegaard and Neitszche, and based on the idea that human interest lies behind every choice.
- *Phenomenology* – the objective reality of the 'subjective experience of human beings. (*op cit* pp594-597).

Heron's (1971, 1981) model of co-operative inquiry, cited by Reason, argues that orthodox research methods are inadequate for a science of persons, because they undermine the self-determination of their 'subjects'. Orthodox scientific method, with its emphasis on formal experiment, surveys, questionnaires, and observations, aims to exclude the subjects from all choice of subject matter, method, etc, and in so doing excludes self-determination. As Reason (1988) puts it, this is research *on* people, rather than 'research ... *with* and *for* people'. Table 2.1 summarises the differences between positivist science and action research.

This aspect of action research is particularly applicable to the second-stage case study in the present research, which involves people from the case-study

[1] The concept of 'grounded theory' was first formulated 30 years ago by Glaser and Strauss (1967). As described by Easterby-Smith et al. (1991), they saw the key task of the researcher as being to develop theory through a 'comparative method', that is, looking at events or processes in different settings; the resultant theory should be 'sufficiently *analytic* to allow some generalisation to take place, but at the same time it should be possible for people to relate the theory to their own experiences, thus *sensitising* their own perceptions.' (pp35–36)

Table 2.1
Positivist Science and Action Research (based on Susman & Everet, 1978)

Points of comparison	Positivist Science	Action Research
Value position	Methods are value neutral	Methods develop social systems, release human potential
Time perspective	Observation of the present	Observation of the present + interpretation of the present from knowledge of the past, conceptualisation
Relationship with units	Detached spectator, client system members are object of study	Client system members are self-reflective subjects with whom to collaborate
Treatment of units studied	Cases are of interest only as representatives of populations	Cases can be sufficient sources of knowledge
Language for describing units	Denotative, observational	Connotative, metaphorical
Basis for assuming existence of units	Exist independently of human beings	Human artefacts for human purposes
Epistemological aim	Prediction of events from propositions arranged hierarchically	Development of guides for taking action that produces desired outcomes
Strategy for growth of knowledge	Induction and deduction	Conjecturing, creating settings for learning and modeling of behaviour
Criteria for confirmation	Logical consistency, prediction and control	Evaluation whether actions produce intended consequences
Basis for generalization	Broad, universal, and free of context	Narrow, situational, and bound by context

organisation in selecting the area to be investigated, and in making value judgments in the light of their knowledge, which form the input to a computer-based model.

Organisational behaviour

While interest in action research, and writing about it, continues, more recently there has been an emphasis on organisational behaviour. This may represent a shift of focus from the process of research to the character of the organisations at which it looks.

As Turner (1992) puts it, we have to remind ourselves of 'the human character of organizational activity' and to acknowledge that the cultural environment must be related to the 'physical presence of human beings' (p59). He foresees that organisational research in the near future will be:

'... in large part participative; it will be predisposed to qualitative rather than exclusively quantitative methods; it will be both wary and skilful in its use of language; and it will be unlikely to produce a single unified coherent theory.' (p46)

The topics likely to be of most interest will not be readily accessible via questionnaire surveys, indices, or attitude measurement. To gain access to them, 'research inquiries will involve meeting and talking to people in organisations, entering into and understanding their way of life.' (p46), and the outcomes are likely to be 'situated, context-related typifications and generalizations, which are to varying degrees both time- and culture-based' (p47).

The implications for the organisational investigator are: recognise your own skills and 'connoisseurship' in the process of investigation, realise that people in organisations 'participate, work, communicate and relate in ways which also involve such elements of passionate and tacit knowing which may not be readily accessible at an analytical level', and recognise that 'much of the knowledge which enables organisations to operate is knowledge obtained by doing, knowledge which is built into the behaviour of the people concerned and is not merely part of their cognition.' (p60)

The term which Tsoukas (1994) uses for this approach to dealing with organisations is 'reflective action'. He contrasts it with the older model of 'social engineering'. The social engineering image has some parallels with the 'positivist science' paradigm discussed by the advocates of action research; as Tsoukas remarks, it trusts knowledge about organisations only if it is 'scientific knowledge'

formally produced according to the classical canons of scientific method. (*op cit* p5) It views organisations as 'orderly entities by design'. It takes it for granted that social systems are independent of managers, and so the relationship between the two is 'ignored or construed as *external*". 'What the system under regulation consists of (as well as information about the state in which it is), and the objectives which it aims to achieve (as well as information about how well it does achieve them), are either taken for granted or regarded as being imposed by the outside world in a manner that is independent from individuals' beliefs and interpretations.' The assumption about the orderly nature of social systems becomes the basis for the further assumption that managers can 'accumulate explanatory and predictive knowledge about them', which can be used to pursue desired results. (*op cit* pp4–5)

The social-engineering approach ignores many essential features of social systems. In the first place, social systems are intrinsically 'open' in the sense that it is impossible to get them to stay the same across space and time because 'individuals' meanings, interpretations and models differ across contexts, and change over time'. (p8) The fact that people have to learn and develop in order to act effectively makes closed, predictable social systems distinctly unlikely. Nor do social systems 'have an existence independent of human beings', they are (in part at least) 'what they are because of the particular ways human communities define them.' (p9). 'What an organisation *is* depends to a large extent on what it *does* 'in the socioeconomic and cultural contexts in which it is embedded.' (p10) Finally, organisations are ambiguous, that is, they are often unclear about what their intentions are; they don't know for sure what it is appropriate to do; they usually can't identify exactly what they did in the past and why; and they are not always clear about who in the organisation is responsible for what.

Qualitative research

Especially interesting in this context is a review article by Fidel (1993), who draws attention to the rapid growth of qualitative research in library and information studies over the past ten years. Fidel makes the point that quantitative and qualitative are not mutually exclusive; each can use elements of the other, and indeed qualitative research has a certain primacy in that quantitative research actually depends on identifying *qualities* that are to be subject of measuring and counting.

The distinguishing features of qualitative research defined by Fidel are that it is:

- '...guided by a belief in the primacy of subject matter over method' (p220), a science of form, pattern, shape, design or configuration, relying on multiple sources of data.
- Non-manipulative and non-controlling, depending on such approaches as observation, journals, opinions of respondents, and as such offering the 'best methods for exploring human behaviour' (p222)
- 'Holistic and case oriented', 'providing for a broad understanding of a particular phenomenon by focusing on unique cases, but at the same time taking into account all the themes involved.' (p224)
- Focused on processes and examining dynamics rather than static attributes (p225)
- Open and flexible, without an *a priori* conceptual framework
- Humanistic in that relationships are established between researcher and respondents which allow the researcher to gain a personal insight; researchers need 'empathetic neutrality' (p230)
- Inductive – hypotheses, models, theories, etc are developed during study, not 'conceived a priori', so that both methods and abstract constructs are 'dynamic, evolving as the study progresses.' (p231)
- Scientific, on a different basis from that of quantitative research; 'Today most methodologists agree that the notion of reliability, as construed in quantitative research does not apply to qualitative research.' (p231)

And, appropriately for the domain of information studies, it takes a categorising or 'coding' approach to data.

The research process

Decisions about where to start the research process grew organically out of the nature of the project, my own background experience, and the decisions about methodology.

Why start with case studies

Since it was so clearly oriented to practice, and since I had been for so long involved in the practice and had maintained an interest in the literature of

relevant research in the field[2], it seemed both appropriate and fairly risk-free to go straight into finding out how a selection of organisations were actually managing their information products, rather than to start with a conventional literature search. The case studies could then be guided by existing knowledge of practice and of the literature, and the findings from them as they emerged could suggest new areas of reading.

And the long time scale inevitable with part-time research had the advantage of allowing new case studies to be fitted in at any later point as opportunity offered, and of giving time to go back at intervals to those done earliest.

My intention from start was to undertake a second level case study, looking intensively at one or two organisations, though initially I was not sure what the content and orientation of the second level would be.

Selection of case study organisations

The aim was to achieve a balanced range of types and sizes of organisations, coupled with being reasonably opportunistic[3] in using organisations with which I already had contacts, and in seeking local case studies on grounds of economy. I also felt it desirable to have organisations with whose work I could feel in some sympathy. The list in which case studies were completed consists of: a third-world charity, a university, a bank, a financial analysis company, a government department, a chamber of commerce, an insurance company, two related medical research bodies, and an art gallery (for their names, and thumb-nail sketches of them, see the introduction to Part 3)

The range is fairly representative, but I was unsuccessful in finding a manufacturing or retailing company. Two case studies initially agreed on had to be abandoned. A local government housing department which was doing interesting work in the field fell victim to changes in top-level management in the authority;

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2 For example, information design and typography, the relationship between information design and information science, education and training for creating information products, desk top publishing, Plain English, testing and evaluation of information products.

3 I was reassured to find, when the case studies had already been completed, support for this, and for other features of the approach I had taken in carrying them out, from academic researchers experienced in the field of research in organizations (Buchanan et al., 1988)

while in a professional body, deficiencies in internal communications (of which I should have been more aware) combined with a somewhat proprietorial chief executive (of whose character I should also have been aware) led to mutual agreement to disagree.

The approach to organisations

An initial telephone approach was made, in order to identify the appropriate contact. After a telephone discussion with the contact in which the nature of the project was outlined, a letter was sent (see Figure 2.1); this explained the nature of the research and the proposed outcomes, described the kind of help needed from case-study organisations and the arrangements for observing confidentiality and allowing for checking drafts, and offered as a *quid pro quo* a report to management – in effect some free consultancy.

The response

The majority of the organisations approached agreed to become the subject of a case study, some with no hesitation, others after a period for reflection and reassurance, and one after an initial refusal on the grounds of lack of time.

Questions for consideration

When organisations agreed to a case study, the next stage was a meeting with the person who was to be the point of contact, to discuss the project, get background on the organisation, and collect relevant documents such as corporate objectives, annual reports, organisation charts, and examples of information products. The jobs

Figure 2.1
Invitation to take part in a case study

▼

Dear M ...

I am writing to follow up our recent conversation about the research for the degree of PhD which I am undertaking in the Department of Information Science at City University, London. We discussed the possibility of a case study at ..., and, as agreed, I am sending you herewith some material about the research, and about my own work background.

The research subject is 'The role of information products and information presentation in organisations', and the question it seeks to answer is:
Is it possible to identify links between:

- The visible products through which information is presented for use – either as print on paper, or on-screen.
  Examples: Annual reports; product leaflets and brochures; manuals; current-awareness; research reports; data sheets; employee handbooks; in-house databases; company newsletters.
- How organisations manage the processes of creating information products and presenting information
  and
- Consequences to the organisation, in terms of achievement of strategic objectives in such matters as information flow, communication, cost-effectiveness, efficiency?

There has been very little investigation of this topic, but it is an important one for organisations, given the investment which they make in this area.

This is essentially a practical project, and the main part of the work has to be based on field study in real organisations. The field study consists of two stages:

1 A series of structured interviews in a representative sample of organisations, with the aim of understanding their practice in the matter of information products and information presentation.
2 In-depth action research in one or two organisations

Participation as a case-study organisation involves:

- A series of interviews (duration about 1 hour) with the people in the organisation who:
  Take decisions on its information products
  Implement the decisions
  Provide technical support of various kinds
- Access to examples of the organisation's information products and other relevant documents (eg Corporate mission statement and key objectives, publication plans, house-style standards).

In each case, I present a brief report to management on my findings from the case study. As I explained, the research is being undertaken part-time, to a fairly flexible timescale, so it is possible to accommodate the timing of case studies to

the convenience of the organisations involved. Whatever degree of confidentiality is required is of course observed.

Further information about the kind of questions to which I am seeking answers, and the ultimate outputs from the research which I am planning, is given on the attached sheet. I also enclose information about my own work background and my publications relevant to the research, and a copy of a recent article about the study.

Please let me know if there is any further information you need, and please feel free to pass on this material.

Yours sincerely

▲

of the people responsible for liaison over the research varied from organisation to organisation: some were information managers, others from public or corporate affairs or external relations departments; in only one case was the contact someone with a specific responsibility for information products. The contact was then responsible for internal liaison with management, for nominating people whom he/she considered appropriate for interview and for briefing them; in some instances the contact arranged the interviews, while in others it was left to me. When dates were fixed for interviews, I sent in advance to each person I was to see an outline of the research, and details of the questions I was interested in discussing (see Figure 2.2). This formed the framework for the interviews, which were structured round the key questions, but informal in their approach. They normally began with my explaining how I came to be doing the research, and the reasons for my interest in the subject. The people being interviewed were invited to talk about their own work in relation to information products, using those of the questions which were relevant to their job (not all questions were relevant to all interviewees) as a starting point.

Interactions with the organisations

After an initial meeting with the contact person, I spent time reading background material about the organisation, and looking at examples of its information products, to get a basic understanding of its business and aims, identify specific issues to pursue in interviews, and develop ideas for approaching them.

Then followed interviews, writing up notes from them, and preparing a draft report for the organisation. This was submitted for comment, usually with a good many queries arising from collating the results of interviews, and from things I had not thought to ask about at the time. The draft was amended in the light of comments and re-submitted. The case studies were done to various timescales: in some cases all interviews were completed in a couple of days, and there was a quick response to drafts, in others interviews had to be spread over several months (sometimes because of the organisation's own requirements, sometimes because other work demands intervened for me). Where that happened, an interim draft was submitted before the balance of the interviews was completed, and a further draft after completion of interviews. While there were some exasperations associated with not always being able to get a straight run at case studies, the extended timescale of the project turned out to be something of an advantage.

Figure 2.2
Interview background

Research on the role of information products and information presentation in organisations

Background for case-study interviews
The purpose of this research

1 To look at how a range of organisations of different types manage the process of creating information products and presenting information.
2 To see whether the way they manage this process has any effect on their achievement of strategic objectives in such matters as information flow, communication, cost-effectiveness, efficiency.

This is essentially a practical project, and the main part of the work is based on case studies in real organisations.

One of the ultimate products of the research will also be practical; I plan to embody what I find out in a publication which is designed to be useful to organisations in the management of this important aspect of their activity. In the meantime, as I complete each case study, I shall present a report to management on it which I hope the organisations concerned will find helpful.

Case-study topics

The case studies will focus on these questions:

- What does the organisation do at present in the way of presenting information:
  For internal use?
  For communication with its 'outside world' ?
- Does it have a specific strategy that relates information products and presentation to its business strategy and key business objectives?
- Does it relate its information products to the management of its information resources?
- Who takes the decisions on what information products will be undertaken and how they will be presented?
- How does the management of the organisation regard information products and presentation?
- Who are the people who create the products?
  Do they work in-house or are their services bought in from outside?
  How are they trained?
  How do they do the job?
  Who are they responsible to?
- What technologies are used in creating the organisation's information products?
- What is the relationship between those responsible for in-house design and production of information products, and those who control the organisation's IT systems ?
- How does the organisation cost information products?
  How does it establish budgets for them?
  How does it evaluate them?

Case-study interviews

In each case-study organisation, I talk with a range of people selected by the organisation who are connected in various ways with its information products and presentation.

The interviews are informal, and usually last about one hour. My preparation for them includes studying material about the organisation and its aims and activities, examples of its publications, etc, so that I start with some basic knowledge and don't waste people's time.

I shall be very grateful if the people being interviewed can find time to think in advance about those of the questions on page 2 that are relevant to their own connection with information products and presentation. There may well be other relevant topics which I have not mentioned – if there are, I shall be very pleased if you will bring them up in our discussion. I shall also be interested to have examples of the products with which you are concerned.

▲

Following through over time

In effect, it enabled me to make longitudinal studies, and so to benefit from a moving picture, rather than a dated snapshot; I was able to observe changes over time, and to ask supplementary questions. As Susman & Everet (1978) remind us, positivist science eliminates the role of history in the generation of knowledge; 'present patterns of behaviour can many times only be understood as the product of shared definitions held by organization members regarding what their common endeavour is about.' (586) – and those definitions develop over time.

Briefings from the organisations on major changes that had taken place since the start of the case study, and discussions about them, proved of great advantage, particularly in case of the insurance company, which was in my home town, and where my contact was particularly conscientious about updating.

By the start of 1997, all the case studies (except one of twin medical research organisations, and the financial analysis company which was a late addition) had been written up and amended at least once in the light of comments from the organisations. A further round of updating was carried out during 1998, running through to early 1999.

Interleaving activities

Starting with case studies brought the advantage of interaction between practical investigations and my existing knowledge of relevant theory and research, which led on to new areas of reading, which in turn fed back the into the way in which I looked at organisations. (The principal new areas, outside those which I had kept track of over the years were business process re-engineering/process innovation, approaches to determining the costs and values of information, methodologies for studying organisations, organisational behaviour, organisational communication,

organisational learning.) This kind of interaction seems to match both what Reason (1988) describes as the dialectic of co-operative experiential inquiry – 'an aware and self-critical movement between experience and reflection which goes through several cycles as ideas, practice and experience are systematically honed and refined'; and the stages of analysis within grounded theory recommended by Easterby-Smith et al. (1991) – Familiarisation, Reflection, Conceptualisation, Cataloguing concepts, Refining the definition of concepts, Linking concepts into a more holistic theory, and Re-evaluation.

It also has some features in common with the 'Framework' analytical method described by Ritchie & Spencer (1994, Fig. 9.1) as being:

- Grounded or generative: heavily based on and driven by original accounts and observations of the people it relates to
- Dynamic: open to change, addition and amendment throughout the analytic process
- Systematic: allowing methodical treatment of all similar units of analysis
- Comprehensive: allowing full rather than partial or selective review of the material collected
- Enabling easy retrieval: access to and retrieval of original textual material
- Allowing between- and within-case analysis
- Accessible to others: analytic process and interpretation can be viewed and judged by others.

Without being based on the Framework approach (it was not encountered until a late stage) the present research has followed its main stages of

- Familiarisation (*op cit* p178) – getting a feeling for the material as a whole, in this instance by constantly returning to the individual case studies, and by comparison between them
- Identifying a thematic framework (*op cit* pp 179–180)– identifying recurrent themes and issues, both related to original research aims and emergent, to form a framework within which material can be sifted and sorted
- Mapping and interpretation (*op cit* pp 186–193) – looking at the data set as a whole, a 'non-mechanical and intuitive' process arising from immersion in the data, searching for a 'structure rather than a multiplicity of evidence'. The present research has followed a similar process of looking at the range of what happens in practice, and then (in Part 4) finding associations, proposing explanations, and suggesting a strategy that could be used in practice.

Trying it out

I took opportunities for writing and speaking about the research, in the UK and on a visit to Australia, as a means of getting feedback from information designers, academics and information practitioners. Speaking about what was emerging from the research to various audiences was particularly helpful. Besides the generally encouraging response, which helped to confirm my own belief that this research was worth doing, there were many useful exchanges, as well as new leads, for example on the training available for people in organisations with responsibility for information products, and an additional case study.

Second-stage case study

I intended from the start to carry out a second case study stage, though I did not initially know what form it would take. The ultimate decision arose partly from the findings from the case studies, and partly from other work in which I became involved. It became evident in the course of the case studies that information products had indeed a key role in interactions between organisations and their outside world, and between people within organisations, and that they represented a large investment. It was also clear that none of the organisations had made any attempts at setting a value (positive or negative), on their contribution. I myself, coincidentally, had to study the question of costs and values of information in another context during the early stages of the research – in the course of writing a commissioned chapter on the subject (Orna, 1996).

The decision to try to use a new method of arriving at a value was opportunistic; I had come across such a method (McPherson, 1994) at the right moment during the writing of the chapter. and one of the case study organisations was taking an interest in this area. This stage represents a combination between qualitative and quantitative methods, and is also closer to action research, in that it is a collaborative effort between members of organisation, the researcher, and the designer of the methodology.

The account of the IVM™ methodology which follows is quoted from Orna (1999):

> the Integrated Value Manager™, which has been developed by McPherson (1994, 1996) over the past five years or so is an instrument that measures the value of an asset, system or organization. It has now been employed in a number of businesses, for such purposes as cost justification and business case for a major IT system development whose outputs contained significant

intangible contributions benefiting managerial effectiveness; and extending corporate strategy of a public utility to include intangible factors as well as financial projections (for example strategic fit over political, market, competitive technical indicators, analysis of exposure to environmental and ethical risk, indicating the cost of compliance with environmental and ethical criteria). Based on the ideas mentioned above about a structured framework which is independent of the inputs of subjective human perspectives, it depends on the combination of the two, and both are essential. The strength, rigour and objectivity of the methodology are derived from its use of measurement theory to combine many different kinds of value contribution into proper indications of achieved value.

The basic ideas underlying the method are these:

- All organizations are systems for creating value
- The value they create is not just financial, and not only the organization is concerned; its activities have value effects for others – not only customers or shareholders, but also the wider community affected by its operations – and these reflect back in its reputation.
- There are, as shown in Figure 2.3, four essential value dimensions, one financial and three non-financial:

1 Financial (which includes both tangible assets and those which, while intangible, have direct financial value)
2 Operational (including processes, intellectual assets, information and organizational structures which support the creation of value)
3 Governance (including prudent management, security, ethical conduct, and respect for environmental values)
4 Reputation (in the eyes of stakeholders, customers, the media, and the public)

All four dimensions must be observable and measurable; therefore, as shown in Figure 2.4, we need a comprehensive methodology to deal with:

- Evaluation and combination of value in the three non-financial dimensions
- Combination of monetary and intangible value so that overall value-added on all four dimensions can be used as a decision variable, and for subsequent financial analysis (see Figure 2.5).

Figure 2.3
Aspects of value

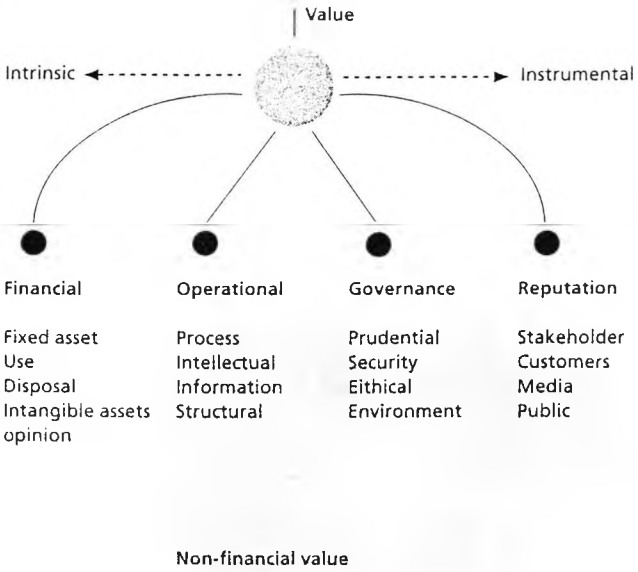
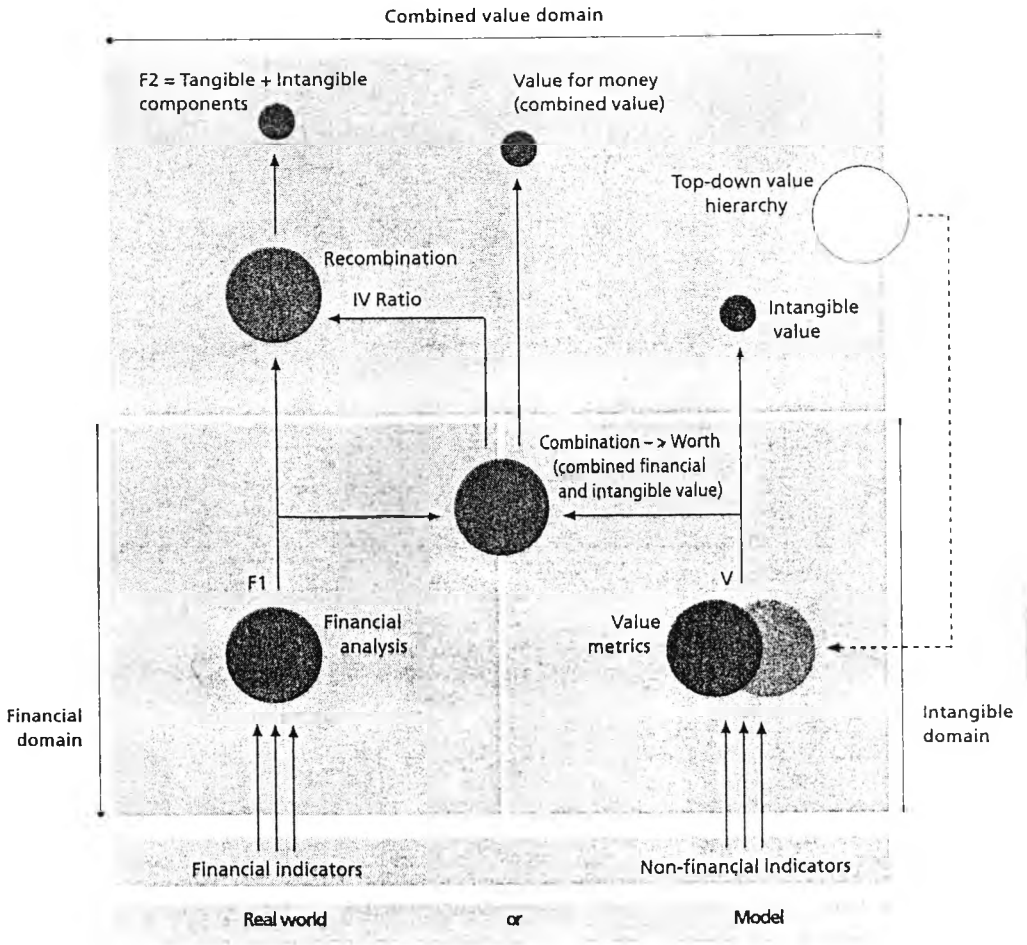


Figure 2.4
The IVM approach



Measurement methods are obviously the critical bit, and this is how McPherson approaches them.

Inputs:

- Financial inputs of revenue and costs: conventional accounting; financial audit
- For the non-financial: a range of measurement tools, including: Performance measurement, information audit; Governance, ethical, and environmental audit; Opinion surveys, market research, analysis of correspondence

Intermediate outputs:

- Financial – projections of discounted cash flow, net present value, shareholder value added
- The others: Non-financial Value Added – delivered as 'normalized utilities', and then combined to indicate 'Combined Non-financial Value' (see Figure 2.5).

Final outputs:

The final output is the amalgamation of financial and non-financial value to give an inclusive value, in which the proportions of accountable value added contributed by all four dimensions can be shown. It allows the organization to see what such intangible elements as knowledge and information are contributing, to express that proportion in equivalent money value, and to compare their actual contribution with what they *should* contribute (see Figure 2.6)

Figure 2.5
Measuring value with the IVM: capital and operational assets

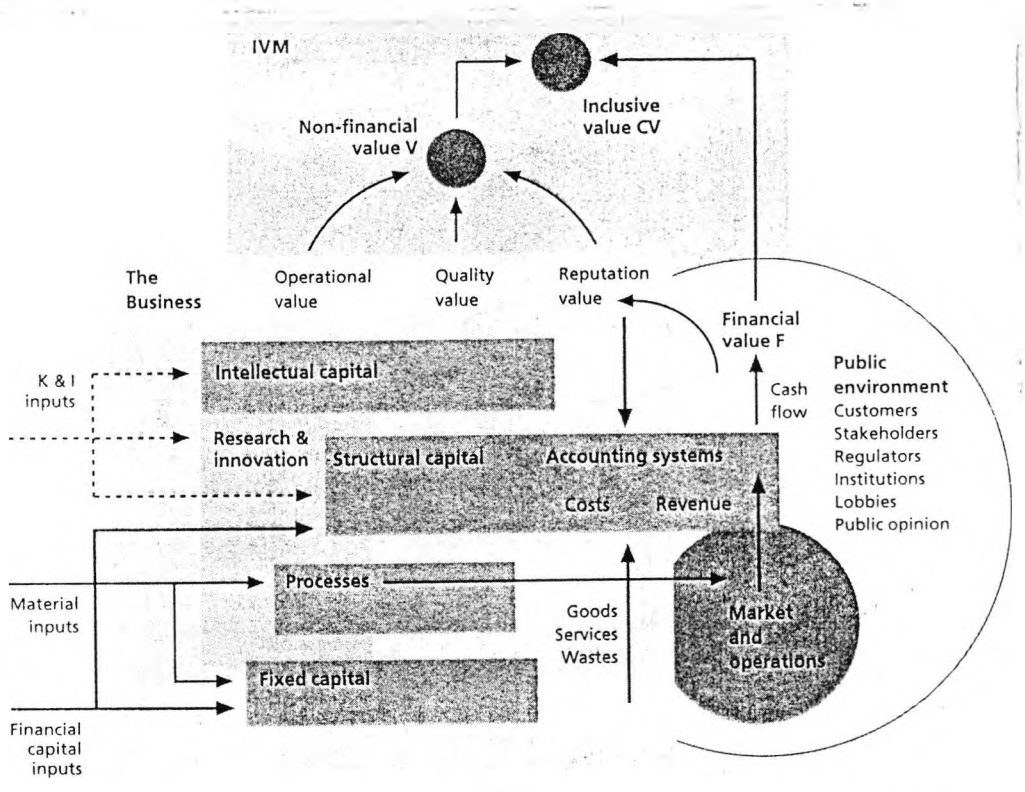


Figure 2.6
The value-measuring process

Figures 2.3 – 2.6 are reproduced from illustrations by Graham Stevens in Orna (1999); they are based, with kind permission, on unpublished originals by McPherson

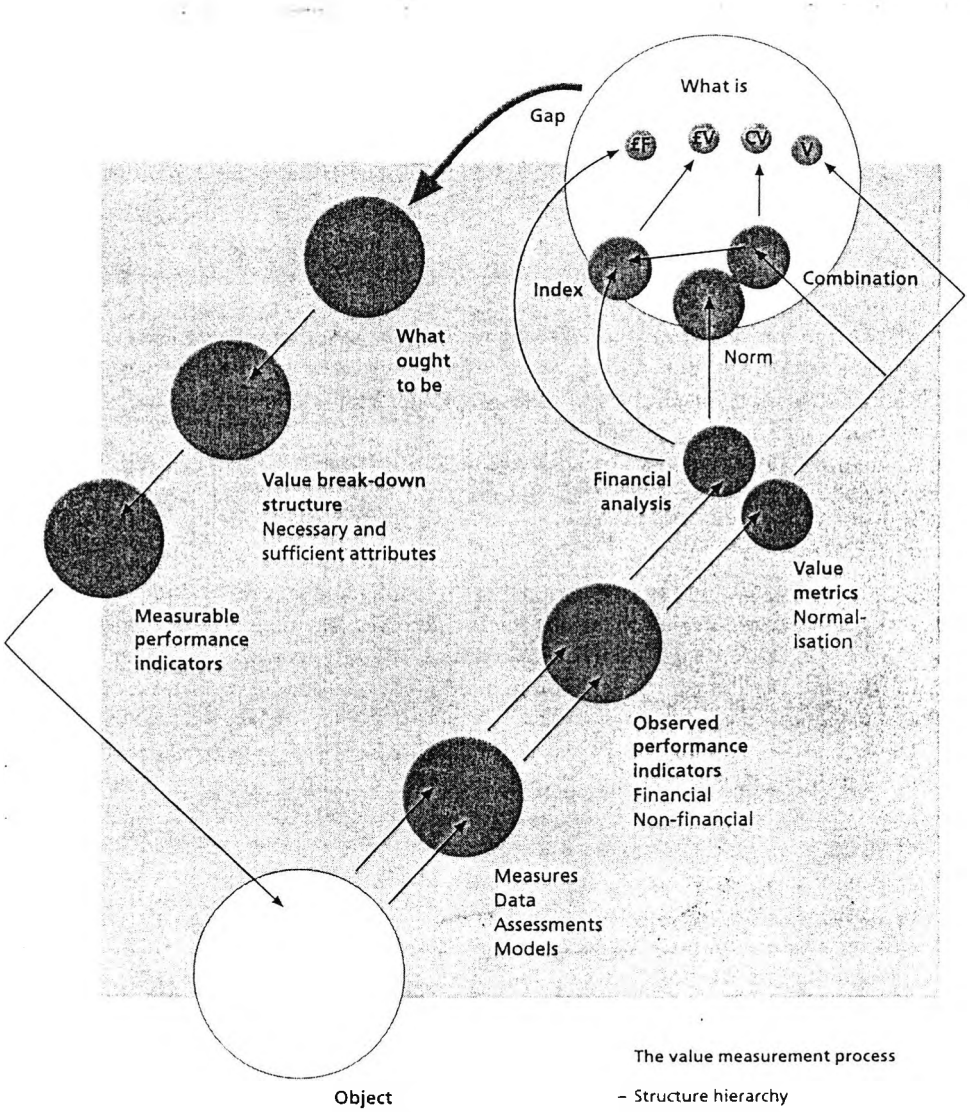


Figure 2.7 shows the terms of the proposal for the IVM application.

Figure 2.7
Proposal for further research in Norwich Union

▼

Proposal for further research in Norwich Union
July 1996

Background

A case study (one of ten such studies in a range of organisations) has been carried out over the past two years through the intermediary of Group Corporate Affairs and with the co-operation of managers in relevant areas of the business. The case study has covered:

- The key objectives and strategies of the Group
- Its organisational culture
- How decisions on information products are taken
- How costs and budgets are established
- The range of information products, for external and internal users
- The Group's information resources, and their potential for use in developing information products
- The human resources involved
- The approach to the presentation of information
- Production
- Testing, monitoring and evaluation of information products

The outcome is a picture of how the Group currently manages this aspect of its business, and of the changes that have taken place over the past two years (it is intended to keep on updating the situation up to the point when the thesis is delivered, so that the case studies show developments over time, rather than being just 'snapshots').

All the case studies end with the researcher's evaluation of the present situation, pointing to what appear to be 'Strengths, Weaknesses, Opportunities, and Threats' in relation to the management of information products. In the case of Norwich Union there are a some strongly positive features:

- It is the only organisation encountered so far in the research which makes a serious attempt to test information products in use.

- It is committed to open communication within the organisation.
- It seeks to integrate staff with professional skills in the field of information products into the businesses which develop information products.

On the other side, there are factors which may have the effect of preventing the Group from getting full benefit from its investment in information products and presentation:

- Lack of unified management of information products.
- The creation and delivery of information products is not recognised as a business process in itself.
- Difficulties in the way of making full use of information resources, especially about customers, in developing information products.

Further development of the research

The aim of the research goes beyond description of what a sample of real organisations do; it seeks also to establish the effects of information products and presentation on organisations' achievement of strategic objectives in such matters as information flow, communication, cost-effectiveness, efficiency.

It is clear from the findings from the case studies that information products make an important contribution – which may be positive or negative – to achieving goals of organisations. They are the tangible representation of organisational values and knowledge, and the main vehicle by which these values, and information based on organisational knowledge, are conveyed to their outside and inside worlds for action. As such they are intended to contribute to the perspectives of 'stakeholders' inside and outside the organisation, and to inclusive value added.

But while organisations recognise the importance of their information products, none of those studied has yet attempted to establish a measure of the contribution they make which is rigorous enough to be accepted 'as an equal partner to monetary value', and to be set alongside economic value added to give 'combined value added'. (McPherson, 1994)

Sound decisions on such matters as the allocation of resources to information products, and policies for their development can be made only on the basis of applying such measures, because they alone will allow organisations to make a realistic judgment of the contribution information products are making to adding value.

The contributions of information products to added value

The inputs to information products are both

1 Tangible monetary ones (expressed in staff time and production costs) and
2 Intangible non-monetary ones (professional knowledge and skill, expressed in decisions, interpretations, information interchange, utilisation of information, analysis, and synthesis).

The use of the products can show positive or negative effects which can be measured directly in monetary terms: on the one hand, business gained as a direct result of the use of the products; on the other, the costs of correcting the results of users' misunderstanding of the information in the products and acting inappropriately, or the costs of the loss of customers because of dissatisfaction with the accuracy of the products and the quality or ease of use of the information

The products also have intangible effects which are no less real though they cannot be directly expressed in monetary terms. In relation to the organisation's 'outside world', they include: customer satisfaction, retention of customers, new customers, and gain of knowledge through interaction with customers, leading to the development of new products or services.

Products internal to the business can produce intangible gains in support for more effective working, co-operation across functional boundaries, information interchange, negotiation, decision-making, feedback, re-evaluation, development

The combination of external and internal information products can add value to the organisation's achievement of its objectives (including ethical and environmental), and the development of strategies for the use of information.

Equally, the intangible effects on added value can be negative ones.

The method proposed

The methodology is one developed by McPherson. It depends on a combination of judgments by managers (based on key business objectives), with an interactive computer aid which provides an objective structured framework for deriving combined monetary and intangible value added.

Outcomes for the company

There is a good basis for applying this approach in Norwich Union, not only because of the positive aspects of its management of information products already mentioned, but also because of its emphasis on the importance of value

added, and its identification of ethical and environmental objectives. The outcomes that it should gain are:

1 A well founded measure of the contribution which information products are making to value added chains.
2 A basis for incorporating the Group's information products into an information strategy, derived from its business strategy.

▲

Conclusion

This brings to a close the description of the 'What, Why, and How' of the research. The next part (Chapters 3 and 4) presents (Chapter 3) an outline of existing research of varying degrees of relevance to the area, which constitutes a kind of map, showing unexplored areas as well as those which are both relevant and reasonably well examined, and (Chapter 4) the theory which developed during the research and in turn shaped its further development.

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Part 2

A review of research, and a theory of information products

3
What is available on the subject of the research; what is missing

This chapter aims to give an overview of

1 Existing research and ideas from the literature relevant to the central questions which I am seeking to answer
and, since this is a practical piece of research,
2 What is available to help organisations manage their information products, in the way of access to research findings, training, advice

Figure 3.1 shows the central questions of the research and relevant topics arranged according to how close they are to the questions.

The purpose is to show what research has been done, what ideas are on offer, how much there is, and what is mostly lacking. In this place, I am not aiming to be exhaustive nor to analyse in depth (though there are observations to be made about the quality of some of the offerings). Chapter 4 returns to some of the ideas and draws on them in formulating a theoretical basis for a proposed role for information products in organisations.

Existing research and thinking

Figure 3.1 is a 'map' of the topics covered in this review and of their relationship to the central question of the present research.

The intersection of information management, information products, information design

Personal experience of the intersection and interaction of the activities concerned with information management, information products and information design, in the context of organisations, has led me to visualise them in the way shown in Figure 3.2

Figure 3.1
A map of the topics covered in this review

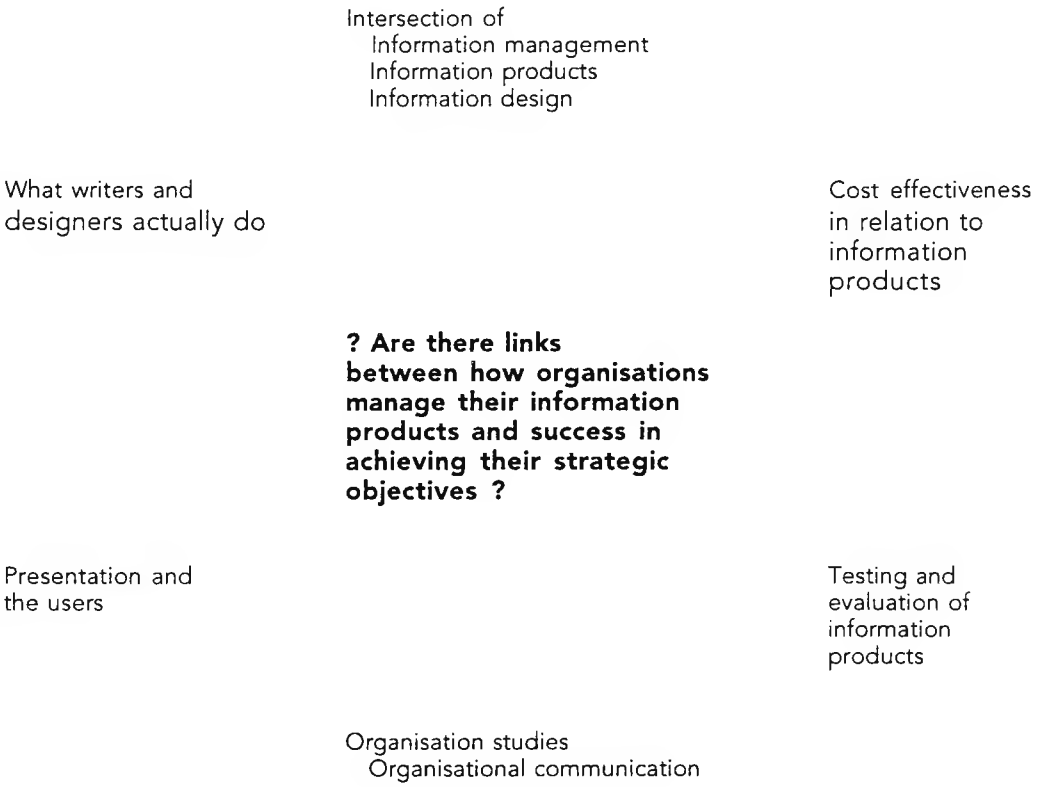
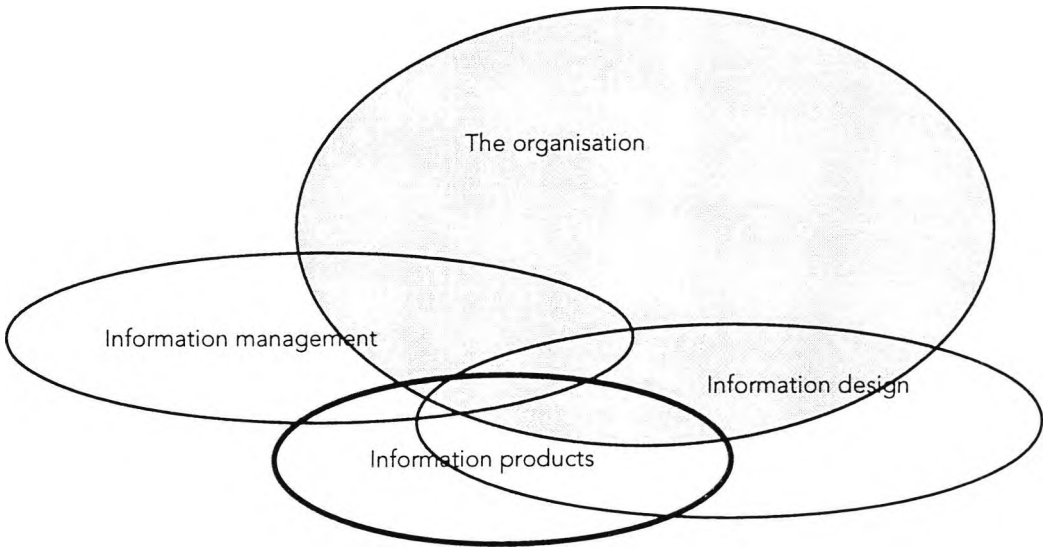


Figure 3.2
The intersection of information management, information products, and information design in the organisational context



Appreciation that information management has to be concerned with information products and presentation. Taylor (1982) put forward the idea of 'organizational information environments'. In this, as in other respects, his thinking was in advance of the time. Information environments are made up of variables that affect the movement of information messages into, within and out of organisations and that determine the criteria by which the value of information messages will be judged in that context. Some of the variables have to do with the organisation's 'demographics' and information flow patterns and channels, the context in which it operates, what it seeks to do; others are concerned with its systems and technologies for generating, storing, organising and delivering messages; others again with the people in the organisation and their 'responsibilities, tasks, and problems as reflected in information terms.' Information products seen as among outputs of information systems.

He argues for information auditing (one of the earliest uses of the term) as a means of looking 'backward' at the design of the production or support system, and '"forward" to the function and utility of these outputs' (p313), and proposes that, in order to make information systems more cost-effective, criteria for assessing the outputs should be derived from users and their environments. He defines information products as being generally tangibles, like books, monthly accounting reports, or online displays – on the same continuum as services, but at the opposite end. Questions that he recommends asking about services, but which are equally applicable to products, include:

- What 'intangible functions' do they meet?
- What are their modes of presentation, their level of complexity?
- What level and amount of quantitative data do they embody?
- What 'access mechanisms' like contents and indexes do they possess?
- What is the match between scope and coverage on one hand and function on the other?
- How much novelty is there in the structure of messages?
- What is the effect of formal rules, policies and procedures on output and its standardisation?
- What is the medium?
- What nature of human expertise is required?
- How much evaluation, analysis and interpretation of information goes on at the output end?

- What is the nature and amount of feedback?

The key questions for each type of output are how it is actually used and how well it serves its intended function.

With some foresight, Taylor identifies the problem of evaluating the role that information 'in any formal form' plays in the success or failure of performance as 'one of special importance in the design, management, operation and evaluation of information systems and their products and services.' (p318) and one which should 'concern the professional for at least the next decade'. (It certainly is concerning the information profession and business, during the 1990s – see p64 for current references to the general topic). A more recent contribution from Farkas-Conn (1996) refers to the specific contribution of information products. She quotes from studies of R&D in the chemical processes industry which indicate the value which information services can create for the development process by working with process and design engineers and with IT colleagues to create such products as information warehouses – 'the intellectual capital repositories of the company' (p168). Karamuftuoglu (1999) emphasises 'the importance of social knowledge and social (collaborative) means of gathering, distribution and use of information for information/innovation based economies' in arguing for the 'knowledge production potential' (which implies information products to make the knowledge visible) of information storage and retrieval systems and the professionals who manage them . Watson (1999) makes a similar point about a changed role for information professionals, in relation to web sites and intranets: 'The web is not just about finding information: it is about publishing, broadcasting, establishing networks and developing interactive services', and information specialists have an important role to play.

The need for their participation in this kind of activity is implicit in the analysis made by Koniger & Janowitz (1995). They attribute the plight of users who are 'thirsty for knowledge' but 'drowning in information' to failures to structure the information presented – conceptually and visually – rather than to sheer quantity. The problem is compounded by technology which creates 'new structures that are more diverse and more complex than anything seen before' (p6) but which at the same time deprives readers of the functional clues to which they are accustomed from the traditions of print. This dissolution of traditional information structures is a challenge which should be met by identifying universal structuring elements applicable to all information

media, by selecting information content appropriately, by making the life-span of the content evident, and by providing good indexing to overcome the problem of information that cannot be ordered along a 'single continuum' (p12). The authors identify particular problems of electronic media – designers of information systems lack the general cultural background that has been available to writers for print, 'typography is presently losing its capability to express information structure' (p15). 'Screen layout, typography, colours and interaction methods have to be designed professionally', and they have to be applied consistently to information of similar types (p15), and we need signs to indicate information structures that 'are as familiar to us as road signs indicating direction'.

The concerns expressed by Koniger and Janowitz imply solutions to which both information science and information design should contribute. Taylor (1997) provides an encouraging example of interest from the side of information design. He argues that 'all the visible, discrete products through which information is presented to people for their use, whatever its medium of delivery' should be recognised as information products, and should benefit from the combined application of three kinds of professional activity: information technology, information design and information management.

Common ground between information science and information design. A reminder of the definitions of information design I am using (see Chapter 1, p17)

> A broad definition:
> Everything we do to make ideas visible so that others can make them their own and use them for their own purposes.
>
> A specific definition related to graphic and typographic design:
> An area of graphic and typographic design which is concerned with 'products that have a high information content, where words are the vehicle for much of the information'. The relationship between the designer and the user is to a large extent 'user-driven' in that 'there is a known body of users who desire certain knowledge'; and 'it is the cognitive aspects of the user that are of most significance, though feelings related to the user's need for knowledge ... are also taken into account'.

Working for many years with an information designer has led me to think a good deal about whether there is common ground between information science and information design; our joint reflections on the subject are summarised (Orna & Stevens, 1991) in these terms:

> In different ways, both are concerned with: knowledge structures, that is, the way in which human beings store in their minds what they have learned and experienced; how those internal structures of knowledge are transformed by a series of processes into information ... which is put into some kind of "container", so that it may be used by others for purposes they have themselves defined. (p203)

The special area of interest for information science has traditionally been what McArthur (1986) terms 'mental containers' (or 'knowledge structures') and the conceptual aspects of external containers for information. But, as information science becomes, in Ingwersen's (1992) terms 'more human driven', information professionals are becoming concerned with the next stages of information design – 'adding value' by developing actual information products. The involvement, where it exists, is at present mostly tentative and poorly supported, but initiatives in the higher education of information professionals (see below, p62) may lead to future improvement.

Information design – defined by Stiff (1994) as 'user-centred communication design' has traditionally taken for its territory the visual aspects of structuring external containers so as to make information readily convertible into knowledge by the users. Here too, practitioners are being drawn into the earlier stages concerned with conceptual structures of knowledge and information, through working in teams with writers and marketing people, or through becoming 'hybrid designers' who both write and design.

The emphasis which information scientists place on 'the use and transformation of information into knowledge on both the individual and societal level' (Ingwersen, 1992), and on the evaluation of the role of information outputs in success or failure of performance (Taylor, 1982) is matched by information design research on effectiveness criteria for information products.

McPherson (1995), who has introduced interesting new thinking into the problem of valuing information and other intangibles, has elaborated on Taylor's concept of the 'information environment' (see p57) of organisations, and draws attention to the

relation between information presentation and 'human cognitive need' in all its aspects:

The presentation of information should:

(a) match both the managerial requirement and the mental tasks deployed at each stage in meeting the requirement;

(b) be presented in a manner that encourages human intuition, supports ratiocination, and integrates the two (ie the left and right lobe modes of thinking are integrated).

Modern research on information design started in the 1960s with the establishment of the Print Research Unit at the Royal College of Art. The early emphasis was on typography and its effects on legibility and ease of use of the products. This strand of research has over the years led to significant findings on the importance for accessibility of such features as line length, spacing, typefaces, type sizes, and page structure (see Stevens, 1995, for a summary, and p80 for more about the typographic and graphic aspects of information design). As Ennis (1979/80) pointed out in a review of UK research trends, however, there was a need to link this with research on 'reading strategies, reading purposes and the type of audience' (p7), and indeed later research on information design has looked at the context in which information products are read, and particularly on the users.

The British Library sponsored research on information design in the late 1970s. The group involved in the project included typographic designers and researchers in applied psychology. The researchers accepted as 'axiomatic' that information design needed to be related to the context of the communication; contextual factors included:

- Content
- Objectives of communication
- Circumstances of use
- User characteristics
- Constraints which the information providers had to observe.

While the report on the research (Wright, 1979) commented on the fact that organisations were 'content to ignore' findings on how to present information effectively, the only solution suggested was 'user education' to increase typographic

awareness. The organisational process of creating information products was not considered.

The research was not pursued by the British Library (though some 10 years later it sponsored a project by Lewis, described below), but it did lead on to the establishment of the *Information Design Journal,* and later of the Information Design Association. The majority of the contributions to the *Journal* are in such areas as labelling and instructions for use of products, form design, signs and signing systems, typography and information graphics; there are, however, valuable excursions into topics with a bearing on how organisations conduct themselves, such as the presentation of financial graphs in company annual reports, and the implications of form re-design for power structures in businesses. A similar balance of content prevails in the international Infodesign conferences organised by the Association and the Information Design Network based at Coventry University; the 1999 programme devotes just one session to 'Information design and business processes' among others on screen design, wayfinding, user research, and communicating health and community information.

Kempson and Moore (1994) have aimed to bring relevant research findings to those who are responsible for the design of documents addressed to the general public; the focus here is on forms and leaflets, rather than on the range of more complex products addressed by organisations to their specific external and internal audiences.

The project by Lewis mentioned above (Lewis, 1991) was supported by the British Library in the Department of Librarianship and Information Science at Birmingham Polytechnic, with the aim of increasing awareness of information design among students in higher education. The module developed there was subsequently taught in the Technical Communication degree course at the then Coventry Polytechnic (now Coventry University). So far as can be judged from the original syllabus, there was a fair coverage of important topics, but nothing about how they might be integrated by future information professionals with information management in the context of specific organisations.

Since then, a number of publishing courses – first degree, post- graduate and post-experience –have been developed in various institutions of higher education. While most are specifically oriented to business, editorial or production aspects of the industry, one or two, offered in departments of information/library studies, combine information management and publishing; course content includes, besides the

information management elements, business planning, desktop publishing, design and production processes, editorial techniques, marketing, promotion and publicity.

In Australia, many degree courses in information studies have a significant element devoted to information products and information design, in particular at the University of Technology Sydney, whose BSc Applied Science (Information) course, developed in the mid-1980s, seems to have pioneered this aspect of professional education, with particular emphasis on its integration into the practice of information management in organisations (see, for example, Yerbury et al., 1991, who describe a teaching programme which emphasises the marketing of information products, the role of information workers in making it easier to use products by means of added-value activities, and the role of design in adding value to information products).

Australia is also the home of the Communications Research Institute of Australia (CRIA) – a body with a unique focus on the research area. Sless (1996) draws on the Institute's experience to recount how thinking on information design has developed to embrace the relationship between products and their users, but has failed so far to take in those between 'people and institutions' and what he describes as 'political relationships'. He suggests a further transition is in progress, made possible by the growing power of IT to organise and manipulate graphic material, and by advances in thinking about 'complex relationships between people and information.' In support of his argument he quotes what Moholy Nagy wrote in 1938 on designing as a 'complex and intricate task ... the integration of technological, social and economic requirements, biological necessities, and the psychophysical effect of materials, shape, colour, volume, and space: thinking in relationships.'

Sless (1995a) also stakes a claim for a 'new profession of information designers' who 'transcend the physical and go to the heart of the functional information needs of an organisation, creating powerful systems that simultaneously shape whole classes of information for workers, consumers and citizens.'

MacKenzie-Taylor (1993/1999) gives a pertinent caution about the danger, in these new and useful approaches, of throwing the baby of aesthetics out with the bathwater of exclusive concentration on the artefact:

> in focusing on performance criteria which are external to the artefact, many of the new generation of information designers, (particularly those from disciplines outside typography and design), have overlooked the essential role that the aesthetic of the artefact plays in the very performance being measured.

> [They] often have little appreciation of, or regard for, the physicality of the product they are involved in producing. Because they have had no physical contact with the type of forms they manipulate, or with the rich and ancient tradition of paper and print, they have little understanding of the meticulousness of the craft – the care and sensibility expressed in a piece of visual communication.

An interesting, and so far as I know unique, approach comes from Meyer and Zack (1996), who bring the design of information products fully into the field of organisational strategy for managing information. They argue that information products should be thought about in the same way as physical ones, that is, in terms of 'architecture' (an overall design concept covering a whole range of products) and 'platform' (an integrated set of common subsystems for creating families of products that can evolve over time, together with a set of technical processes to support them).

With information products, the product platform is the organisation's 'repository' of information (its information resources) consisting of both information content and information 'containers' such as files, databases, or documents. How useful and usable the repository is will depend on its architecture – the way information is structured, the elements into which it is broken down, the ways in which it can be accessed, and how it is managed.

The manufacturing of information products resembles, according to Meyer and Zack, refining; it consists of the stages of acquiring raw materials; refining them (a range of activities to make products accessible to users, from indexing to analysing trends by means of appropriate software); storage and retrieval; distribution; and presentation – 'ensuring ease of use and sufficient functionality is part and parcel of the information product itself' (p48). To manage its information products successfully, an organisation needs an appropriate infrastructure of hardware, software and telecommunications; internal knowledge about its own business; external knowledge about its current and emerging markets; and understanding of how it organises and manages itself (p49). If it can keep its technological infrastructure, its repository and refinery, and its knowledge up to date, and make quick use of it, it can create new information products very cheaply compared with the costs for physical products. And the authors' view is that the greatest potential lies in the acquisition and refinement stages, rather than in the use of output-end technology such as the World Wide Web (p50)

Cost-effectiveness in relation to information products

There is a growing research interest in value adding through information management, via intelligence gathering, interpretation, collation, analysis and synthesis, and in methods for assessing the value of information to organisations (major trends are summarised in Orna 1996). So far, however, it has not, with one or two exceptions, extended to the actual endproducts and their presentation; this was one of the reasons for choosing to carry out a second-stage case study on this topic in one of the case study organisations (see Chapter 9 and the Norwich Union second-stage case study in Volume 2)

While the information resources of organisations have actual and potential value as a 'quarry' for information products, there appears to have been little research on the application of information management to identify resources with the potential for transformation into products that will support the organisation's aims, improve its competitive position, or add value in other ways. The work of Meyer and Zack described above is unusual in looking explicitly at this area.

Taylor (1982) whose work has already been mentioned, introduces the metaphor of the value-added spectrum, along which data is transformed successively to information, knowledge and action; the value of information lies in the judgments of users about its usefulness to what they want to do. He places information products in 'the lower part of the value-added spectrum' as lacking in differentiation – a judgment which might well be revised today in the light of the emphasis laid, in theory at any rate, on a range of highly customised products.

Given the amount that organisations invest in their information products, and their frequent attempts to keep the costs of their production down, it is surprising how little has been written on the cost-effectiveness of information products, ie the relation between what they cost and the added value they achieve for the organisation that creates them.

Sless (1994) refers to the dangers that organisations, especially those in information-intensive industries, court when they 'hit out at paper work and try to control printing and design costs' by handing responsibility for design as well as printing to a printer.

> Printing companies have no primary interest in good design, their primary interest is in volume printing. Asking a printer to look after both your design and printing

> needs, without the advice of a professional intermediary, is like asking a drug company to supply all your medication needs, without a doctor acting as a professional intermediary.

The same author (1995b) draws attention to another aspect of unappreciated cost where information products are concerned– the loss of customer goodwill which comes about when governments and businesses outsource the costs of presenting complex information to the outside world by passing them on to the end users. Penman (1996) makes a similar point in discussing the distinction between corporate identity (on which organisations often spend a lot) and corporate reputation, where they often fail to see the potential of information products for adding value.

Examples of the negative added value which information products can bring to organisations if they fail to invest in appropriate quality are comparatively rare – probably because there are not many situations where it is possible to put a direct financial cost on the results – but those that exist are telling ones.

Herget (1995) makes the straightforward point that when any product is defective, 'the buyer incurs additional costs' and when those costs are too high to be borne, purchasers vote with their feet and stop buying the product. He cites a case which illustrates this principle, drawn from a company which provides customers with tailor-made compilations of reviews from technical magazines world-wide. Losses that could have been avoided by attending to quality before delivering the products amount to:

Lost clients (40/year at 5000 Ecu each) of which 50 per cent due to quality failure	100,000 Ecu
Quality inspection	16,000
Editing costs	20,000
Feedback	10,000
'Defensive' client visits	25,000
Internal firefighting	25,000
Internal administration	10,000
Total cost of 'non-quality'	206,000 Ecu

I found a comparable situation in a consultancy assignment some years ago (Orna, 1990, pp281–288). An organisation which depended on a single information product was losing customers as fast as it gained them mainly because its management had not recognised that the quality of the product depended on high-level indexing skills, and was using people with keyboard skills for the task. The losses were compounded by poor information flows inside the company and between it and its customers, and by lack of quality control at all points in the production process.

Fisher & Sless (1990) present an extensive account of an information design project by the CRIA in a large Australian insurance company, to improve the quality of its forms and establish standards for them. The existing ones were the result of piecemeal changes and of computer system interfaces which had not been designed to suit the ways in which data was collected and presented. Interviews with people in various situations in the company revealed that policy proposal forms which customers completed created the greatest problems for both sales and processing staff, each of whom blamed the other for the design of the forms. Analysis of a sample of 200 forms revealed that 100 per cent of them contained errors, with a total of 1560 for the whole sample, and that turn-around to acceptance of proposals ranged from 1 to 167 days. They estimated the staff time needed to repair each category of error found, and worked out the cost for each category and the approximate total cost to the company. At a conservative estimate the total number of errors per year exceeded 320,000, requiring over 53,000 hours to repair, at a salary cost for the people making the repairs in excess of $A551,000. (Similar work on the cost of errors in forms for the UK Department of Health and Social Security was reported by Coopers & Lybrand in 1986 (Kempson & Moore, 1994), though the actual costs are not quoted.)

Development of a new design which would help to bring down these costs by making it easier to fill in the form correctly depended strongly on understanding organisational politics, involving the stakeholders in the associated processes closely in the development while formalising the points at which they made decisions, and allowing a lot of project time for negotiations (though this still proved to be an under-estimate). Acceptance of the new design depended critically on the significant reduction of error rates it delivered: only 15 per cent of the new forms contained errors as against 100 per cent of the original version; turnaround times were significantly reduced; there were only 44 errors in a sample of 200 new forms as against 1560 in a similar sample of the old one, a reduction of 97 per cent. Savings in the cost of time

spent on repairing the errors were over $A500,000 or five times the cost of the whole project.

As the authors point out, the kind of costs measured by this project have not usually been taken into account, and the traditional data processing costings of information systems are misleading. 'Organisations would do well to revise their thinking on such matters, particularly if their objective is to improve productivity.'

Tourish (1997) describes a General Motors communications programme in the 1980s, which included upgrading an internal newsletter, by increasing its frequency of publication and including much more business information; a variety of other publications were introduced, including one jointly written and funded with the trade unions; and a communications review group evaluated the range of publications issues. It is claimed that business performance subsequently improved; budget savings of 2.8 per cent were recorded in the first year after these initiatives, 4.9 per cent in year two, 3.2 per cent in year three and 2.2 per cent in year four, and sales doubled over a seven-year period – though it is not made clear whether this was *propter hoc* or just *post hoc.*

van Wegen & de Hoog (1996) take a different approach to the measurement of the value conferred by information products/commodities; while they are particularly concerned with information systems as a special type of information commodity, their argument is applicable to the information products with which the present research deals. They define information commodities as a combination of information and 'information carrier' and argue that it is the combination which is responsible for added value in use (p247), and that information products add value to a range of information processing activities and not just to decision-making. The focus is on the impact on the user's production process, and activity-based costing is used as the method for assigning costs – so, as the authors point out, it is not designed to quantify benefits other than those resulting from increased efficiency, and does not involve those resulting from reduction of uncertainty or risk (p259).

Michel (1990) describes applications in France of Value Analysis – originally developed in the United States for General Electric for designing its products to improve quality and reduce cost – to information and documentation. VAID (Value Analysis in Information and Documentation) seeks to establish the optimum cost for satisfying the needs of the users. The method depends on teamwork among people representing different viewpoints on the information product concerned, strict job planning, analysis of the product's functions in relation to the needs of the users,

costing of the product, and creativity techniques designed to find new solutions. Michel acknowledges problems in the way of applying VAID, notably the difficulties which information specialists find in knowing the costs of their products or services, their inadequate knowledge of the users and their needs, and their lack of management experience.

Yet another approach is through looking at how the systems and technology in use support those who create and those who use information products, and the effect on costs. Duffy (1995) considers obstacles that existing computer-based editing tools put in the way of editors in performing key tasks which have a critical effect on quality and usability of the end product, and the costs involved.[1] Vessey (1994) attempts a cost–benefit analysis of published studies of the use of graphs versus tables in decision support systems, suggesting that when users are engaged in analytical processes, they are best (ie most economically in terms of minimising error and effort) supported by tables, while graphs are more appropriate for perceptual processes.

Testing and evaluation of information products

The literature of information science and information management is not rich in discussions of how people understand the information products which are meant to help them take action. Abbott (1997) looks at areas of study concerned with

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[1] Fryer (1998) provides a down-to-earth footnote on the unconsidered costs in printing and paper that are associated with making information available electronically. The NatWest Bank's document solutions group found that the bank had no cost centre for documents and was wasting millions of pounds a year on printing, distributing and storing paper documents; while studies by CAP Ventures and by The Ashburnham Group conclude that the combined costs associated with printing amount to three times a typical IT budget or 6 to 15 per cent of gross corporate revenues – One London firm was said to have spent the equivalent of the year's total company profits on print production. Surveys by The Ashburnham Group in 1996 and 1997 suggest that 90 – 95 per cent of electronic documents finish up in paper form, each one being reproduced up to 19 times during its life. So much for the paperless office.

understanding and its anomalies, and attempts to bring them within the orbit of a proposed theoretical information science model. He discusses 'subjective divergences from official knowledge structures' and the 'discrepancy between physical reality and what intuitively is believed to happen', with examples from research on the misunderstanding of nutrition. While there is nothing new in his statement that to transfer information successfully products have to be piloted in detail, without prior assumptions 'on samples representative of the intended target population', his reminder that what we understand from new information depends on what we already know (or think we know) is one not often met in the literature of testing information products. Also novel is his proposal that we should study erroneous beliefs and inaccurate knowledge, and knowledge as actually possessed and used, as the basis for 'easing problems of faulty communication between experts and laymen.'

Most of the discussion of testing information products is in journals concerned with information design and technical authorship (the role of Plain English and readability in testing is discussed in connection with presentation in words, on p82). Here the emphasis is on involving users in various ways, and at various stages from pilot versions of products to post-publication. The CRIA in particular has developed a distinctive approach, summarised by Wiseman et al. (1996). They maintain that such commonly used testing methods as attitude surveys, preference tests and focus groups are of little value in information design.

Attitude is out because researchers have no agreed definition of what it is and hence no agreed way of measuring it; measurement of 'attitude' cannot be used to predict how its owners will behave; and changes in attitudes do not necessarily lead to changes in behaviour – 'in short, there is no useful correlation between attitudes and what people do' and so one cannot use attitude surveys to predict how people will use information, where they will have trouble in using it and what they might do in consequence.

Preference testing fails because a) the same choice may be made for quite different reasons by different users, and b) 'there is no clear relationship between peoples' preferences and what they find easiest to use or understand'. They cite examples where a form of presentation preferred by users does not in fact improve their understanding of the product and their ability to take the appropriate action. (Seigel, 1990, describes an experiment with a legal document which suggests that the surface signals of contemporary typography can delude users into accepting a product with

unreconstructed content – though the findings may mean no more that the subjects did not investigate the content too closely! It was found that a version with simplified content and changed design scored highly, but so did one with kept the original language presented in the changed design.)

The currently fashionable focus groups (typically involving a number of people brought together to discuss a given issue with a researcher and originally used in social science research to help researchers develop initial ideas) are inappropriate for testing information design solutions because 'the group environment is usually quite unlike the solitary context in which much information is used.' (Focus groups are advocated by, for example, Smart et al., 1995, who commend them to technical communicators as part of a 'holistic approach' to meet cost constraints, combined with usability, 'contextual inquiry' and customer surveys.)

Diagnostic testing is the preferred solution of the CRIA – 'the best way to ensure that information and interfaces can be used is to observe how people use them in the context in which they will be used.' As applied in practice it involves asking people to carry out the tasks they would normally do with the product under design, and to tell the researchers what they are doing and what they do not understand or find difficult. Modifications are made in the light of diagnosis of what the users reported, and the process is repeated until 'people can use the information at acceptable performance levels. The testing is driven by the user – and only they can say what is working and what is not.' The authors note that this type of testing has gained acceptance by some ergonomists and usability engineers. Besides the cases which they cite, Bist et al. (1993) describe how writers and editors at IBM Canada recruited the help of a network of customers, and of product planning, marketing and systems colleagues, to get user feedback during the designing and writing of information products to support applications software. Drafts for review are either sent out with visiting systems engineers, or via the Internet, or fax or post. They comment on the value of early feedback, and on the fact that 'comments from customers tend to focus on ease of use, in contrast to those from product developers, which focused on technical accuracy.' (p716) They observe that these comments had both a direct economic value in saving time and effort ('we began directing our resources towards areas that both we and our customers identified as requiring work, and allocated fewer resources to areas that we alone considered to be priorities.', p717), and a value in increased and productive customer contact ('we originally involved customers to verify our assumptions about

our documentation, but the experiment seemed to change our view. The review process developed into a collaborative effort in which authors and users of documentation cooperated to produce practical, useful books oriented to a customer (not a developer) environment' (p719)

Wright (1995) welcomes the emphasis on diagnostic testing involving users as key actors, but cautions that it is not easy to do and cannot be reduced to rules, and that the process of evaluation of products once published needs to evolve with time; she recommends supplementing it with cognitive task analysis, as used in computer interface design.

One interesting finding from research among users of an official leaflet on Income Support for young people (Cragg Ross & Dawson, Ltd, 1990) was the extent to which users preferred to go to an index which formed part of the leaflet, so as to identify relevant content, rather than to read the whole thing – which seems to confirm the importance of 'signposting' which has been proposed by many writers on principles of document design (see for example Redish et al. (1981a)

There is a large literature of 'usability testing' originating mainly from the side of systems designers. From the point of view of the present research, most of it is of limited relevance, even given the increasing role played by electronic products among organisations' information products. A review of a work on usability testing (Dumas and Redish,1993) sums up the limitations. The reviewer points out that it fails to discuss the testing of writing and graphic design, and that, while giving much attention to testing computer interfaces, it gives little to other types of products and 'none to documents such as forms, brochures and catalogs' (p46). Baber (1993) casts doubt on the rather circular nature of this kind of research 'we cannot go around saying that usability is an indication of how easy to use a thing is, and then say that we measure the ease of use by usability metrics'. As an antidote to the human/computer interface approach, see Wright (1980) who reviews the subject from the viewpoint of the cognitive activities of readers; she makes the sound point that 'the starting point for any research is necessarily a reader's problem with the relevant contextual factors clearly apparent.' (p199).

Organisation studies

As will be seen in the next chapter, the theory of organisations, and research on their behaviour, offers fruitful ground for developing a theoretical basis for the role of information products and presentation in the activities of organisations. There are many tantalising hints on how the ideas that inform this literature could be extended to take in information products, but as yet few writers have attempted to make them explicit, and so consideration of this field is deferred, except for the following observations on some themes in the field of organisational communication.

Organisational communication. In the United States, where organisational communication studies developed, the field of communication is currently defined (Rubin et al., 1990) as 'how people arrive at shared meanings through the interchange of messages ... the process through which meaning and social reality are created' in a variety of contexts, including organisations. This general definition has something in common with Sless (1993) – 'Communication research is about understanding, refining our ways of making meaning'. However, the definition by Rubin et al. of organisational communication as the processing and use of messages between and within organisations, and its focus as the complexities of communication in formal structures with many existing interpersonal and group relationships, suggests a different orientation from that of the present research, which focuses on information content and information products, rather than 'messages' and processing, and on organisational strategies rather than interpersonal and group relationships.

In origin, communication studies were restricted to speech-based communications, with undertones of 'selling' – and attacked as being filled with 'mindless gimmicks' (by Argyris, 1957, quoted in Redding, 1985). Even today one comes across texts (eg Harris, 1993) which focus on spoken communication, with no more than a page or two devoted to written products, and those primarily concerned with 'plain English' (and indeed the prophet of business process reengineering, in a recent book – Champy, 1995 – conflates information sharing with communication, and refers to communication solely in terms of speech). Although research has moved on to take in such themes as networks, information processing and organisational politics (Blair et al. 1985), it is still unusual to find information products seriously considered in this context.

Welcome exceptions include two studies of organisational politics at work in US government publications (Smith, 1994 and Walters, 1994), and Spilka's (1995) study of how organisational information politics affected information products in the interactions between a state government and other agencies over the planning and production of a series of documents.

Smith examines the effects of changes in US government policy under President Reagan which led to government information being viewed 'as a commodity, to be produced and sold by the government on a cost recovery basis.' The Office of Management and Budget (OMB) played a key role in implementing this policy by issuing guidance for executive agencies to follow in their publication and public information programmes. A particularly influential policy circular instructed that:

- Agencies shall create or collect only that information necessary for agency functions or of practical utility
- They shall disseminate only such information products as are required by law or are necessary for the proper performance of agency functions.
- They shall do so in the most cost-effective manner possible, placing maximum possible reliance on the private sector
- They shall ensure that government documents are made available to depository libraries as required by law (this one was added after comments from librarians about access to government)

Smith looks at its impact on the US Dept of Labor's publication program, comparing the output in the last year before the circular was published (1984) and first full year that would have been fully affected by the directives (1987). There was an overall decline of 23.5 per cent between the years, though administrative products (rules, procedural manuals instructions to the public on complying with regulations) actually increased. The biggest decline was in reports on research, and there was also a statistically significant decrease in general interest or statistical compilations. The author suggests it is ' reasonable to infer that Circular A130 played a significant role in causing the decrease in service publications' –the types eliminated 'were exactly the ones not specified as necessary'. 'The results of this study suggest that those who were fearful that OMB policies during the Reagan administration would lead to less government information being made available to Americans had cause for concern', though it seems to have been a temporary effect.

Smith also illustrates how in the 1930s and 40s US government departments came to rely more and more on their own in-house production departments, and the consequences. He describes how in the 1940s, departmental printing plants were busier than ever and 'fraught with abuse and mismanagement'. 'To boost their production figures and win praise from their superiors, the chiefs of the duplicating sections accepted enormous jobs, which could have been printed more economically on the larger presses of the GPS [Government Printing Service].' (p430). As a result much of historic record of federal government for this period was lost.

Walters (1994) relates a similar history. In the 1930s US government departments made use of new printing technology to bring a lot of work in house; executive departments gained greater administrative control over printing and the authority of the Government Printer was diminished, in what the author describes as 'remarkable' parallels to present-day events.

The gain in departmental control led to problems for citizens who could not locate documents which were not in depository libraries because they had not gone via the Government printing office. Great annoyance was caused to the Public Printer who charged in 1928 that departments 'spent many thousands of dollars equipping and operating large multigraphing and mimeographing plants, which are annually distributing vast quantities of more or less pretentious publications.' (p416) This did not stop the departments from going on to invest in folding and gathering machines, power paper-cutters, and typecasting machines – breaking the Government Printer's legal monopoly.

The great development of information provision and information products under the Roosevelt administration – there were 82 offices of information and publications by 1936 – came under attack in Congress as propaganda for the New Deal and severe cuts were imposed. They led to a backlog of unpublished scientific and scholarly material during the 1930s.However, as Walters observes, 'Congress did not want to kill the goose; it simply preferred that the goose lay her eggs at someone else's expense' – and indeed, as Congress abandoned the publishing activities of departments, business and industry rescued 'some projects vital to their interests.' (419)

As a footnote, it is interesting to learn that until recently the OMB ruled that electronic products of the executive branch were beyond the control of the Government Printing Office. Read in the light of the privatisation of HMSO, these

accounts provide food for thought about information products arising from the activities of government departments.

Spilka (1995) relates how professionals in the soil and water division of a state government interacted with other government, private, and public agencies to produce a memorandum of agreement and a long-range plan for a series of information products. He identifies

> rhetorical strategies for creating or revising documents in various ways to help an organisation preserve its positive image, ensure its continued visibility, build its prestige and credibility, demonstrate and justify the value of its services, and assert its authority in partnership ventures; clarify its ever-changing functions, roles, responsibilities and relationships with other partnership units; and influence a collaborative audience's reception to its ideas.

He suggests that others in similar situations might consider the ethics involved and the negative as well as positive effects, and, recognising that 'tension can be a healthy springboard to more careful thought', reflect on how best to relate to 'outsiders' with whom they have to collaborate in creating information products..[2]

Shulman, Penman and Sless (1989) use a discussion on interactive information technologies in organisational communication to advance a view of communication that goes beyond the 'transmission' model which they trace back to Shannon (1948) and Weaver, and which they consider accounts for the way in which many organisations wholeheartedly embrace IT although there is nothing to show that it brings an improvement on human communication. Their proposed solutions include designing systems that incorporate 'proper projections of readers' (p178), and they advocate alternative, non-empiricist, methodologies for understanding communication,

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2 A highly practical footnote on this theme is provided by Barabas' (1993) account of the CYA ('cover-your-ass') phenomenon. He describes it as a positive and essential practice in organisational writing, consisting in clarifying expectations and documenting decisions or actions in order to 'prevenmt misunderstanding and to maintain rapport within and outside the organisation.' This is certainly a precaution familiar to me from experience of working as a writer and editor in a bureaucratic organisation.

including the use of accounts or stories – the means by which organisation members construct their organisational world and their activities within it.

This approach is closer to studies of organisational behaviour, like Tsoukas's (1994) 'reflective action' perspective, as opposed to the traditional 'social engineering' view of management. Reflective action sees management as 'a social activity that consists of interpretation, narrative understanding, enacting organisation and recognizing patterns.' (p8).

One other study is worth mentioning in this context. Zeffane & Cheek (1995) looked at how a sample of 1300 full-time employees of the Australian telecommunications industry used written, computer-based and verbal (ie spoken?) information in their work. Computer-derived information was the least prominent mode, and verbal the most frequent (the overall findings suggest that it was used not as an alternative to, but in conjunction with, the other forms of communication). The use of computer-derived information was found actually to reduce in the higher levels of the management hierarchy; administrators and managers further down the hierarchy were relatively higher users, while managerial and engineering staff made greater use of written information. The authors conclude that their study suggests 'that provision of sophisticated information systems may not necessarily encourage the use of sophisticated means of communication, and those involved in developing such systems may need to pay greater attention to task and structural attributes.' (p119)

Corporate communications management. Within the past few years, what Varey (1997a) describes as the 'embryonic management discipline' of corporate communications management has begun to emerge in the United States and the UK. He defines it as having emerged from a number of related and complementary areas: organizational communications, mass media, public relations, information science, educational technology, telecommunications, technical writing and organisational development. Varey himself heads the BNFL Corporate Communications Unit in the Management School of Salford University, where an MSc in the subject began in 1996, and an international journal devoted to the subject started publication in 1996. The emphasis here is on the management of communications as an entity, and information products as defined in this research are a central element among them. Varey (1997b), in a survey of the concepts involved, cites a number of definitions, most of them featuring co-operative information interchange within organisations and between

them and the outside world as an essential part of successful management. He himself describes the field of corporate communication as emerging from a number of related and complementary areas: organisational communications, mass media, public relations, information science, educational technology, telecommunications, technical writing, and organisational development.

A postal and telephone survey (Varey 1997a) provides some useful detail about the management of corporate communications in practice in the UK. Covering directors and managers of corporate communications, communications, public relations, human resource management and marketing in a sample of UK companies (one third manufacturing, two-thirds service providing), it aimed to:

1 define the status of communications within an organizational context in the UK, and to assess the extent to which it is regarded as influencing corporate performance;
2 identify the ways in which the roles of communications and communicators are changing;
3 build an understanding of the opportunities and obstacles that confront communicators ...

The most frequent job title/department of the 216 respondents was Communications, followed by Corporate/Public Affairs, Human Resources, Public Relations and Marketing. Forty-seven per cent of respondents described their main responsibilities as mainly internal communication, 22 per cent as mainly external communication, and 31 per cent as a fairly equal mix of the two. The most frequently mentioned activities for which respondents were responsible were internal communications (92 mentions), publications (65) and media relations (58); other high-scoring activities included community relations and sponsorship, publicity, and crisis management. Activities with an information-management orientation included 'issues analysis' (37 mentions) and information systems (10). An unspecified number of respondents were responsible for 'corporate image/identity/house style/design management'.

Buying-in of specialist communications services was seen by some respondents as a resource issue, but for most it had the positive value of offering expertise, innovation, creativity, etc or of gaining access to specialist skills. Twelve per cent of the respondents considered outsourcing more cost-effective than using in-house resources.

The answers about board-level commitment showed that about a quarter of the respondents felt there was no major board-level investment in managed corporate communications in their organisations; rather more than a quarter felt strongly that there was such investment. Forty-two percent of the respondents stated that their management group did not have a written strategic communications policy, while almost all (95 per cent) believed that their CEO's or board's expectations of their communication functions had changed in the past three years. The changes have been expressed more often in increased resources (63 per cent) than in downsizing (33 per cent). The most often-mentioned major changes in respondents' communication functions have been establishment or re-structuring of an in-house communications team, or increased emphasis on managed communication activity, especially for internal communications. At the same time, communications activities are described as becoming more focused on particular stakeholder groups. There is said to be 'some limited evidence' of moves to integrate internal and external policies and activities to improve coherence – though this tends to be confined to organisations furthest along the path to managed communications.

Respondents' assessment of how corporate communications management contributes to the business gave first place to 'Perception/reputation/image/ value management' (20 mentions), followed by information for job performance (17), clearer business aims for people (16), improved morale (17) and aiding implementation of strategy (12). It is reported to be incorporated into the strategic management of organisations in various ways, ranging from a strategic communications plan as part of the corporate plan, through communication objectives included in all strategic plans and corporate objectives, to the corporate communications director being part of the strategic management team or Board, or a 'communications slot' on the Board agenda; and some respondents admit that it is not incorporated in any way into strategic management.

Only 14 per cent of respondents felt they could make a strong link between their communications management efforts and business results; over a third did not believe it possible to make such a link. In a ranking of communications activities according to how difficult it is to demonstrate an impact on business performance, publications comes high among the difficult-to-demonstrate (53 mentions, as against the most difficult – hospitality – with 74 mentions), internal communications in the middle (35 mentions), and information systems among the less difficult (25 mentions).

When asked to forecast activities likely to become more important in their organisations in the next five years, respondents put at the top of the list customer relations, customer service, internal communications, training, and information systems. Their main aspirations were that communication should be recognised as a strategic issue, with the support and decision-making status that goes with it; and that it should become possible to better measure its success in terms of the bottom line (an endeavour which, as Stainer & Stainer, 1997, point out, has not yet got far, and which will require both academic research and practitioner consideration).

Commenting on the situation suggested by the findings, Varey makes some interesting points: the belief of management that communication is 'about information (substance or content) and that efficiency in moving information between people is a key business success factor'; the erroneous emphasis which this leads them to place on the technology involved; and the unawareness of the 'highly complex and dynamic interpersonal process of people relating to each other' that goes with the assumption that communication is a matter of sending messages to passive recipients (cf Shulman, Penman & Sless, 1989 – see p75 above). He concludes that organisations will need to realise that 'Communication ... is about a relationship between two or more people which consists of emotions and feelings, as well as tasks and subjects.' if they are to derive real advantage from it.

The Communication Research Institute of Australia (1998) argues similarly in the light of experience that 'most organisations are wasting money because they have the wrong ideas about communication', and identifies approaches which lead to wasted resources, including: underuse and under-valuing of internal information and research; too high a volume of internal communication; exaggerated expectations about the effectiveness of communication processes; lack of quality control; technology-driven systems which are insensitive to users' competence and needs; lack of knowledge about the audiences; and failure to consider the human elements in the information/communication process.'

Presentation and the users

Under this heading come the visual and verbal aspects of presenting information to those who need to use it for their own purposes, and their effects on how the users transform information to knowledge.

Visual presentation/typography. Information design in its widest definition (everything we do to make information content accessible to its intended users, from conceptual structuring, through writing, typography and graphics, editing, choice of medium and materials) has been discussed above in relation to information science and information management.

In this place, the emphasis is on work which is more specifically concerned with the visual aspects of presentation, in particular typographic and graphic design. As mentioned earlier, there is a long and continuing history of research on the importance for accessibility of such features as line length, spacing, typefaces, type sizes, colour, and page structure. (See, for example, Kinross (1992 pp141–144) for an account of the early history of research on information design; Dohiny–Farina (1988) for papers from research in the area; Waller (1982) on insights from diagrams in presenting text; Keyes (1993) on colour; Twyman (1982) on the relationship between content structure and typographic structure; Larkin & Simon (1987) on the advantages of diagrams over text in terms of the operations that users need to perform in 'reading' them).

While initially it was exclusively concerned with print on paper; from the early 1980s (the British Library sponsored research on problems of information transfer resulting from replacing conventional print media with 'electronic alternatives' in 1983), the electronic presentation of information has been increasingly studied. Examples include Keyes & Krull (1992) (user information processing strategies and on-line presentation); Stiff, (1994) (the dangers of electronic structured document systems, as leading to under-valuing of visual presentation); Hendry (1995) (a similar argument from the writer's point of view about the problems of preparing material of high quality for both print and electronic forms using a single source file, because 'declarative mark–up languages that are rhetorically impoverished' can be used to specify what text elements comprise a text but not to say that their intended role is). Until recently, not much of this material has appeared in the periodicals devoted to information management; the coming of the Internet seems to have changed this situation, and an increasing number of papers discuss the problems from an information access point of view. Gimson (1995) makes comparisons of paper and electronic display on various dimensions, concluding that 'in terms of not only information content, but also many other tangible and intangible aspects, the electronic presentation of information is not yet comparable with that of paper'. Johnson (1996) makes a critical analysis of the Australian government pages on

the WorldWide Web, many of which are 'incomplete, poorly designed and cobbled together from whatever was available at short notice'; and remarks that Web projects should be 'driven by those people who know about delivering information, not by people who know about delivering technology.' Missingham, 1996 makes similar critical comments based on comparison of seven major Internet search engines: 'The sheer volume of data in a relatively uncontrolled form is like providing the front door key to the whole of the Library of Congress to our clients without a catalogue or floor map. Adding the current search tools is in some ways like giving them a torch and saying "go for it"')

Alongside this, however, much discussion of the visual aspects of information design (for example, most of the papers in *Designing Information for People*, Penman & Sless, 1994) still focuses on finding design solutions that take into account the users, how they want/need to use the information, and the nature of the content. Krull et al. (1993) remind us that users still 'want to get in, *out*, and on with their work' (p326), and that they 'have limited mental resources, which if squandered on the preliminary steps of orientation and search, leave less for the "real work" of understanding the information once it's located' (p326), and use this to support their argument that the focus should be shifted from isolated decisions about layout, type, colour and illustrations to 'creating information highways with landmarks for scanning' (p327).

A specialised aspect of design which I suspect businesses and their managers often confuse with the whole concept of information design is corporate identity – the visual 'livery' which is meant to signal the company's self-concept to the wide world of 'the final consumer, the trade, competitors, suppliers, local government, national government, trade associations, trades unions, the financial community, consumer associations, journalists and its own employees ...' (Olins, 1978). Olins, who is by way of being the 'king' of corporate identity designers, makes a shrewd observation which is no doubt based on experience, to the effect that corporations cannot resolve the paradox between the irrationality and unpredictability of the real world, and the need to have some basis for decision making and to give the impression of being control. 'This myth explains why so many companies look the way they do to outsiders. They need to look bland, smooth and unwrinkled, all-knowing, all-seeing, in order to make it clear that they can create order out of chaos ...'. This may explain features observed in certain of the case-study organisations in the present research.

Words and syntax. Much of the earlier research on the role of language in information products was diverted by the venerable red herrings of readability formulas (the Fog Index and its variants which look at such features as average word length as indicators of readability) and Plain English. By the early 1980s the validity of these measures had been fairly thoroughly demolished. Kern (1980), for example, reviewed the research literature and concluded that:

- Readability formulae do not predict comprehension and cannot be used to match material to reader.
- Rewriting to lower the formula reading score does not increase comprehension.
- Requiring that text be written to a particular readability level focuses attention on meeting the score requirement rather than organising the material to meet the readers' information needs.

  (See also the series of essays by Redish, 1981b, and others on the subject.)

Waite (1982) summarises the limitations of readability formulas,. 'The most significant is their assumption that readability is inherent in the text and that a given text is therefore equally readable for all readers. In fact readability depends on the interactions among the characteristics of the text ... and the characteristics of the individual reader (including background knowledge, interest, and motivation'.

While readability formulas have rather gone out of fashion, not so Plain English, which has been widely adopted by government departments and businesses in most English-speaking countries (among the case studies in this research one at least puts all its products through what a member of staff describes as 'the Plain English carwash'). It rests on the idea of writing in clear and simple English as the most important way of ensuring comprehension. But research on whether readers can demonstrate understanding by being able to *use* the text to find the information they desire and take appropriate action, 'either found no difference between Plain English and conventional quasi-legal writing or ... that documents ... developed using different principles perform better than Plain English documents' ... 'the only test of a well-designed document is a demonstration that readers can actually understand and act on the document.' (Penman, 1993), and that may sometimes be achieved by using more rather than fewer words and language which is not simple.

Sless and Penman (1993/1994). analysing an attempt by Australian insurance industry to develop plain English proposals for simplifying insurance documents, remark sadly that the only useful study made by the task force was one which asked university students for their opinions of insurance documents after they had unsuccessfully used them to answer questions. The results showed that those 'who rated the comprehensibility of the documents highly did so with a false sense of confidence.' (p19)

What research on the language of text *does* show, however, is the importance of structural elements rather than just the words. 'Within a sentence, syntax (grammatical structure), not semantics (meaning) or sentence length, is the major determiner of understanding.' (Waite,1982) – a finding related to how short-term memory codes information for storage in long-term memory – it tends to code it 'under a label associated with the first clause in a sentence. If the first clause is not the main clause, the most important information may be stored in the wrong "file" in long-term memory.' This may also be the underlying reason for findings about active verbs being easier to understand than passive, positive than negative, and statements rather than questions.

How readers turn information into knowledge and what helps (and hinders) them in doing it. Waite (1982) summarises research drawing on the psychology of memory and learning, which indicates that 'How the information is perceived depends largely on how well it corresponds to the patterns of information that already exist in the short-term and long-term memory. We tend to perceive most easily information that verifies what we already know.' (cf the article by Abbott cited on p68). Schumacher (1981) argues that design and writing should take account of readers' schemata (structures people have for representing their knowledge) because reading involves construction of meaning in the light of readers' schemata, and goals in reading affect schemata they use.

Another part of users' knowledge is of particular kinds of information products; if new information is presented in a form to which we are accustomed, we can orient ourselves to it more easily. Current research on screen presentation points to the lack of the traditional cues available with print on paper, as mentioned by Koniger and Janowitz (1995), whose observations have been outlined above (see p58). Research such as that of Catenazzi and Sommaruga (1994) looks at how such cues can be built into electronic documents.

There has also been a good deal of research on matching the presentation of complex information with readers' knowledge and experience, in particular by Wright and colleagues (Wright and Fox, 1969; Wright, 1971; Wright and Reid, 1973; Wright and Barnard, 1975). Other research shows the difficulties readers have with understanding words (Department of Health and Social Security, 1984 – words and phrases misunderstood by more than a quarter of the sample included gross pay, insurance premium, cash, etc.), and with locating specific facts (Guthrie, 1988, claims that about 50 per cent of American High school graduates failed tasks that required them to match three elements in a questionnaire with three elements in a corresponding source document such as a railway timetable.).

Ways in which people need to use information products. Research in the 1970s on the presentation of Open University texts (Waller, 1977) pointed to the difference between texts designed to inform and those meant to be read continuously. Readers may wish to enter the former by different ways, and to follow different routes through them. For these purposes an 'access structure' – in the form of headings and other kinds of typographic signalling – is needed, to display the 'content, context, status and argument of the text.'

Diehl and Mikulecky (1981) make another useful distinction of this kind, between reading to do, reading to learn, and reading to assess. 'Reading to do' – typified by reference works and directories – accounts, they claimed, for the majority of reading materials used on the job as a kind of 'external memory', and for this purpose the design needs to support the 'locate and look up' task, by such devices as indexing, guide words, colour coding, etc. Wright (1977) proposed ways of helping readers when they have to decide which parts of the information are relevant to their situation (as in government leaflets), including making the information critical for decision making highly visible, and showing readers where to go next from each decision point.

Beabes & Flanders (1995) describe involving end users of information related to multi-media products from an early stage of the design process, through what they call contextual inquiry. The method depends on conversations with users in the context of their work; the users start by describing their overall work, and then go on to examine on-going work jointly with the designer in what is described as an open-ended partnership, leading to identification of key problems and recommendations on how to overcome them.

What writers and designers actually do

Rubens (1982) pointed to the fact that the tasks of the people involved in creating information products, and how they do them, had not been much studied. He emphasised the need for research on writers and how they work, especially in relation to new technological developments for managing text, and for updating research on graphics. Not much seems to have happened since. As Wright (1995) mentions, a small, though increasing, amount of research is being done; the main emphasis, however, is on human/computer interaction, rather than on how writers think about their tasks, or their interactions with the organisations for which their products are destined.

As for the activities of designers in relation to their clients, Nini (1996) provides a rare insight. He reports on a survey of 1500 US graphic designers (three-quarters of them from consulting firms, and a quarter working in in-house departments) which sought information on their level of involvement with 'project-related information gathering and analysis, planning, and end-user evaluation.' The services most frequently provided by respondents were corporate ID and print/editorial, and the scope of the design organisation's involvement was most often (in two-thirds of cases) determined by the client organisation. The majority of respondents do not:

- Develop a plan discussing the rationale for design
- Ask for user input in the concept development stage
- Ask for user evaluation of communication prototypes
- Ask for user evaluation of the final designed product.

A problem specific to in-house design departments was the feeling of isolation, typified by being generally brought in at the end of the design process. The general awareness of the need for client education and for strategic partnerships between client and designers found in the research was even stronger in in-house designers.

These recent US findings make an interesting comparison with what Olins (1978) said about the responsibilities which corporate identity commissions placed upon UK designers:

> Many of the organisational problems of corporate ID that graphic designers are brought in to resolve are beyond the scope of the graphic designer to answer – they require management decisions. But the tools for resolving

> these problems are handled by graphic designers, who quite often don't really understand the implications of what they are doing. [1]

As some of the case studies demonstrate, there is also a continuing lack of awareness on the management side of what design is and what designers can contribute, and of how to brief them, and interact with them. Certainly strategic partnerships are still a rarity.

While, as this review indicates, there is comparatively little that coincides exactly with the focus of this research, much that is potentially useful has emerged from research in many fields, and many ideas are available that could be useful to organisations in managing their information products (supposing them to be conscious of a need to manage them, which as yet few organisations are). But there is no ready means of getting at this body of ideas, dispersed as it is through the literature of a number of disciplines; the material cited here is mainly the result of collecting consistently over more than 20 years, together with special searching since the start of the present research; organisations are unlikely to invest time in this kind of effort. So, what *is* available? what *is* used?

What is available to organisations

This is a fairly selective survey of the products and services which are on offer to organisations, with the purpose of helping them to create information products and present information in 'appropriate' ways (definitions of appropriateness vary according to the purveyors, and I would not necessarily agree with all of them)

Making research results accessible

As the review presented in the first part of this chapter indicates, many of the research findings, and many of the ideas discussed in the literature, in areas

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[1] In a more recent publication on the same subject, Olins (1995) recommends a project management approach, with an inside executive to manage design projects, a working party and a steering group.

central or peripheral to the themes of this research, have potential value for organisations seeking to make their information products contribute to achieving whatever they are in business for. Not much is available, however, to bring them within reach, even of those managers who have identified a need for knowledge.

CRIA forms a praiseworthy exception in this respect, as in others. As a membership organisation, it has to 'sell' its services by making the knowledge it acquires from its projects and its research accessible and intelligible to more or less lay readers. Its newsletter, *Communication News*, which has already been cited many times in this chapter, is the main vehicle for this purpose. Articles are short, and accessibly presented, clarifying concepts and findings without simplifying them out of existence, and that more than compensates for the occasional bout of own-trumpet-blowing which is probably inseparable from having to make one's own way in the world. The material quoted in the earlier part of this chapter exemplifies the range of subjects on which the CRIA presents research findings to its readers. Here it is sufficient to quote two more examples which are specifically directed to people in organisations with responsibility for managing information products.

The first (Sless, 1997) is concerned with making a business case for information products to improve customer communication. The advice is to define objectives in terms of actions the business wants people to take on receiving the product; to measure existing practice in terms of such things as costs in staff time in responding to queries from users about products, incorrect transactions, etc; and to estimate costs, benefits and return on investment in relation to 'Survival, Transformation, Profitability'. Readers are reminded that 'large improvements in customer communication can often be made without major changes to IT ... our advice [is to] exhaust all non-technology options before you even consider technology solutions.' And the final injunction is 'avoid fashions and buzz words. Think in concrete terms about why you want to improve communication.'

The second (Sless & Wiseman, 1994) is directed to people who are responsible for writing products that tell consumers about medicines, and was produced for the Australian federal government. The aim is defined as to ensure that:

1 More than 90 per cent of literate consumers should be able to find information in the consumer product information (CPI) quickly and easily

2 More than 90 per cent of those who find the information should be able to understand and act on it appropriately
3 Thus more than 81 per cent of literate consumers should be able to use the CPI appropriately.

There are sections on: developing the CPI – including time, effort and costs; informing interested parties; preparing for writing; writing; testing; reviewing test results internally; retesting; reviewing test results externally; implementing; and monitoring in use. Managing CPI development is described as managing the 'development of a complex dialogue' (p9) in which many parties have an interest, and in which there are many different interpretations. 'Making sure that consumers' point of view is heard can be very challenging. To do so, be prepared to negotiate with skill and sensitivity. This takes time and patience.'

Testing is critical:

> CPIs are complex documents and each one is different. Consumers are also complex and highly varied. Put CPI and consumers together and the resulting dialogue can at times be surprising and unpredictable. No known principles of good writing or design, nor any readability scores or measures of reading age have been found which can predict how successfully a document will be used. (p51)

Suggestions are given for iterative diagnostic testing, including a list of tasks and associated questions, and an example of testing a document. For monitoring the results, users are recommended to set up a history file for each CPI, to log all inquiries from consumers, and to review it every 12 months.

Sless (1998) also makes the point that 'before monitoring your organisation's communication, you need to set standards against which to measure your performance', and proposes seven criteria (which he suggests readers should apply to the Australian Taxation Office in the light of their dealings with it): respect for people; attractiveness; usefulness (the ease with which people can use products or services); efficiency; physical appropriateness; appropriateness of the relationship offered by originators to users; and productivity (ie opening up opportunities for further 'good conversations'). CRIA offers organisations a 'diagnostic kit' for assessing the health of their communication, based on these standards.

No institution with a remit comparable to that of the CRIA exists in the UK. Guidelines on design and writing (eg Hartley & Burnhill, 1971 and Felker et al., 1981), and compilations like that of Kempson & Moore on research about public documents (1994) which has been cited in the first part of the chapter have some utility, but inevitably one-off products become out of date, and are not a substitute for a continuously updated source of information.

Education and training

With the exceptions already noted (see p62) there is not much in the higher education of either information professionals or information designers to prepare them for managing information products in the context of organisations. When they find themselves in work situations which require them to take this responsibility, they learn on the job, and sometimes supplement it with short courses in institutions of higher education, or training courses provided in the private sector or by professional institutions. [2]

And besides them, many other people with a range of different backgrounds find themselves responsible for various aspects of their organisation's information products, without much in the way of preparation.

This section is not meant to be exhaustive survey of available training for people in work. It looks at an example from the top end of the market in commercial provision of specialist training in the specialisms associated with organisational information products, and at some of what is on offer from professional institutions and other organisations.

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[2] A recent interesting development has taken place in the publishing courses offered by the educational charity Book House Training Centre (now re-named The Publishing Training Centre). Originally designed more or less exclusively to provide editorial skills for book and journal publishing, they are now offered to a wider audience, including government, other business sectors, educational institutions and charities, and cover a much extended range of publishing and management skills, including electronic publishing, internet publishing strategy, commissioning and publishing programme management, and marketing. On the design side, the only offerings are on design using DTP (a two-day course, and therefore at a fairly elementary level), and basic typography (a one-day course for people without a background in design or typography, who prepare text for printing or on-line delivery).

Popular Communication is the UK arm of a training business based in Sweden. It currently offers courses in typographic and graphic design; desktop publishing; editing; design and maintenance of web sites, intranets and extranets; press and PR work; print buying; and writing. Courses on 'information design' are said have not taken, apparently because companies tend to buy in that specialism, though usually without the benefit of the knowledge that would take them to appropriate suppliers. It is also suggested that the coverage of the term is not understood – when the courses are labelled 'Design and layout' they attract takers.

Popular Communication's clientele consists of large corporates, government departments, charities, insurance companies, etc; the people whom they send on Popular Communication courses are described as middle managers, rather than policy or decision makers, in the age range from the twenties to the fifties. Significantly some of them are said to be frustrated at not being able to get the ear of people at the top who have 'daft ideas' (and who do not come on courses). They work in marketing, communications, reprographics, publications departments, etc. as marketing officers, communications managers, reprographics officers, publications assistants, editors, etc.

While initially the courses were primarily targeted at staff working in-house, changes are planned in response to the drive to outsourcing which is leading to people who have previously worked as in-house generalists in communication moving out to supply contract services. Another point made about the effects of outsourcing and of mergers is the decline in central communication functions, and the consequent decline in the amount of in-house expertise necessary to control and get value from outsourced services.

Information products with which the courses deal include marketing communications, in-house journals, and software and training documentation. The emphasis in the courses is essential know-how for the job, acquired by practical activity, with teaching delivered by competent professionals with experience in the areas covered.

Given the place in the employing organisation of most of the participants, the courses have not in the past covered decision-making about what information products should be developed, or about content. However, a course on 'Effective corporate communication' in the autumn of 1997 was advertised as being for managers 'responsible for all or any part of an organisation's communication strategy – internal or external.' The company has found that

courses on communication which stress the essential element of information management do not sell; they have to be offered (though not necessarily taught) with a media orientation. The problem here is thought to be that many organisations think communication is a 'technique that can be plugged in', and that they put a low value on the knowledge which their staff have of the organisation.

The company also organises annual awards for corporate publishing, sponsored by companies and organisations such as the Information Design Association, with categories for customer and staff magazines and newsletters, manuals, annual reports, Web sites etc.

Popular Communication's definition of communication puts it firmly in the territory of information management and information products – print on paper or electronic (see, for example, Taylor, 1997). A recent course on 'Communications Audits' organised by the Institute of Information Scientists, on the other hand, appears to be oriented towards the spoken word and organisational communication in the US sense (see p73), with sessions on training managers in communication skills, the 'people factor' and presentation skills. Does the plural make the difference?[3] Aslib, too, appears to equate 'Communication' with the spoken word: a course on 'Advanced Communication Techniques' in its 1998 Training Directory, is billed as telling participants 'How to influence meetings and conversations'. (Aslib's only course that features design of information products aims to cover in one day and with one tutor copy writing, dealing with printers, and applying 'basic design techniques' for brochures, advertisements and posters.)

In the field of multimedia products, there is some research evidence (Buckner, 1995) of the need for advice and training experienced by organisations which create such products. A questionnaire to 30 organisations on the skills required by multimedia software producers showed that, though programming was the requirement most referred to in job advertisements, general authoring systems skill, together with graphics, video and audio skills, was most in demand. A respondent emphasised that analysis and writing of textual

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[3] Olins (1995) appears to take a rather wider view: the communications audit 'examines what the organisation says, to whom and how, and whether it uses a consistent tone of voice. It also examines whether the organisation listens to its own people, and to outsiders ... dealers, suppliers, investors and customers.'

information for display on screen is frequently a major component of multimedia development, but that 'multimedia professionals are often ill-equipped to undertake this task as at present people are more used to writing for the print medium.' The author outlines relevant courses, including one with a high information-studies content.

'How-to' advice

Here, all that can be said is that there are many products – books, videos, mixed-media – which are marketed as self-help guides to specific activities, such as design, desktop publishing, writing, managing electronic publishing, etc. They carry titles such as 'Create impressive documents' or 'How to design and post information on a corporate intranet'. The overall quality is variable; the best of this kind offer good practical advice, but more fail to live up to their claims.

It is interesting to find that, while traditional information products and presentation have received little attention in the literature addressed to information professionals – and that little limited to titles like 'How to market your library service effectively', the situation is very different in the case of web sites and intranets. These are seen as territory of proper concern to information managers, and an increasing number of articles in the professional press (as well as advice on the web itself) are devoted to them. McMurdo (1998) for instance, offers a review of good practice in web information presentation and design; and, to take only two recent examples, George (1999) and Varnum (1999) discuss designing and structuring corporate intranets from the practitioner's point of view.

There are two major themes which are as yet not adequately covered in the 'how-to-do-it' offerings:

1 The relationships between the individual activities that go to the making of information products
2 Their management in the context of the business strategy of the organisations for which they are created.

I feel strongly on the first, because I was co-author of a book on *Presenting Information*, which aimed to cover that whole range, but which, for reasons more or less beyond my control, fell at the last fence and will never now be published. I hope that others will take up that particular torch – there was certainly a

market for it. So far as the second is concerned, developments such as the establishment of the journal *Corporate Communications* and the Salford Master's course in the subject mentioned earlier (see p77), and the increasing orientation of the work of CRIA in this direction, are encouraging. And in undertaking the present research one of my hopes was that it might in the end yield something of practical help to people who have to tackle the job of managing information products in the organisational context. That is still my intention.

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4
A theory of information products

'How odd it is that anyone should not see that all observation must be for or against some view if it is to be of any service.'
Darwin, in a letter to Henry Fawcett, 1861
(quoted in Gould, S J (1997), *Dinosaur in a Haystack*, London: Penguin Books, p148

'... all observation involves interpretation in the light of our theoretical knowledge', 'Observation is always selective. It needs a chosen object, a defined task, an interest, a point of view, a problem.'
Popper, K R (1969) *Conjectures and refutations*, London: Kegan Paul, pp23 and 46)

Introduction

The first questions to be answered are: Is it possible to speak of theory in research which is essentially concerned with observation of practice? If it is, what does a such a theory have to encompass, and where can it come from?

The quotations which form the epigraph to this chapter embody the short answer to the first of these questions. As Charles Darwin and Karl Popper well understood, what one chooses to observe must be based on some view about what constitutes 'reality', and the value of observing comes from the interplay between the original view and the observations, which, over time and with reflection, results in a changed view, enriched and well founded, meriting the name of 'theory' and capable of being applied in a range of circumstances as the basis for further observation, and further modification.

In the particular case of the present research, the tasks which a theory of this kind has to encompass are twofold:

1 It should provide a basis for accounting for observations of what happens in practice, by putting them in a context which is appropriate for the purpose of the research
and

2 Since the research is concerned with what organisations do,
and since organisations by definition seek to survive and prosper by virtue of their 'offerings' of products and services to their outside world,
and since their information products are a critical element in their offerings (and sometimes the main one) any theory developed should offer some basis for managing the process effectively, so that it has the potential for informing practice.

What is presented here, then, is a theory of information products, expressed in terms of ideas from relevant disciplines, which aims to provide a basis for a coherent way of thinking about information products, which has on the whole been lacking.

The process of developing a theory

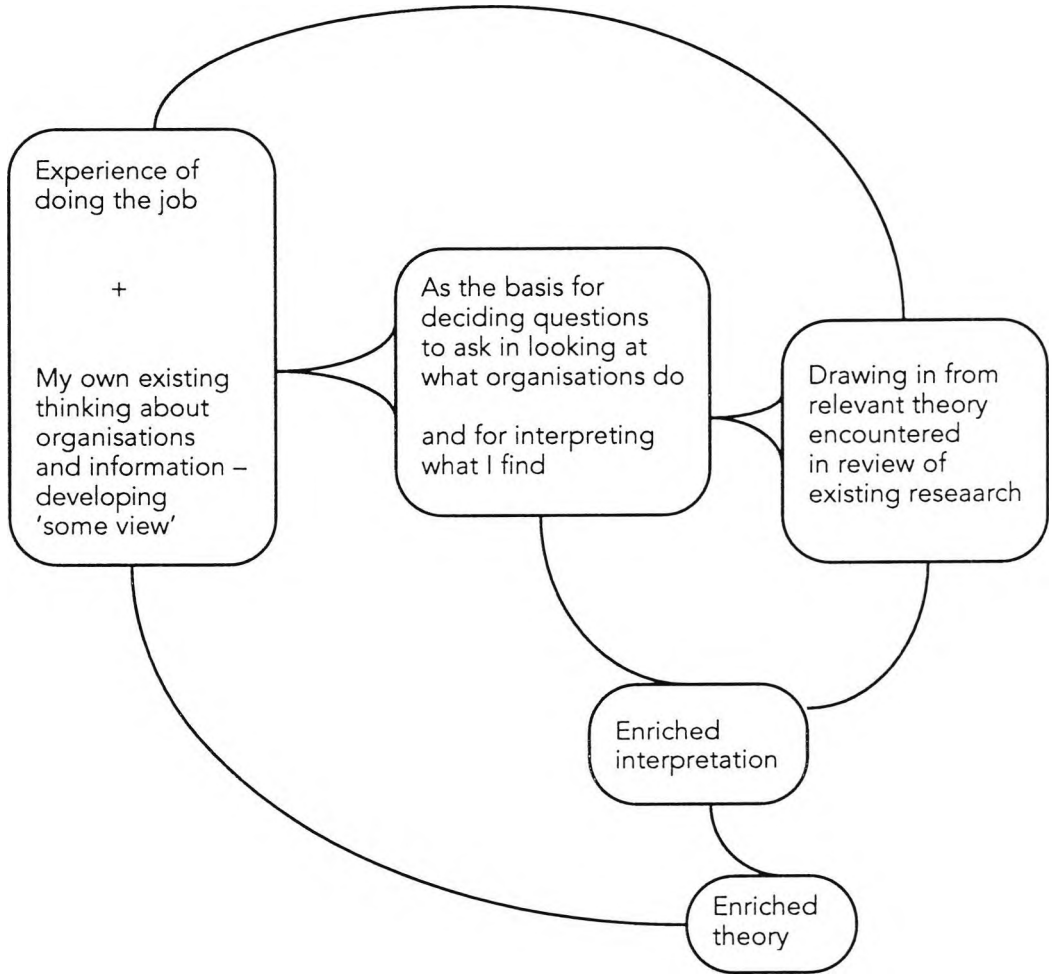
To explain how the theory of the management of organisational information products which is set out in this chapter has developed, it is necessary to speak of personal experience, because without that I should not have realised that this was a subject meriting research, and would have lacked a basis of observation 'from the inside'. The process is summarised diagrammatically in Figure 4.1.

This kind of approach is what is sometimes described as 'constructionist' (see, for example, Sless, 1997: 'Theory from a constructionist view is simply the description given to what people do ... intertwined with practice, as a different aspect of the same thing ... an emergent property of practice. Theories are in part post hoc rationalisations – the plausible stories which we tell ourselves to account retrospectively for our actions.'). In other words, the interactive development of theory over time, in which reflection on experience plays a central part, making an initial 'tacit' theory more explicit, rather than beginning with a hypothesis based on existing developed theory.

In the present case, the theory has grown and become more organised with participation in and observation of the processes of managing information products.

If I think back to the point when I first became involved with information products over 30 years ago – first as an indexer and proof reader, then as a technical book editor and later as editor of a journal – the development seems to have followed this path:

Figure 4.1
The process of developing a theory



1960s

Experience led me to some ideas about:

- Organisations and how they work (including the organisational politics involved in information products)
- What writers, editors and readers do in dealing with information products, and the relationship among them
- The visual presentation of the content of information products, and the role of typography and graphic design in them

These ideas were however far from being integrated into anything that could be called a theory

1970s

A new job, which entailed a combination of managing a range of new information products and setting up an information service, gave me the opportunity of undertaking part-time studies in information science. This was a creative period, during which I was able to start relating insights from my studies to the ideas formed from practice about organisations, information products, and what was by then coming to be called 'information design'.

1980s

In 1979, I was fortunate in being able to move into working independently in consultancy, in an informal association with a typographic designer; the focus of the work was a combination of information management and information design. The projects in which I became engaged led to the development over time of ideas about:

- Information management as an essential activity for success of organisations, and then to the concept of organisational information policy/strategy (expressed in the book *Practical Information Policies*, 1990)
- Information products as being derived from and forming part of organisational information resources, and therefore needing to be managed as such, within the framework of organisational information policy/strategy
- Information design (defined as everything that is done to make the content of information products accessible to the intended readers – from writing and editing

to typographic design and production) as an integral part of the product (Orna & Stevens, 1991, 1993)

That represents the position I had arrived at by the time I developed the proposal for this research, in 1994. It pointed to the key disciplines to which I looked, and formed the foundation for the questions asked in the case studies.

1994 to date

During the period of the research, I have made a more systematic study of what a number of relevant disciplines (see Chapter 3) might contribute to the development of a theory. It is not surprising that theory has to be drawn from a diverse mix of disciplines, because information products themselves touch on so many. They grow out of organisations and their need to communicate and interchange information, both within themselves and with their outside world, in order to achieve their ends; their substance is information, which is transformed knowledge[1]; their purpose is to allow users to transform the information they contain into knowledge for use; their creation demands interaction – between people with various specialised kinds of knowledge and skill and between people and information; their use is also an interaction between people – an indirect one this time, between user and originators – and between user and the information they contain.

The areas and disciplines which have made the most significant contribution to the further development of theory and interaction with practice are summarised graphically in Figure 4.2.

Key themes in the theory

From the range of disciplines just described, there are a number of key themes, whose inter-relation, as shown in Figure 4.3, forms the groundwork for a theory.

1 See, for example, Brookes (1980a and b); Farradane (1980); Ingwersen (1992); Belkin (1990); Ginman (1988); Saracevic (1992); Orna & Pettitt (1998)

Figure 4.2
Areas and disciplines which have contributed to the development of the theory

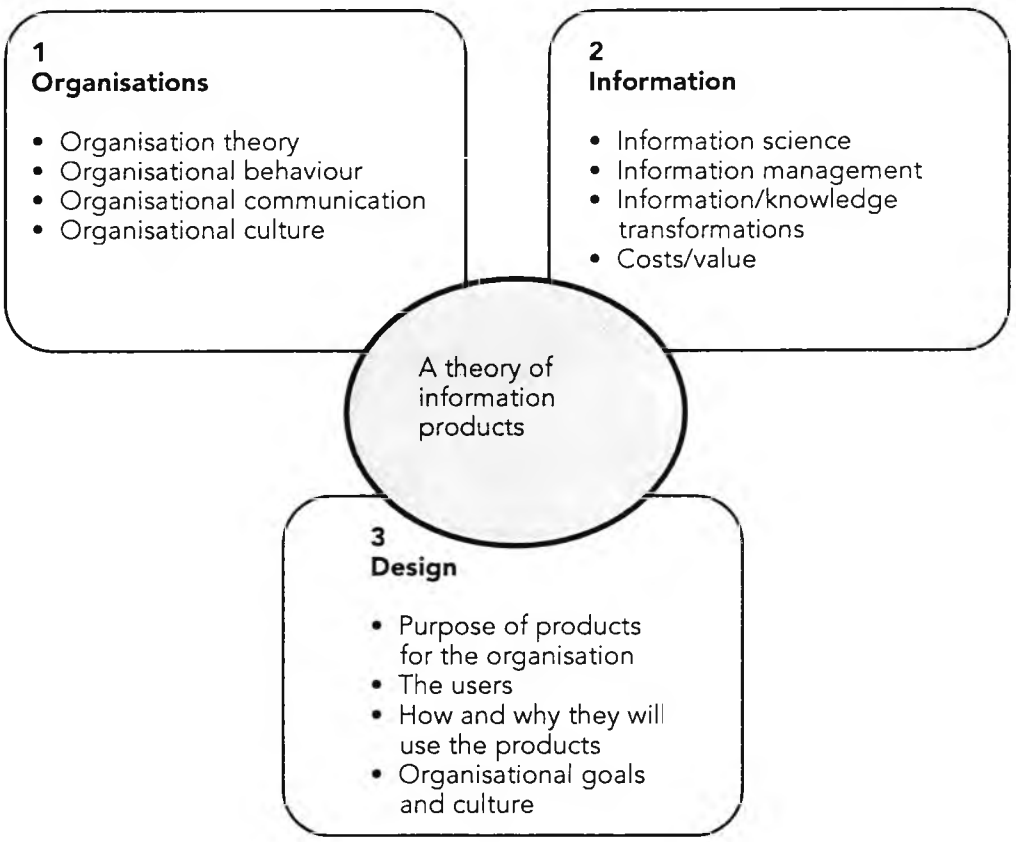
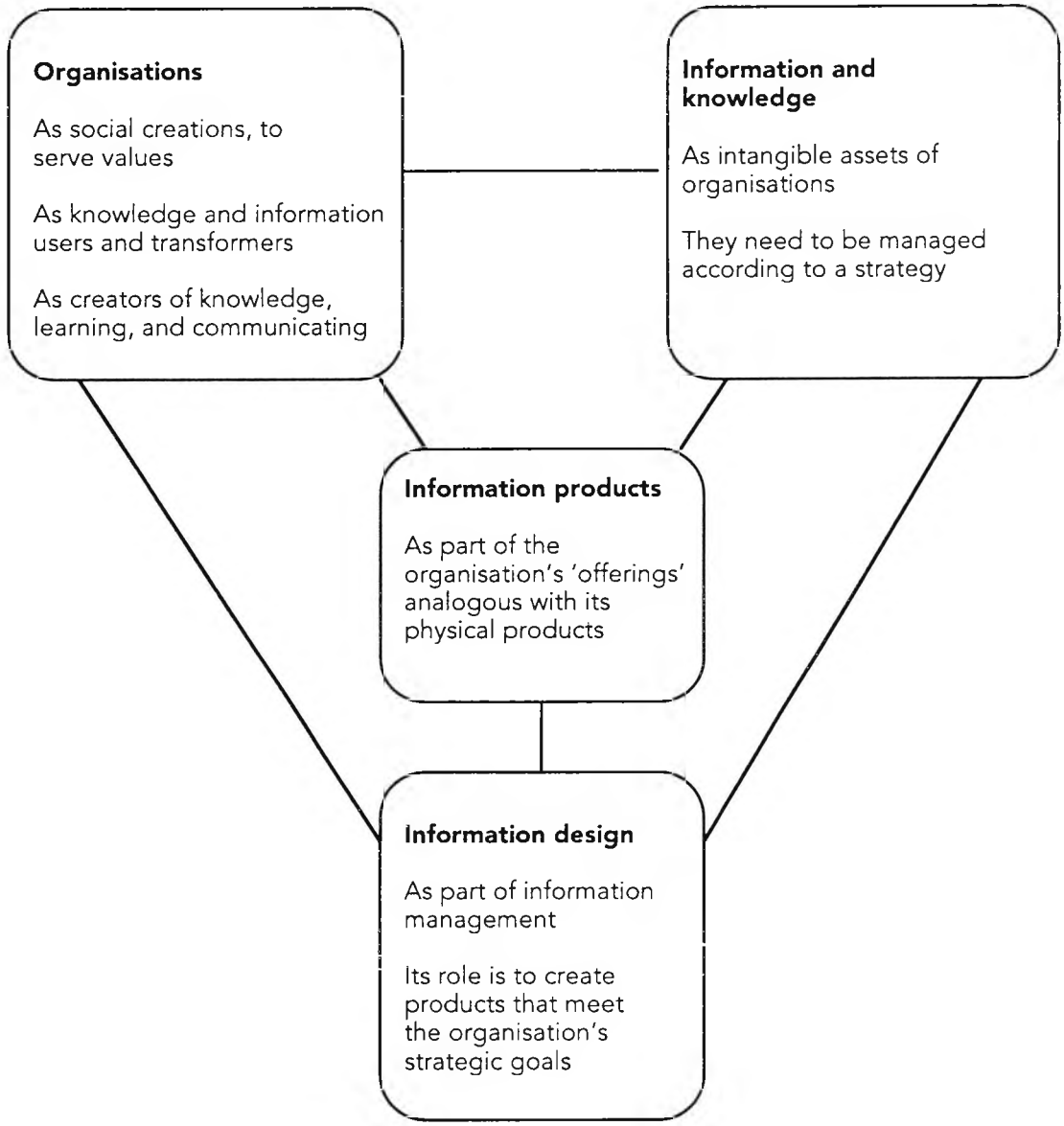


Figure 4.3
Key themes



The elements summarised in Figure 4.3 are discussed below, with reference to major sources – selecting from the range of material discussed in Chapter 3 those elements which are particularly relevant

Organisation theory

As Kaye (1996) observes, 'The information management community has completely ignored a large and important body of research and ideas produced by organization scientists' . Yet this field offers much that is of potential value.

Management of information as generally defined is done in the context of organisations, to serve their purposes, and support them in achieving them. So theories about what organisations are and do – which is the essential concern of organisation theory – should have something useful to tell us about that aspect of them which is concerned with information management, including management of products which carry information to people who need it.

Table 4.1 (based on Orna, 1999, p29) may serve as a summary of the theory of organisations discussed here in relation to the role of information products. The next sections look at elements of organisation theory which are of particular

Table 4.1
What makes an organisation

What makes an organisation
• A grouping of human beings
• For explicit or implicit purposes
• Creating 'offerings' of products and/or services
• Interacting, internally and with its environment
• Seeking sustenance to keep in being
• Having a structure and a boundary
• Embodying both social and technical systems

What every organisation needs to know

- What is happening inside, and in its outside world
- How to recognize, interpret and act on significant change
- How to create appropriate 'offerings'
- How to communicate, with itself and with its outside world

relevance to the present research, and suggest how they may be extended to embrace information products:

- The idea that organisations are social creations to serve values
- Their dependence on as such on knowledge in human minds (the nature of the required knowledge being related to the values to which they are committed)
- Their need for information to sustain the essential knowledge
- Learning, communication and interaction among human beings as the means by which information is turned into knowledge, and knowledge into successful action.

Organisations as social creations, serving values

The essence of this aspect is the idea that people create organisations for purposes related to values they hold. As Susman & Everet (1978) express it, 'Organisations are artifacts created by human beings to serve their ends' – they do not exist independent of human action; their means and ends are guided by values. For that reason, they argue that the positivist model which has served the physical and biological sciences well is a limiting one when applied to organisations (see Chapter 2, page 27).

Because organisations are created and run by human beings, we should expect to encounter in them all elements of human consciousness and behaviour, and not just those highly specialised parts which operate on logic and rules. Coexisting with the functional structures, hierarchies and procedures of the traditional model, are personal knowledge based on experience, feelings associated with it, interpretations, symbols, and stories – all the attributes and

activities by which human beings have always tried to make sense of their environment. '... all social institutes combine both logic and action. They are concerned with thoughtful doing ...' (Turner, 1992, p54); and they are also subject to what Davenport (1992) terms 'information politics'.

Information products find a place in this view of organisations, as a means by which:

- *Values are expressed and communicated*
- *Procedural information is embodied*
- *Personal knowledge, understanding, and interpretations are interchanged, and brought into the domain of organisational knowledge.*

We should also expect them to be subject to all the factors which make up the culture of organisations, including those associated with 'information politics'.

An information, knowledge and learning model

If the premise that organisations are social creations which serve values is accepted, then, just as individual human beings depend for survival on learning from experience (ie turning it into knowledge, and applying it), so too do organisations. And if organisations are primarily purposeful groupings of people which seek to survive by creating and 'selling' offerings of products and services (see Table 4.1, p107), then they need to draw in information to sustain their collective knowledge, to interpret its significance, to learn, to interact inwardly and with their environment, and to communicate.

As Tsoukas (1994) puts it, organisations *emerge* from 'coherent and constrained interaction of several individuals'; it is 'individuals within organisations that interpret whatever they think their environments consists [sic] of and act upon their interpretations.' As individuals try to make sense of their environments, they 'undertake routine, habitual actions' and the results of their actions then become part of the environment, which they seek to understand through *reflection*. They build up causal maps of knowledge – variables crucial for carrying out tasks and how they are interconnected. 'Through sustained interaction, individuals interlock their behaviour over time and in so doing they deal with residual equivocality, which they seek to remove through negotiating and consensus about their common tasks and how it ought to be handled.' (p13)

The interpretation which organisations and the people in them place on information and events obviously depends on values and on knowledge: 'organizations have cognitive systems and memories' and they 'preserve knowledge, behaviours, mental maps, norms, and values over time' (Daft & Wieck, 1984, p285). On this view, organisations can be regarded as what Tsoukas describes as 'distributed knowledge systems, whose effective action is the result not so much of individuals acquiring more and more knowledge as of finding ways of *utilizing* widely distributed organizational knowledge ... organizational variety can be controlled only if it is matched by an organizational design which possesses the capability of utilizing highly dispersed knowledge.' (*op cit* p16)

Marchand (1997) synthesises the traditional model of organisations with ideas of this kind to produce a new model in which information and knowledge play a critical role, as shown in Figure 4.4.

The new model introduces knowledge/values, information, and information systems and technology.

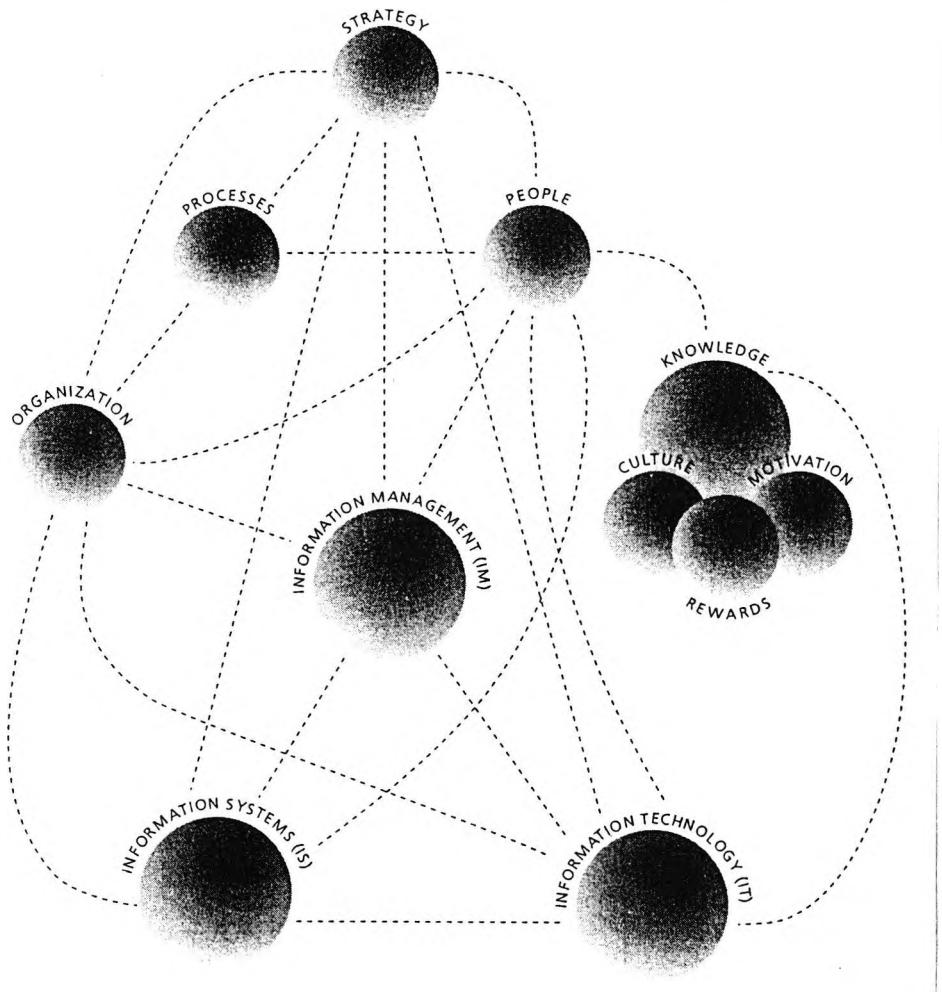
Information and knowledge interchanges and transformations. This model requires that knowledge be maintained, interchanged, developed, and created. That demands the transformation of information into knowledge, knowledge into information, tacit knowledge into explicit knowledge, and communication (see Chapter 3, pages 59 and 64). Information and its communication within and between the organisation and outside world is what holds the organisation together, enables it to grow in the directions it wants to go in, to learn from experience, to create new ideas and new offerings.

Tsoukas' ideas, quoted above, about utilising dispersed knowledge are paralleled from an author who travelled from a different discipline (electrical engineering) towards a theory of the role of information in organisations: 'Information is what is interchanged between the elements of an organised system to effect their interdependence' (Scarrott, 1996).

The connection between information and knowledge has over the past 20 years or so been expressed by a number of authors in terms of transformations (in particular, Brookes, 1980a and b, Farradane, 1980, through to Ginman, 1988, Belkin, 1990, Ingwersen, 1992 and Saracevic, 1992). Others have discussed how knowledge in the individual mind is transformed from tacit to explicit to bring it towards the 'outside'

Figure 4.4
Traditional and new models of factors on which organisational strategy depends

Reproduced from Orna (1999) and based with kind permission on Marchand (1997)



Key

Small spheres:
= factors in the traditional model of organizations

Large spheres:
= factors in the new model: 'invisible assets'

(eg Nonaka & Takeuchi, 1995, p61), or transformed into information and put into 'containers' (McArthur, 1986) for purposes of interchange, to make it visible or audible (Orna & Stevens, 1991, 1993). Once outside, the transformation process is seen as going the other way, from information in the outside world to knowledge in inner world, where it is further transformed by progressive integration into existing knowledge, both individual and organisational, and ultimately (Nonaka & Takeuchi, *op cit* p73 *et seq*) to the transformation of existing knowledge to create new knowledge.

Knowledge creation[2]. As Nonaka & Takeuchi (1995) point out 'all this talk about the importance of knowledge ... does little to help us understand how knowledge is created.'

Three conditions are necessary for knowledge to be created (*op cit* p74):

1 A strategy for knowledge and information (see below, p124)
2 A vision of what kind of knowledge the organization needs
3 Its 'operationalization' into a management system for implementation

The essence of the strategy lies in developing the organization's capability to 'acquire, create, accumulate, and exploit knowledge', and the most critical element is to conceptualize the 'vision about what kind of knowledge should be developed and to operationalize it into a management system for implementation.' (See also Choo, 1996, who links the creation of knowledge with making sense of the organization's situation and taking appropriate decisions.)

The mechanistic model of organisations has been discussed above; it tends to be associated with a typically Western assumption that the only knowledge is that which is explicit, formal and systematic, and with the view of organizations as 'machines for information processing'. (Fortunately, not all Western writers share it; see for example Davenport, 1993, on the dangers to organizations of seeing information as limited to quantitative data that can be held in traditional database systems, and of missing the value of unstructured qualitative textual information.)

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2 Here I quote in part from what I have written on this subject in another context (Orna, 1999)

The Japanese view is quite different and much more subtle, and places strong emphasis on the concept of 'tacit knowledge' which has been referred to above (see page 112): 'Knowledge expressed in words and numbers represents only the tip of the iceberg.' It is seen as primarily tacit – not easily visible or expressible, and it includes subjective insights, intuitions, and hunches. Tacit knowledge has two aspects: technical know-how, like that which is passed on in traditional craft apprenticeship, and the cognitive dimension, in which come schemata, mental models, beliefs reflecting the holder's image of reality and vision of the future (and so related to value). Again, there are Western writers who work on similar assumptions; Cooley (1987) has described his work, as an engineer, on making use of the tacit knowledge of craftsmen and technicians, and relates how organizations can benefit from using it.

While new knowledge cannot be created without 'intensive outside–inside interaction', the actual creation of knowledge demands that what we have learned from others be internalized, 'reformed, enriched, and translated' to fit the organisation's self image and identity. Knowledge can be created at various levels: at the level of the individual, the group, the individual organization, and organizations working together. Nonaka and Takeuchi express this visually through the concept of 'the knowledge-creation spiral', which 'emerges when the interaction between tacit and explicit knowledge is elevated dynamically' from lower to higher levels. The engine of the process, as shown in Figure 4.5 consists of four stages or modes: Socialization; Externalization; Combination; Internalization

The spiral progresses through the stages mentioned above, via processes that characterize the transitions from one to another:

- Field building: the creation of 'forums' for interaction and experience sharing,
- Dialogue: articulation of tacit knowledge, leading to externalization
- Networking: bringing together newly created knowledge and existing knowledge from other parts of the organization, which triggers combination
- Learning by doing: which triggers internalization so that the knowledge fully belongs to the individual or organization.

The way in which the process can happen is described in these terms:

- An individual finds new information that enriches his or her own knowledge and makes ideas that have been floating around come together with new illumination – tacit knowledge moves towards becoming explicit.

- The individual discusses the new knowledge informally with colleagues – socialization and dialogue.
- They realise the ideas have potential for the organization to initiate changes that could bring to realization some key aims.
- They move outwards into the organization to network with other people – guardians and stakeholders in other information and knowledge resources.
- The combination of ideas leads to a formal decision to try something out. A project is set up and carried through in phases – learning by doing. The experience creates new knowledge which is internalized by the organization. It becomes part of what informs strategic decisions, and leads to new products, services, even to a new organization derived from the existing one, and possibly to changes in strategy.

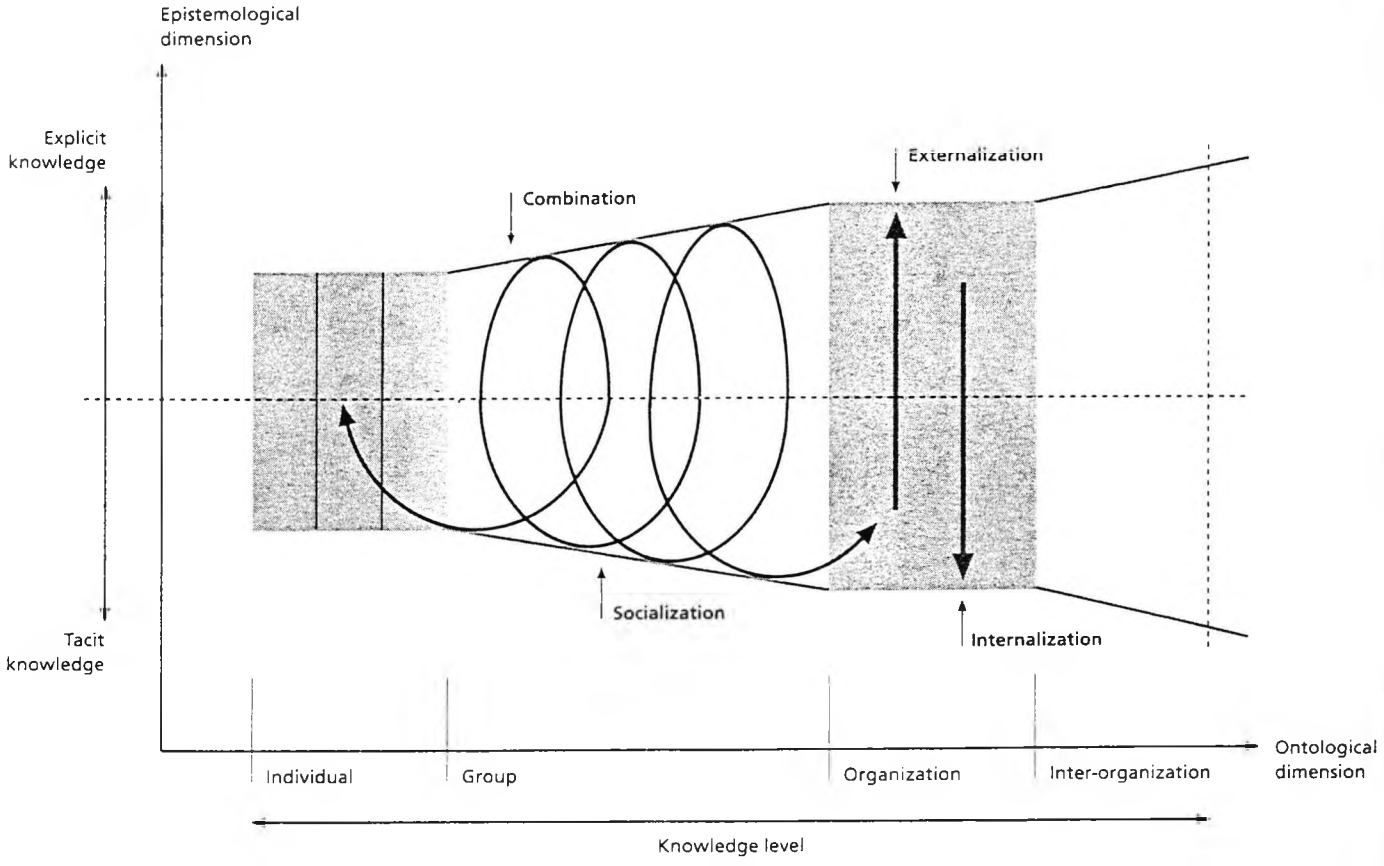
In the context of these ideas, information products can be seen as tangible expressions of organisational knowledge, and the means by which information is interchanged within and with outside world, and as an essential element in transformations. They can help individuals and groups in transforming tacit knowledge to explicit , bringing it 'nearer the surface'; they are a primary means of transforming explicit knowledge into information, of putting knowledge outside into the world, where others can get at it and start the process of transforming the knowledge of the originators into knowledge that belongs to them; and in these ways they contribute to the creation of new knowledge. It is hard to imagine how any organisation would manage these essential transformations without information products.

The role of communication. The processes of transformation discussed above cannot take place without communication and interaction. As Sless (1991) expresses it, argument and thinking are impossible without communication (with the self and with others) – which depends on 'signs' (ie something which stands to somebody for something in some respect or capacity – Pierce, 1931, p58)

It has rational, affective, social and technological aspects, of which the most significant are the human ones, though the infrastructure of communication technology has a critical supporting role. As Varey's (1997) analysis of corporate communications (see Chapter 3, page 76) suggests, the interactions involved in communication are between people and people, and between people and information. And, as Shulman, Penman & Sless (1989) put it, meaning has to be created via a relationship between a human agent and information; information does not have a meaning independent of the reader. Meaning is not a property of information, but the

Figure 4.5
Spiral of organisational knowledge creation

Reproduced from Orna (1999). Based with permission on Nonaka and Takeuchi (1995)



'outcome of an interaction between information and human agent.'... 'If we take meaning to be a process in the human infrastructure, we are correctly placing the responsibility for meaning creating and manipulation in human hands and not mechanical ones' (pp169–170).

> *Knowledge would have difficulty in getting from one mind to another without communication, and since telepathy even if it exists is not to be relied on in day to day affairs, information products are a vital part of the business. They are the 'containers' into which human beings put their knowledge when they need to transform it to information and put it outside into the world; they supplement and complement conversation, giving it a less evanescent form, and allowing the 'dialogue' between author and reader to take place many times rather than just once, and its content to be verified and referred back to.*

Organisational learning. There is a large literature on organisational learning, going back to the 1960s and still continuing. Here I do not aim to give an overview, but to draw attention to the aspects which relate organisational learning to knowledge (including know-how) and to information, and, by extension, to information products.

The definition of learning proposed by Fiol & Lyles (1985): 'The development of insights, knowledge and associations between past actions, the effectiveness of those actions, and future actions.' (p811) implies that knowledge and skill, and their expression in action, depend on learning, and on memory. It is characteristic of both individuals and organisations; as Argyris & Schon (1978) put it: organisations learn, individuals are the agents who learn for them, and learning is recorded in the 'media of organisational memory'.

Fiol & Lyles outline the features common to most writing about organisational learning as:

1 The 'ultimate criterion of organizational performance is long-term survival and growth', and that implies the capacity to learn, unlearn, and re-learn.
2 'Organizational learning is not simply the sum of each member's learning.' (p804)
3 Contextual factors – organisational structure and culture, and the environment in which the organisation operates – affect the probability that learning will occur. A centralised and mechanistic structure, for example, will tend to reinforce past

behaviours, while a more decentralised environment which is complex and dynamic will create an overload which prevents learning.[3]

Nonaka & Johansson (1985) emphasise the interactions among individuals which are essential for organisational learning; it

> ...involves an organisational process through which an individual's knowledge can be shared, evaluated, and integrated with that of others in the organisation. Such a process need not be formal, but if the individual's learning is not validated by others' knowledge, the necessary integration might not take place and organisational adaptability is hampered.' (p183)

And they too draw attention to the influence of existing power structures; and emphasise the essential concluding stage of the process: 'Finally, the new or modified knowledge paradigm must be communicated to the members so as to represent a "true" increase in organisational knowledge.'

The process is not only interactive, it is often described as cyclical. Garratt (1994) quotes Kolb's (1979) learning cycle (hands-on experience -> reflection -> abstract conceptualisation -> active experimentation -> hands on experience) and Boisot's (1987) version, with its two axes of codification and diffusion (see Figure 4.6):

Codification: the psychological process by which ideas brought in from the outside world are worked on by people within the organisation, and turned into some form of intellectual property which can be offered back to the outside world

Diffusion: the sociological process by which codified knowledge reaches other interested parties:

---

3 Schein(1996) draws attention to the effects of different types of management culture on organisational learning. The assumptions of 'operator' culture favour it:

- The success of enterprises depends on people's knowledge, skill, learning ability, and commitment
- People have to be able to learn and deal with the unexpected
- Operators have to be able to work as a collaborative team, in which communication, openness, mutual trust and commitment are highly valued. But unfortunately this culture often loses out to engineering and executive cultures.

Other authors 'pull out' the flat 2-D cycle into a spiral; see, for example, Nonaka & Takeuchi's (page 114 above) spiral of knowledge creation, and Orna (1999), for a spiral of planning, implementing, monitoring and learning as part of the development of information strategy.

Information products are essential elements in organisational learning, contributing to:

- *Recording organisational memory (as recognised in the current interest in intranet technology and the electronic products associated with it for storing what has been learned from projects, interactions with customers, etc . so as to make it accessible and usable for whole organisation; and for ensuring that the experience of key people is not lost when they leave– see, for instance, Doyle & du Toit, 1998)*
- *Sharing and evaluating ideas as they develop within organisations*
- *Diffusing new knowledge within organisations*
- *Offering the organisation's intellectual property to the outside world.*

Information and knowledge as intangible assets[4]

'People are accumulators and producers of invisible assets' (Itami & Roehl, 1987), and information and knowledge are foremost among these invisibles.

Value factors that relate the organization's interests to its use of knowledge and information

The wellbeing of all organizations is linked at many points to the value which knowledge and information confer:

- The organization's purposes, goals and values, and how intangibles such as knowledge and information contribute to achieving what it most values (the 'business value model')
- The value of knowledge and information in gaining sustenance and keeping the organization successful

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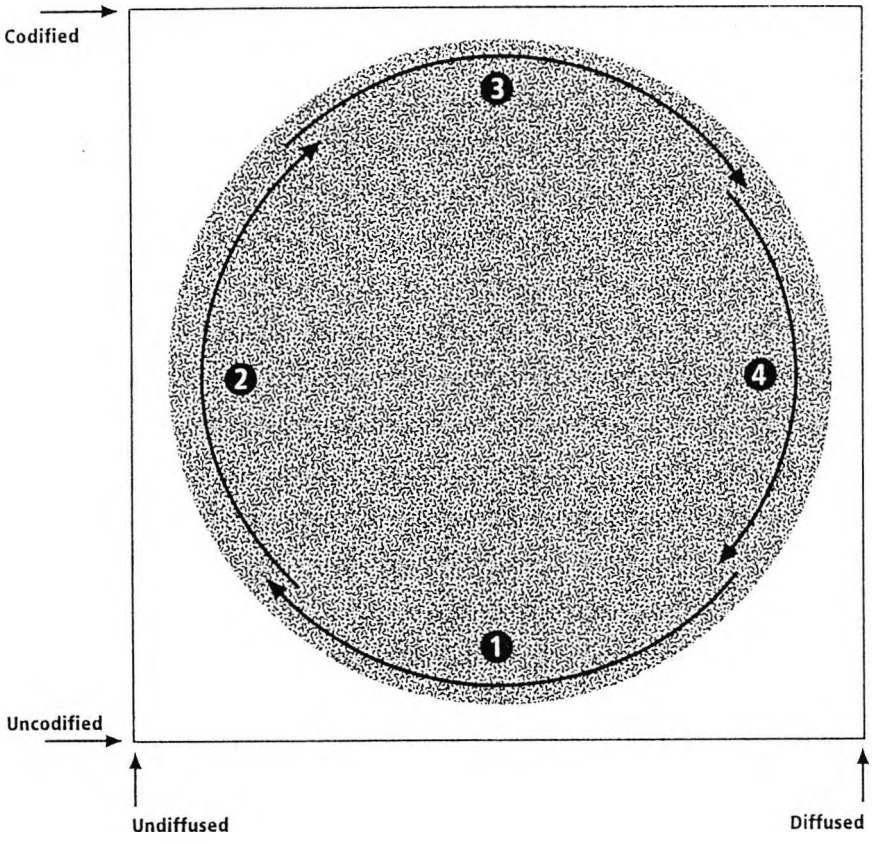
[4] This section draws on what I have recently written elsewhere on the subject (Orna, 1999, Chapter 8)

Figure 4.6
The process of organisational learning

Reproduced from Orna and Pettitt (1998) and based with permission on Garratt (1994)



1 Scanning

2 Knowledge creation (information transformed into knowledge)

3 Knowledge diffusion (knowledge transformed into information)

4 Knowledge absorption (information transformed into knowlege)

- Identifying critical knowledge and information (ie that of highest potential value) for the organization, and managing it
- Intelligence about its markets, and the flow of information about them.

Davenport (1993, Chapter 4) gives an account of organizational activities where information is both an essential element for their performance, and has the potential to confer value:

- Monitoring how processes are performed – businesses that are effective in managing/monitoring information about quality have a competitive advantage.
- Integrating different business processes, and integrating stages within individual processes – information is the 'glue' that holds the organisational structure together
- Customising products and services – when information about customers is managed to create offerings tailored to their needs, it gives a competitive edge to the organization (as leading supermarket chains have demonstrated)
- Supporting strategic decision making processes with vital unstructured and externally originating information – which is much more essential than the 'historical' financial information from accounting systems which is generally used
- Creating information products, as the primary output of the business. More and more businesses have these as their main output; those that use their resources of information fully to support the process of creating such outputs are most likely to succeed.

Marchand (1997) identifies four ways of 'using information to create business value' :

1 Minimize risks
2 Reduce costs
3 Add value (typically through market/customer orientation)
4 Create new reality (innovation, new markets, customers, products)

Each requires different types of information, different actions in using information, different processes, different organizational structures, and different applications of IT/IS

Oddities and problems of intangible assets[5]

Information and knowledge have some peculiarities which make them different from material resources when it comes to value:

- Information has no inbuilt value; to have value, it has to be transformed by human minds into knowledge, without which no products of tangible value can be created or exchanged, and then put to use
- If information is exchanged and traded, the value from using it can increase for all parties to the transaction
- Its value is not diminished by being used; it can be transformed into knowledge and used many times by many users for adding value to many activities and outputs. As Itami & Roehl (1987) put it, 'free rides' are to be had when resources accumulated in one part of the company are used simultaneously and at no additional expense by other parts. 'The essence of invisible assets is information, and it is this characteristic, which is not shared by other resources, that makes a free ride possible. Only information-based assets can be used in multiple ways at the same time ...', Information "can be used simultaneously, it does not wear out from over use, and bits of it can be combined to yield even more information.'
- It is a diffused resource, which, as Davenport (1993) points out, enters into all activities of businesses.

Apart from these unusual features, there are other factors which add to the difficulty which organizations have in getting to grips with valuing their information resources:

- Very few, if any, organizations appreciate that they need to make own definition of information in relation to what they are trying to do, and therefore lack criteria for valuing it.
- Information is a combination of 'containers' and content (eg a content of trade statistics, in a container of a database), and the only hard figure readily available is what we pay for the combined package. Traditional accounting cannot cope with repeated use of content, or its use by many people; nor can it trace the process of

5 Based on Orna (1996)

adding value once people have transformed information into knowledge and applied it.

- The problems are compounded by the tendency – now well recognized, but still flourishing in many organizations – to identify information with IT and systems, which adds to the difficulty because of the present widespread discontent with the results of investment in costly systems.

Qualitative and quantitative value from knowledge and information

In spite of the difficulties, there is a large body of Indirect but convincing qualitative evidence of value of information in promoting productivity, competitiveness, and innovation; and in avoiding risk and reducing uncertainty (see, for example, Koenig, 1992, Griffiths & King, 1993, and Marshall, 1992, 1993, 1999 on the contribution of information services and libraries; Bowonder & Miyake, 1992, on information management and competitiveness; Bowden & Ricketts, 1992, Fransman, 1992, and Newby, 1993, on the relation between information use and successful innovation).

There is also some direct financial evidence, from the fairly rare cases where it is comparatively easy to set a figure on the costs of using low-quality information, in terms of lost customers, staff time in rectifying errors, etc. Interestingly enough, it tends to relate to information products. Herget (1995), for example, looks at the 'negative value of non-quality'– both to the supplier of information products and to customer. His case study of a company, cited in Chapter 3 (page 65) shows very clearly how that negative value manifests itself in the loss of clients:

Fisher & Sless (1990) provide similar figures for the costs of error rates in completing forms to an insurance company forms and the value added by re-design to make them easier to complete correctly.

A number of authors envisage information products as adding to (or subtracting from) the value of the information and knowledge they embody . Taylor (1982) describes them as tangible formal communications which organisations 'consciously design and issue in some form' (p341) whose value lies in the judgments of the users about the usefulness of the information for what they want to do; the fundamental question then becomes 'How much initiative and effort must a user invest (Cost) in order to get useful information (Benefit)? ' (p345). Sless (1995) draws particular attention to the costs to the end user of the complexity in information transactions as embodied in information products; governments and businesses 'outsource costs' by passing them on, but this

can lead to loss of the value of customer goodwill. van Wegen & De Hoog (1996) argue that 'The value of information cannot be determined independently from the medium that encapsulates and processes it ... though information of course acquires its value from its role in decision making, the information product as a whole also adds values to other activities in information processing.' (p248)

In recent years methods which can support valuation of intangibles with reliable quantification have started to be developed. In accounting the UK Advisory Council on Science and Technology (1993) pointed out that business's objection to action that cannot be shown directly to enhance the bottom line is 'being undermined as accountancy principles embrace the need to value "intangibles" ' . A number of methods specifically oriented to valuing information are now available. They depend in various ways on a combination of informed human judgment of the significance of various information resources to achieving the organization's goals, with a computer application which 'interprets' the judgments to establish the extent of their value contribution (see Skyrme, 1998, for a useful outline of some of the major methodologies).

One of these methodologies (the Integrated Value Manager, or IVM ™, see McPherson, 1994) has been used in the present research to investigate the value to one of the case study organisations of the information products associated with one of its 'offerings' (see Chapter 9)

> *Information products are a tangible means of making invisible assets visible . As such, they form part of the value of the information content to the users, and their design (in the widest sense of the term) contributes to their value to the users in supporting them in doing what they need to do with the information. Their contribution can be negative as well as positive; while they can help users to transform information into usable knowledge, they can also pass on to them the costs of complexities which their originators have failed to resolve at source.*

Information and knowledge need to be managed according to a strategy[6]

Organisational information strategy can be defined as the detailed expression of information policy in terms of objectives, targets, and actions to achieve them, for a

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6 This section draws on what I have written elsewhere (Orna, 1999)

defined period ahead. Information strategy provides the framework for the management of information contained within the framework of an organizational policy for information, supported by appropriate systems and technology.

The argument of Nonaka & Takeuchi (1995) that a strategy for knowledge and information is one of the pre-requisites for the creation of knowledge has already been cited (see page 114).

Interest in the idea of an information strategy aligned with the overall business strategy, to support key business objectives, or 'core competencies', especially in those areas which are most distinctive and unique to the organization, continues to grow and to find expression in actual attempts to develop and apply such a strategy. It is interesting in this context to note the change over time in the approach of some organizations to information systems strategy, which, as Galliers (1993) observes, has moved away from technical issues, and towards organizational and information concerns.

Orna (*op cit*, p 168) argues that a strong information strategy, which is well understood and has the commitment of everyone in the organization, can become the engine that:

- Drives interchanges of information internally and with the outside world
- Brings in intelligence about change
- Leads to integrated responses
- Promotes creation of new knowledge through internal interactions
- Leads to initiatives, directed both internally and to outside world, which make for success in innovation and competition.

Since information strategy is intended to benefit the whole organization in its most critical activities, its development needs to draw on a wide range of knowledge and experience, including that of managers of such information resources as environmental intelligence, customer information, competitor information, economic/financial information, human resources, information service/library/archives, marketing, R&D and information products; together with managers of information systems and information technology, stakeholders in information resources, and managers responsible for the organization's corporate strategy.

Surveys of businesses, however, suggest a degree of confusion about the subject. A Library Association (1996) survey (a random sample of nearly 1000 chief executives in

the UK) found, to use its own moderate wording, that 'In many cases the management of information appears to be evolving somewhat haphazardly'. While 60 per cent of respondents claimed that their company had a strategy or policy for managing its information, only 38 per cent said it was discussed at board level, and only just under 20 per cent were aware that their company had an overall information budget. And only 6 per cent of respondents were confident that the term 'information' was a category in the company accounts (66 per cent were unsure of the answer to this question). Other research for Reuters Business Information (1994) produced a yet more depressing response on information policy: over 60 per cent of a sample of 500 larger firms had no policy for information, while of the 37 per cent of the respondents who claimed that their business had a policy, 9 per cent did not know what it was.

Information products , as one of the critical points at which people interact with information, need to be part of the information strategy of organisations, so that they support it in achieving policy and strategy is in itself a valuable information product, which as yet exists in comparatively few organisations).They should be viewed as part of the organisation's information resources, and their creation should draw on those resources (as proposed by Meyer & Zack, 1996 – see below).

Information design as part of information management

Chapter 3 outlined a range of thinking about information design in relation to information management, information science and information products. Here, I recapitulate the relevant elements for the present purpose.

One strand is the argument, advanced by Taylor (1997), for example, that all products which present information to people for their use, whatever the medium, should be recognised as information products and should benefit from the combined application of three kinds of professional activity: information technology, information design and information management.

Another is the statement of the common ground between information science and information design (Orna & Stevens, 1991; Koniger & Janowitz, 1995), as both being concerned with the internal world of knowledge structures and their transformation into information structures in the outside world, for use by others.

A third is the relationship between information products, information strategy and management of information resources, developed by Meyer and Zack (1996), who bring

the design of information products fully into the field of organisational strategy for information, with their analogy between information products and manufactured ones. The manufacture of information products on this view involves a number of stages that can be equated to information management activities: acquiring raw materials; refining them by such activities as indexing and trend analysis; distribution; and presentation to ensure functionality and ease of use. Successful management of information products demands a range of knowledge, internal and external, supported by an appropriate technological infrastructure.

The contribution of information products to cost-effectiveness already referred to (Fisher & Sless, 1990), emphasises the relation between effective design and understanding the organisation for which information products are being designed. The development of a new form design for a company which would help to bring down costs by making correct completion easier depended strongly on understanding organisational politics, and involving the stakeholders in the associated processes closely in the development.

Much of the discussion of visual aspects of information design – for electronic media as well as for print on paper – is also directed to design solutions that take into account the users, their knowledge and experience, how they want/need to use the information, and the nature of the content, ('a useful information product models the world in a way that users can handle', as Taylor, 1999 puts it) so that, in the words of Krull and colleagues (1993) they can 'get in, *out*, and on with their work' (p326). Stevens (1995, p134) claims information design as 'an actual part of the visible information into which knowledge is transformed and from which knowledge is reconstituted.'

> *Information design is properly regarded as making a fundamental and non-superficial contribution to information products , and indeed as forming part of the actual content. The design of information products should be part of the process of management of organisational information resources, with the special role of ensuring that they match the users, and the ways in which they need to use the information.*

A theory of information products

We have now reached a point where it is appropriate to draw together the various strands linking information products to established bodies of theory in the fields considered in this chapter. They will be stated in the form of a set of propositions.

Information products are:

1 An essential means by which the organisation's values are expressed and communicated, procedural information embodied, and the understanding and interpretations of individuals interchanged and brought into the domain of organisational knowledge.
2 Tangible expressions of organisational knowledge; and one of the main vehicles by which information flows within the organisation and between it and its outside world (on a model of conversation rather than message transmission).
3 The 'containers' into which we put knowledge when we need to communicate it to others, supplementing and complementing conversation, and giving the 'dialogue' between the parties to knowledge transactions a permanent form.
4 Key contributors to organisational learning – diffusing new knowledge within organisations, and maintaining organisational memory.
5 An essential element in transformations of implicit to tacit knowledge; explicit knowledge to information; information to knowledge.
6 A means of making invisible assets visible, adding value to them, and creating 'offerings' of the organisation's intellectual property to its outside world; with potential for adding to (or subtracting from) value – financial, social, reputation, etc.
7 Part of the organisation's information resources, with the potential to support organisational information strategy
and
8 Information design as applied to information products is an integral part of the process of information management, with the special function of ensuring that products match the users and the ways in which they need to use the information content, and that presentation supports their access to the content.

'What should be' and 'What is'

These propositions for a theory both indicate 'what should be' and give clues to why 'what is' does not always match it in practice. The 'what should be' can be formulated in these terms:

The success of information products in contributing to achievement of organisational objectives depends on:

1 Their integration into organisational information strategy, and via it into the overall strategy of the organisation
2 Drawing on the organisation's resources of knowledge and information
3 Awareness and conscious management of the transformation of knowledge into information, and information into knowledge
4 Matching the organisation's culture
5 Understanding who will use them, and how they will be used
6 Understanding the nature of the content (and what that implies for presentation)
7 Appropriate management of the processes involved, appreciation of the necessary professional skills and knowledge, and constructive interactions among the people concerned, within the organisation and outside it.
8 Management understanding of their contribution to value and costs, and appropriate methods of assessing their cost-effectiveness.

The first four propositions about information products set out above would probably gain assent from many people in organisations who have direct experience of information products and who have reflected on it. But organisations, as demonstrated above, are complex entities; so accepting that their information products have these roles is far from being an acknowledgment that they fulfil them in a way that supports the organisation's interests to the full.

Acceptance of the remaining propositions probably requires acquaintance with and understanding of concepts which are not at present very current in organisations – ideas about information and knowledge and their relationship; about the value of invisible assets; about organisational information resources and information strategies; and about the role of design.

Given all that, the proposed theory has utility both as a guide in investigating the actual practice of organisations, and in accounting for why practice does not always match theory. It still needs, however, to be tested against what happens in practice,

and so in Chapter 11, it is brought into confrontation with the findings from the case-study organisations, with some resultant modifications. The modified theory is finally used as the basis for practical suggestions about how the process might be more effectively managed.

More immediately, the next chapters (5 – 9) present key findings from the case studies in the light of the propositions advanced here.

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Part 3
Findings from the case studies

Introduction to Part 3

Chapters 2 – 3 have shown:

- How I have approached the research: the strong reliance placed on finding out what a range of real organisations do, and the primarily qualitative methodology adopted
- What relevant research exists, and what does not; and the nature of the help available to those doing the actual jobs that lead to information products.

Chapter 4 has offered a set of propositions leading to a kind of a theory of the role of information products and presentation in organisations, which draws on three main disciplines: the theory of organisations and how they behave; information science; and information design. As explained in Chapter 4, they grew from ideas which had themselves developed over time from working in the area of the research, but which were far from clearly articulated, and they began to take a firmer shape from the experience of carrying out the case studies.

While the propositions appear before the analysis of the findings from the case studies, they were not developed and written down until the case studies were all nearing completion. Though of course I had ideas that shaped the questions I asked in the case studies, I did not want to come to the observation of practice with a ready formulated theory. By the same token I deliberately left the chapter on the theory at home when I went away to write the chapters about the findings which make up this part of the thesis.

The propositions reappear later (in Chapter 11), after the presentation of the actual findings in a brief and, I hope, manageable form, as part of a comparison between what 'theory' suggests *should* happen, and what *does* happen in the real world. When theory and practice finally meet, it is less a 'test' of how well organisations perform in these matters, than a mutual testing, from which I hope a stronger, and probably more modest, theory will emerge, together with some practical ideas for organisations on how they might manage their information products.

Now it is time to look at what investigation of the practice of ten different organisations has yielded. Full narrative accounts of each, structured in a roughly

comparable way around the main questions asked of them, are given in the second volume of this thesis, in more or less the form of a consultant's report such as I would present if commissioned by a client to look at how they managed this aspect of their work. Each aims to give a coherent and factually correct account (all have been 'signed off' as such by the organisations concerned), and each ends with my own independent evaluation of positive and less positive features of how they do it.

Here, I shall try to avoid duplicating those accounts, and to complement them with a fair summary of what emerges from them. The chapters of Part 3 aim first to put readers in possession of an outline picture of the case study organisations, and of their main information products (Chapter 5), and then to look at:

- The place which information products occupy in the organisations' overall business strategies, and how they are related to their information resources and to any information strategy they have formulated (Chapter 6)
- How the organisations manage their information products, including how responsibility for them is assigned and decisions taken; how professional skills are provided for; and how testing, monitoring and evaluation of effectiveness are provided for. How they allocate costs and assess the value which their information products add to their operations ((Chapter 7)
- The changes and developments which have taken place over the five-year period covered by this research – which has turned out to be perhaps the most illuminating aspect of all (Chapter 8).

The final chapter of this part is a brief account of a different approach followed in one of the case-study organisations: an experiment in applying a relatively new methodology for establishing the value of intangibles (the IVM ^{TM}) to assess the value contributed by knowledge and information to a specific product (an investment product) and the supporting information products. A complete report, with technical appendices, is given in Volume 2

To begin the scene-setting, this introduction ends with a very brief description of the case study organisations, outlining what each does in the world, how it describes its aims, its size and structure, and its 'culture'. The full story is in Volume 2, and readers will refer to that according to their own requirements.

The organisations

ActionAid

Charity, founded in 1972; promotes links between children in poor countries in Asia, Africa, Latin America and sponsors in the UK. Third largest development agency in the UK, working in over 30 countries, with international staff of about 2500. Defines its mission as working in 'partnership with people and organisations to eradicate poverty and overcome the injustice and inequity that cause it.' Strong on communication strategy, which covers information products. Aims for open and supportive organisational culture.

City University, London

Founded 1894 as the Northampton Institute, designated College of Advanced Technology 1957, became a university in 1966. Mission: 'to advance knowledge, wisdom and understanding by teaching, research and professional training.' High reputation for professional education; defines its role as 'meeting the higher education needs of business and the professions'; strong links with business and industry.

The Cochrane Collaboration

International medical research collaboration (named after Archie Cochrane, the doctor who first set out the concept of evidence-based medicine). Mission: to 'help people make well-informed decisions about health care by preparing, maintaining, and promoting the accessibility of systematic reviews of the effects of healthcare interventions.' Multi-discipline review teams analyse accounts of random controlled trials (RCTs) on treatments etc. and prepare high-quality meta-reviews, published in *The Cochrane Library* database. Culture collaborative, non-hierarchical, 'stakeholder'.

The Co-operative Bank

Founded 1872; only high-street bank with an ethical policy. Mission: 'To develop a successful and innovative financial institution by providing our customers with high quality financial and related services whilst promoting the underlying principles of co-operation'. Just under 4000 staff. Unusually high customer

satisfaction; has consistently increased market share and profitability; and invested extensively in information technology. Recently pioneered 'partnership approach': commitment to acknowledging its responsibilities to all involved in its activities or affected by them.

Datastream International

Started in 1960s as research department in stockbroking firm, now belongs to US utilities company, Primark Global Information Services; recently merged with ICV, UK suppliers of real-time information. Buys high-quality financial and business data, adds value by providing tools for analysing it, and sells resulting database – its main product – to over 2000 subscribers world-wide.

Department of Trade and Industry

Large and complex government department (currently 5000 staff, plus over 10,000 in associated Executive Agencies), descended from 17th century Committee of the Privy Council for Trade and Plantation. Aim today: helping 'UK business compete successfully at home, in the rest of Europe, and throughout the world.' Federal structure; information flow concentrated in autonomous hierarchies, with effects on management of information products. Traditional civil service culture gradually changing under the impact of technology especially web and intranet, with major effect on information products.

London Chamber of Commerce and Industry

Independent private company founded 1881. Current mission: 'To help London businesses succeed by promoting their interests and expanding their opportunities as members of a world-wide business network'. Just over 100 staff; represents membership of over 3000 businesses; offers services of information and contacts. Has moved from traditional culture towards professionalism, especially in relation to use of information.

NHS Centre for Reviews and Dissemination

Established 1994 at York University, as part of NHS R&D programme; works in same area as Cochrane Collaboration, but with emphasis on distribution of information. Between 30 and 40 staff. Aims: 'To provide reliable evidence to the

NHS of the effectiveness of health care interventions, based on reviewing research; to disseminate its own reviews and those of other bodies (including the Cochrane Collaboration) to the NHS'. Information products include print for a range of audiences, as well as databases. Strong on monitoring and evaluation of its products; recent research on disseminating information to patients and public.

Norwich Union

Large insurance group, founded 1797; federal structure, with fairly high degree of autonomy for individual businesses, while aiming to co-operate across functional boundaries. 17,000 staff worldwide, 14,000 of them in the UK. A mutual until 1997, when it became a plc; primary objective currently expressed as 'to create real growth in shareholder value'. Brand defined by 'No one protects more'. Culture change over past decade from traditional, hierarchical and inward-looking towards being more open and externally oriented, and less hierarchical (now has equal-opportunities policy).

The Tate Gallery

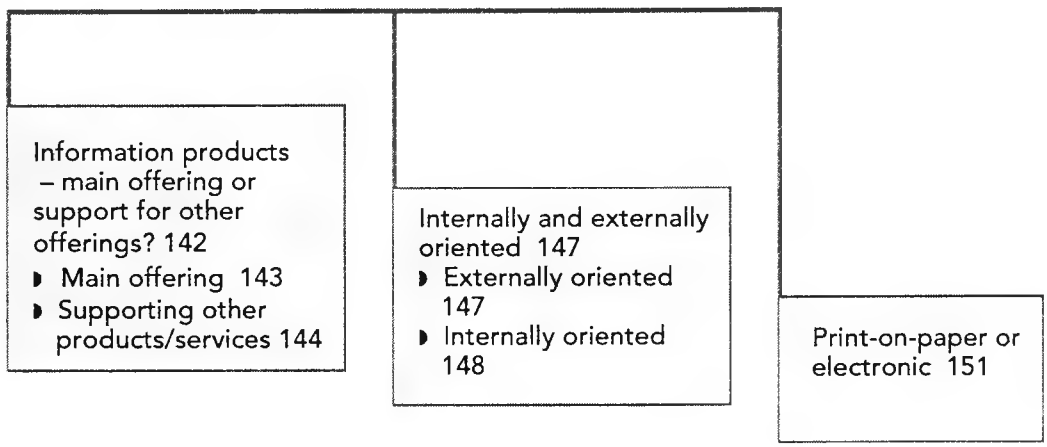
Founded 1897; home of national collections of British art and international 20th century art, visited by two million people a year. Currently developing Tate Gallery of Modern Art at Bankside for Millennium opening. Aim: 'to increase public awareness, understanding and appreciation of British art from the sixteenth century to the present day and of modern and contemporary art from around the world.' Great changes during case-study period: besides building programme, outstanding developments in access (especially through pioneering web site); cultural and structural change towards more 'commercial' approach, and integrated use of information.

5
The information products

Introduction

This chapter is primarily descriptive, because its aim is to establish the picture of what the organisations create by way of information products, and to provide a point of reference for the analysis of how they approach this aspect of their business in subsequent chapters. It takes three 'cross sections' through the case-study organisations, in relation to:

1 Information products as the organisation's main offering *vs* information products as supports for other products/services which constitute the organisation's main offering
2 Internally *vs* externally oriented information products
3 Print-on-paper *vs* electronic information products.



Each of these aspects will inform the analyses made in later chapters.

Information products – main offering or support for other offerings?

This is a critical distinction between case-study organisations, because it goes back to their fundamental definition of what they are in business for. In seeking case studies, I was not primarily motivated by trying to get a balance between these two categories, but rather to achieve a spread of different types of organisation in terms

of orientation, 'outside world' addressed, etc. As the organisations were 'enrolled', however, it became clear that, while all of them were information-dependent in various ways (what business is not?), there was a group whose information products constituted their main offering and their whole reason for existence. Given the date at which this study started, it is no surprise that their products were all computer-based, electronically generated, and presented on-screen; a point of contrast, at the start of proceedings, with the main information products of the other group, which at that time, while nearly all electronically originated at some level, were primarily presented on paper in traditional formats. (Things have changed greatly in this respect in the course of the research – an incidental and not wholly expected benefit from undertaking it at this particular time and spreading it over five years; that story is related in Chapter 8 in general terms, and in more detail in the individual case studies.)

Information products as the organisation's main offering

Two of the three organisations in this group are publicly funded and mainly non-commercial (though they earn some of their revenue from selling their products). The products of both are aimed at providing a basis of knowledge and information in the field of evidence-based healthcare. One – the international Cochrane Collaboration (whose UK organisation I have looked at) – focuses on locating and presenting relevant research for an audience which primarily consists of clinicians. The other – the NHS Centre for Research and Dissemination – is oriented towards spreading knowledge of the findings from this area of research to a wide range of audiences, including patients and their families, and to encouraging their implementation in practice.

The Cochrane Collaboration. The distinction between their respective roles and audiences has influenced the nature of the information products they issue. The Cochrane Collaboration concentrates almost entirely on a single electronic 'portmanteau' product, *The Cochrane Library* (available on the Internet, on disk, and on CD-ROM) which contains four databases (one of them originating from the CRD), centred round its own key product, *The Cochrane Database of Systematic Reviews.* (see Vol. 2, pp94–98) It also embodies a *Handbook* on review methods, and various programmes to help contributing reviewers with their analyses. The only printed products are an introductory brochure, a hard-copy version of parts of the *Handbook,*

and a product issued by the Australasian Collaboration – *Consumer Network Synopses* – designed for a wider audience.

The NHS Centre for Reviews and Dissemination. The CRD, mindful of its key function of dissemination to a number of audiences, has a wider range of products in various forms (see Vol. 2, pp211–217). Besides its own database, *DARE (The Database of Abstracts of Reviews of Effectiveness)*, its web site also incorporates the *NHS Economic Evaluation Database*, together with *Guidelines on the conduct of systematic reviews*. Like the electronic products of the Cochrane Collaboration, these are also available on disk and in CD-ROM format. The range of printed materials is quite a wide one; it includes not only a printed version of the *Guidelines*, but a number of regularly appearing and occasional dissemination products for a variety of external audiences: the *Effective Health Care* bulletin, directed to health professionals; *Effectiveness Matters* – designed for a wider audience; and a series of CRD *Reports* on various topics. The centre also collaborates with other health-care organisations in joint-venture information products, such as a series of leaflets on pregnancy and childbirth. It produces policy analyses directed to its funding body, the NHS, guidance on using its databases, and a manual for reviewers on writing abstracts. Internally directed products include comprehensive guidelines for staff involved in each stage of dissemination. Its web site is designed as a container and guide for all the information products it creates.

Datastream International. The third organisation in this group, Datastream International, is a commercial company, which sells databases of financial and business information, based on material which it buys, adds value to by re-packaging for various markets, and then sells to customers world-wide. Its main electronic products are supported by a range of print-on-paper and electronic materials, directed to various segments of its market (see Vol. 2, pp117–120). These include a guide to the system as a whole, a guide for each major service within it, and a customer newsletter. The main information products for the internal audience of staff are designated as Business Intelligence, prepared by a specialist unit with this title, and presented through the company intranet.

Information products as supports for other products/services

The remainder of the case-study organisations are in business to supply a variety of other products and services, to which their information products – both externally

and internally directed – form an essential support. The nature of the products and services which they support is outlined below.

Two businesses, Norwich Union and the Co-operative Bank, are in the field of financial services.

Norwich Union (see Vol. 2, pp233–239) offers a range of insurance, investment and healthcare products, to individuals and businesses. While an increasing proportion of its marketing is direct, the main part of its business is done through intermediaries (insurance brokers/agents, handling general insurance) and independent financial advisers (life and pensions) – whose support and goodwill are critical and to whom many of its information products are addressed. The other critical external group whose interests must be supported by information products has consisted since 1997 when Norwich Union demutualised and became a plc, of the shareholders. The Group's information products and presentation are also the main means of conveying its key source of intangible value in the perceptions of the outside world – brand positioning and brand values (for a full discussion of this, see the case study in Volume. 2), as expressed in the phrase 'No one protects more' and in the emphasis on gaining trust by listening to customers, innovating and delivering quality products and services.

The Co-operative Bank presents similarities and differences; its offerings are banking services, strongly supported by its pioneering investment in information technology, to individual and business customers. It has only one shareholder, the Co-operative Wholesale Society. Its 'brand' asset, which distinguishes it from the rest of the high-street banks, is its ethical policy, and all its information products are in various ways and to different degrees dedicated to promoting a brand which is unusually rich in content (see Vol. 2, pp67–75).

The London Chamber of Commerce and Industry and ActionAid have some similarity in that both depend for their continuing existence on winning supporters, and on influencing governmental and other bodies to adopt the policies they promote.

The LCCI is a membership organisation, drawing its members from the London business community, and exercising a representative function on their behalf in relation to legislation, regulations, and all issues affecting employers in the capital. Its information products have to support it in its endeavours to win and keep

members by the value of the services it provides to them, and in the arguments it puts to influence government and other institutions (see Vol. 2, pp183–189).

ActionAid relies for support in its long-term projects, and in emergency aid in the southern-hemisphere countries where it works, on individual sponsors and institutional donors. The information products addressed to them, and those which it directs to government, non-governmental organisations, businesses and other bodies it seeks to influence, draw on its experience in the field over 25 years to make a case for action against the causes of poverty; in its influencing role, advocacy of the fundamental rights of the poor has come to play an increasing part, and it sees its information products as critical to that role (see Vol. 2, pp17–25).

The Tate Gallery and City University are, each in their own way, concerned with preserving and enriching an intellectual and cultural heritage and with passing it on to future generations. Both also find themselves, like other cultural and educational institutions, competing in the market place for funds and support to ensure their continuing existence.

City University's information products are primarily devoted to that end (see Vol. 2, pp40–49). They 'sell' its strengths to the potential student population, at home and abroad, of school leavers and of professional and managerial staff in mid-career; they seek financial support from its alumni; and they present its achievements in scholarship and its technical and other facilities to the outside world of government, institutions and businesses to which it looks for funding.

The Tate Gallery's information products (see Vol. 2, pp325–329) have to serve in a variety of ways the development and use of its unique collections of British and modern art, and the extension and maintenance of its 'estate' of existing and new galleries, in the capital and the provinces. They provide the key to the collections for those who are responsible for them, and for all kinds of users in the outside world – scholars, educators, purposeful and casual visitors, picture researchers and other commercial users. They 'sell' the Gallery's reputation and value to individual and institutional donors, influential Friends, and government, and the products of its commercial publishing activity sell in the literal sense. Its recently developed web site has extended the geographical range that its information products can reach.

The DTI, as a large government department with a wide remit over the nation's commercial and industrial sectors, relies on its information products to help exporters, support competition, aid the development of sectors of industry and of small and medium enterprises, and carry through special initiatives; and as a government department it is required to produce certain official information products (see Vol. 2, pp132–133, 136–138). Its internal world, shaped by over 200 years of somewhat eccentric growth and accretion, is both large and complex, and so it requires many internally directed information products to instruct its staff on procedures, safeguard them from inadvertently transgressing legal requirements, and tell them things they need to know about the Department's policies so that they can act consistently in dealing with its outside world.

Internally and externally oriented

The distinction between externally and internally directed products is another important one in considering the output of organisations.

Externally oriented information products

In relation to the external world, information products are either the organisation's main offering, or the means by which the it brings other products and services which are the core of its business to the attention of customers, clients or supporters, so that they can decide whether to invest in them; by which they help users to get the best from the organisation's offerings; and by which they seek to influence the thoughts and actions of those in the outside world on whose commitment, understanding and support they depend.

It is of course fairly obvious that organisations which do certain things will need corresponding kinds of information products; no prizes are offered for observing that a university issues prospectuses, a museum exhibition catalogues, a charity a supporters' magazine, or that most organisations produce an Annual Report. How they arrive at these predictable products is another matter, as is the quality of what emerges, and these questions are discussed for the whole set of case studies in subsequent chapters, and in detail for the individual organisations in Volume 2. Here it is sufficient to say that all the case study organisations issue the predictable information products for their outside world, and to remark on some examples of products which are perhaps less expected.

The Co-operative Bank, instead of a conventional Annual Report and Accounts, produces Financial Statements paired with a report on its social policies, external and internal. The most recent, the *Partnership Report* (1998) is detailed and sometimes self-critical account, produced by the Bank and externally audited, of how the Bank has fulfilled its responsibilities to the 'partners' it identifies as being involved in its activities or affected by them in its 'partnership approach' initiated in 1997: customers; staff and their families; its single shareholder, the Co-operative Wholesale Society; suppliers; local communities; society; and past and future generations (see Vol. 2, pp63–65).

Norwich Union has a strong group of information products dedicated to supporting and encouraging the Independent Financial Advisers (IFAs) who do the main selling of its life and pensions and investment products (see Vol. 2, p235). Its range of 'IFA first' products includes videos, training materials for professional examinations on CD-ROM, printed *Prospecting Kits* providing help on securing new clients, software to help in putting together letters setting out the case for specific products, satellite TV programmes, and a magazine for IFAs.

ActionAid's output includes some fascinating and unusual materials on the theme of literacy (see Vol. 2, pp20–21), starting with a manual with guidelines for literacy workers on adapting the 'Reflect' method for literacy development, which uses products created by members of literacy circles themselves, and followed up by a Working Paper on the results of applying the method in 25 countries. The latter, while acknowledging successes achieved by comparison with conventional approaches, asks if literacy itself can really empower. Products like this are likely to have contributed to the development of ActionAids anti-poverty, pro-poor strategy, described in the case study.

Internally oriented

Products for internal consumption have two main functions:

1 What is usually understood by 'corporate communications', that is, products which aim to keep people within the organisation informed about its actions, aims and achievements; to motivate them; and to encourage them to act and if possible feel, in accordance with the culture of the organisation. These are typified by staff newsletters and similar products, traditional print on paper or electronic, which carry both business news and features by and about individual staff members; and by 'briefing' products designed to supplement managers'

briefings about the business to their teams. Also within this group are formulations of mission, vision and values; corporate objectives and plans; statements of policy; and issues documents which are distributed widely within the organisation for comment.

2 Products which carry the essential information that staff need to do their jobs around the organisation, including procedural and instructional manuals or guides, current-awareness materials on the economic, social or cultural context in which the organisation operates, and reports on research carried out by the organisation. Another important group among such products is devoted to supporting the people responsible for creating information products for both external and internal audiences.

The internal products which the case-study organisations judge necessary provide some interesting observations, from the point of view of quantity, purpose, and amount of professional input that goes to their presentation. It may be observed here that, with honourable exceptions, little thought for readers' mental and visual ease seems to go into many of the 'policy' products which are created for internal audiences. This is odd, given the importance organisations presumably attach to them, and the requirement that staff should read with attention, absorb what they read into their knowledge, and either act upon it in their work, or provide the organisation with informed comment. On occasion such products even seem to have been designed as tests of dedication and commitment, obstacle courses, or trial by verbiage; and what is even stranger, some of them come from organisations which produce conspicuously attractive and accessible products for their external audiences.

There are interesting differences in the number of internal products which organisations consider necessary.

ActionAid believes it desirable to offer a large range, including an existing staff magazine, and a projected new series of internal communication products recommended in its recent internal communication strategy (see Vol. 2, pp21–23). These include a management briefing product, one designed as a learning product to promote information sharing via the internet, and guidance on communication standards. Apart from this, the charity is noteworthy for the quantity of rigorous and demanding discussion papers on organisational strategy which are circulated nationally and internationally. This is an organisation which sets high standards of

commitment, understanding of complex issues, and participation from its staff, who are dispersed around many countries.

Norwich Union, too, has a range of corporate communications products, some of which go to pensioners as well as present staff (see Vol. 2, pp233–235). There are also products which offer contextual business information for staff in the businesses which make up the group, and a management briefing product in hard copy and electronic form. A corporate intranet, for which a Group-wide strategy was introduced at the close of the case-study period, offers business-information products designed for different departments and sub-sets of staff, together with such frankly trivial material as pictures from the IT Christmas party. Other internal products, revealed by the second stage case study described in Chapter 9, are in the form of *Marketing Activity Advice*, a self-training manual produced for the team responsible for launching a new investment product and the associated information products (see Vol. 2, p256)..

The London Chamber of Commerce and Industry, a small organisation, all of whose staff work on one site, has few internal information products; those it does issue are limited to essential material for employees about benefits, health and safety, etc. In this instance, there is a deliberate policy of reliance on face to face communication as being beneficial for the organisation.

The DTI during the period of the case study was in the process of rationalising vast amounts of internal guidance and procedural material, including forms, for staff, as part of the development of its intranet (see Vol. 2, pp164–165). Also in progress towards the end of the period was the provision of business analysis material for staff; this will be presented on the departmental intranet.

The Co-operative Bank offers a staff newspaper (at the end of the case study it was being re-thought as more of a magazine, to complement other forms of electronic in-house communication), together with briefing materials for internal team briefings; a staff video; materials on marketing campaigns; a training guide; and comprehensive standards for information products (see Vol. 2, pp67–69). Some of its products for staff use, in connection with promoting its environmental policies, are conspicuously well designed.

City University's institution-wide internal products (see Vol. 2, pp241–242, 243–244) are limited to a printed staff magazine, guides issued in hard copy and on the

University web site by Computing Services, and a staff guide to the university, which was originally hard copy, and has now been transferred to the web site.

The Tate Gallery's internal products of the have shifted towards electronic delivery (see Vol. 2, pp326–327). The staff handbook is currently being revised and expanded by the addition of a manager's handbook linked with staff development programmes, in preparation for transfer to the intranet which is now being set up. An internal version of the catalogue, more utilitarian in appearance, but with fuller information than the one publicly available there, is accessible for staff on the web site.

Once again a sharp distinction exists between the organisations whose information products constitute their sole business and the rest.

The Cochrane Collaboration and the NHS Centre for Reviews and Dissemination issue internal products which are mainly directed to supporting the people who create and/or disseminate the main database product, and are now principally available in electronic form. They include the Cochrane Collaboration *Handbook,* and the CRD's internal guidelines for each stage of dissemination and its *Manual of writing abstracts for reviews database*

Datastream's internal products similarly are designed solely to support its staff in their work, in this case by providing them with business environment information and information on the company's own products, which is compiled by its Business Intelligence Unit and presented on the intranet which it manages.

Print-on paper or electronic

A final key distinction relates to the medium in which information products are presented to the user. There is no need to make an actual analysis on this dimension, because the two preceding ones have in fact given an incidental indication of the scope of products which are now presented electronically to their users, and of the changes which have taken place in this respect during the period of the research.

This is indeed the critical point to note. When I first began going into the case study organisations, just about everything that could be called an information product was print on paper. I soon learned to dread the ominous sight of a pile of miscellaneous printed matter on the desk of the person I had come to see, and to go on such expeditions prepared with a large bag to take home the spoils pressed

upon me. It was comparatively rare to be offered the opportunity, as I was in one or two of the organisations, to sit down at a machine and explore a database that constituted an information product, or to be given the address of a recently introduced web site. Equally infrequent was the offer of videos or audio-tapes or CDRoms.

The latter are still rarely encountered, but so far as web sites and intranets are concerned, a change started in around 1997 and has gathered impetus ever since. All the case-study organisations without exception now have web sites, many of them very large and complex, and almost all have instituted an intranet. Many information products, both externally and internally oriented, which had previously been presented on paper, have now migrated in their entirety to an electronic format; others are temporarily co-existing in both hard-copy and electronic form as a transition stage on the way to becoming wholly electronic; others again, having been reviewed in the light of their audience, remain and are likely to do so, in the traditional form (this is particularly the case with products addressed to a mass public and to small businesses); and products which began as databases distributed on disk are now available also via the internet. Within this universal movement, there are interesting differences in the way the transition process and the electronic 'containers' for the products are managed, and these are considered in Chapter 7

More than that, as discussed in Chapter 8, under the impact of the changing technology and the potential it offers, many of the organisations have begun to reconsider their information products as a whole (or indeed to consider them in that light for the first time), and to see them in a new way in the context of their business strategy.

6

The place of information products in organisational strategies

Introduction

The first thing to be said on this topic is that the place of information products in the organisation's overall strategy is seldom explicitly articulated in the case-study organisations.

As might be expected, those organisations whose information products are their raison d'etre form an exception; here organisational strategy and strategy for information products are more or less co-terminous. The charity *ActionAid* is also on the way to defining the strategic role of its information products, in the form of a communications strategy, within the context of a new corporate strategy.

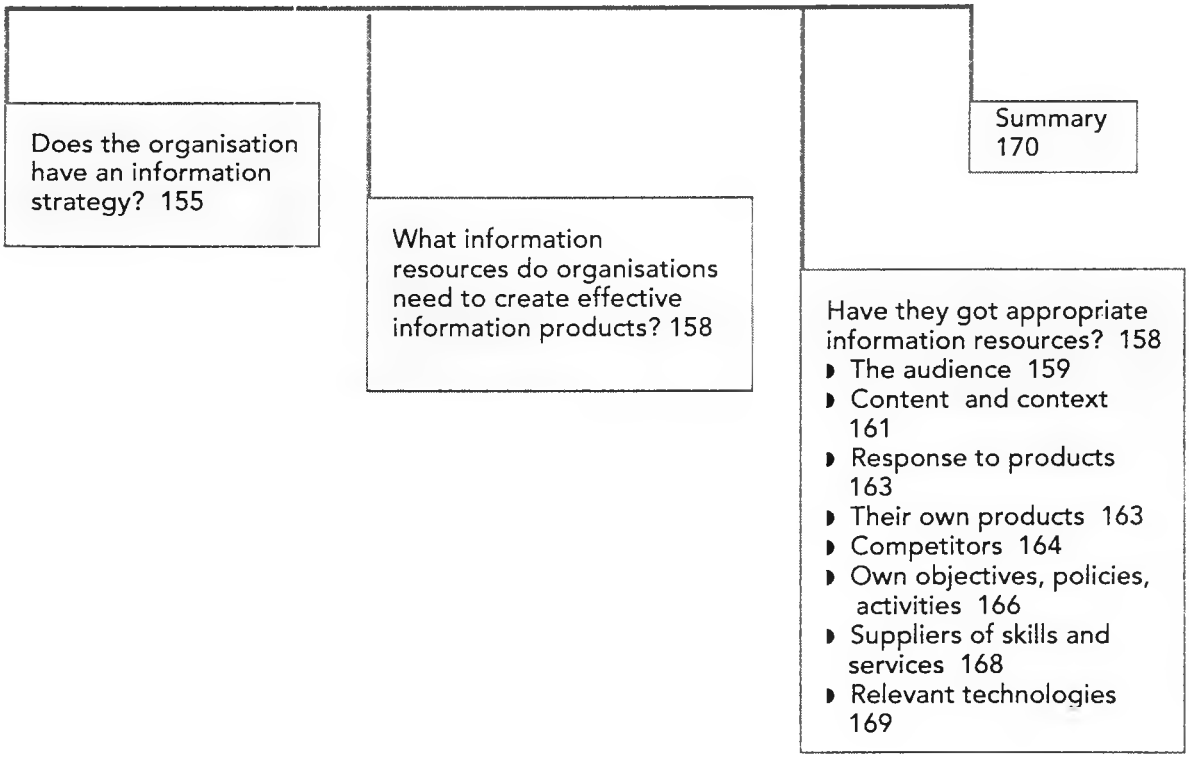
For the rest, the case-study organisations are at various points along the road between a strategic role for information products that is implicit and fragmentary because it has not occurred to the organisation to regard them in that light, and one which, while clearly understood, is still implicit.

Those whose structure is what may be called federal – consisting of a number of separate businesses within a group, as in *Norwich Union* (see Vol. 2, pp226–231); or divisions with a large degree of autonomy, as in the *DTI* (see Vol. 2, pp131–136); or academic departments with strong decision-making powers, as in *City University* (see Vol. 2, pp36–37) – are in a particularly difficult position in this respect. Responsibility for information products in such organisations is likely to be fragmented and distributed; the authority of the 'owners' or originators of information products can be jealously guarded; and those parts of the organisation which have some sort of overview responsibility and/or provide relevant professional skills are likely to occupy a less powerful position in the organisational structure and to be limited to an advisory role. It is interesting to note that one of these organisations – the *DTI* (see Vol. 2, pp136–138)– did actually take an initiative some years ago in the form of a consultancy assignment which looked at how it managed the whole range of its information products. The findings (fully described in the case study, and used there as the base-line for analysing the current situation) could have made the foundation for a department-wide strategy for information products, but did not.

During the latter period of this research, developments in the case-study organisations have begun to suggest that a stimulus for progress towards an organisational strategy for information products is likely to come from an unexpected direction (unexpected at any rate to the researcher) – that is, from the experience of developing web sites and intranets, which, as described in Chapter 8, is having a significant effect on thinking.

This chapter will look at the answers from the case-study organisations to some questions which have a particular bearing on the place that information products occupy in their organisational strategies:

- Does the organisation have an information strategy?
- What information resources do organisations need to help them create effective information products that help them achieve their objectives?
- Have the case study organisations got the appropriate information resources? and does their management of them contribute fully to their information products?



Does the organisation have an information strategy?

As suggested above, it can reasonably be argued that organisational strategy has to be in effect an information strategy for those organisations which are in the business of creating and offering information products to a well defined market.

The Cochrane Collaboration's overall mission , for example (see Vol. 2, pp88–90), is 'to help people make well-informed decisions about health care by preparing, maintaining, and promoting the accessibility of systematic reviews of the effects of healthcare interventions', and the strategies it pursues in fulfilment are essentially information strategies, designed among other things to support good communications, open decision making and teamwork; to ensure bias-free presentation of information in its reviews; to incorporate new evidence as it becomes available; and to select areas of relevance to the intended users of the product; as well as to use appropriate IT and systems to deliver the product.

The CRD's situation is similar; it has the same concerns as the Cochrane Collaboration, but with a focus on dissemination and awareness-raising in relation to evidence-based healthcare within the NHS. It has developed strategies for two of the three key aspects it identifies for its work: reviews and dissemination (see Vol. 2, pp204–210), although, interestingly, for the third – information – there is no formal information strategy, even though the CRD's information service has a central role in everything it does (there has apparently been no requirement for such a strategy from the funding body).

City University. Comments at various stages of the study suggested that there was little indication of a university overall strategy (see Vol. 2, p36), though at the end of the period there was a prospect of change with a new Vice-Chancellor. The University made a rather delayed start on meeting the obligation to produce an information strategy, as required by the Higher Education Funding Council; at the end of the case-study period a draft strategy (produced by the Academic Registrar and the Director of Computing Services) was on its rounds for consultation and was due for what seemed likely to be extensive revision.

The Tate Gallery, one of the first case studies to be started, looked at the beginning to have little prospect of an information strategy (see Vol. 2, pp315–320). Despite a series of initiatives from the early 1990s, including surveys of information resources, and working groups of various kinds on information policy, there was little evidence of forward progress, though a good deal of what appeared to be circular

movement. Over the final period of the research, however, it has moved far and fast – perhaps on the basis of things learned during the time of apparent inanition – led by an experienced combination/alliance of information-systems and library professionals. From February 1999 it has had an information systems strategy which is defined as being primarily concerned with using information in integrated way. As part of the strategy, the Head of Library and Archive has been designated Information Co-ordinator, while retaining her previous responsibilities, to promote information-sharing throughout the Gallery, supported by the technology and systems which the strategy provides; she reports to a strong Information Systems Steering Group chaired by the Director of the Gallery.

ActionAid. Towards the end of the case study the running for an information strategy was apparently being made from the communications side by its International Marketing and Publicity department, which has produced an interesting set of proposed internal and external communications strategies in the context of a radical new corporate strategy centred on addressing the root causes of poverty and a 'pro-poor' approach (see Vol. 2, pp11–15). Its *Communications 2000* plan states among its aims giving everyone in the organisation access to relevant information and/or knowledge within the organisation, to help them to work more efficiently and to promote organisational learning on how to achieve ActionAid's mission most effectively. Another aspect of the plan which suggests information strategy is its aim of giving ready access to the organisation's history, experience and decisions. (The Resource Centre has also taken steps towards establishing information needs, and proposed an information strategy as early as 1996 (see Vol. 2, pp18, 28), but it is not clear what if any is the relation between these initiatives and those in the communications strategies.)

The London Chamber of Commerce and Industry, while as yet it has no agreed definition of information in terms of its role as an organisation, appears to be progressing towards an information strategy under the influence of strong minded information professionals. On an initiative from the information team, a commitment to knowledge management has been accepted for the Chamber as a whole (see Vol. 2, p180), and at the end of the case-study period a knowledge audit was planned.

The DTI. Here too, sustained pressure by high-level information professionals now appears to have led to movement (see Vol. 2, pp266–268). In this case, a critical breakthrough came with the process of developing MANDRIN, the Departmental

intranet. A high-level Intranet Strategy Management Board is responsible for development; in another area, the follow up to an information audit in management units has looked at information strategy development. A further relevant development is a Business Analysis Team, a group which aims to integrate the elements of information and knowledge management, organisational culture, administrative process and the infrastructure of new enabling technology.

Norwich Union, while active in developing its information products, committed to open communication, and fully aware of the intangible asset constituted by its brand, shows little sign of ever having considered information as another of its intangible assets meriting strategic management (see Vol. 2, p240). The only information resource it has recognised as such is an invaluable business archive, going back over almost the whole period of its existence, which was discovered neglected in a seldom-used room during the time when it was preparing for the bicentenary of its foundation. The potential of this, to the credit of the manager responsible for the bicentennial programme, was recognised, and it is now being managed by a professional archivist.

The Co-operative Bank is an intriguing organisation in this respect (see Vol. 2, pp276–277). It quite evidently uses information very strategically and effectively; its outstandingly successful business record in comparison with the competition, and the extent to which it is known to the public, clearly depend on it using essential information in appropriate ways, in accord with a clear strategic direction. Its information products point to the same conclusion. And yet, this is the only blank spot encountered in many discussions with contacts in the Bank. When I have asked about information strategy, the responses have suggested that meaning of the question, however phrased, escapes them. I am sure there is a key somewhere, could I but find it. Perhaps it exists elsewhere in the organisation – one of its senior management team was after all a member of the Hawley Committee. For the moment, however, it is not clear to me how the Bank decides what knowledge and information it needs, how it is acquired and managed, and who has responsibility for the decisions, for any information strategy that exists, and for information management. (In this respect, the Bank may not be alone; results from the first stage of research for the British Library on the role of information in the strategic management process in UK retail banking (Broady-Preston and Hayward, 1998) suggest that, while information is viewed as a source of competitive advantage, the 'formalised' information gathering process is *ad hoc*.

What information resources do organisations need to create effective information products?

Here, let us start from first principles. If an organisation's information products are to do a good job for it, in terms of helping it achieve its key objectives whatever they may be, it needs information resources that will keep its knowledge current in these areas:

1 The people to whom its 'offerings' (whether in themselves information products, or other products/services with which information products are associated) are addressed, as customers or users, external or internal
2 Appropriate content for the information products –current, accurate, related to the needs/interests of the users; and the context or environment in which the organisation operates
3 How target markets have responded to past and current products, and the lessons to be learned
4 Its own products, including its information products
5 Competitors and their products
6 Its own objectives, policies, and activities
7 Suppliers of appropriate skills and services
8 Relevant developments in technologies for presenting and delivering information products.

These are resources of various kinds, and if they exist in any given organisation are likely to be located in different areas, and managed by staff with a variety of job titles and backgrounds. Some, but by no means all, fall within the scope of jobs usually done by information professionals – those concerned with content, context, and competition, for instance – though that is no guarantee that they will be so managed in any given organisation.

Have the case study organisations got the appropriate information resources?

This question, and the related one – 'does their management of them contribute fully to their information products?' will be answered in relation to the specific kinds of information identified above as being essential resources for creating effective information products, with examples from what actually happens in the case-study organisations.

The audience for products

Resources of information about the people and organisations which form its audiences – usually in the form of databases (single or in some cases multiple) are, or have until recently have been, a problem area for most of the case-study organisations. They are generally acknowledged to come below the ideal in their coverage, the useful detail they provide, and their accessibility.

The Tate Gallery and the DTI . These are typical of institutions which at the start of the study had many databases existing in various places, organised in different ways, and lacking consistency among themselves. By the end of the period, both (*Tate Gallery,* see Vol. 2, p319; *DTI,* see Vol. 2, p146) were moving towards systems which will resolve at any rate the technology aspect of the problem; there will still be the need to learn how to use it creatively in this respect.

The London Chamber of Commerce and Industry, the Co-operative Bank, and Norwich Union. Here the technology applications available when such databases were set up did not match the ways in which those responsible for information products wished to access them in order to learn about the potential audience for them. The *LCCI* (see Vol. 2, p182) has since replaced the venerable system under which it was labouring at the start of the case study; the *Co-operative Bank* see (see Vol. 2, pp95–76), continues to wrestle with its customer database. *Norwich Union's* problems were not solely technology-based; some derived from its structure (see Vol. 2, p240). At the start of this study each marketing division had its own research team which gathered information about competitor activities and maintained business-specific databases. In addition, the technology then in use did not allow matching internal information about customers with external information like demographic data. Investment was in hand to provide new systems that would resolve the problem, but it was acknowledged that development was proving difficult because of the complexity of the information that had to be handled (this complexity also included the large number of products available to customers and the range of variations within them). By the end of the period, the investment was beginning to pay off, and the emphasis had moved to resolving the problems of using it effectively.

City University (see Vol. 2, pp51–52) has difficulties which relate to the structure and culture common in institutions of its kind; the mailing lists maintained by individual departments, for example, both overlap and contain incompatible data,

but little can be done to improve their integrity and make them potentially more useful in the planning of information products, because they are regarded as departmental property. By the end of the study the problem had at any rate become the responsibility of a specified person – the holder of the new post of Development Director.

The NHS Centre for Reviews and Dissemination, through the research it carries out on dissemination, is building up an unusual body of information about the potential audiences for its products. Its problems in this respect relate less to identifying and understanding the audiences, than to ensuring that its products for general dissemination actually get to the intended readers (see Vol. 2, p208). They are sent to organisations rather than named individuals, with guidance on distribution which is intended to ensure that they reach the people who can make good use of them. Investigation by the Centre suggests that they often fail to do so, especially for the readership who work in primary health care.

Where a limited number of specific information products are the subject of commercial transactions, difficulties of the kind described above are much less likely.

The Cochrane Collaboration has good information resources about the customers for its databases, but, according to some sources within the UK organisation (see Vol. 2, p101), there is uncertainty about the characteristics of the audience for the reviews in *The Cochrane Library* (this uncertainty, it should be said, is expressed on the publishing side, and is not shared on the side associated with the origination of the reviews).

Datastream International (see Vol. 2, p122), however, certainly at the start of the case study, had problems in finding customers who met specific criteria in its customer database (a situation compounded by a recent merger with another company); there was also a long-term project to integrate the useful information about purchasers of its products which was currently distributed in a variety of databases. The likely solution envisaged was via the company intranet.

In summary, then, the technological obstacles are in a fair way to being overcome; but when they are, organisations will need to think about making the best use of their systems to learn about the audiences for their information products and apply that knowledge.

Content and context

Where information products constitute the main offering, building and maintaining resources of information related to the needs/interests of the organisation, and to the context in which it operate, is a condition of survival and success, and such organisations necessarily invest a great deal in it – in terms of acquiring information, managing it professionally, and supporting those who create the end products.

The Cochrane Collaboration and the NHS CRD. In both (see Vol. 2, p209, and Vol. 2, pp209, 217), information professionals hold positions of unusually high standing, and it is acknowledged that their contribution is on an equal footing to that of other specialists who are responsible for reviews or dissemination.

The Tate Gallery, by the end of the case-study period (see Vol. 2, pp315–320, 332), was well on the way to having its main resources of content – centred on its collections and its library and archive – accessible in a multiplicity of ways for use in planning and creating information products, supported by its new system as described in its Information Systems Strategy of February 1999, and driven by highly professional managers with long experience, in positions of authority. ActionAid at the start of this research disposed of a wealth of content based on field experience, together with a good deal of contextual information (see Vol. 2, pp26–27). The resource was, however, fragmented and in different locations, and few if any of those who could have drawn on it for information products were aware of the totality of what was available. Editorial staff, for example, made their own collections of first-hand material from the field, and had little contact with the Information Resource Centre, one of the purposes of whose establishment was to support interchange of information within the organisation, and to act as a central information unit for UK staff. This situation was in the process of change by the end of the case study, when structural changes had been made to ensure that the Centre should be used as an all-agency resource (see Vol. 2, p16).

The DTI's information and library services have over the whole period of the research been a key resource of content and contextual information for information products, and have taken a key role in a number of initiatives which will contribute towards more effective and integrated use of information (see Vol. 2, pp144–145). These include the development of the departmental intranet, MANDRIN (see Vol. 2, pp166–168, which is already providing a range of re-

structured internal guidance products. Ultimately the intranet will influence not only the means of delivery of information to users, but also the nature of the information which the service offers, which will move towards in-depth material rather than quick-reference information; there will also be more research using electronic resources; and the service is becoming involved in the development of the Department's business analysis work. All this will offer a stronger and richer resource for the creation of information products.

The commercial organisations among the case studies, *Norwich Union* and the *Co-operative Bank*, have, as indicated earlier, a different approach to information resources for information products. They differ not only from the other organisations, particularly in the matter of professional management of such resources, but also from one another.

Norwich Union. Here the structure and culture (see Vol. 2, pp.238–240) means that fragmentation and a degree of restriction of access is the order of the day with regard to the resources of content and contextual information on which information products – in particular those associated with insurance and investment products – depend. (More detail on how they are developed is given in Chapter 9, which looks at the process of developing a specific investment product and the associated information products.) There is no professional management of these resources, and there appears to be little sense at the top of the need for an overall view of them; in the Group's progress towards transferring to electronic presentation there appeared until the final stage of the study to be something of a vacuum, which may now be overcome, at any rate for the intranet, by agreement on an intranet strategy.

The Co-operative Bank once, in the 1980s, had a library, and an economic intelligence unit in the Marketing function which scanned the press, monitored economic developments, and maintained international liaison with other co-operative organisations (see Vol. 2, pp276). Neither exists today, and despite the long memories of staff no-one was able to tell me why. Its needs for core content and contextual information are met today in a variety of ways. Scanning the press against lists of key topics of interest to the Bank is a long-standing part of the responsibilities of staff in the department responsible for most of the management of information products. The traditional weekly circulation of photocopied cuttings to key managers, together with the output from an outside cuttings service, continues. The Bank also buys reports from commercial monitoring services for

audio and TV, and seeks economic intelligence in relation to specific products, to which it may be alerted by topics which show up in the cuttings. This sometimes leads to the commissioning of research, while other ethical research products are bought 'off the shelf' from various sources. As observed earlier, the Bank makes very effective use of information in its information products; they evidently hit the target with the intended readership, and contribute to its competitive success. As an information manager, however, I cannot help worrying about valuable information they may be overlooking in what appears to be a distinctly hit and miss operation, and the dis-economy created by not being able to make multiple use of the information resources they acquire, but appear not to manage for future use.

City University remains something of a blank area in this respect. The information strategy under discussion at the close of the case study (see Vol. 2, p51) should cover the use of information resources for creating information products, but such insight as it was possible to obtain regarding the draft suggested that it was far from doing so (a copy of the draft was supplied, but as an attachment in word-processing software which was inaccessible, and then on second thoughts by the originator, withdrawn.)

The response to products

Whether organisations have information resources of this kind depends on the extent to which they monitor and evaluate the response to the products, and what they do with the findings. This topic is covered in detail, in relation to how organisations manage their information products, in Chapter 7. Here it is sufficient to say that practice varies a good deal, as does the reliability of the information the organisations acquire from whatever they do in this respect.

The organisation's own products, including its information products

Organisations need to have ready access to the complete range of their own products, past and current, to inform their decisions about what information products they need for present and future purposes. Personal experience over many years suggests that this is far from being universally the case.

So far as the present research is concerned, there are instances both of meticulous attention to building up complete collections, thoroughly indexed, and

easily accessible, and of the organisations tending to the other end of the scale. In the case of one organisation, I appear to be the only person in possession of a particular internal information product – one with strong relevance to the research theme; no one to whom I have mentioned it in the organisation itself has ever seen or heard of it. (In fairness it should be said that this is exceptional, and the organisation in question is now taking steps to ensure that it has a complete and accessible resource of its information products, internal and external.)

Where information products are the sole business of organisations, there is no questioning of the importance of maintaining an accessible resource of everything relevant, and no difficulty in doing so.

The Department of Trade and Industry provides the most striking example of investing in a professionally managed resource of this kind comes from , whose current catalogue contains over 1700 titles. Among many disturbing revelations from an extensive study of the Department's publications policies and practices, commissioned in the early 1990s (see Vol. 2, pp136–137, 144), was the fact that there was no complete central record of how many titles there were and the size of print runs. Probably the most successful action taken on its recommendations was the establishment of a Publications Unit with the remit of bringing order to the chaos of storage, distribution, and recording. Set up within the Information and Library Service, the Unit created a comprehensive database of publications. In the final stages of this study, it formed part of a Public Services Unit, four out of five of whose management-level staff were professional librarians, and the database is a valuable and accessible resource.

Competitors and their products

Not all the case-study organisations are in a strictly competitive situation, though many of the non-commercial ones do have competitors in some respects. All of them, however, need to know about organisations in their own area of activity, whether as competitors for customers, funds, supporters, or visitors; or as potential partners; or as groups with whom they need to interact to establish boundaries and areas of collaboration.

The *Cochrane Collaboration* and the *NHS CRD* are essentially non-competitive providers of information products; both, however, need to know a good deal about other organisations in their field.

The Cochrane Collaboration needs up to date information about organisations in the UK, especially within the health service, and in the other countries where Cochrane Collaborations exist, so as to keep its own role clearly defined. From the point of view of technology, it needs to be aware of possible partners with which it can enter into mutually advantageous arrangements for developing or distributing its products.

The NHS CRD is in a similar position, with on the one hand emphasis on potential collaborators with whom it can develop products for dissemination, and on the other the need to be aware of new institutions being set up in the NHS (such as the National Institute of Clinical Excellence), with which it will have to negotiate collaboration and division of responsibilities (see Vol. 2, p204. Both organisations appear to manage this resource effectively, aided by the small number of people involved and the constant exchange of information among them.

ActionAid is in a comparable situation, and the organisation is certainly aware of the need for this kind of information; its most recent organisational objectives include developing systems and skills for working effectively with external stakeholders and partners (see Vol. 2, p211). Less clear, at the present time, is how this particular information resource is at present provided for and managed, and how it will be in the future.

The Tate Gallery is in some senses in competition, eg for funding and publicity, with other cultural institutions; in other respects it is in collaboration with them. The unified, authoritative contact list which will be the first application available through the data warehouse which forms part of its new information strategy (see Vol. 2, p319), will be a basic tool for this resource; the other part of it is likely to be developed through the activity of the Corporate Information Manager, whose remit, as described above, is to 'unlock' useful information and make it easily accessible to staff.

Datastream International has comparatively few competitors, and it provides an information resource about them on its intranet, with inputs from its Business Intelligence unit.

Norwich Union and the *Co-operative Bank* have a clear need for competitor information in planning their own products and services and the related information products, and they obviously have it and make use of it. How and where they manage this resource, however, is still not clear to me.

Norwich Union acknowledges its need to keep the circulation of such information to a defined and limited audience within each individual business, from considerations of commercial confidentiality.

The Co-operative Bank presumably picks up some competitor information from press scanning, but that hardly seems to be at a satisfactory level of sophistication – so this remains part of the same mystery as the provision for resources of content and context information. The Broady-Preston and Hayward (1998) study of strategy and information flow in UK retail banks already referred to (see page 157) is likely to be relevant here.

City University stresses that it is in competition with other universities, for students and funds, but it is open to doubt at present to what extent it has managed resources of information about them and their products, accessible to those who make decisions on information products which have a competitive role. Perhaps this too is something that will emerge in the end from the information strategy.

The DTI, while in the business of promoting competitiveness, is, as a government institution, in a sense without competitors. In deciding on information products, however, it operates on the principle of not competing with commercial sources which offer products designed to help business and industry, but to find unoccupied gaps to fill (see Vol. 2, p141). This is especially so in relation to the section responsible for export publications, which uses relevant information resources intensively in deciding where there is scope for it to issue its own products.

Its own objectives, policies, and activities

The Cochrane Collaboration and the NHS CRD both have a clear appreciation of the necessity of access to this kind of information; the former, particularly, as an international body whose product depends on the input of self-organising teams of volunteer reviewers, needs to have constant access to information about its policies and the decisions of its international Colloquia, for example. Both bodies refer consistently to their objectives and policies in developing their products. The CRD in particular relates its dissemination activities to them, and uses the results as input to its policy thinking; for example, in presenting its 1998 report to the NHS

review body (see Vol. 2, p208) it made a specific case for developing certain kinds of dissemination of its products.

The Co-operative Bank is certainly very clear about its objectives and policies, and they inform all its information products. In the early stages of the case study, it was not clear how this resource was maintained and managed; with the establishment of the Bank's web site, however, at any rate its public policy documents have become readily accessible (see Vol. 2, pp74–75). The intranet which it is planning may become a comparable source of reference for these and other more internally oriented products relating to policy, objectives, decisions and history.

ActionAid has for some time recognised the need for a resource of information about its own history, decisions, and actions (see Vol. 2, p14). This was one of the purposes for which its Resource Centre was set up, and the recent internal communications strategy reiterates the necessity for it, in connection with the knowledge that staff need, and by implication at least with the information products designed to keep them informed.

The Department of Trade and Industry. A major motivation for the Department's development of its intranet (see Vol. 2, pp164–168) was to give its staff products which would provide clear and readily accessible guidance to its policies and procedures; its business case for moving to a system of this kind was primarily based on quick access to essential documents without moving from the desk, and the associated time saving and risk avoidance (in complying with legal requirements).

The Tate Gallery's intranet, being developed at the time of writing (March 1999), as part of the Gallery's information systems strategy, will offer its staff access to policies and standards; in this instance it remains to be seen how the resource may be drawn on in connection with information products.

City University does not appear to be any resource which brings together this kind of information other than the three volumes that make up the Annual Report.

Norwich Union draws on its Group goals, values and corporate objectives, and on its brand, in planning external and internal information products. It is not clear whether it maintains any resource of information about its past policies and

decisions and their results, either for the Group as a whole, or for its individual businesses, which might be a source of guidance for information products.

Suppliers of appropriate skills and services

Those organisations which rely on outside design groups, writers, editorial services, typesetters or printers need as a matter of self preservation to establish and cultivate relations with competent and honest suppliers, who have the capacity to handle specific kinds of product, and deliver appropriate quality. By the same token they need to build up an accessible resource of information about the suppliers they use, the jobs they have done, what they are best at, delivery times, any failures or weaknesses, costs, equipment, and specialisms.

Not all of the case study organisations in fact have to rely to any large extent on outside specialist suppliers.

ActionAid in particular, for reasons connected with the sensitivity and complexity of the matter with which its information products often deal, finds it essential (and cost-effective) to have in-house designers, writers and editors (see Vol. 2, pp35, 152, 164–170)

City University and Norwich Union. In these organisations, where there is both an in-house capability and freedom for originators or clients for information products to go outside, there is an attempt to maintain a resource of information about appropriate suppliers, but no obligation to use it (*Norwich Union* has however recently instituted a Marketing Steering Group, part of whose remit is to manage the relationship with creative, media and research agencies – see Vol. 2, pp231–232).

The Co-operative Bank has more or less resolved the problem by building very successful long-term relationships with small number of design groups and writers, based on excellent understanding on both sides (see Vol. 2, pp77–78).

The Department of Trade and Industry continues to wrestle with the problem, first identified in a 1993 report on the way it managed publications (see Vol. 2, pp147–148). There was at that time an internal service which arranged design, typesetting and printing, using a variety of service providers, for those originators of publications who chose to use it. But it was a matter of choice, and the report noted that some staff undertook design and layout themselves and made their own selection of printers, on the basis of inadequate knowledge. It also observed that

there was no record of the costs of publications (see Vol. 2, p142). This became a task of the Publications Unit set up on its recommendations, and today there is at any rate comprehensive information on the costs of most information products. The Unit's remit also included giving advice on standards, value for money and cost-effective options for producing publications (see Vol. 2, p137). In this respect its endeavours have been less successful. The original service which provided advice on suppliers was disbanded, and there appears at present to be neither an adequate resource of information, nor much demand for one. And the same situation appears to be replicating itself in the newer technology (see Vol. 2, pp168–169); while there is an excellent source of information and advice within the Department on web site contractors, devolved budgets allow management units to go it alone and to find their own contractors – a freedom which can lead to similar outcomes to some ventures involving print.

Relevant developments in technologies for information products

The case-study organisations which were established to provide electronic information products by definition have the strongest of interests in keeping their knowledge of relevant technological development current, and they all do so.

The UK Cochrane Collaboration in particular has a close association with the software company responsible for its database software (see Vol. 2, pp94, 95, 106), which now acts as its publisher; the company keeps track of the significant technology.

Action Aid, the London Chamber of Commerce and Industry and the Tate Gallery. In these organisations time has brought significant improvements, for which there was a good deal of room. They all (ActionAid, Vol. 2, pp30–31; the *LCCI*, pp194–195; and the Tate Gallery pp337–338)suffered in various ways from a combination of elderly technology (in the case of the Tate Gallery an improbable variety of self-standing and incompatible systems) and, it may be suspected, thinking to match on the part of those responsible for it. All three are now well on the way to systems far more appropriate to their needs, guided by professionals with a good understanding of organisational requirements, and alert to relevant developments.

The Department of Trade and Industry too has moved from systems which, while solid, did little to help creators and users of information products, to an ambitious

but well-founded long-term investment (see Vol. 2, p135), and has meanwhile developed a useful intranet (see Vol. 2, pp145, 152, 164–170). Its knowledge resources in this area are being transformed too, with an alliance based on mutual professional respect between information managers and systems/IT specialists.

The Co-operative Bank, again, presents an interesting picture, with a degree of contrast. In its banking business, it took an early lead in monitoring and investing in information technology, which it has implemented with great success, to the enhancement of its reputation for innovation (see Vol. 2, pp59–60). Its web site (see Vol. 2, pp74–75), developed by a congenial and intelligent small contractor briefed by experienced in-house staff, is outstandingly good. Yet there is little evidence of a similar approach to using the available technology to manage the information resources which are an essential support for the whole range of its information products.

Summary

Information strategy

For organisations whose main offering is information products organisational strategy is mainly a strategy for the use of information.

Some of the other organisations still have little that could be called an information strategy . Others progressed fast towards end of the research period, after being apparently stuck early on. The catalysts seem to have been the influence of information professionals, sometimes in alliance with systems/IT specialists together with a break-through via web sites and/or intranets. At least one organisation evidently uses information strategically, yet has no apparent information strategy or awareness of the need for it.

Information resources

Certain kinds of information resource seem necessary for successful information products that help organisations achieve key objectives :

1 The people to whom its 'offerings' are addressed, as customers or users, external or internal

Information of this kind is generally acknowledged to be less than ideal in coverage, detail, and accessibility, but most of the organisations showed improvement during the study; they still need to think about how best to use their improved systems to learn about audiences, and to apply what they have learned.

2 Appropriate content for the information products –current, accurate, related to the needs/interests of the users; and the context or environment in which the organisation operates

Organisations where information products are the main offering invest strongly in these resources. Significant progress was noted in the public organisations (DTI, Tate Gallery) during the course of the research; fragmentation in one commercial organisation with a federal structure and useful content, but no evident pattern of information management in another.

3 How target markets have responded to past and current products, and the lessons to be learned

This is covered in Chapter 7.

4 Its own products, including its information products

Both ends of the scale found: from meticulous attention (in organisations with information products as their main offering, and in one other public organisation that had previously been a disaster in this respect) to casual and haphazard.

5 Competitors and their products (includes potential partners, groups with which interaction needed to establish boundaries, areas of collaboration, etc.)

Organisations whose information products are their main offering seem to do well in this respect. Other non-commercial organisations are aware of the importance of such information; some are starting to manage such resources as contacts databases, while it is doubtful if others have got very far. The commercial organisations obviously acknowledge the need and take steps to meet it; this is highly sensitive information for them, and access to it is restricted (in one case, it was used in developing information products to support a specific investment product).

6 Its own objectives, policies, and activities

Accessible information, which is consistently used in developing products, is available in the non-commercial organisations with information products as their main offering. Of the rest, some are clearly aware of its importance and are moving towards making it available – on web sites or intranets, or as part of information resource management; in other cases it is not clear whether any resource exists or, if it does, how it is managed.

7 Suppliers of appropriate skills and services

Where organisations are largely reliant on outside specialist suppliers, they make some attempt to maintain a resource of information about them, though using it depends on persuasion rather than compulsion – and this can lead in some cases to unfortunate outcomes.

8 Relevant developments in technologies for presenting and delivering information products.

The organisations which were set up to provide electronic information products all keep their knowledge of relevant technologies up to date, as a matter of survival. Among the rest, there have been significant, and sometimes much- needed, improvements in this respect during the period of the research.

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7
How information products are managed

Introduction

In carrying out the case studies, I began with establishing a picture of the organisation and its outside world, what it seeks to do, the constituency it addresses, the 'offerings' to its outside world by which it makes its living. Much of that was done by preliminary reading of specific products, which formed the basis of initial discussions with the people who formed the point of contact with the organisations. Next came an overview of the information products, gained in part from talking with people responsible for various aspects of them, together with a lot of reading. After that, or sometimes intertwined with it (depending on the kind of programme arranged by the point of contact), I tried to focus on the topics of this chapter, and to get answers to the sets of questions discussed below:

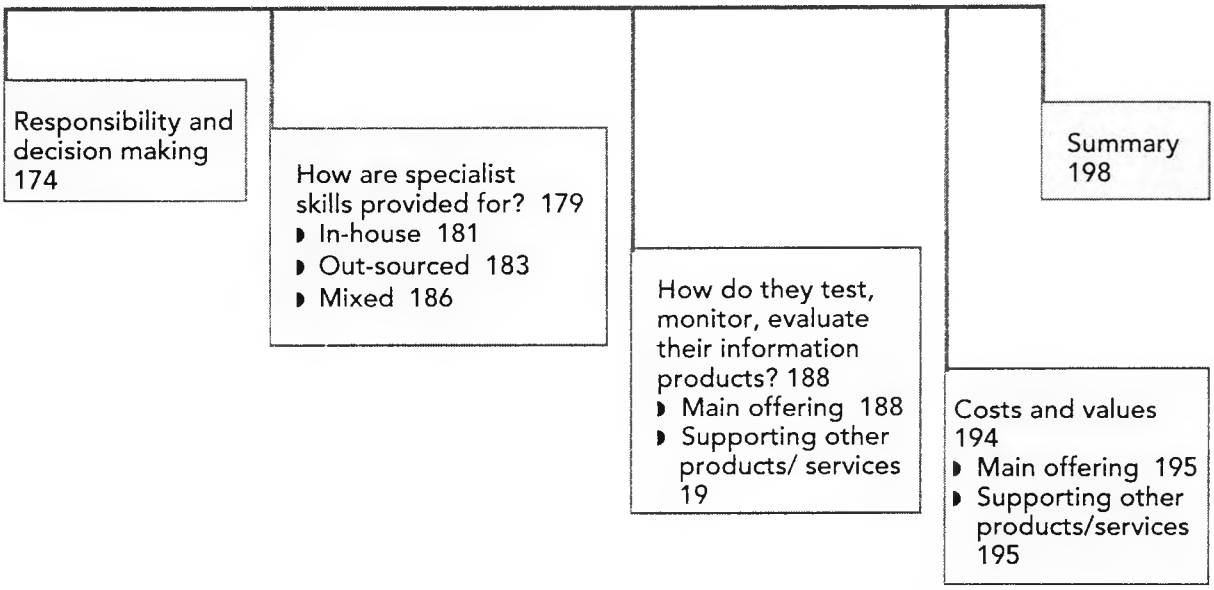
- Who has responsibility for::
  Deciding what information products the organisation will create; setting objectives for them, defining the content and the brief or specification?
  Putting the actual products together?
- Are these responsibilities fragmented or co-ordinated?
- Is there any forum where all the interested parties, or stakeholders, in individual products, series of products, or the organisation's products as a whole, can meet?

- How are specialist skills provided for in:
  Briefing, preparing specifications, commissioning, etc?
  Writing?
  Editing?
  Design?
  Information management as it relates to the information products?

- What is the organisational view of the place and significance of these skills?
  Is it organisational policy to provide for them in-house, or to buy them in?

- What steps does the organisation take to:
  Test the effectiveness of information products before finalising them?
  Monitor their effectiveness when they are in use and learn and act on the findings?
  Evaluate whether the products are meeting the objectives proposed when initiated, and contributing as intended to overall organisational objectives?

- How are budgets for information products established? What do organisations spend on their information products? How do they assess the value they contribute?



Responsibility and decision making

To begin with, it has to be understood that in creating information products of any kind, some division of responsibility is not only inevitable but desirable; there are various distinct roles in the process, products go through a number of stages between inception and the finished item delivered to users, different and specialised tasks have to be performed at each stage. The important questions are about whether there is common understanding among those who occupy the various roles and carry out the tasks, established at the start and reinforced at each stage and particularly in the handover from one to next; whether the organisation assigns overall responsibility for a given product or series of products to a specified individual or group; whether there is any organisation-wide forum for all who hold these responsibilities.

Of the case-study organisations whose information products are their main offerings, both the *Cochrane Collaboration* and the *NHS Centre for Reviews and Dissemination* are committed to collegial decision making, within the organisation, and with their collaborators.

Cochrane Collaboration decisions are taken in accordance with its goal of producing high quality systematic reviews across a broad range of healthcare topics; its policies to this end are guided by an elected Steering Group and annual international Colloquia (see Vol. 2, pp90–91). For individual topics, decision making is the responsibility of international collaborative review groups. This approach is supported by a 'stake-holder culture', within and between groups and throughout the Collaboration.

The CRD's objective of providing the NHS with reliable evidence of the effectiveness of health care interventions, based on reviewing research, means that its decisions on products are related to the service's strategic objectives; the Centre however retains an independent stance regarding the content it presents on the basis of its reviews. In the absence of an NHS strategy for choice of review topics (see Vol. 2, p205), it makes its own decisions, after consultation with potential users about how they want to use the reviews. Decisions on dissemination also have to be taken in the absence of a clear NHS policy, so the Centre has developed its own strategy with formal guidelines.

Datastream International. Decisions on purchase of the data which forms the raw material for its databases are taken by its Marketing function; reference and instruction products for clients are the responsibility of Customer Documentation, while Corporate Communications is responsible for promotional products, though no hard and fast distinction is made in what is seen as shared territory where selling and telling interact (see Vol. 2, p117). Decisions on what products of this kind are needed are made on the basis of information from sales and customer-support staff. Internally oriented products, embodied in the intranet, are the responsibility of the Business Intelligence unit (see Vol. 2, p121.

We may turn now to organisations whose structure and traditions are federal, with a good deal of autonomy for their component parts: the *Department of Trade and Industry*, *City University* and *Norwich Union.*

The DTI's history, structure and culture make for a tendency to fragmented decisions and responsibility. The OMC report on its publishing activity which is described in the case study recommended a standard decision-making procedure,

under which budget-holders proposing a publication would prepare an investment or option appraisal, itemising proposed costs and benefits and assessing the options which represented best value for money (see Vol. 2, pp137–139). The Publications Unit set up as recommended by the report duly produced guidance on publications (see Vol. 2, p138), with a checklist of questions for decision makers to answer, which would provide rationale, indications for resources, etc. In the event, the Unit does not seem to have pursued these parts of its guidance, and has so far concentrated on such aspects as distribution, legal deposit copies and cost information. The actual decisions to authorise publication, and on production options, continue to rest with the budget holder, and in practice divisional managements seem to take differing views of the significance of guidance and how to observe it. It appears that this approach may be carrying through to decisions on the products put on the web site by individual management units, although there is an Internet Editorial Board with general oversight (see Vol. 2, p169). A more integrated approach is taken to decisions about internal products on the MANDRIN intranet; here development is through pilot projects, in which the Intranet Strategy Management Board works with various partners (see Vol. 2, p167).

City University. Schools and departments, traditionally territorial in respect of information products, as of much else, now have more responsibility for their own management. Responsibility and decision-making in the matter of information products is distributed and somewhat fragmented(see Vol. 2, pp(see Vol. 2, p323)–91). Schools and departments have freedom to make their own decisions on their information products, and production. Two units (External Relations and the Public Relations Unit in the Business School) offer specialist services to the originators of products, and are at the same time responsible for certain products of their own. Use of their services is not obligatory, except in so far as all course brochures have to be handled by ER, which has the lead quality-assurance role in relation to departmental course material. Decisions on externally directed products are based on an external relations strategy (see Vol. 2, pp37–38), founded on the university's objectives (some departments have their own external-relations strategies as well). Towards the end of the case study, changes were in prospect – a new Vice-Chancellor was considering a marketing strategy, information strategy development was beginning. Probably most significantly, a World Wide Web working group (see Vol. 2, p49), which brings together stakeholders, had started operating; this if anything may form the basis for a new approach to responsibility and decision making about information products.

Norwich Union is similar to the DTI in the distribution of decision making and responsibility, and to City University in that there are functions which can provide specialist services (the Identity Management Team) and are responsible for certain products (the Internal Communications Team). In this case they are within a Group Corporate Affairs department (see Vol. 2, pp231–233, 241–242). Marketing departments in the individual businesses take decisions on products and associated information products, and make a business case for them (the second-stage case study, whose findings are outlined in Chapter 9, gives some account of how this was done in relation to one particular investment product). Originators can ask Internal Communications to work on their products or to direct them to outside suppliers, but there is no compulsion. Since 1998, however, there has been a forum which provides an opportunity for an overview of the information products of businesses (see Vol. 2, pp231–132). Headed by a Marketing Director, with a membership consisting of marketing managers and the Group Brands Manager, its aims include ensuring that all marketing activities are aligned with the Group's long-term business strategy, developing and implementing best practice, and developing a Group-wide customer strategy. Decision making on products presented on the web site and intranet seems until very recently to have gone in a rather different direction (see Vol. 2, pp237–238). Initiation of the intranet came from the IT/systems side, and, though current policy is to get as much internal material on to the intranet as possible, there was no specific intranet policy until the very end of the case study period when a high-level strategy was agreed (see Vol. 2, p238). Meantime, different areas of the businesses in the Group decided on content and presentation, and set their own limitations on access, in line with existing policies for commercially sensitive information. So far as the large web site is concerned, the systems staff responsible for site origination and development describe their role as that of 'administrators', and while each page has a specific 'owner' who is responsible for accuracy and currency of content, there is no overall content management (see Vol. 2, p237).

The Co-operative Bank has a clear allocation of responsibility for external and internal information products. At the start of the study decisions on information products to support the Bank's products and services were based on marketing decisions by product managers taken in consultation with the Marketing Services Manager, and supported by a business case (see Vol. 2, pp65–67). Decisions on internal products were made in a Group Public Affairs section, in the Group Resources Division, which also had responsibility for professional services, developing standards etc. This situation continues, with the difference that Group

Public Affairs has now become a new Corporate Affairs Department, directly responsible to the Chief Executive (see Vol. 2, p62), which brings consideration of information products closer to the centre of the business. Harmonious working among the various stakeholders concerned is helped by a flat organisational structure, non-hierarchical culture and cross-functional project teams, which exercise a good deal of authority for the products they work on (such as the 1998 Partnership Report and its successors).

The Tate Gallery's information products have from the beginning of this study been clearly divided as between commercial (books and exhibition catalogues) and non-commercial (see Vol. 2, p323). The commercial programme is managed by Tate Gallery Publishing Ltd, a company set up in 1996, in succession to a trust with a Publishing Committee, which has now been replaced by a Publications Group. Commercial considerations now have a bigger part in decisions. A business plan prepared by the manager is discussed and approved by the company. A business case is made for non-commercial products such as the main catalogue, educational material, leaflets and brochures for visitors, etc, and these go to the Board for decision. The Gallery's web site as it develops will be used to an increasing extent for presenting information products, for example images from the collection, and visitor information products, benefiting from ready access to the whole range of information resources; while the intranet currently under development as part of the information systems strategy will take many internal products. These developments will certainly have an increasing effect on decision making and the exercise of responsibility for information products.

Finally, two organisations which have moved towards greater co-ordination in their approach to information products in the course of the research period: *ActionAid* and the *London Chamber of Commerce and Industry*.

ActionAid. In the early stages of this study, decisions on information products were taken by line management of various departments; there was no overall responsibility and no forum for stakeholders (see Vol. 2, p25). While formally that position remains unchanged, the new strategies in draft at the end of the period (see Vol. 2, p12) are likely to affect decision making on information products. In particular the proposed strategies for internal and external communications place emphasis on using field experience in all kinds of products, both internally and externally oriented. The International Marketing and Publicity division now originates the strategies on which those responsible for specific publications are

expected to make decisions (see Vol. 2, p16). IMAP itself is responsible for a range of products for the UK market, and for running ActionAid's web site. It offers consultancy to country programmes in their decisions on their own products, and will presumably be responsible for the new internal products proposed in the communications strategy.

The London Chamber of Commerce and Industry. Decisions on information products at the start of the case study were certainly not based on any strategy related to corporate objectives (see Vol. 2, p190), and there was no overall publishing plan; decisions were mainly taken by teams responsible for individual products, and sometimes simply on the grounds that they had always been there. The introduction of a Strategy Group as the 'engine' of the Chamber in 1997 created a forum, the elements of a strategy for information products began to emerge, and the results in terms of actual new products were becoming evident by the end of the case study.

How are specialist skills provided for?

Once a decision has been taken that a particular information product is required, various inputs of specialist skills and knowledge are required to fulfil the decision and take the idea through the stages that will create the finished product.

First, some kind of brief or specification has to be prepared for those who will make the product – within the organisation and/or outside it – setting out the purposes it is to fulfil, the 'client', the intended audience, the nature of the content, desired features of format and presentation and constraints to be observed, such as limits on the length, the budget available, and the time by which it is required. An initial statement of this kind serves first of all as a firm point of reference for the organisational client (and this is often very necessary, especially when the client consists of a committee or a dispersed group, whose members may very well have widely differing views of what they are asking for). It then makes the basis for specifications for various contributions, particularly if these are going to a number of agencies for tender, and for detailed briefings for the specialists who will actually be writing, editing, designing or managing the production process.

It is not always recognised in organisations that this in itself is a skilled and specialised task; experience suggests that often the writer or designer who is asked to undertake a particular job on information products actually has to start by preparing a proper brief from some distinctly tenuous suggestions offered by the client, and getting agreement on it. Yet this foundation is so critical to the

ultimate success of failure of the end product that it is surprising that briefing skills are often so little regarded (it is probably no coincidence that the *Co-operative Bank* (see Vol. 2, pp77–78), where these skills are well developed, and high-quality thought and time is devoted to the process, has some conspicuously successful information products).

The outline which follows therefore looks at how the case-study organisations manage this aspect, as well as how they provide for the more obvious inputs of writing, editing, design and print procurement. In some instances, the contribution made by professional information management to developing information products is also relevant (as will be argued later, this particular element of specialist skill and knowledge is likely to become increasingly important in relation to the development of web sites and intranets and the information products they embody.)

Another observation needs to be made here on the extent to which the management of organisations sees these activities as requiring professional skills. The view varies. Writing tends to fare differently from design, in that it is more likely to be seen as requiring professional skills – an intriguing distinction which I have had occasion to see in practice over many years, and from which, as a writer, I have benefited. It is probably the case that most managers have found from experience in the course of their education that writing is not easy, and are willing to pass it on to professionals. The tasks involved in design are something with which most have less first-hand acquaintance, and so it is possible to entertain a fairly superficial view of what it involved, and to believe, as I once heard a professional engineer express it when I was arguing the need for professional design of the magazine I had been employed to edit, 'any fool can put a few indian-ink lines on a piece of paper'. That was in the days of traditional technology; modern software has allowed the illusion to continue in some quarters. The period at which this study was made was interesting in this respect – it began towards the end of the time when amateurs were falling on desktop publishing software and using it in the light of fancy and nature for all sorts of purposes, appropriate and otherwise, and therefore few examples of this approach were found in the case-study organisations; wiser counsels with an eye to real costs had mostly prevailed and the use of dtp by people without design training was strictly limited. The fashionable equivalent for design dabbling by the end of the period seems to be web sites and intranets, where in some cases temptations are being succumbed to and in others resisted. No doubt in time similar controls will be introduced to regulate this kind of amateur activity.

In this area, probably the most obvious principle of division is between those organisations which provide for all or most of the necessary specialisms in-house, as part of their own staffing, and those where they are mainly out-sourced. The case-study organisations are fairly evenly divided between the two extremes, with a group in the middle, where provision is split between in-house and out-sourced.

Provision all or mainly in-house

ActionAid for many years, as a matter of policy, has provided for writing, editing and design in-house (see Vol. 2, pp28–29). From the start of the case study, through various structural changes, the functions of producing core information material, design and production, editorial and publicity, and internal communications have been managed together within one department. An in-house design team which works on almost all products consists of designers and a print-buyer. Most writing and editing, of external and internal products, is in-house, with only occasional use of free-lance writers. Editorial and design staff work closely together, with editorial staff providing the design brief. It is the organisation's policy to employ staff with professional training and experience for these jobs. ActionAid manages these matters in this way because it believes the issues with which its information products deal are so sensitive and complex as to need professional inputs based on an understanding and commitment which can only come from being an integral part of the organisation. It is interesting to note that audits have indicated the cost-effectiveness of this approach. So far there has not been much evidence of inputs from the information management side in relation to information products, but current developments described in Chapter 6 suggest that this may change.

The Cochrane Collaboration is another organisation which provides for all the specialist skills from within itself, though in a very different way (see Vol. 2, pp98–102[9]. At the beginning of the case study, when the Collaboration had only recently been set up, some of the people responsible were in Cochrane Centres, others in Collaborative Review Groups. Specialists in the UK Cochrane Centre provided professional inputs in search strategies (with an experienced information professional in a key role); editorial co-ordination of inputs from review groups; training for reviewers; software support and database development. With the development of the international Collaboration and redefinition of the roles of the Cochrane Centres, each collaborative review group now has an editor, an editorial team and an administrator, while the Cochrane Centres provide training and training material, and the software company which originally developed the

training material, and the software company which originally developed the database and now acts as publisher of *The Cochrane Library* provides professional inputs on that side. In its publishing capacity, the company has also recently taken on staff responsible for managing design and quality issues, and is currently employing an editor on a short-term contract to upgrade the written presentation of existing reviews.

The NHS Centre for Reviews and Dissemination defined itself in its first dissemination strategy (1995) as requiring a number of specialist skills for transforming reviews into the core products: summarising, editing, peer reviewing, design, publishing (see Vol. 2, pp207,218–219). Development of the brief for reviews and related information products is a thorough process, involving focus groups representative of target audiences. A lengthy period is allowed for writing, and the drafts for all printed products are rigorously peer reviewed. Nearly all writing is in-house, and is regarded as part of the job of the staff concerned with the work on which products based. If outside writers are commissioned, very close contact is maintained with them in briefing and subsequently. Information professionals have a similar role in review teams to the one they occupy in the Cochrane Collaboration, and are now playing an increasing role in dissemination.

At the start of this study, when the Centre had very recently been established, the approach to design was fairly *ad hoc*, with little if any professional input. As its work developed, it moved to employing outside designers, to a brief developed in-house; it now takes design more seriously and works closely with designers, working mainly with one whose approach has been found appropriate.

Initially one staff member (dividing her time between the Centre and another institution in the university where it is located) was responsible for editorial and production. The job involved copy editing and some content editing, and seeing jobs through production. The editor has gained professional skills and knowledge through her work, and is now Publications Manager for the Centre, supported by a small team.

Datastream International. All aspects of creating information products for users of the databases are seen as being an information design job (see Vol. 2, pp123–124), and the staff responsible are all regarded as information designers, and consider themselves as such. They have varying professional backgrounds, including technical writing, human/computer interface design, and graphic/typographic design; and lot of mutual learning is said to take place. All work on customer documentation products is in-house. The company's Corporate Communications

uses external advertising, design and PR agencies for its products; and describes its role as briefing and interacting.

All or mostly out-sourced

Department of Trade and Industry. The report on the *DTI's* publishing practices already quoted (see p168) shows the situation shortly before the case study started (see Vol. 2, p147). Many originators of major external products were using a then-existing in-house service which would take text provided by the originators, and arrange design, typesetting, and printing, using a range of providers. Use of this service was not obligatory, and other parts of the Department were reported as engaging merrily in a variety of Do It Yourself activities, with little qualification for doing so, and little conception of the economic costs. Many internal products were put to the Information Design team (specialising in text design and Plain English) or Graphics studio (which was staffed by 'Graphic Artists'), both 'hard-charging' (see Vol. 2, p148). (By 1996 both these units had been closed down, and all information design was outsourced. Information Division – now redesignated as Communications Directorate – provided advice on appropriate suppliers of design.)

Export Publications were looked at as separate detailed case in the OMC report (see Vol. 2, p148). There were then no staff with specific qualifications. Typists were used to wordprocess text, and also did some design and layout, without any specific training.

As mentioned earlier, following the recommendations of the report, guidance on the production of DTI publications was provided by the Publications Unit. In relation to providing for specialist inputs, it was (and is) non-prescriptive. In actuality, during the period of the case study, a variety of practice was found in this respect, as shown by some examples from various stages (see Vol. 2, pp148–152). Contributions to the Annual Report were commissioned from divisions to a brief by a team in Finance Division, who then edited them; the design brief was prepared by Information Division and it was designed by an outside agency.

The staff responsible for a major programme targeted at management in businesses outsourced both writing and design, and seemed to keep everything at arms length; the information products were mainly written by academics or consultants and then 'journalised' (whatever that meant) outside; all other professional services were provided from outside.

Export Publications at the start of the case study (see Vol. 2, pp150–151) used untrained clerical staff for editing, supervised by a professional librarian; design briefs consisted more or less of telling the printer 'do it like this example'. By end

briefs consisted more or less of telling the printer 'do it like this example'. By end of the period, in-house graduate copy editors were employed, though there was an intention to build teams of outside professional editors, and a publishing consultant had been commissioned to advise on making the whole publishing operation more professional. Design is now outsourced in consultation with the market desk which will promote the publications.

In other areas again, in the early period, in-house writing and editing were seen as important opportunities for staff development, there was close co-operation with design groups, which continues today.

Print buying expertise continues to be available to those clients in the Department who require it, today through a Print Procurement Unit, headed by a manager with experience in the industry (see Vol. 2, p152).

In *Norwich Union* at the start of the study (see Vol. 2, pp241–242) most writing and editing were in-house, supported by a Publishing Services team in Group Corporate Affairs of five professional staff recruited from outside, consisting of one designer and four writers (two of them ex-newspaper journalists, and two from agencies handling house magazines), which was responsible for a range of corporate products. The writing of other information products, supporting insurance and investment products, was handled by members of marketing teams together with external copy writers.

So far as design and typography were concerned, an in-house design unit, working on information products for the businesses, which had enjoyed a period of growth in the 80s and early 90s, was cut back during general retrenchment in 1993. By the start of the case study, it had become a Creative Management unit, with fewer staff, mainly responsible for managing the corporate identity, designing and producing corporate products, managing a roster of external design groups, and advising design units located in the businesses.

At the end of the period similar arrangements, with slightly different names, prevailed. Writing and editing were the responsibility of an Internal Communications team with similar professional experience (some of them members of the previous Publishing Services team) and all with a substantial professional background (see Vol. 2, p241). They are still responsible for internal corporate products and now contribute to external publications to an increasing extent (they currently take about 25 per cent of staff time).

In design, there is increasing use of external agencies; some limited in-house design, by staff who are not fully qualified designers, continues in Marketing, but they do not handle larger jobs. The ID management team (see Vol. 2, p242) consists

of three designers, one of whom provides support for internal clients with ad hoc design needs, who are reported to need help with the briefing process; while the other two concentrate on developing the corporate identity (they are currently designing a new approach to the guidelines).

The Co-operative Bank uses mix of home-grown skills developed on the job, and external recruitment of trained staff (see Vol. 2, pp77–78). There is some in-house writing and editorial capacity; without obligation to use it, some originators of information products do so while others go outside. In the main, the Bank tends to commission the writing of its major products from outside agencies, but to combine that with well developed strengths in briefing, and with wide and deep in-house consultation with stakeholders. A long-term association has been built up with the main copy writers; their in-house contacts have provided them with a learning process over the years, during which they have gained the kind of knowledge usually found only inside the organisation. The creation of the 1998 Partnership Report provides a good example of the process as it has developed by the present time. The Partnership Management Team collected data; long-term copy writers wrote the text; a staff member with long and successful experience of working with designers prepared the design brief for a design group which has worked on many products with the Bank; and independent auditors contributed a report to the final product.

All design is commissioned from outside agencies (see Vol. 2, pp78–79); one in particular has been used for many years and has been responsible for some very successful products. All product managers remain free to go to whatever design groups they choose, though the corporate identity, which, characteristically, has been under conceptual development in-house since 1994, is partly planned to move Bank further towards unified presentation of its information products.

An approach similar to that adopted for visual design has been applied to development of the Bank's web site (see Vol. 2, p74), which is the combined responsibility of an experienced in-house manager and an outside contractor with good understanding and sympathy with the Bank's policies.

Mixed in-house and out-sourced

City University's External Relations Unit (now re-designated External Relations), throughout almost the whole period of the study has been a key source of specialist skills (see Vol. 2, p52). Its Information Officer (who moved to another post at the end of the study) was responsible for writing, editorial, corporate communications

and visual identity. An experienced writer and editor, she also undertook, during her time with the Unit, a one-year part-time course on typographic design at the London College of Printing. The Unit's own products are nearly all created in-house, with some jobs being put out to external designers.

The University's Business School also has its own Public Relations Unit (see Vol. 2, p53); its four staff at the beginning of the case study had expanded to a team of nine by the end. Most writing of the products for which it is responsible is in-house. The Unit currently uses the External Relations Publication Service for its design requirements; it provides a design brief, and the Publication Service looks after design management. (At an earlier stage, the Unit itself made some use of design consultancies, whose work was on one occasion described as having been 'tweaked' in-house for use on subsequent products to cut costs – without any apparent awareness of the professional ethical issues raised by treating designers' work in this way.)

Computing Services, a third party in the provision of information products (see Vol. 2, p53), writes and designs the guides to computing applications and facilities which are offered to staff and students in hard copy and in electronic form. This is regarded as part of the job of staff, and the nature of the end-products suggests that they apply their undoubted subject knowledge without support from any comparable knowledge of the principles of presentation, written or visual.

So far as inputs of information management skills to information products is concerned, this is another organisation where development of a web site looks as though it will bring recognition of this requirement (see Vol. 2, pp47–49).

The London Chamber of Commerce and Industry at the start of this study (see Vol. 2, pp191–193) was an example of an organisation with no great understanding of the nature and value of specialist skills. When first encountered, a number of people in-house with little training in such skills were doing jobs that required them, without much awareness of the things they really needed to know. In-house desktop publishing was being used to originate some external publications (including a magazine whose editor was using the technology for design and layout, as well as doing the editorial job). Small ephemeral products were designed and printed in-house by a reprographics section, with an eye to cost-reduction rather than to impact on the users.

Over the period of the case study, there have been notable changes in the approach. Some specialist skills of good professional quality are available in-house in writing, editorial and print production. The design of product series, such as a recent very successful set aimed at membership (see Vol. 2, p187), is bought in from

specialist groups. The more coherent and unified approach that now prevails, which also extends to the web site, has come about since responsibility for all the Chamber 's information products became part of the remit of the Marketing Director.

Information management inputs to information products are likely to increase in future, through the development of an intranet, to which the Chamber's Information Centre will be linked via its library management system, which will cover all the Chamber's information resources.

The Tate Gallery throughout the period of the study has drawn on the contributions of its staff, particularly in writing (see Vol. 2, pp335–337). Some of its commercial publications are written in-house by interpretation staff (the Curator of Interpretation is a professional writer) while others are commissioned from outside. The Curator of Interpretation and other curatorial staff are responsible for products designed for visitors, including an audio guide to the collections.

Professional editorial work of various kinds, from editing collection database information to the editing of commercial books and catalogues produced by Tate Gallery Publishing Ltd, has traditionally been handled in-house. Editing of non-commercial products is currently dealt with by the Marketing manager and the Print Production Manager, and a Web Editor has recently been appointed.

So far as design is concerned, at the beginning of the study a Communications Department, headed by a professional designer, within Public and Regional Services managed design and print production, advertising. and the corporate identity (at that time, a good deal of attention, and some tensions, focused on the application of the ID; the matter generates less heat now). This arrangement continues today (though following structural changes the department is now called Corporate Communications). In the case of non-commercial products, briefs for outside designers are prepared by a Print Production Manager; Tate Gallery Publishing Ltd commissions its own design work, to briefs which relate to the subject and approach of the products.

The Gallery's web site, its projected intranet, and other developments that will follow as the new information systems strategy is implemented, are likely to mean that information management skills will play an increasing part in the creation of information products.

How do organisations test, monitor, evaluate their information products?

The investment which organisations make in testing their products of any kind before putting them on the market, in monitoring how they perform when in use and in assessing the value they have contributed to meeting their objectives, is a measure of the significance which they attach to them. So in investigating how organisations manage their information products it was important to inquire how they carried out these activities, and the significance they attached to them. The answers are illuminating; some serious work takes place in the organisations whose sole business is in information products, but, as will be seen, there is rather less than might be expected in some of those where information products have the role of supporting other products and services.

Information products as the main offering

The UK Cochrane Centre, at the start of the case study, was still comparatively recently established (see Vol. 2, pp107–109), and the Cochrane Collaboration in its early days. It was reported that at this stage events were moving too fast for anything other than informal feedback on the products (although a postal survey on use in the health service of the Cochrane Pregnancy and Childbirth Database, made in 1994, received an unusually high response rate). The next step was to send out prototypes for screens with updates of the database, seeking user comments on whether they should be incorporated in the next issue. Further developments in the software involved focus groups and advisory groups. There is now a 'Comments and criticism' button in *The Cochrane Library*, and a comments page on web site. One interesting finding from feedback has been that users resent too-frequent changes in the way the database is presented; the last major update was in 1996, and the next is planned for the start of 2000. A Cochrane Library users group, which was planned at the end of the case study period, will advise on the new generation of software.

Update Software, the developer and publisher of *The Cochrane Library* now also benefits from feedback from teaching sessions and interviews with users; attending health library conferences; requests for help; advisory groups; and pre-sale evaluations by major customers. Comments also come through the staff member of the NHS Centre for Reviews and Dissemination who is responsible for the *Cochrane Library* training programme. The CRD also ran a 1997 evaluation by medical libraries of the current issue of *The Cochrane Library* Feedback from surveys of users points to a majority interest in subject searches, rather than those by author or title, which

raises the question of subject indexing. Significant changes in the presentation of the reviewers' Handbook over the period of the research have also been partly in response to user feedback.

The NHS Centre for Reviews and Dissemination. The Centre's original draft dissemination strategy of (see Vol. 2, pp220–224) included evaluation and feedback – which were understood to be of particular importance, not least because the Centre intended to engage in research on the dissemination process itself. A dissemination protocol was to be drawn up for each topic, to provide the basis for the team involved to evaluate its work. All so-called 'level 3 activities' (those leading to the most highly targeted products, for example those for patients and for health care professionals) were to be evaluated, to assess the outcome of specific dissemination activities. There was also an understanding from the start of the need to review core publications at regular intervals. Only limited experience was available of such evaluation, so it was appreciated that this would have to be an iterative process.

Evaluations began in 1996, with a randomised trial on the impact on general practice of the publication *Evidence Matters,* and a readership survey of the Centre's *Effective Health Care* bulletins among District Health Authority staff. The dissemination of the latter publication was also investigated by the Office of Public Management in 1998. That year saw the start of evaluation of level-3 type material, and subsequently the Universities of Sheffield and Glamorgan were commissioned to evaluate the use of a series of *Informed Choice Leaflets* in maternity care.

As part of an intensive pre-publication reviews process, material designed for patients is always sent to the Plain English Campaign, for assessment of its readability; at the same time the content is rigorously scrutinised by evaluation and peer review. Some staff at the Centre have engaged in research into issues arising during the development and introduction of information materials designed to present research findings to consumers. They have reached interesting conclusions about quality control, the expertise required of those who prepare such materials, the problems of presenting probabilities, and appropriate approaches for health professionals and for patients.

Feedback on the Database of Abstracts of Reviews of Evidence initially related to problems with the interface; users seem now to have got used to it. The web interface for the Database, however, is being redesigned to aid ease of use.

Datastream International (see Vol. 2, p125) initially relied on informal customer feedback while documentation was under development. Some pre-publication testing of drafts has been carried out with customers, but is reported not to yield

much feedback. More recently, Customer Documentation has introduced some focused evaluation, relating to specific documents. This involves meeting users in their own working environment or talking through a product with a sample of users – which can lead to identifying the need for specific information products to support the users. All new manuals go out with a feedback request, which has produced more results since inclusion of an email address. The company also runs a customer information forum, where those responsible for customer documentation can meet with staff from all parts of the company who are in touch with customers. The forum provides valuable advice for reviewing all information products which go to customers. One important new product, a *Newsletter* for customers, resulted from these meetings.

Organisations for which information products support other products/services

ActionAid appears to have undertaken no pre-publication testing, but intensive research was done on the magazine *Common Cause*, which led to its re-launch as a supporters' magazine (see Vol. 2, pp31–32). The research, which was both quantitative and qualitative, followed a decision that such a magazine was needed, and that *Common Cause*, in its existing form did not meet the need. A telephone survey of a sample of supporters, to find whether they had read the current issue (mostly they had not), was followed up by focus groups, which showed more detail about readers' response to presentation; it became clear that there was a need for a product which people could flick through and still gain something meaningful, with a 'human interest' focus. Also revealed was a need for design modification especially in relation to the contents page, the treatment of the corporate identity on the cover, and typography (in terms of better spacing and page structure). These findings formed the basis for decisions on content for the relaunched magazine. The investigation was repeated after three issues. and showed a very positive response; the product seems to be effective in meeting the objectives of the changes and to contribute as hoped to achieving organisational objectives.

This, so far as known, is only the example of monitoring and evaluation of existing products, but testing and monitoring and evaluation are implicit in the new communications strategy, proposed at the end of this study, with its suggested range of new information products. The internal communications strategy also has implications for similar action in relation to such internal products as policy statements and issues documents – some of which, it has to be said, appear to have been written and designed to test the devotion to duty of staff.

City University is another organisation which seems not to have done much formally in this direction (see Vol. 2, pp55–56). Just one hard copy product (a guide to the university for staff, which has since been transferred to the web site) was tested by asking users to find specific pieces of information. This led to a structural reorganisation to help users identify the type of question they were seeking to answer. A reader survey was carried out on the internal staff newspaper; the general view that it was a puff for official views, and dull with it, led to changes which have been well received. The Public Relations Unit in the Business School acknowledges that its evidence is primarily anecdotal. At the end of the case study, however a process of evaluating electronic products on the web site was just beginning, in the form of user evaluation days, which should lead to some interesting developments.

The Tate Gallery's activities in this respect were at the start of the case study described as not very sophisticated340). Some findings about information products emerged from a 1994 Visitor Audit, including a demand for more information about works displayed, what is in the collections but not displayed, and the background to works.

Since then, the institution of the web site has brought progress, at any rate in the potential for getting feedback and response. Otherwise there does not as yet appear to have been much progress in this respect.

Department of Trade and Industry. While the consultancy report on publications quoted elsewhere in this chapter noted the need for both pre-publication testing and post-publication evaluation (see Vol. 2, pp158–164), the *Guidance* for the production of DTI publications issued in 1994 by the Publications Unit, following its recommendations, suggests only that colleagues should help with proof reading and editing to check text that may be difficult to understand (see Vol. 2, p158). There is detailed advice on post-publication monitoring and evaluation, though only for products where design and print costs exceed a given threshold. It is recommended that an evaluation should be made about six months after the first issue, relating back to the cost/benefit appraisal assembled in the initial planning of products. Appropriate questions are suggested about cost, meeting objectives, reaching the intended audience, feedback received, and lessons learned. In practice, little action seems to have been taken on this advice. It was reported by the end of the case-study period that a few originators actually made cost/benefit analysis, but not much emerged in relation to the specific products looked at in the case study. Export Publications now has a marketing strategy which includes

telephone surveys by an external market research company (see Vol. 2, p160). One early instance was found of an extensive review of publications in one division , conducted by consultants (see Vol. 2, pp160–162): the aim was to determine who the customers were/should be; get views on current publications; highlight gaps; and guide the extent to which divisional publications should relate to other DTI material. Action on the findings took the form of focus groups and more pre-testing of products. So far as is known, nothing has as yet been planned in relation to the web site and MANDRIN in this respect.

The London Chamber of Commerce and Industry. Such monitoring and evaluation as the Chamber undertook at the start of the study was reported as being mostly internal and informal, against no objective external criteria (see Vol. 2, pp196–197). At the time of the Chamber's merger with the Westminster Chamber, shortly after the start of the case study, the evaluation of the respective publications of the two bodies was a business objective, and quite searching questions were asked about format, content, design and presentation, marketing, editorial planning, skills and staffing, financial costs and benefits, with the result that at least one publication was discontinued.

When the *Business Matters* newsletter was introduced, its pilot issue went to active Chamber members, and to the Board and Council, with a request for feedback on a 10-point scale. The comments received were taken into account in the first regular issue. Another survey took place one year on, when a questionnaire with a request for feedback on the content of the current issue was sent to all readers. The ideas for content which this produced were acted on.

NOP surveys are now made for the Chamber on products and services, including information products. The most recent membership survey, in September 1998, asked about information products from Chamber in respect of the amount of information, the relevance of content, the professionalism of production, and the relation to user needs.

The Co-operative Bank undertakes a good deal of pre-production research and testing for new products (see Vol. 2, pp280–281). Sometimes the design groups commissioned provide pilot versions for testing with sample of users, asking them to define the message and to find specific pieces of information. The student account brochure, for example, was intensively piloted in this way. For other products, focus groups are used to identify key concerns which products should address.

Post-production monitoring and evaluation seeks to build user feedback into external products, by making it easy to respond to key questions, especially by electronic means. The brief and well designed questionnaire about the *Partnership Report* on the Bank's web site is an excellent example. Follow up research was carried out on the customer newsletter when it was launched as I*n Touch*, by phone interviews with customers, and a further round of research was done when this product was relaunched as the very well received *Customers who care.* Similar evaluation was used with the comparable product for business customers, *Business Advantage.*

The Bank in principle devotes a good deal of effort to researching staff views (a very illuminating section in the *Partnership Report* deals with this) and a variety of methods is used on internal products. Staff surveys have been carried out on the *Banknotes* staff newsletter, and a questionnaire was included in the box with a staff video, and the response used in planning a new one.

Norwich Union in the early stages of the case study was undertaking a good deal of monitoring and evaluation, under the aegis of research teams in the marketing divisions of the individual businesses making up the Group (see Vol. 2, pp245–246). In General Insurance (Personal), a programme was set up using a research agency under which Norwich Union agreed on monitoring and evaluation criteria when products were under development for the agency to use. The technique of 'sensitised shopping' was used; this involved testing information products about policies by observing how actual customers used them in finding information. The results led to changes; for example, moving informative content to the front of brochures, reducing the amount of 'blurb', and concentrating on key selling points and exclusions. Focus groups were also held with buyers of policies to find their experience of making claims, and of communications with the company. A quarterly survey was also carried out among intermediaries to find what they and their customers thought of products and how understandable they found them.

Similar research was done in General Insurance (Commercial) and in Life and Pensions, but concentrating on intermediaries rather than policy holders. No comparable research was done on internal products, but a two-yearly survey of staff views, about the way information is presented and what information staff want, is undertaken.

As to current developments, it would seem that such activities should come within the remit of the Marketing Steering Group referred to above (see page168). The Internal Communications team responsible for *Newslines* tried out the first four issues on pilot users, and also intends to publish its intranet material in pilot form.

The second-stage case study reported in Chapter 9 gives an account of attempts to gain feedback on the information products associated with a specific investment product.

Costs and values

A final, critical, aspect of how organisations manage any kind of product, including their information products, is how they budget for them, how they determine what they cost, and how they assess the value they contribute. In practice, it proved easy to find out how the case-study organisations establish budgets for their information products; rather difficult in most cases to get meaningful indications about what they actually spend (only one was able and willing to provide complete figures) – either because they do not analyse expenditure in any way that would allow them to produce a figure, or because they do not want the outside world, and especially their competitors, to know; and nobody has even tried to assess the value they contribute. That they have not as yet done so is not surprising, given that so much of the potential value of information products (apart from any contribution from direct sales, which for those organisations where information products support other products or services, tends to be minor) is in the intangible domain, which for most businesses is still fairly uncharted territory. My own experience (both in the research described here, and in making case studies for the second edition of a book on information policies and strategies, Orna, 1999) suggests that information products can and should form part of any programme for establishing the value which knowledge and information contribute to the assets of organisations. It was for these reasons that the modest second-stage case study described in Chapter 9 was undertaken in Norwich Union.

In looking here at the case-organisations, I start once again with those whose business is information products.

Information products as the main offering

The UK Cochrane Centre and Collaboration. It is estimated that probably close to 50 per cent of staff time goes on information management and information products, in relation to creating the reviews. Update Software, as publisher of *The Cochrane Library*, spends about 75 per cent of its revenue budget on management and development of the information products, and about 20 per cent on research and development for future improvements.

The NHS Centre for Reviews and Dissemination is the only organisation to provide complete figures, from its budget estimates for 1998/99 (see Vol. 2, pp211–213). These show the costs associated with information products under the heads of preparation and dissemination of materials, distribution, promotional material, copy editing, development of training materials, peer reviewing, printing, new review work for bulletins etc. The total costs associated with information products, exclusive of salaries of staff who spend some time writing, editing, etc. are £416,000, compared with total core costs of £926,000. A very small proportion of the costs is recovered in sales and subscriptions.

Datastream International has separate budget lines in Customer Documentation for external print, design, and translations. Estimates are prepared on the basis of knowledge of forthcoming requirements, together with the previous year's spending. Expenditure on user information products was about £443,000 in 1996, representing 1.3 per cent of the total revenue budget on the research side.

Organisations for which information products support other products/services

ActionAid. Budgets are prepared as part of the annual estimates by individual line management (see Vol. 2, p25). Each proposal for an information product has to be supported by a business case, relating it to corporate goals.

The allocation of finance for information products (editorial, design and print) forms part of the budget for international marketing and publicity, along with UK campaigns, development education and press. The current total is approximately £900,000, which represents about 2 per cent of ActionAid's total expenditure.

City University. External Relations submits budget proposals for the major university publications it handles to the relevant University committees (see Vol. 2, pp49–50). Individual departments have devolved budgets; all proposed expenditure has to be justified. Their budget proposals for specific publications, including course brochures, are put in a year ahead. The Publication Service set up by ER is a self-financing company, physically located within ER, which charges departments for work commissioned.

The Co-operative Bank makes provision for information products in the annual estimates (see Vol. 2, p67) prepared by staff in the relevant product areas; occasionally an *ad hoc* budget is sought for products which could not be envisaged when the budget was prepared. All campaigns and the information products associated with them have to be supported by a proposal related to key business

objectives and a cost breakdown (an example supplied, and quoted in the case study is very thorough in its business case; cost information gives per-issue costs for design, typesetting, printing; mailing; postage.)

No figure is available for total expenditure on information products and presentation – it is part of the marketing budget, which is said to be large, but not published.

The Department of Trade and Industry. The OMC study already cited found it difficult to identify the full cost of producing, storing and distributing publications, because of variations in how costs were allocated and publications funded, which could be from running costs, from programme spend or from a central publicity budget controlled by the then Information Division for financing major campaigns (see Vol. 2, pp142–143). The report made recommendations for improving the situation: there should be advice on value for money and cost-effective production options; investment appraisal should form part of the case for products; expenditure on publications should be identified; and consideration given to how internal providers of design and production advice could compete with external agencies. The report on the special study of export publications showed actual production costs greatly in excess of budget, probably because the Export Publications Unit had no control over what it was required to publish.

In practice, varying things were being done at the time of case study, in various degrees of conformity with the recommendations. The Export Publications Unit, by the end of the study was operating the recommended procedures, bidding for publishing budgets on the basis of what it considered it could publish during the period. Estimates were submitted under the heads of print costs, design, consultants (including authorship of some products), and sales figures; they were said to be more systematised, and the Unit was aiming to get more advance knowledge of projected publications. Web pages come from the budgets of the originating unit.

No actual costs are available for any of the information products encountered in the course of the study, although cost savings were major part of the business case which was accepted for the MANDRIN intranet (see Vol. 2, pp166–167),in terms both of time in accessing essential documents, and avoidance of risk of heavy costs from failing to provide relevant information under employment law.

The London Chamber of Commerce and Industry at the start of the case study did not demand much in the way of budgeting or making a business case for information products (see Vol. 2, p190). There was, however, an intention to

move towards self-financed publications, except for those provided as a service to members. The budget for any given publication would then be related to the significance for the Chamber's key objectives of the project involved. Self-financing could include both pricing policy and partnerships with outside companies.

Information products today account for a sizeable proportion of the Chamber's expenditure: salary costs related to information products, together with print costs, account for 0.07 per cent of the Chamber's total revenue expenditure (1998 figure).

Norwich Union. Budgets are set for each information product, broken down under the heads of copy writing, design and production. The amount budgeted is proportional to the product's importance in relation to achieving business objectives and the amount of information it has to contain. The costs fall on the sales and marketing budgets of individual businesses, enabling management to measure the impact of cost on bottom line performance. No figures are available, and no attempts have as yet been made to establish the cost effectiveness, or the value added or subtracted by information products (the second-stage case study reported in Chapter 9 and in Volume 2 attempted to investigate these matters).

In mid-1997 funding was given for an intranet development team (one manager and two developers) on the IT/IS side to explore and set up the infrastructure.

The Tate Gallery. Up to the 1995/96 financial year, accounting was on a cash basis (see Vol. 2, pp324–325), so its financial system had no predictive value for decision making on information products. A new information system for the Finance Department, was due to come into operation in March/April 1999, and there is now more emphasis on budget planning in relation to objectives; proposals for information products require quantified indication of benefits. Tate Gallery Publishing Ltd prepares an annual publication plan, with a rationale and cost justification for each title, and each is reviewed against the provisions of the business plan. Certain items, notably the collection catalogue, have moved from being loss-making printed commercial products to electronic non-commercial ones on the Gallery's web site..

Non-commercial budgets, like those for Education Publishing (whose annual budget was about £8000 at the start of the case study) are established by the usual bidding process; the actual costs are negotiated by the Marketing section of Communications Department where outside designers and printing are involved (many non-commercial items are actually produced internally).

Summary

Responsibility and decision making

The important questions are: Is there common understanding among those concerned with creating information products? Does the organisation assign overall responsibility to specified people? Is there an organisation -wide forum for all with these responsibilities?

Collegial decision-making is the rule in the two non-commercial organisations for which information products are the main offering. In federal-type organisations, most decisions on information products still rest with individual parts of the organisation. In some of them, the development of web-based information products has opened the way to a stakeholder forum; in another, a group of marketing managers gives scope for an overview of the information products of the individual businesses.

Other organisations have moved over the period of the research towards more co-ordinated decision making in various ways: in one, the department responsible for information products has become directly answerable to the Chief Executive; another has developed a communications strategy within which decisions on information products will be taken.

Specialist skills

The main division is between organisations that provide all or most specialisms in-house, and those which out-source them. One organisation which employs designers and writers as staff members, because of the sensitivity of the content of its information, finds it cost-effective to do so as well..

Organisations which have information products as their main output provide nearly all the necessary skills for creating then in-house. In two of them, typographic design initially received less attention than writing and editing, but the balance is now being rectified; a third regards all the jobs concerned with creating its products as information design.

Other organisations have moved from employing large in-house design groups to providing a core of specialist professionals who are responsible for certain products and have an optional advisory role for the originators of others.

Where skills are mainly bought in, preparing briefs and managing the inputs of designers, writers, etc are important but rarely recognised skills; one organisation is, however, outstanding in this respect.

Few organisations now countenance amateur dabbling in dtp; web design may now be taking its place. One organisation that at the start was using non-designers to create important information products has now moved to successful commissioning of design.

It seems likely that information management skills will play an increasing part in creating information products in some of organisations.

Whatever way specialist skills are provided for, it is important for this aspect to be managed by someone in-house who has a thorough understanding of the organisation, as well as a knowledge of the specialisms.

Testing, monitoring, evaluation

Some serious work is done by organisations whose sole business is in information products; one in particular conducts intensive pre-publication reviews, as well as post-publication evaluation. There is comparatively little testing, monitoring and evaluation in the other organisations studied. While there are some interesting examples of pre-publication pilots and surveys of existing products, there is as yet no consistent policy covering these activities.

Costs and values

While information about how budgets are established for information products was easy to come by, it was difficult or impossible in most cases to get useful indications about the actual spend (only one was willing to give complete figures) – either because the relevant expenditure is dispersed or not separated out, or because the figure is confidential.

In some cases it was possible to get an indication of the proportion of revenue expenditure devoted to information products. In one of the two non-commercial organisations for which information products are the sole offering, about half of staff time and three-quarters of revenue budget goes on the creation and production of databases and related products; in the other, total expenditure on activities directly related to information products is nearly 50 per cent of total core costs. Of the other case-study organisations, only two provided a figure for the percentage of total expenditure devoted to information products: (0.07 per cent in one, 2 per cent in the other).

None of the organisations has even tried to assess the value their information products contribute – at least in part because much of it is intangible. Information products, however, can and should form part of any

programme for establishing the value which knowledge and information contribute to the assets of organisations, and it was for this reason that a small-scale application of one of the currently available methods was made in one organisation (see Chapter 9).

It will be evident to readers of Chapters 5 – 7 that many changes took place in all the case study organisations over the period of the study. They have been described incidentally so far; now it is time to focus on the nature of the changes observed, and this forms the subject of the next chapter.

Reference

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Practical Information Policies (Edition 2)
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8
Change and development in the course of the research

Introduction

There were foreseen and unforeseen advantages in deciding to spread this research over a five-year period. The foreseen advantage was that the case studies which formed an essential part of it could be longitudinal, providing a moving picture rather than a snapshot. They would therefore be more likely to show reality, less likely to mislead with accidental non-typical events, and more reliable as accounts of what really happens. Of course there has to be a start and a finish point, but at least it is a reasonable stretch of a 'flowing river' which the case studies consider.

Previous experience had reinforced the conviction that this was valuable. In writing new editions of two books, I had had occasion to go back into some organisations after a lapse of years to write new case studies. Returning to them had showed how changes over time could lead through unexpected ways to new and better situations that could not have been envisaged; and how, alternatively, they could make the original observations look pretty inappropriate. In addition, the opportunity of considering the role that knowledge and information can play in the successful management of change, in preparation for a teaching commitment, had led to the decision to add a chapter on the role of information in managing change to a new edition of a book (Orna, 1999), because I had come to see change as being an essential and vital feature of organisations.[1]

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[1] One interesting observation emerged from the contacts with the case-study organisations in this connection. While most of the people with whom I was in touch saw the point and took pains to bring me up to date on changes and their significance, one or two initially felt that major changes in the situation since the start of the case study would invalidate the research. The reason turned out to be that they could not envisage how the researcher could deal with a moving target, and once it had been explained that change was a key interest in the research, and giving an account of it the researcher's problem rather than theirs, they were relieved and willing to co-operate.

The unforeseen advantage arose from the fact that the research started at a time when the internet was just taking off; while at the beginning nearly all the information products I encountered were print on paper, during the period all the case-study organisations set up web sites, and nearly all intranets, and so by the end print-on-paper products were co-existing in various ways with electronic products contained in web sites and intranets. In a number of cases, this turned out to have powerful and significant effects on the way the organisations concerned thought about their information products.

The outline of changes in the case study organisations given in this chapter is arranged more or less under the heads used in the case studies as reflecting significant aspects of organisations from the point of view of information products. I consider first the changes with an indirect significance for the information products of the organisations concerned, and then those which have a more immediate effect.

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Changes with an indirect effect on information products

Some kinds of change encountered in the case-study organisations have a potential 'knock-on' effect on how the organisation concerned manages its information products – for example, structural changes which bring the management of information products into a more direct relation with top management; policy changes which require new kinds of products for their implementation; new

people at the top who take a keener interest in information and communication; more strategic management of the organisation as a whole in the face of competition, or moves towards developing an information strategy; change in the size and scale of the organisation's operations.

Change from mutual to plc

Norwich Union, during the course of the case study, made the change from its traditional mutual status to that of a public limited company (see Vol. 2, p227). The run-up to the change involved new information products devoted to informing existing policy holders about the implications and anticipated benefits of the proposed change, and seeking their support in voting for it; together with internally directed products addressed to staff, explaining the significance of the change and how it would affect them (see Vol. 2, p236). When the decision to demutualise was agreed, new information products, addressed to shareholders, became necessary; while regulatory changes affected the advance communication of information to staff. The change of status has also brought increased emphasis on the value of the brand and on communication of long-term strategic objectives inside the business, and a large effort devoted to demonstrating the Group's commitment to supporting the Independent Financial Advisers who bring in the greatest part of its life and pensions business.

Merger

Datastream International at the start of the study of (see Vol. 2, p115), was owned by Primark Global Information Services (a US utilities company). Primark later acquired ICV (UK suppliers of realtime information), and in 1997 merged ICV with Datastream, with the ICV Chairman and Managing Director heading Datastream. The resulting changes are seen as positive and vitalising from the perspective of the department responsible for customer documentation.

Structural change

In a number of the case studies, there have been changes in organisational structure with implications for information products.

ActionAid. This charity has made many changes in organisational structure throughout its 25-year existence (see Vol. 2, pp15–16), several of them during the

period of the case study. They reflect changes in the external and internal context of its work, and particularly the role of advocacy within it, which has implications for the nature of information products designed to support this role. Other changes have resulted in the spreading of decision making to the regional level in the countries in Africa and Asia where ActionAid works, so that many key decisions are taken in multiple centres, including decisions on information products. This in turn has meant some changes in the role of the department within ActionAid UK which deals with external communications, press and PR, editorial and creative services, etc. Its role in relation to country programmes has now become a consultancy one.

The Co-operative Bank. Towards the end of the case study, a re-designated Corporate Affairs Department (see Vol. 2, p62), responsible for information products, internal communications, brand, ethical policy, and press, replaced the Group Public Affairs section within the Group Marketing Department. Not only is it a new department in its own right, it is also directly responsible to the Chief Executive, a change which has brought the Bank's information products close to the policy-making centre of the organisation, and which would appear to confirm the significance it attaches to them.

The Department of Trade and Industry. Large structural changes were made early in the case-study period (see Vol. 2, pp131–132), to meet the then government's requirements for flatter management structures designed to reflect work flows and permit flexible response to change. The changes led to a different allocation of responsibilities for such aspects as guidance on planning, design, print-buying, and distribution of information products. They are likely also to have contributed to a new balance as between the roles of information professionals and IT/IS professionals in decisions on new systems to support internal and external communication via the DTI intranet and web site.

The London Chamber of Commerce and Industry. The LCCI at the start of the case study was in the process of change from its traditional past (see Vol. 2, pp178–180). A Management Team had already been instituted; during the period a Strategy Group was established to provide inputs of creative long-term thinking; and at the end, the Management Team became an Operations Team, described as the 'engine of the chamber', complementing the role of the Strategy Group. The latter provides

a forum where the role of information and information products in achieving the Chamber's objectives can be explored.

Norwich Union. A small but significant structural change here is the recent establishment of a Marketing Steering Group (see Vol. 2, pp231–232); its aim is to align the marketing activities of the individual businesses (which include the information products they create to support insurance and investment products) with the Group's long-term business strategy and to counter-balance their long-standing autonomy.

The Tate Gallery. Major structural changes, linked with a large expansion of the Gallery's estate, have taken place over the period of the case study (see Vol. 2, pp320–321). The Gallery's objectives in its 1998 *Forward Plan* included securing financial, human and physical resources, by means of, among other initiatives, a new organisation structure. The structural changes which were in the course of implementation at the end of the case-study period have brought the Library and Archive (previously in a division of Public and Regional Services) into the new directorate responsible for Collection and Research Services; while education programmes, communication with the outside world and corporate communications are in the new National Programmes Directorate.

Cultural change

The Department of Trade and Industry. There has been a marked cultural change in the DTI over the period of the case study (see Vol. 2, pp133–135). At the start, it exemplified such traditional civil service features as concentration of information flow within functional hierarchies, and restricted information interaction between different hierarchies, and these had been compounded by rapid decentralisation in the early 1990s. (The culture was one of the factors affecting – mainly for the worse – the way the Department managed its numerous information products – an aspect of its work examined by a consultancy project in 1993.) A Senior Management Review Team addressed some of the issues; its report called for better handling of matters cutting across Command and management-unit boundaries and for better team working.

By the time the study had reached its final stage, there was good evidence of positive, if gradual, changes in the culture, which favour better use of information resources and better management of information products. Exchange of

information across boundaries has become easier; library and information services have a higher profile in the Information Management and Technology division established in 1996; and there appears to be greater willingness to take a long-term and strategic view of projects involving the use of information. The decline of traditional civil service attitudes has been hastened by the recruitment of people with a variety of backgrounds to work in the areas with which the research has been concerned.

The London Chamber of Commerce and Industry. During the period of this study, the organisation has been moving towards a high level of professionalism, and a pro-active rather than re-active ethos (see Vol. 2, pp178–179). Its human resources policy is directed towards professional management, a 'self-critical approach to work', planned training, and sound personnel procedures. It now emphasises inter-team exchanges, seeks to end sharp functional divisions in favour of a 'process' orientation, and aims to take an organisation-wide view of using information and information technology to meet organisational objectives.

The Tate Gallery. Here too there have been significant changes in institutional culture over the period (see Vol. 2, pp322–323). The Gallery has adopted a more 'commercial' approach in the face of reduced public subvention and an increasingly competitive environment for cultural institutions. Partly under the impact of these changes in its environment, it has come to assign a high value to information as a means of supporting change, both in the management of its affairs and in reaching the widest possible audience for its work. The movement in this direction has brought more awareness of the interaction that is essential between the possessors of different kinds of knowledge and skill if information is to be fully used, a greater understanding of interdisciplinary teamwork, and some dissipation of traditional hierarchies of knowledge.

Policy change

ActionAid. Over the period of the study, ActionAid's strategy has moved towards the premise that 'poverty is not inevitable' and that it is a result of 'choices that are made about how to organise societies' (see Vol. 2, pp11–12). It therefore cannot be overcome in a sustainable way by addressing only its visible symptoms, but must be addressed in terms of causes which lie in the institutions of states, the market, and society, which operate in various ways to maintain and exacerbate inequality and injustice. Its policies in consequence now place a stronger emphasis on its role

of advocacy and influencing the institutions and individuals who have the power to bring about changes, and they in turn have an effect on the content of its information products, for supporters, for the bodies it seeks to influence, and for the media.

The Department of Trade and Industry. The change of government in 1997 led to a much stronger emphasis on the presentation of information to the outside world, with a keen interest being taken in it at the highest level (particularly during the incumbency of the second President).

Change in size or scale of operation

The Tate Gallery. At the start of the case study the Gallery was embarking on a period of rapid expansion which it describes as 'the most significant transformation in its history' (see Vol. 2, p314), with a great building programme for the Tate Gallery of Modern Art at Bankside, supported by millennium funding; and accompanying new needs for education and outreach, interpretation, high quality displays, touring and other collaborations, 'all backed up by outstanding information services and research' (*Forward Plan* for 1998). The effect has been to concentrate thinking as never before on the need to manage information, and this has been a stimulus towards investment in the Gallery's innovative web site and a new collections management system.

The Cochrane Collaboration and the NHS Centre for Reviews and Dissemination. The two newest organisations among the case studies have both been growing, learning and developing rapidly during the period of the research. While their direction and policies are unchanged, there has been much improvement and advance in their products and how they are managed.

With the rapid expansion of the *Cochrane Collaboration*, the main information product (*The Cochrane Library*) has become primarily the responsibility of the Collaboration rather than of the founding organisation, UK Cochrane Centre. The responsibilities of the Cochrane Centres in various countries have changed, to concentrate on supporting the people who contribute to reviews in various ways. There has been change also in distribution arrangements; Update Software (the company which designed the original database and remains responsible for its successor, *The Cochrane Library*) now acts as publisher for the Collaboration (see Vol. 2, pp94–95), implementing pricing and distribution policies established by it.

Over the period of the study, the NHS Centre for Reviews and Dissemination has progressed further with the integration of information professionals and information resource management into its core activities. Its information products have also been fully integrated into the review and dissemination process which it has developed. They are peer reviewed; there is rigorous pre- and post-publication evaluation of their effectiveness; the Centre supports an information design approach to products for consumers; and it engages in pioneering research on the dissemination of information products.

Change at the top

In a number of the case-study organisations the arrival of a new head during the period of the study brought changes in direction reflecting his own background and interest.

Norwich Union. At Norwich Union, a new Chief Executive, with an actuarial background, took office at about the same time as the changeover to plc status. His influence has been in the direction of greater emphasis on brand value and on long-term strategic objectives, with some consequent effects on information products and their management (see Vol. 2, p234).

Another change likely to have significant effects took place as the case study was being finalised: a new Group Human Resources Director was sponsoring projects on intranet strategy and on knowledge management (see Vol. 2, p251).

City University. At the start of the study, City University showed little evidence of a top-level strategy for achieving its objectives (see Vol. 2, p36). By the end, a new Vice- Chancellor had recently been installed, and with his interest and encouragement a corporate strategy for the University was under discussion, a draft information strategy had been circulated and was being revised, and a strategy for the University's web site had been accepted (see Vol. 2, p49).

The Department of Trade and Industry. The DTI experienced a change of government and two Presidents in the course of the study (the second departed as it was concluding). Both were more concerned than the incumbent under the last government had been with strategic management of information, and the second was keenly interested in the way information was presented to the outside world.

Co-operative Bank. At the Bank, as mentioned earlier, a new Chief Executive introduced changes which upgraded the department responsible for information products and made it directly answerable to him.

Strengthened information management/strategy

A number of the case-study organisations have made changes in this direction.

The Tate Gallery. Since 1998 the objectives of the Gallery have included implementing a 'comprehensive information strategy covering Collection documentation, the Gallery's public records, and all other areas of information.' At the beginning of 1999, a new information systems strategy embracing all uses of information was introduced (see Vol. 2, p319). It was developed by an alliance between systems and information professionals, with long experience in the Gallery, and represented the culmination of a long period of trying to get the strategic role of information understood and incorporated in top management thinking. The strategy creates a new role for head of library and archive as Corporate Information Manager, with the remit of promoting information sharing across the Gallery.

The London Chamber of Commerce and Industry. The number and influence of information professionals working for the Chamber has increased over the period of the study (see Vol. 2, p180); thanks to the initiative of a strong professional team in its Information Centre, knowledge management has recently been accepted as a strategic objective for Chamber.

The Department of Trade and Industry. At the start of the study, it appeared that the importance of the Department's information resources in relation to decision-making on information products was not fully appreciated at the highest levels, but the bringing together of information management and information technology to form the Information Management and Technology Division has raised the profile of information management .

Experienced information professionals of high standing have played a key part in developing a strategic approach to information over the period of the case study (see Vol. 2, pp166–167). A very experienced senior information manager chaired the project board responsible for developing the Department's intranet; and a recently established Business Analysis Team aims to integrate the elements of information and knowledge management, organisational culture, administrative process and the infrastructure of new enabling technology.

ActionAid. Information management in ActionAid has had its ups and downs. The movement during the case-study period was generally upward (see Vol. 2, pp26–28). By the end of the study, its Resource Centre had become a separate department within the Policy Division, a change made with the aim of ensuring that it should be seen as an all-agency resource rather than one solely for the Policy Division. The Centre had also produced a draft information strategy for the organisation.

Recently introduced strategies for internal communications and international publicity also imply a key role for the use of information in their achievement, and require, explicitly or implicitly, information products directed both to the outside world and to the organisation itself.

Changes directly related to information products

Other changes are directly related to information products (eg changes in how they are managed, approach to design, and changes in the technology – in particular the development of web sites and intranets).

Management of information products

There have been comparatively few significant changes in responsibility for managing information products in the case-study organisations.

Until the final stage of the *London Chamber of Commerce and Industry* case study, no one had overall responsibility for the Chamber's information products, but in 1998 this became part of the remit of the Marketing Director – a significant development in that the responsibilities of the job cover membership as well as marketing, which are seen as the drivers of the Chamber's policy in a strongly competitive situation.

Changes in the management of the *Tate Gallery's* commercial publications over the period have seen Tate Gallery Publishing Ltd (a wholly owned subsidiary) taking a stronger and more commercially oriented decision-making role. Significant changes in publishing policy have been initiated, in particular the move of the collection catalogue from being a loss-making commercial printed product to a non-commercial one in electronic form (the company provided finance to start the necessary digitisation programme).

Changes in the approach to design of information products

There are only a few instances of change in this respect. The LCCI provides an interesting example.

The London Chamber of Commerce and Industry. At the start of the study there was a great deal of room for improvement (see Vol. 2, pp187–188), especially in the products addressed to members and potential members (the first example encountered was distinctly funereal in appearance and inspirationally titled *Five reasons why over 4000 companies join the London Chamber of Commerce and Industry*). After a review of all the literature addressed to membership in 1997, a brief was prepared and put out to tender; the design group which won the commission produced a very professional and attractive solution in the form of a set of leaflets, visual features from which are echoed in the Chamber's web site. Similar improvements have been made in such internally produced ephemeral products as flyers about training courses.

The Chamber was also the only case-study organisation which, at the start, was using desk-top publishing quite extensively for designing and typesetting its own information products (see Vol. 2, pp191–192) – the people concerned had no design training, and made design and layout decisions without a professionally prepared design specification, with the results that might be expected. By the end of the study, DTP was restricted to work by a specialist operator in a section headed by a Design and Print Manager, and a professionally designed house style had been developed.

Norwich Union. The approach to design in Norwich Union has undergone a number of changes over the period of the research (see Vol. 2, pp241–242). At the start, a set of 'Interim design guidelines', for promotion of the corporate identity in the literature of the Group's core businesses, took the form of a traditional detailed house style, with grid, standards for colour and typefaces, and placings for standard elements. Produced by Creative Services (now the ID Management Team), it was replaced by a smaller set of guidelines to the corporate ID – an overview of Basic Elements, guidelines for constructing brochures, advertising and direct mail, and a briefing for writers. At end of the study, the head of the team was working on a quite different approach which aimed to make the originators of information products aware that the brand interpretation for each should be appropriate for the audience and how they will use the product, and for the content (see Vol. 2,

pp242–244). The new guidelines are likely to be issued in non-traditional form, possibly on CD-ROM, and certainly on the Group intranet and Marketing extranet.

Cochrane Collaboration. The company responsible for the main information product of the Cochrane Collaboration had, by the end of the case study, invested some of the funds from trading in employing staff who are responsible for managing design and quality issues of The Cochrane Library databases (see Vol. 2, pp101–102).

Web sites and intranets

As indicated at the beginning of this chapter, the timing of this research meant that it gave the opportunity of observing how the process of developing web sites and intranets affected the thinking of organisations about their management of information and information products.

The results are intriguing. In some instances, the process has been a creative one, like a kaleidoscope, shaking up the elements of the current situation and producing a wholly new pattern which has the potential for significant progress. In others, it has been absorbed to good effect into existing practice, has enriched thinking, and is leading to creative new developments. For the organisations whose main products were already electronic ones, it has been a matter of a taking advantage of the potential of the technology to develop their offerings along existing and new lines. Finally, there are examples of one organisation still struggling to come to terms with the potential of the technology, and one where the traditional culture seems until very recently to have stood in the way of creative use of its web site and intranet.

City University. At City University the web site is becoming the means of bringing stakeholders together in a way that has probably never happened before (see Vol. 2, pp44–49). Professionals concerned with information products and presentation, in co-operation with systems professionals, play a key role, with support from the top level. The University's World Wide Web Working group has membership drawn from academics concerned with teaching and learning, administration, and libraries. The composition of the web management group which reports to it is well balanced between information and technology requirements. Web site management is shared between Computing Services Department and the Academic Registrar's Department (to which the unit responsible for many aspects of information products and presentation belongs). The recent institution of consultation days for staff users has already shown its value in guiding policy

development. The recommendations from the first consultation day formed the basis for a proposed Web Strategy, which has recently been accepted, and given the resources requested. Its objectives include integrating electronic and paper-based publishing to improve efficiency and quality assurance, together with regular monitoring of use and satisfaction, and performance criteria.

The Tate Gallery. The Gallery's web site (see Vol. 2, pp332–335), established in 1997 (the first site by a major international gallery to allow direct access to its collection image base and associated research) has been the key to major progress in the strategic use of information. At the start of the study it was evident that the potential for using valuable reference material in the collection records was not and could not be fully exploited with the existing technology. Today the web site supports research within the Gallery and outside, and plays a key enabling role in creating information products. Support for its development came from top management, but would probably not have been forthcoming for such a creative application without long-term advocacy from people closest to Gallery's resources of information who appreciated the potential for reaching the widest possible audience cost effectively and knew how to deploy this line of argument.

The process of setting up the site demonstrated effectively that there were multiple stakeholders, and spread understanding of the importance of a high-quality well-managed database as the foundation for a site that added value. The experience of developing the web site has certainly helped to make possible the recently adopted Information Systems Strategy and to bring together diverging views about the nature of information and its applications, in contrast to earlier attempts to develop policies and strategies for information which appeared to run into the sand.

The Department of Trade and Industry. The DTI intranet, rather than its web site, has been a focal point for progress (see Vol. 2, pp164–168). (The web site, while very large, still has to contend with problems arising from the autonomy of the units which are responsible for their own parts of the site, and the consequent difficulties of achieving consistent management by advice and persuasion alone – a repeat of the situation with printed products in a new guise.)

MANDRIN, the DTI's intranet, was successfully developed and launched during the case study, on the basis of input from a combined team of consultants, working to a project board chaired by an experienced senior DTI information manager. An Intranet Strategy Management Board is now taking the project forward on a more strategic basis. Information content is the combined responsibility of information

and IT staff, including ex-librarians, and the Strategy Management Board sees part of its task as developing a future role for information managers which will be largely concerned with promoting information interactions among people. Potential for a new approach to information products, focused on what people want to do with information in their work, is seen in this development.

Next, there are examples of enrichment of existing practice.

The Co-operative Bank. After an unsuccessful experiment in getting academics to design a pilot web site (their imagination apparently did not extend beyond transferring existing products as they stood), the Co-operative Bank used the strengths of the approach it had developed on printed publications to create an excellent web site (see Vol. 2, pp74–75). It took advantage of an approach from an innovative small company which had taken the initiative of designing some specimen pages, and now works with them in same way as it does with the agencies it uses for printed products. The site won the 1998 Financial Times Business Website of the year award. Internal management of site content is the responsibility of a marketing staff member, who acts as an active interface between bank and company, with which she is in daily communication.

The experience of developing the site has brought changes in ways of thinking about the relative roles of printed products and the web as vehicles for information. There is now what is described as a 'whole new approach to content', taking advantage of the facility the web provides for creating links to other existing material, instead of repeating it in a number of individual contexts. At present the site offers full text of some key documents, key sections of others; other material complementary to print on paper. The next step is envisaged as looking at how printed and web versions of information products can complement one another, to meet the various needs of users.

In a characteristic and creative use of the new medium in conjunction with print, the Bank recently sponsored a student information design competition via its web site, in co-operation with the Royal College of Psychiatrists. The objective is to influence opinion formers in the media to change their attitudes around mental health. The brief provided by the College requires students to create a printed information product, based on text from a lecture by a psychiatrists. The winner (s) will work with the Bank's long-standing design consultants to carry their entry into production.

The London Chamber of Commerce and Industry. The Chamber set up its web site towards the end of the case study period (see Vol. 2, p189); by that time it was able to take advantage of the advances it had made in managing its printed products, and to create a well structured informative site, with easy navigation and access to content, visually linked to its printed membership literature.

The Cochrane Collaboration and the NHS CRD. In the case of organisations whose main products were already electronic ones, the internet has been accepted as a logical extension of the ways in which they make their products accessible. The *Cochrane Collaboration* site (see Vol. 2, pp97–98) gives access to all the major information products, with facilities for downloading and printing. The *NHS Centre for Reviews and Dissemination* offers a well structured site (see Vol. 2, pp215–217), strong on conceptual links and navigation, which takes forward its well developed approach to its existing information products, both in database and printed form.

Datastream international. At the close of the study the company was completely reworking its public web site, broadening its scope to reflect a new organisational structure. It has had an intranet, managed by its Business Intelligence unit, since 1996, which covers Datastream's own products, its competitors, and strategy; and is developing an extranet as part of the revised web site.

Finally, there are two exceptions to the general trend.

ActionAid. The charity developed both its web site and its intranet during the period of the case study (see Vol. 2, pp24–25). Both are managed by the department which has the major responsibility for printed publications. The web site so far presents a contrast with the charity's well written and designed printed products for the outside world. It gives the impression of not as yet having had much in the way of human, financial or time resources invested in it. (It seems that initially there was no one with hands-on responsibility in house, and that an in-house editor who is only now developing the necessary technical skills, has been in post only since 1998). The site is not well structured; it is not clear who it is intended for, text tends to be wordy and carelessly input, with a number of literals which have escaped proof reading; and there are lengthy pieces of scrolling copy which have evidently not been designed for on-screen reading. There is as yet no policy for the web site which defines its objectives, and no stakeholder management group; however at the end of this study there was a view within the organisation that it

should have a manager responsible for content, guided by an international stakeholder group, and liaising with designers and authors of web pages.

Norwich Union. For Norwich Union, setting up a web site and an intranet had, until a very late stage of the research, apparently not been much of a learning experience (see Vol. 2, pp236–239). The Group's competitive ethos, combined with the traditional autonomy of the individual businesses, and perhaps with the lack of any concept of strategic use of information, seemed to have resulted in a web site and an intranet with no discernible strategy and no overall management structure.

Development of the intranet was technology-led – a necessity in that it was done in the context of a major project for upgrading and standardising the technology in use throughout the business, but the creation of a robust infrastructure was not accompanied by any policy on content. The intranet grew rapidly, but in a somewhat haphazard way, with individual departments and sections setting up their own area and making their own decisions on content. There was no policy for development, no stakeholder group, no management structure. However, in March 1999 a high-level strategy was agreed, and details of priorities were to be announced in mid-year.

Responsibility for web site development and maintenance remains with the Group Internet Services department. There is apparently no overall content management, although named individuals, mainly in Marketing departments, are responsible for the content of specific pages. While there has been a recent move towards making the site more of a vehicle for commercial transactions and less of an information source, there is as yet no formulated policy about the balance of content, or about the relation between electronic and printed products.

Summary

Change is an essential and vital feature of organisations. Spreading the research over five years was valuable in that it allowed following the changes in the case-study organisations that took place over time.

Changes with an indirect effect on information products

A variety of changes with indirect effects on information products took place in the organisations:. One converted from mutual to plc status, another was the subject of a merger. In most, there were structural changes reflecting changes in the external and internal context of their work and consequent policy

changes, which affected the approach to information products. The general effect has been to raise the profile of information products, bring them closer to policy-making centre, or counterbalance the autonomy of individual departments or divisions. In some instances structural change has increased the influence of information professionals on communication in general and on information products in particular.

Marked cultural changes occurred over the period in some of the organisations, generally in the direction of lowering barriers to information exchange, more cross-functional teams, better use of information resources and better management of information products, and fuller understanding (sometimes under the impact of a competitive environment) of the value of information.

Growth in the scale of operations has been a feature of two youngest organisations – both founded in the early 90s., and this has brought improved efficiency in managing and distributing the information products which are their raison d'etre.

A new person at the top has led to changes in some of the organisations, which reflect the new incumbent's background and interests and have affected information products quite fundamentally; they include greater emphasis on information strategy, communication and knowledge management, and bringing a department responsible for information products under the direct aegis of the Chief Executive.

Information management has been strengthened in many of the organisations, leading to moves towards information strategy, and increased numbers of information professionals, having a stronger influence on policy making that has an impact on such information products as intranets.

Changes directly related to information products

It is interesting to note that comparatively few significant changes have taken place in either direct responsibility for managing information products or approaches to their design. This suggests that changes in the organisational context which affect management perceptions of the role of information products are probably of more importance in bringing about positive change.

Web sites and intranets

The timing of the research coincided with intensive development of web sites and intranets in all the case-study organisations; this in turn has had a strong, and sometimes unexpectedly positive effect, on the thinking of some of them about the management of information and information products. In some instances, the process has led to a changed approach to previously intractable negative elements in organisational culture, and to a new pattern with potential for significant progress, bringing together stakeholders in the whole range of information products in new and productive ways. In another, however, the long-standing federal culture appeared until nearly the end of the period to be too strong to permit this kind of progress.

In other organisations, web technology has been taken easily into existing good practice, and is leading to new developments which feed back into thinking about the whole range of products. Organisations whose main products were already electronic ones seem to have found no difficulty in using web technology to develop their offerings along existing lines, with additional facilities..

Only one organisation, probably because of lack of suitably qualified people, had not succeeded by the end of the period in producing a web site of acceptable quality, despite having excellent printed products.

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9
Can we establish a value for information products?

Introduction

It was the intention from the start of the research to complement the main case studies with a further stage, which would use a different methodology, with the general aim of investigating the value effects – positive or negative – of information products on the organisations which create them. As described in Chapter 2, the opportunity arose for an experimental application of a methodology devised by McPherson (1994) – the Integrated Value Manager (IVM^{TM}) – in one of the case-study organisations, Norwich Union.

It should be made clear that this application of the IVM had to be on a modest scale – though it was as rigorous as possible in the circumstances[1] – because it was not a high-priority project from the point of view of Norwich Union. None the less, it provided useful insights, and some relevant findings.

The purpose of this chapter is to present the key findings. with as much background as is necessary to provide a context for them, and to reflect on their relation to certain relevant factors from the first-stage case study of Norwich Union, which have been discussed in the earlier chapters of Part 3.

The information audit and the application of the IVM

The aim of the project was to try to establish the value which a specific Norwich Union investment product (the Bicentenary Bond) , and the information products associated with it[2], contributed to the business. It involved two phases:

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1 See Chapter 2 for a discussion of the methodology, and the case study in Volume 2 (pp253–313) for a detailed account of the application and an evaluation of the use of the IVM in this project.

2 The associated information products are both internal (Model of the product development process, and *Marketing activity advice*, addressed to sales consultants, covering details of the product, competitor analysis, sales aids, timetable, etc), and external (leaflets and application forms for customers, literature for intermediaries).

1 Finding out how information and knowledge contributed to creating the Bond and its associated information products by means of an 'information audit'. The audit (a rather unusual application of the method, but a useful one) was carried out by interviews with a cross-section of people involved in various ways in the development of the Bond (the manager and two members of the team, together with five sales consultants), who completed a questionnaire[3] during the interview.
2 Using the output from the audit as input to the IVM.

The specific aim of applying the IVM was to assess:

a The value the Bond had contributed to Norwich Union in terms of money, achievement of Group goals, reputation, etc.
b The proportion of that value which came from applying information and knowledge.
c The proportion of the value of the Bond which was contributed by its associated information products.

In the event, because of limitations on the amount of financial information which Norwich Union was able to provide for the study, it was possible to create no more than a minimal financial model, sufficient for demonstration of the cost-effectiveness aspects of the methodology, but not for definitive answers on these points. Useful results were gained, however, about the value contributions of information and knowledge, and about the potentially critical effect of the associated information products.

The information audit

The questions on which respondents were asked to make a judgment related to:

1 Categories of information
2 Information interactions among people

which had been identified, in discussion with the manager responsible for developing the Bond, as essential to the process.

3 See Appendix 1 to the case study in Volume 2 for the questionnaire

The categories of information were:

- The potential market for the product
- Competitors and their products
- Developments in the insurance industry
- UK economic and social developments
- Compliance requirements
- Legal requirements
- Ethical standards of Norwich Union in its relations with potential and actual customers, and respondents' responsibilities in maintaining them
- Norwich Union's past experience (including past and existing products and supporting information products)
- 'Who knows what' – people in Norwich Union who have knowledge of particular topics
- Suppliers of products and services (eg design groups, writers, printers).

For each, respondents were asked to judge:

a Its importance for their own work in developing the Bond

b The quality of the information they received.

The interactions were those:

- Within the project team responsible for the Bicentenary Bond, about development of the Bond
- Within the project team about the associated information products
- Within the project team, about Systems/IT support
- Between project team and sales consultants
- Between project team and intermediaries
- Between people responsible for associated information products and suppliers
- Between project team and managers of information and knowledge resources elsewhere in NU
- Between project team and NU policy makers
- Between sales consultants and intermediaries.

For each interaction, respondents were asked:

a How important it was for achieving the objectives of the Bond

b How well it worked

c How well what they received from it matched what they needed.

All the assessments were made on a nine-point scale – the IVM uses a linguistic measurement procedure which allows linguistic assessment to be mapped on to a ratio scale under controlled conditions.(For a fuller description, see Appendix 2 to the case study in Volume 2.) The assessors were required to think only in terms of the linguistic intervals, and in practice found no difficulties with this, as they had experience of responding in a similar way in other contexts.

Results from application of the IVM

Application of the IVM to the answers from the audit combined each assessor's judgments to give a single importance/quality reading for each category of information, and for each kind of information interaction. These conflated results, which in themselves provided a ranking of categories and interactions, formed the input to the next stage of the IVM application. Here, a set of 'referent objectives' (derived from Norwich Union's objectives for the Bond) was used as a criterion in establishing the value which, according to the judgment of the respondents, the use of information contributed in support of each objective. The objectives and the values relating to them are shown in Table 9.1.

Table 9.1
Referent objectives and the value contributed by information

	Objective	Value from use of information (per cent)
1	Develop Bond in alignment with NU Objectives Provide HQ information to support Bond development	73 per cent
2	Provide HQ information products to support launch of Bond	74 per cent
3	Ensure HQ compliance with legal and ethical standards	77 per cent
4	Ensure very good access to NU expertise and knowledge	71 per cent
5	Ensure HQ intercommunications between all parties concerned with Bond development; includes provision of HQ IS/ IT systems aligned to needs	63 per cent

The sensitivity of individual categories of information and information interactions was also identified at this stage – ie those which were most critical for achieving value, and where improvement or reduction could add or subtract most value (as explained in the case study in Volume 2, the determination of sensitivities results from complicated mathematical procedures, and the outcome cannot be influenced by the wishes or prejudices of those taking part in the exercise).

The most sensitive categories/interactions emerged as:

1 Interactions within the project team, about the associated information products
2 Information about competitors and their products
   The potential market for the product
3 Compliance requirements

What do the findings allow us to say about the factors which the project aimed to assess?

The value that the Bond has contributed

In IVM terms, cost-effectiveness analysis involves obtaining the combined value of the financial and intangible components of value (for detailed explanation, see the case study in Volume 2). As explained earlier, there were limitations on the amount of financial information which Norwich Union was able to provide for the study, and these made it possible to create only a minimal financial model, sufficient for little more than a demonstration of how the IVM can be used for cost-effectiveness analysis, and an indication for this application, of the proportional contribution to cost-effectiveness of intangible inputs compared to monetary ones.

The proportion of that value which came from applying knowledge and information

The limited model based on the figures provided indicated a high overall proportion of cost-effectiveness value contributed by intangible inputs: 0.89, as against a monetary one of 0.53.

On the responses of the participants, information contributes a high percentage to the value achieved in meeting the Bond objectives, ranging from 63 per cent on intercommunications within the team (including IS/IT support) to 77 per cent on compliance with legal and ethical standards. The figure for providing information products to support the launch is 74 per cent.

Interactions within the project team about the information products associated with the Bond proved to be the most sensitive of the information categories and information interactions considered. In other words, they are the most critical for achieving value; improvement could add most to value, reduction in quality do most damage. (An observation by the participant responsible for the production, design and distribution of product literature is interesting, and possibly disturbing, in this context: while completing the questionnaire he remarked that the information categories were of more significance than the interactions in his work on the Bond.) Competitor and market information come next, though they are much less sensitive.

The proportion of the value of the Bond contributed by its associated information products

It is self-evident that without information products, not much information would get around, either among those developing the Bond, or between them and the outside world of intermediaries and the customers to whom they aim to sell it. Information products are the essential vehicles for the process.

While in this case, for reasons explained earlier (see p220) it is not possible to show the proportion which they contributed to the value of the Bond, they are ranked high in the conflated results on importance/quality; the objective of providing information products is judged to be well supported by information (it comes second, with 74 per cent); and interactions within the project team about information products are the most sensitive of all categories/interactions.

It can certainly be said that the results indicate a high contribution of knowledge and information to development of the investment product considered, and that they point to certain kinds of knowledge and information, and certain information interactions which appear to be particularly significant for enhancing value.

There is something of a question mark over information interactions between the project team on the one hand and sales consultants and intermediaries on the other. The project team tended to give a low rank to the importance of these exchanges, while the sales consultants saw their own interactions with intermediaries as more important than those with the project team – which probably reflects the nature of their work. (It may also be significant that, on the advice of the project manager, sales consultants were not asked to respond to the full questionnaire, but only to questions about these interactions.)

How these findings relate to those from the first-stage case study

The importance which people responsible for developing the Bond attached to various categories of information and to interactions over information, and the contribution which information was found to make to the value of the product, suggest that the Group would benefit from investment in strategic management of its information resources. The first-stage case study, however, revealed no indication that it had ever considered information as an intangible asset meriting strategic management (Chapter 6, p154). On the other hand, it might be argued from the management side that they were doing well enough in using information without investing in information management to make such investment an unnecessary expense.

Again, the findings from the IVM application point to the importance of ready access to a range of information, unhindered by boundaries between functions and businesses within the Group ('Who knows what in Norwich Union' information, and interactions between the project team and managers of information resources elsewhere in Norwich Union, for instance, were both ranked highly by respondents to the questionnaire). But the findings from the first-stage case study suggest that

> ... fragmentation and a degree of restriction of access is the order of the day with regard to the resources of content and contextual information on which information products – in particular those associated with insurance and investment products – depend.' (Chapter 6, p159).

This trend seems even to be intensified in the Group's current progress towards transferring information to its intranet. It was observed (Chapter 6, p162) that there is an acknowledged need to keep the circulation of competitor information to a defined and limited audience within each individual business, from considerations of commercial confidentiality. Given that competitor information was the category that emerged as the second most sensitive (ie with the greatest potential for adding or subtracting value) from the IVM analysis, the nature of the restriction would appear to merit some critical re-examination. It is to be hoped that it may receive it as the recently introduced intranet strategy is developed.

Reference

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Part 4
Significance of the findings, and potential uses

10
The significance of the findings

Introduction

It is now time to draw together the key points from the case-study findings which have been discussed in Part 3, in order to identify those features from the practice of the organisations which, singly or in combination, are likely to affect the contribution which their information products make to achieving organisational objectives.

A fundamental distinction

The reader of Chapters 5 – 8 will have observed how often a distinction is made between the practice of those organisations which exist to create and deliver information products, and those whose information products support other products and/or services which constitute the core of their business.

Where survival and success depend clearly on delivering an information product that satisfies the needs of the recipients, there is little to impede management's understanding of the importance of the knowledge that goes into the product; of the range of information resources needed to support it; of professionalism in their management; of monitoring the effectiveness of the product and learning from experience; and of co-operation among the stakeholders. In such organisations, a strategy for acquiring and managing the information that goes into the products, and for managing their creation, production and distribution, has to form a major element within the overall corporate strategy.

The three organisations in this category – the Cochrane Collaboration, the NHS Centre for Reviews and Dissemination, and Datastream International – give evidence of such understanding, and, explicitly or implicitly, information strategy forms a core component of their corporate strategy.

Where other products and/or services are the main offering, and information products have a support function, general managers are less likely to think in terms of a strategic connection between the products/services offered, the supporting information products, and the use of information. As we have seen, tradition, structure and culture may operate against the development of such ideas; on the other hand the influence of staff with a professional stake in

information may come to prevail over tradition and move organisations closer to acting on them.

Key points about the products

There are two significant points to note about the information products themselves. The first relates to the distinction between those addressed to the organisations' outside world and those for in-house use; the second to the shift in medium from print towards electronic.

External and internal audiences

As observed in Chapter 5, all the case-study organisations set great store by the information products which they address to their outside world; to varying extents, they make efforts to know the audience, set standards for quality, call on professional skills for writing and design, and make various attempts to assess the effectiveness of the end product.

Not all them, however, devote the same care to the products destined for their own staff, particularly those which are meant to convey in-depth information on policy issues, or to give procedural instruction and guidance. While 'corporate communications' products, such as staff newspapers, are the subject of the occasional reader survey, those which carry information which is more critical for the actual work of staff are often the ones where least consideration seems to be given to the mental and visual comfort of users. In some cases the organisations which show so little regard for their own employees' mental digestive powers invest a great deal of effort in their products for external audiences. The argument, if the organisations are aware of the distinction, may be an economic one – resources do not permit the same attention to internal products, and therefore employees must accept the higher costs of effort to understand what is offered as part of the job. If that is the case, it is a rather thin argument, for the costs still fall on the organisation in terms of the effectiveness and satisfaction of those who work for it.

From print on paper to print + electronic, or print replaced by electronic

The other significant feature about the products is the change in medium over the period. As discussed in Chapter 5, with the exception of the organisations whose main business consisted of database-type information products, print on paper was

the standard medium for information products at the start of the research, while by the end, all the case study organisations had substantial web sites and either had or were developing intranets.

Of more interest than the mere fact of the rapid adoption of web interface technology is how organisations have set about it, and the effects it has had on their thinking about information and information products. Here, as discussed in Chapter 8, there are important differences in approach, which appear to be primarily related to two factors:

- Organisational structure and culture – which can operate for or against productive use
- The existence and position in the organisation of an alliance of professionals concerned with information content and IS/IT – which can counteract negative influences of structure and culture.

Four main patterns of the process of developing web sites and intranets emerge from the case studies:

1 The process supports a break with tradition, bringing together stakeholders previously separated by organisational structure and culture, and leading to new attitudes to information resources and information products. Web site and intranet are seen effectively as 'meta-information products' which have potential for new kinds of information products, new forms of presentation, and integrated management of print and electronic products. The organisations where this is happening are those (the Department of Trade and Industry, the Tate Gallery, City University) in which some kind of alliance exists among information professionals, such as librarians, systems experts and those concerned with information products, who combine long experience and good standing, with a strategic overview of the significance of information for the organisation.

2 The process is absorbed into existing practice, enriches thinking, and leads to creative new developments along the lines described above. The main example here is probably the Co-operative Bank, whose open culture, flat hierarchy, and strength in building alliances with outside professionals to create high-quality information products seem to have given it a strong creative model for its approach to developing its web site. Interestingly, this has taken place without the benefit of any professional information managers, and through an in-house/outside relationship with an innovative company which supplies the technical expertise.

3 Where the main products were already electronic, the potential of the technology is used creatively to develop products along existing and new lines. There are interesting differences between, on the one hand, the two non-commercial organisations (the Cochrane Collaboration and the NHS Centre for Reviews and Dissemination), which have concentrated on developing web sites which take their existing electronic products forward and add diversity of access, and do not as yet find the need for intranets; and on the other Datastream International, which has an excellent intranet, set up in 1996, and is currently reworking its web site to reflect a new organisational structure.
4 The technology is adopted, but the organisation has difficulty in taking advantage of it. Here, there are two variants. In one organisation (ActionAid) weakness on the side of the technology, combined with a possible lack of resources for managing the information content and presentation aspects has still to be overcome, and the web site as yet fails to match the quality of its printed products for the outside world. In another (Norwich Union), a combination of traditional autonomy of individual businesses, territorial guarding of commercially sensitive information, a strong initial concentration on developing the IT and systems infrastructure, and lack of any overall policy for the web site or intranet, appeared until the very end of the case study (when a top-level intranet strategy was agreed on) to be standing in the way of their productive use, even in the face of a top-level commitment to knowledge sharing.

These observations seem to bear out Tiamiyu's (1993) reflection: 'In the interplay of these technology-driven forces and the flexibility of the human mind to dream up new ideas for viable information products lie the opportunities for innovators.'

The place of information products in organisational strategy

The main answers which emerge from the case studies are that:

- The place of information products in corporate strategy is seldom explicitly articulated – except in those organisations which are in business to supply information products.
- There are no examples among the case-study organisations of an information strategy which embodies a strategy for information products, but several are moving in that direction. The proposal for a web site strategy for City University suggested that it should be seen as part of the University's overall strategy, in the context of information and marketing strategies when these are developed.

The DTI now has an Intranet Strategy Management Board (which may make progress while problems of printed products still await solution); the Tate Gallery is developing an information systems/information strategy which could well come to accommodate information products, and the London Chamber of Commerce and Industry is launched on the same path; and ActionAid is on the way to defining a strategic role for information products under the banner of a communications strategy.

- The other case-study organisations are ranged along a continuum that extends from a fragmentary strategic role for information products (for example, a requirement that proposals for products should be supported by a business case linking them to specific organisational objectives; no formal standards other than obligatory style stipulations for the corporate ID and guidance which is advisory only; no cross-functional forum for stakeholders) to one which, while clearly understood, is still implicit.

The effects of structure and culture

As discussed in Chapter 6, federal structure and the territorial culture that tends to accompany it, place powerful obstacles in the way of an overall strategy for information products, derived from corporate strategy. Responsibility for information products is likely to be fragmented and distributed; the rights of originating departments to take their own decisions may be jealously guarded; and units with the remit of providing professional services and advice tend to lack authority vis a vis originators of products.

Influential people

The influence exerted by information managers and systems managers towards organisational information strategy with the potential for covering information products has been mentioned above. Managers responsible for marketing and communications (as in ActionAid) can have a comparable effect, and changes at the top of the organisation which bring in people who take a closer interest in information than did their predecessors (as at the Co-operative Bank and City University) can move the organisation in the same direction.

Mysteries

Finally, in this connection, there remain the interesting cases of organisations which have an active strategic approach to their information products, but seem to feel no necessity for managing information as a strategic resource critical to the success both of their main products and the supporting information products. Both Norwich Union and the Co-operative Bank can be considered as examples, which is intriguing, because, as the case studies of both make clear, in developing high-quality information products they actually draw rather successfully on appropriate information resources of the kind discussed in the next section. The second-stage case study of Norwich Union in particular, which records an application of the Integrated Value Manager methodology, suggests the high proportion of the value of an investment product and its associated information products which was created by the use of knowledge and information.

Possession and use of key information resources

Eight kinds of information resource were identified in Chapter 6 as essential for the development of successful information products which contribute to achieving organisational objectives. They were those which keep the organisation's knowledge current in relation to:

1 The audience for its offerings
2 Appropriate content for the information products, and the context in which the organisation operates
3 The response of target markets to past and current products and the lessons to be learned
4 The organisation's own products, including its information products
5 Competitors and their products
6 Its own objectives, policies, activities (present and past)
7 Suppliers of appropriate skills and services
8 Relevant developments in technologies for presenting and delivering information products.

It is fair to say that all the case-study organisations show awareness, to varying degrees, of the importance of these resources. The quality of resources, and effectiveness of their management, however, varies considerably. As has become evident from the discussion of the findings, those organisations whose information products are their main offering to their market have the greatest awareness and

fewest problems – which is hardly surprising, because were it otherwise they would not long keep in business.

The audience

At the time when the study began, many organisations (the LCCI, the Tate Gallery, and the DTI, for example) had problems in getting at essential information about actual and potential audiences for their information products. They arose typically from elderly technology acquired for handling simple transactions, inappropriate for managing the kind of information required to support information product development, and often managed by people who did not understand those requirements. The technical difficulties are now being overcome, and the emphasis is shifting to thinking about asking the right questions and applying the knowledge gained from the answers to them. The problems caused by structure and culture may well persist, and, for the time being at least, prevent some organisations from getting full value out of the much improved technology in which they have invested.

Content and context

Resources of information relevant to the content which organisations need to access for incorporation in their information products, and to the context in which the products – particularly those addressed to the outside world – will have to make their way, are those which are most usually professionally managed by libraries, information services, resource centres or business intelligence units in organisations.

As we have seen, there is considerable variation among the case-study organisations in this respect. In some, especially the Cochrane Collaboration and the NHS Centre for Reviews and Dissemination, these resources are so critical that a large investment is made in their management, and information professionals have an acknowledged key role in creating the products. In others the relevant resources are fragmented and distributed around the organisation, some professionally managed and others not (as in ActionAid, for example), and means are lacking to make those who should have access to them aware of the totality of what is available. In others again, while resources exist in various parts of the organisation there appears to be no top-level conception of the need to manage them in order to exploit them fully (for example, the Co-operative Bank and Norwich Union). Access to certain resources may actually be limited as a matter of

confidentiality policy, as in the Norwich Union intranet. And there may not be full awareness of need for context information (this is suggested by the findings from the second-stage case study in Norwich Union, for example).

Market response

Whether information about the response of the target market to the products exists as a useful resource depends on the policy, if any, which organisations adopt for pre- and post-publication testing and for monitoring and evaluation of their effectiveness – see below, p225. It would seem reasonable to combine this kind of information, and the lessons to be learned from it, with the next essential resource – information about the organisation's own products, but no examples of that have been found.

The organisation's own products (including its information products)

While some of the organisations studied have taken serious steps to put together and manage this resource, it is unlikely that all of them are as yet getting full value from this kind of information. The DTI is unusual in this respect. When a consultancy study of its publishing processes in 1993 revealed that costly chaos reigned over most of them, particularly storage and distribution, the Department took effective action to build up a database of all its publications, and to bring their recording and distribution under control. ActionAid now has it as part of its communications policy to develop such a resource. While it would appear feasible and useful to incorporate information about the response to products into any database of information about the organisation's own products, none of the case-study organisations have taken this step.

Competitors and their products

Under this heading comes information not only about direct competitors, but also about potential partners and collaborators (and competitors can sometimes be that), external stakeholders, and related organisations where boundaries need to be delineated.

Here, only those organisations which have information products as their main offering seem to have full awareness of need for such information. Others (for example ActionAid) have it as a policy target, but it is not yet in operation. The Tate Gallery should solve it soon through the combination of a unified contact list

and the activities of its Corporate Information Manager. In contrast, Norwich Union, while keenly aware of the importance of information about the competition, may be in some danger of not using it to the full, because of restrictions on access.

The organisation's objectives, policies and activities

All the case-study organisations recognise that they need a resource of information about their goals, policies, procedures, and present and past actions (though one – which sells information products – does not appear to have a formulation of its objectives).

Those which are moving towards developing it are doing so in various ways: the Co-operative Bank and the Tate Gallery through their web sites and intranets; ActionAid via an internal communications strategy; DTI, very successfully, through its intranet. It is not clear whether such a resource as yet exists for City University; at Norwich Union, some essential procedural information currently resides, in a somewhat disorganised state with few clues to finding it, under the misleading title of 'Quick Reference Library' on the mainframe. In both these cases, the intranet would seem the logical place and this is appears to be the direction in which Norwich Union is moving.

Suppliers

Those organisations that need information on suppliers of specialist skills and services, such as design groups, writers, typesetters and printers, both possess it and manage it. The problem lies in making sure that such resources are used in federal organisations where individual departments, businesses or management units are at liberty to make their own arrangements with suppliers of their choice.

Technology

All the case-study organisations realise the need to keep track of the relevant technology in all fields, including those which are significant for supporting information products. At the start of the research, there were some that suffered either from inappropriate applications, or from people in charge of the technology who did not appreciate the requirements, or both. By the end, their situation had improved in both respects, and others, already aware of the essentials at the start, were moving forward with increased confidence and fuller knowledge.

How the products are managed

Responsibility and decision making

Of the organisations where information products are the main offering, there is collegial decision making in the Cochrane Collaboration and the NHS Centre for Reviews and Dissemination – an essential for the quality of the products which they aim to offer; in Datastream International, responsibilities are clearly distributed and the level of interaction among those responsible is appropriate for maintaining the quality of the products.

Improvements in general management seem to be responsible for progress in allocating responsibility and decision making on information products, as in ActionAid and the London Chamber of Commerce and Industry.

Federal organisations are now seeking to deal with the problems created by local autonomy in this respect . Both DTI and City University were, towards the end of the study, moving towards forums which should allow more interaction in managing the products – the one through its intranet strategy, the other via a World Wide Web Working Group; while in Norwich Union a Marketing Steering Group provides a potential forum for printed products, though as yet there is nothing similar for the web site and an intranet strategy was agreed only at the very end of the case-study period.

In the Co-operative Bank, the main step forward is probably the recent further development of cross-functional project teams who enjoy a lot of authority for the products they work on, which makes for efficient management, expeditious production, and highly effective products such as the Partnership Reports.

Specialist skills

The trend over time in most of the case-study organisations has been towards buying in from outside, while retaining a small core of specialist knowledge in-house – which probably represents recognition of how critical this kind of knowledge is. In those where quite large in-house design teams used to exist, as in Norwich Union, they have been replaced by a professional core with an advisory and quality-control role.

Organisations such as the DTI and the London Chamber of Commerce and Industry, where amateur DIY in the use of desk-top publishing used to exist, are today less permissive towards it (web page design, the equivalent ego-trip for today's amateurs, has unfortunately not yet been brought under similar control).

There are interesting differences in what are recognised as essential specialist skills. Given that almost all organisations now put out nearly all typographic design and much writing and editing, it is surprising that briefing outside contractors is so little appreciated as a task requiring specialist skill; the Co-operative Bank is exceptional in its understanding of this, and the quality of the products is in part a tribute to investment in building long-term inside/outside relationships.

ActionAid is unusual in insisting on keeping all its writing and design in-house; it does so on the grounds that the significance and sensitivity of the content of its information products demands that the specialists who create them should have inside knowledge of the organisation; it is also unusual in having this aspect of its work externally audited (and finding it cost-effective).

There are some interesting differences among the organisations where information products are the main offering. The Cochrane Collaboration pays more attention now than formerly to editing, to the presentation of the materials which support the creators of reviews, and to visual design of the main product, *The Cochrane Library*. The NHS Centre for Reviews and Dissemination makes a large investment in writing skills and has thorough procedures for ensuring that products are appropriate for the intended audiences; it uses both peer reviewing and vetting by the Plain English Campaign for products for patients; on the other hand, it devotes rather less attention to the typography of the printed products. Datastream International has a strong in-house team for creating the range of products designed to support users of the databases – all of whom are designated as information designers.

Testing, monitoring, evaluation

The most consistent work in this area is done by the organisations whose information products are their raison d'etre. The management of *The Cochrane Library* seeks a lot of feedback about the product from users, and the Cochrane Collaboration continuously monitors the quality of reviews and encourages external evaluation of them as well. The NHS Centre for Reviews and Dissemination – appropriately in view of its dissemination remit – is outstanding in commissioning evaluations of its products and in having an intensive pre-publication review process; it also supports research on the creation of information materials designed to present research findings to consumers. Datastream International's approach is via meeting users of customer documentation in their working environment; it also has a customer information forum where the staff responsible for the products meet those in touch with customers for feedback.

For the rest, there are some fairly serious pieces of research on specific products (eg ActionAid on *Common Cause*, the London Chamber of Commerce and Industry on *Business Matters*, the Co-operative Bank on the *Partnership Report*). There is some pre-production research and testing for new products (for example, the Co-operative Bank for its student account brochure, Norwich Union for certain external and internal products). There is, however, no consistent policy or programme, and in some cases nothing that can really be described as testing, monitoring, or evaluation has taken place, although the organisations in question acknowledge that they ought to take the matter more seriously.

Given that it is impossible to be sure what works and pays off in this respect without taking steps to get reliable information, which can then form a resource for future decisions, it is interesting that so little action has been taken. One has to assume, perhaps, that where organisations do not depend on information products for keeping in business, and especially when top management is not particularly information-oriented, investigation of this kind tends not to get serious consideration when resources are being allocated.

Costs and values

It quickly became obvious when this question was raised with the case-study organisations that everybody can tell you how budgets are established for information products; few can, or will, tell you how much they actually spend on them (though it is quite a large proportion of revenue budgets in those cases where organisations are willing to indicate a percentage); none have as yet tried to assess value they contribute to organisation's assets.

This was one of the reasons for choosing to undertake a second-stage case study which looked at this area in one of the organisations. While the IVM application in Norwich Union was small-scale, and low-priority for the client, and while for that reason it was not possible to answer all the questions about the value contribution of information and information products which it aimed to answer, it did provide some useful and reliable evidence about the contribution of information and knowledge to the value of an investment product and its supporting information products, and about the high sensitivity of interactions among the product team over the information products. The findings are certainly enough to suggest that it would be worth while for organisations to pursue investigations of this kind.

Does practice have effects on achieving organisational objectives?

It is not possible, from the studies made in this research, to isolate many changes in practice directly concerned with information products which lead straight to greater success in achieving objectives, of the kind documented by the Communication Research Institute of Australia for instance (the 80 per cent reduction in error rates achieved at the DTI by redesigning its travel and subsistence form and making it electronic is a rare example).

More characteristic of the findings is a number of inter-related changes over time, generally in the direction of better overall management and more understanding of what information means to the organisation, which in turn lead to making better use of information in planning, structuring, presentation and evaluating the effectiveness of information products, and so *prima facie* contribute more effectively to achieving organisational objectives. Analysis of the findings from the case studies suggests that key areas in this respect are probably:

- Access to appropriate and well-managed resources of information
- The management of fragmented structure/culture
- The influence of developing web sites and intranets
- The use of specialist skills
- Information interactions/professional alliances among stakeholders.

Finally, it seems likely that when/if organisations develop effective testing, monitoring and evaluation practices, and especially apply methods which enable them to make a reliable assessment of the actual value contribution of information products to organisational assets, they will come to understand better those aspects of information products that are important for achieving their objectives, and to provide appropriately for their support.

The next chapter brings together the theory developed in Chapter 4 with the evidence from practice, suggests modifications to the theory in the light of the confrontation, and proposes practical ways in which it might be used to help organisations to look constructively at how they manage their information products.

Reference

Tiamiyu, M A (1993)
'Analysis of components for designing information products'
Aslib Proceedings, 45 (7/8) 209–214

11
Theory meets practice

Introduction

The thinking about theory and the writing of Chapter 4, which deals with it, were done during the spring and summer of 1998, at a time when the case studies, in progress since 1994, were well advanced and nearing completion, but I deliberately did not have the drafts of the case studies at hand during that period. I wished, in trying to develop a theory, to relate it first to concepts which had emerged as important from analysis of relevant research, and only then to confront it with evidence from the actual practice of a range of organisations with a view to seeing how well it stood up.

Of course, it is impossible to make a total separation between the two categories of knowledge, and, as explained in Chapter 1, past experience inevitably influenced both what I elected to read and how I interpreted it, and the questions I asked of the case-study organisations. None the less, it was important to try to keep thinking about a theory separate from what I had gathered from the case studies until I had been able to digest the findings and bring the resulting ideas to a stage of development comparable to that reached in relation to the theory proposed in Chapter 4.

So here, I present, first, the propositions set out in Chapter 4 , and then the ideas derived from them about 'What should be', with comments based on the matters discussed in Chapter 10, which indicate the degree of convergence/ divergence between theory and the findings from practice. The confrontation between theory and practice leads on to a final section, which suggests how the theory as originally formulated should be modified in the light of practice, and that in turn leads to some ideas for how the results might be used to help organisations improve their practice in managing their information products.

The propositions

Information products are:

1 An essential means by which the organisation's values are expressed and communicated, procedural information embodied, and the understanding and

interpretations of individuals interchanged and brought into the domain of organisational knowledge.

Comment in the light of practice:

An accurate description of the information products of the case-study organisations.

2 Tangible expressions of organisational knowledge; and one of the main vehicles by which information flows within the organisation and between it and its outside world (on a model of conversation rather than message transmission).

Comment in the light of practice:

Also an accurate description; probably not all the case-study organisations would express it in that way, though interactive web sites are probably beginning to influence them to think of a conversational model.

3 The 'containers' into which we put knowledge when we need to communicate it to others, supplementing and complementing conversation, and giving the 'dialogue' between the parties to knowledge transactions a permanent form.

Comment in the light of practice:

This proposition would probably be accepted, though not necessarily spontaneously expressed in these terms; and while some of the organisations are aware of the importance of maintaining and managing this permanent resource of knowledge and information, others have not yet reached that point.

4 Key contributors to organisational learning – diffusing new knowledge within organisations, and maintaining organisational memory.

Comment in the light of practice:

The potential may be recognised, but the principle is not always practised, although the current interest in knowledge management and the revival of interest in organisational learning may lead to more acceptance and action.

5 An essential element in transformations of implicit to tacit knowledge; explicit knowledge to information; information to knowledge.

Comment in the light of practice:

Some people in some of the case-study organisations may be ready to think of information products in these terms; if there are enough of them in sufficiently influential positions they may be able to introduce information products into corporate thinking about knowledge.

6 A means of making invisible assets visible, adding value to them, and creating 'offerings' of the organisation's intellectual property to its outside world; with potential for adding to (or subtracting from) value – financial, social, reputation, etc.

Comment in the light of practice:

The thinking embodied in this proposition is beginning to be recognised, in those of the organisations which take invisible assets seriously, and in those whose main offering is information products, though few steps have been taken towards its expression in practice.

7 Part of the organisation's information resources, with the potential to support organisational information strategy.

Comment in the light of practice:

This proposition would probably be recognised in those organisations which are moving towards information strategy, by the people who are taking the initiatives, but not as yet in the rest.

8 Information design as applied to information products is an integral part of the process of information management, with the special function of ensuring that products match the users and the ways in which they need to use the information content, and that presentation supports their access to the content.

Comment in the light of practice:

Not many of the case-study organisations would express it in that way, though a number of them actually follow it in practice.

'What should be'

In Chapter 4, the descriptive propositions formed the basis for a suggested set of conditions for the success of information products in contributing to organisational objectives. These too have to be brought into confrontation with the findings from the practice of the organisations studied. Once again, each condition as quoted is followed by commentary in the light of practice

It was proposed that the success of information products in contributing to achievement of organisational objectives depends on:

1 Their integration into organisational information strategy, and via it into the overall strategy of the organisation.

Comment in the light of practice:

Setting aside those where information products are main offering and information strategy a critical part of business strategy, which form a separate set in this respect, the findings show organisations without any apparent information strategy (in particular the Co-operative Bank), that nevertheless create information products which clearly contribute strongly to achieving business objectives. City University's proposed web strategy makes an explicit link between it and information strategy (which however is only in the early stages of development). Others, the DTI for example, are moving convincingly towards information strategy, but so far without much visible effect on the contribution made by their information products except, in the case of the DTI, the intranet and distribution arrangements for printed products.

In this instance I have to accuse myself of being doctrinaire. Organisations can and do manage to have successful information products without an information strategy; and having an information strategy is not proven as a guarantee or sine qua non for successful information products.

All that can safely be said is that the arguments for an information strategy to support business strategy are strong ones[1]*,and organisations that have established an information strategy will probably benefit by bringing their information products within its scope.*

2 Drawing on the organisation's resources of knowledge and information

Comment in the light of practice:

This is valid to a point. The case study organisations all do so to varying extents – not all do it as effectively as they might, and not all are aware of all the resources they could draw on, nor do all manage the resources so as to get the most potential benefit out of them for their information products. The Norwich Union stage 2 case study certainly showed that resources of knowledge and information were critical for the development of the investment products studied and the associated information products – and that finding is perhaps particularly significant in an organisation which appears not to manage information resources in any formal way, and has no strategy for information.

It is fair to say that this is a necessary condition, and the better the process is managed, the more effective and efficient will be the contribution which resources of knowledge and information make to information products.

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1 See, for example, Orna (1999), Chapter 10

3 Awareness and conscious management of the transformation of knowledge into information, and information into knowledge

Comment in the light of practice:

It is unlikely that many of the organisations studied would express it in those terms, but that is in fact what those with the most effective information products are actually trying to do. Examples include ActionAid with its in-house team of writers and designers who draw on deep knowledge of the organisation's activities and values in creating information products; the Co-operative Bank with its long-term collaboration between in-house staff with organisational knowledge and strong briefing skills ,and outside writers and designers; and the NHS Centre for Reviews and Dissemination with its meticulous procedures for reviews and dissemination. Multi-disciplinary and cross-functional projects, like those described at the Tate Gallery and City University www group, can also be seen as in part an endeavour in this direction.

4 Matching the organisation's culture

Comment in the light of practice:

It is fair to say that all the organisations seek, in various ways, to achieve this kind of match. Whether they are maintaining an existing culture or aiming to move to a new one, they see their information products as a critical tool in the process. This perception emerges in Norwich Union's close attention to appropriate expression of the brand and corporate identity in its information products; and in the Co-operative Bank's use of information products as the spearhead of developing its partnership approach. It is also evident in organisations aiming for cultural change, as in the London Chamber of Commerce and Industry seeking to modernise itself and developing appropriate membership products to match the desired culture change. A similar process also seems to apply with ActionAid, where a communications strategy which seeks to achieve some cultural change is clearly linked with information products, including those addressed to internal audiences. The DTI too provides an example of an organisation where cultural change is being pursued and where intranet development has primarily been directed towards supporting it with appropriate internal products.

5 Understanding who will use them, and how they will be used

Comment in the light of practice:

This is a basic principle of information design, supported by a good deal of research (see Chapter 3, p60 et seq) which is still not widely appreciated, although it seems like common sense.

Many of the case-study organisations recognise this kind of knowledge as critical for

the success of their information products, invest a good deal in acquiring it, and put the results to good use. The three organisations where information products constitute the primary output, all do so. Of the others, ActionAid and the Co-operative Bank make particular efforts in this direction, as does Norwich Union.

For other organisations, especially in the early stages of the research, the idea that it was necessary to understand users and use seemed to be an unfamiliar one. This was the case with the London Chamber of Commerce and Industry, for instance, at the start of the study, but a marked change in this respect took place during the period. The DTI, judging by the report on its publishing practices, which forms the baseline for the case study, and ome of the early products, was also largely unaware of any such necessity; although some areas, such as the directorate responsible for products addressed to small firms, put a lot of effort into understanding the audience and how they want to use the information products.

6 Understanding the nature of the content (and what that implies for presentation)

Comment in the light of practice:

Another basic information-design principle which is critical for successful information products. As indicated in the detailed comments in the case studies, a few of the organisations lacked understanding when the research began, and their printed products reflected it; they have generally moved forward, while others have understood and applied it from the start. Development of electronic products has proved another test of appreciating the implications of content for presentation in a medium with different characteristics and different requirements. Some of the organisations have risen successfully to the challenge, and taken advantage of the technology to good effect; others, like ActionAid and Norwich Union, despite mastery of the principle in printed products, as yet fail to apply it in their web sites.

7 Appropriate management of the processes involved, appreciation of the necessary professional skills and knowledge, and constructive interactions among the people concerned, within the organisation and outside it.

Comment in the light of practice:

The organisations whose information products are their main offering recognise that the processes which go towards creation and delivery of the products need integrated management, with full interaction among stakeholders, and make constant efforts to achieve and improve it, because it is a survival essential.

For the rest, in some other cases, improvements in general management have brought in their train more consistent attention to managing information products. All the 'federal' organisations have developed forums of various kinds, whose membership includes stakeholders in information products, which did not exist in the early stages of the research, and which have potential for more constructive and integrated management of information products.

All the case studies show growing understanding of the need for specialist skills, whether in-house or out-sourced, and interactions among the people concerned, both within the organisation and between in-house staff who plan information products and outside agencies who supply professional services. The second-stage Norwich Union case study provides useful evidence of the sensitivity of interactions among the people concerned with information products, and their potential both to add and subtract value.
So we can fairly conclude that this is a necessary condition.

8 Management understanding of their contribution to value and costs, and appropriate methods of assessing their cost-effectiveness.

Comment in the light of practice:
Logically this would seem to be an essential condition for the success of any kind of product or service in supporting organisations in achieving their objectives. The practice of the organisations studied in respect of their information products suggests a variety of understanding and of forces at work.

There is a general dearth of information about true costs, and no systematic steps towards assessing the value contribution of information products.

Some examples were found of cost-cutting thinking unilluminated by understanding of the true economics of amateurism or by any strategic view of the role of information products – for example, in the London Chamber of Commerce and Industry at the start of the study, in the initial approach to printed products in the NHS Centre for Reviews and Dissemination, and in the situation revealed for many parts of the DTI by the consultancy report on its publishing processes. It is fair to say that these approaches no longer existed by the end of the period.

The DTI exercise which provided a baseline for the case study actually represented a recognition that all aspects of managing information products involve high costs and have potential for subtracting as well as adding value. It resulted in a comprehensive a picture of what was happening at that point, a useful analysis of where value was being lost, and sensible recommendations for attention to the points where the leakage was most damaging. As the findings from the case study show, in practice some recommendations have proved easier to fulfil than others; the effects of structure and traditional culture are

hard to overcome, though progress may ultimately come through initiatives towards strategic management of information stimulated by developments in the technology.

The issue of costs, value and cost-effectiveness is probably recognised by at any rate some people in a number of the organisations as a nettle that will have to be grasped some time, but where top management thinking is not geared to seriously considering information as an asset (as distinct from repeating fashionable slogans about it), no early action can be expected – unless the development of web sites and intranets acts as a stimulus here, as in other respects.

There is another obstacle to be considered: the high intellectual and financial costs of investing in available methodologies. The experience of the second-stage case study in Norwich Union suggests that the IVM methodology is capable of being used for assessing the cost-effectiveness and the value contribution of information products; it also showed that even a small-scale application is heavy on resources and needs a lot of time and serious commitment from people inside the organisation, together with professional expertise in handling the methodology.

So, while this may be an essential condition for getting the fullest value from information products in achieving organisational objectives, the practice of the organisations studied suggests that they are mostly getting by at well below the optimal level.

Outcome from the confrontation of theory and practice

The descriptive propositions

The propositions advanced to define and describe information products emerge moderately well from comparison with practice as exemplified in the case-study organisations. (It should be observed here that, as many of the case studies make clear, practice looks a good deal better at the end of the research than it did in the early stages, when at times it seemed that little had changed in the twenty years since I had been directly engaged in managing information products.) In summary:

Reflected in practice, and would probably be acceptable to the organisations as formulated

- An essential means by which the organisation's values are expressed and communicated, procedural information embodied, and the understanding and interpretations of individuals interchanged and brought into the domain of organisational knowledge.

- Tangible expressions of organisational knowledge; and one of the main vehicles by which information flows within the organisation and between it and its outside world (on a model of conversation rather than message transmission).

Reflected in practice, though the organisations would not necessarily formulate them that way

- The 'containers' into which we put knowledge when we need to communicate it to others, supplementing and complementing conversation, and giving the 'dialogue' between the parties to knowledge transactions a permanent form.
- The role of information design in information products is as an integral part of the process of information management, with the special function of ensuring that products match the users and the ways in which they need to use the information content, and presentation supports their access to the content.

Would probably be recognised by some people in a number of the organisations as sound in principle though not always practised, and as having potential for future acceptance

- Key contributors to organisational learning – diffusing new knowledge within organisations, and maintaining organisational memory.
- An essential element in transformations of implicit to tacit knowledge; explicit knowledge to information; information to knowledge.
- A means of making invisible assets visible, adding value to them, and creating 'offerings' of the organisation's intellectual property to its outside world; with potential for adding to (or subtracting from) value – financial, social, reputation, etc.
- Part of the organisation's information resources, with the potential to support organisational information strategy.

The conditions

The conditions proposed as singly necessary and jointly sufficient for information products to contribute successfully to achieving organisational objectives stand up reasonably well to confrontation with practice as observed in the case-study organisations.

None of them is of an all-or-nothing kind where anything below complete fulfilment means total failure. Information products which support other products or services do not usually have much potential on their own for either creating

disaster or ensuring success; their influence is more subtle. The situation is rather that the better an organisation does in meeting the conditions, the more effectively will its products contribute to achieving organisational objectives. Organisations can and do get away with not performing very well on some or all of them, but if that is the case their information products will not pull their weight in adding value and may actually have a negative effect on achieving organisational objectives, so that the organisation's other products and services have to carry them and make their effect in spite of them instead of being supported by them.

One exception. The integration of information products into an organisational information strategy is not on the evidence a necessary condition – on the showing of some of the case studies, organisations can have information products that evidently do make a notable contribution to achieving their corporate objectives without having an information strategy; and there is no evidence as yet that an information strategy which includes information products is either a guarantee or a *sine qua non* for their success. The other conditions fare better, as summarised below.

All the organisations seek to apply in practice, with fair success

- Matching the organisation's culture

Applied in practice to varying extents; general improvement over the period of the research

- Drawing on the organisation's resources of knowledge and information
- Awareness and conscious management of the transformation of knowledge into information, and information into knowledge
- Understanding who will use them, and how they will be used
- Understanding the nature of the content (and what that implies for presentation)
- Appropriate management of the processes involved, appreciation of the necessary professional skills and knowledge, and constructive interactions among the people concerned, within the organisation and outside it.

Accepted as a desirable aim, but not much attempt at application

- Management understanding of their contribution to value and costs, and appropriate methods of assessing their cost-effectiveness.

Theory modified in the light of practice

In the light of the analysis made above, it seems fair to conclude that a modified version of the propositions and the conditions could – by virtue of its having been influenced by practice as well as by relevant theory – make the basis for helping organisations towards fuller awareness of the role their information products can play, and of the aspects of their practice they need to consider in order to gain full value from them.

What follows is an attempt to present a straightforward and non-dogmatic statement, expressed without jargon, which might be offered to organisations as a 'starter', to help them to ask and answer questions, in the light of their self-knowledge, about their information products.

▼

What are information products?

Organisations create information products either to support the other products and/or services which they offer, or as their main output.

Information products can be described as being an essential means by which organisations:

- Express and communicate their values to the outside world and internally.

They are:

- What the organisation knows, given visible expression as information, and put into 'containers' from which the users can take information and add it to their own knowledge
- A means by which information flows and dialogue takes place within the organisation and between it and the outside world
- A resource of information from which the organisation can gain new knowledge, and remember and learn from its history.

What is information presentation?

Information presentation is an essential element in managing the creation of information products. It covers such activities as selection and conceptual organisation of information, writing, editing, design and production. These activities today are often described as the domain of information design,

whose special function is to try to ensure that every product matches in every way (words, expression, format, visual appearance, typography, etc):

- The users
- The ways in which they want to use the information
- The kind of information the product contains

so that the product gives the users maximum help, and minimum hindrance, in making use of it.

What are the conditions for successful information products?

Information products are successful if they make the maximum contribution to achieving the organisation's objectives; if they do that, then they add value, in terms of cost saving, risk avoidance, allowing effective and timely action, supporting desired change and innovation, gaining and enhancing reputation.

They will do that if ...

The products:

- Make good use of the organisation's resources of knowledge and information
- Match the culture of the organisation, and support any changes which the organisation seeks to make in its culture

The organisation:

- Provides for an overall view of its information products and their place in its activities
- Clearly assigns appropriate responsibility for managing them
- Provides an organisation-wide forum for people with this responsibility
- Knows the stakeholders in information products and gives them a voice
- Appreciates and provides appropriately for the necessary professional skills and knowledge
- Seeks to understand the value contribution of its information products, and applies appropriate modern methods for assessing their cost-effectiveness

The people who are responsible for managing them understand:

- The organisation's resources of information and knowledge
- The processes by which knowledge is turned into information products, and by which users of the products turn information into knowledge
- The nature of the content and what that implies for presentation

- Who will use the products and how they will need to use them, and what that implies for presentation
- How to manage the processes, and how to interact with suppliers of professional skills and with users.

▲

Practicable modifications of practice

We have now to consider how a statement of the kind set out above might make a framework within which organisations could apply knowledge of their own situation, in order to develop an idea of what would constitute optimal management of their information products in their own circumstances. I have not so far met any organisation – whether among those where case studies were done, or elsewhere – which has taken any steps to define this, though a number would be well placed to do so. On the other hand, many organisations have followed processes in connection with other aspects of managing information – such as information auditing, and development of information or information-systems strategies – which could readily be adapted to the purpose of looking constructively at information products.

What follows is based on an approach which I have developed and applied over the past two or three years (it is described, with an extended example from a real organisation, in Orna, 1999, Chapter 3). The aim is to help organisations, starting from their key goals as they themselves formulate them, to define the knowledge they need in order to achieve the goals, the resources of information they need to support and maintain that knowledge in good order, and, critically, the interactions among people (within the organisation and between the organisation and its 'outside world') which are necessary in applying the knowledge.

Contexts in which this kind of analysis may be used include preparations for information strategy development, where it can identify critical areas of information use and indicate starting points for strategy development; and information auditing, where the output acts as a first statement of 'what should be', which both helps decisions on the questions the audit should ask, and forms a 'template' against which the findings of 'what is' can be matched. In the present research, an analysis of this kind was carried out on Norwich Union's key business goals in preparation for developing the questionnaire used in the IVM application (see Chapter 9 and the second-stage Norwich Union case study in Volume 2).

In the present instance, let us see if the statement of theory modified in the light of practice lends itself to forming the starting point for a similar process, focused on information products.

Stage 1: Is the statement acceptable?

The first stage in the process is to find out, without taking too much time about it, whether it is worth pursuing this approach in the organisation in question. The test of that is simple: is the statement about information products and the conditions for their success acceptable to those who take the key decisions about information products, to those who manage them, and to stakeholders in them? The obvious method for doing this is by a short presentation which explains the ideas, gives examples, and allows for interchanges among the participants to clarify what is proposed. If at the end of that, it is clear that the organisation does not recognise the purport of the statement, or recognises it but does not find it relevant to what it does, the process can end there, with minimal waste of everybody's time.

Stage 2: Define objectives for the process

If, on the other hand, it is accepted as a useful basis for investigation, the next stage is to define and agree the objectives of the process. They might be, for example:

▼

1

- To define the role of our information products in relation to key corporate objectives
- To identify the necessary information content for our information products and the resources of information needed in order to provide it
- To identify the audiences for the products, external and internal
- To define the objectives of the products in relation to
  overall corporate objectives
  the audiences to whom they are addressed
- To identify the stakeholders in the products
- To define the people who need to interact and work together to create the products

- To define the skills and knowledge they need
- To identify appropriate methods for testing, monitoring and evaluating the products, and assessing their cost-effectiveness

2

On the basis of the results:

- To investigate the actual situation in respect of these factors
- To identify gaps and areas of unsatisfactory practice or incomplete information; as well as areas of good match between practice what is desirable in the light of what the organisation seeks to achieve.

and then to:

3

- Take action to rectify evident shortcomings
- Define and implement a strategy for managing our information products

▲

Stage 3: What should the organisation be doing?

The next stage in meeting the objectives, once agreed, is to seek the answers to the questions implied in the first set (**1**):

▼

- What information do we need to give in the form of information products, to:

a Our 'outside world' (customers, clients, members, people and institutions we need to influence, suppliers, etc)?

b Our 'inside world' (people who work for the organisation)?

- Why do we need to give it?
  What corporate objectives does it relate to?

- Who are the people who need it?
  Outside? Inside?

- How do they need to use it?

- How do we want them to use it?

- What are our criteria for success of the products?

- What knowledge is needed to create the products?
  Of specific subjects?
  Know-how, specialist skills?

- What resources of information do we need for the content of the products?
- Who are the stakeholders in the products (the people who need them, the people who should contribute to them in various ways?)
  Outside the organisation?
  Inside?
- How do they need to interact?

- What professional skills do we need to make sure the products

a Meet our purposes?

b Meet the needs of the users?

- What performance indicators do we need to use to judge
  The success of the products in supporting our objectives and meeting users's needs[2]
  Their cost-effectiveness

▲

Stage 4: What *is* it doing?

The answers to these questions form the basis for the next stages, a statement of 'what should be' in respect of the organisation's information products, and an investigation of 'what is' (analogous to a communications audit, or an information audit).

This part of the proposed process really represents a formalised version of what has been done informally in the case studies in this research. There, in order to form well-based judgments on the actual situation in respect of information products and their presentation, I had first to make my own analysis of 'what should be', in the light of the organisation's values, objectives, activities, culture,

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2 An example of guidance for organisations on testing products with users is given as an appendix to this chapter

history, etc. That semi-tacit knowledge was then brought to bear in formulating questions on the key research topics in terms appropriate to the organisation, and to developing appropriate criteria which could be applied to the findings about the organisation's practice.

Stage 5: Analysing the findings

The next stage is to match the statement of 'what should be' and the findings from the investigation of the actual situation, in order to identify gaps and areas of unsatisfactory practice or incomplete information, as well as aspects where practice is in accord with what is desirable in the light of what the organisation seeks to achieve. This is akin to the process of interpreting the results of information auditing proposed in Orna, 1999 (see Chapter 5, Figure 5.2 for a visualisation of the process).

Again, there is an informal and discursive parallel in the case studies in the present research, where the identification of good and less good matches between what is and what should be is covered partly by incidental comments in the course of the 'narrative' parts of the studies, but mainly in the 'evaluation' with which they all conclude, which identifies positive and negative aspects specifically.

Stage 6: From analysis to action

This stage, which in practice would comprehend another whole series of stages, fulfils the final objectives (**3**) of taking action to rectify evident shortcomings and defining and implementing a strategy for managing the organisation's information products.

Here too, there are informal parallels in the situations described in the case studies; this time in the action taken by a number of organisations to rectify aspects of the way they manage which are perceived as having a negative effect on their information products, and in the steps which some have taken towards a strategic approach to information products and presentation. The second-stage case study of Norwich Union represents another aspect of movement towards a strategic approach to information products, in this instance through a trial attempt to identify systematically the value contribution made by supporting information products to a specific investment product.

Outcomes from the encounter of theory and practice

This chapter has done three things. It has:

1 Examined the initially proposed theory in the light of the practice found in organisations
2 Modified it as a result, and derived from it a statement that might be used to help organisations improve their practice in managing their information products and presentation.
3 Suggested ways in which they could use it as framework within which they might apply self-knowledge:

- Define what would constitute optimal management of their information products
- Establish criteria against which they could assess their performance
- Investigate what they actually do in practice
- Use the outcomes as a basis for action which could ultimately lead to an organisational strategy for information products.

In the course of it, I have moved into the realms of *what might be,* and away from plain accounts of what is. But the *might be* process that I have suggested is not too far removed from kindred processes that many organisations today are applying to the wider area of information management – a territory in which I think it has been adequately argued that information products should find a home.

I would certainly maintain that experiments in applying the suggested processes would be a worthwhile extension of the present research; indeed, even after five years in the company of the subject, I would be willing to undertake some of them myself.

Reference

Orna, E (1999)
Practical information policies Edition 2
Aldershot: Gower

Appendix

Testing your information products on users[3]

Questions you can answer from testing a draft information product on users

- Does it tell them what they need to know?
- Does it give them
  The right amount of detail?
  Too much?
  Too little?
- Does it present information in the right sequence for them?
- Does it tell them in ways that match their own experience and expectations?
- Can they understand what it says?
- Can they apply the understanding
  In making the decisions they need to make?
  In extending and enriching their active knowledge?
  In carrying out the actions they want to take?
- What changes would improve things for the users?

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[3] Part of a module on managing information products in a project to provide guidance for non-designers in using desk-top publishing.

Methods of testing and what they are appropriate for

Product type	Appropriate methods	Criteria
Read from start to finish	Test by asking users to read alternative versions of text and 1 Answer questions on content and structure 2 Annotate with their questions and comments	Recall of key ideas Grasp of structure Understanding of text User preference
Scanned	Test alternative forms of presentation by asking users 1 To find specific topics/ items 2 Annotate with questions and comments	Ease of finding Accuracy Time taken User preference
Instructions	Test alternative forms of presentation by asking users 1 To follow instructions 2 Annotate with questions and comments	Success in following instructions Error range Time taken User preference
Reference	Test alternative forms of presentation by asking users 1 To look up information 2 Annotate with questions and comments	Ease of finding required information Ease in identifying relevant items Time taken User preference

Monitoring and evaluating the effectiveness of information products, and getting feedback when they are in actual use

Method	Useful for
Piloting on a representative and interested sample of users by means of Questionnaire[4] Interviews with small sample	New products in which there is a large investment of resources, and which will remain in use for a long time
Observing people actually using the products in the situations for which they are intended	New products Existing products which are to be revised or re-launched
Monitoring the number and nature of errors arising from use of products (eg instructions that cause errors in filling in forms) Deriving figures for costs in terms of staff time	Existing products which are to be revised or re-launched Products designed to replace them (Can give a figure for cost savings achieved by new product)
Telephone interviews with sample of users Fax or email questions on specific features of products	Useful for 'before and after' studies of products that are to be revised or re-launched

4 Questionnaires aren't the automatic solution to every evaluation problem; they are difficult and expensive to compile and anlyse, and response rates are generally low. Worth using only when a large investment is being made in a product.

12
Evaluation

What is being evaluated

This chapter is a short one: a coda or recapitulation of the initial themes. Just as each case study ends with an evaluation of how effectively the organisation which is its subject manages its information products and information presentation, it is now appropriate to try to apply the same process to the research of which the case studies formed a part. The difference, and the difficulty, lies in the fact that here I am evaluating my own work, rather than that of others; I am trying to look from the outside at something which has been lived from within. The results are bound to be biased; it is, however, worth making the attempt, so as to learn what I may from experience.

Again, the process is one of matching, and it is twofold. In the first instance the comparison is between the actual outcomes of the research and what was originally proposed, in order to consider how far the intention has been fulfilled in practice. Where it has not been fulfilled, what has been at fault? – the execution? or the thinking that led to the formulation of the original intent? Has the research filled the perceived gaps? Has anything useful come from looking at information products in the threefold context of organisation theory, information science, and information design? Is there potential for practical application?

The second comparison relates to the actual process of doing research. This is a subject on which I have been privileged to work with postgraduate students for many years, and the experience led to a small book on the specific aspects of managing information in the course of research, and of transforming the knowledge gained into an appropriate information product (Orna and Stevens, 1995). While that work was based on experience as an information manager and writer, I had not had occasion to apply the ideas I was offering in a research context – they were far in the future when I did my MA in my early twenties! So the present research constituted a personal trial of what I had recommended to others. It may be helpful to readers who are themselves engaged in research to have an account of how well the recommendations stood up to the attempt to apply them in practice.

The original proposal, and what actually happened

The method adopted resembles that used in comparing theory with practice in Chapter 11; in the present instance, the terms of the original research proposal form the template against which what happened in the research is matched.

The underlying concept of transformation

The proposal claimed the transformation of knowledge into information as its underlying concept, and used it in formulating definitions of the key terms of knowledge, information, information products and information presentation. Knowledge by this definition is the organised results of experience, which we use to guide our interaction with the outside world. It is stored in the mind in a highly compressed and organised form, and in order to be communicated to those who need to use it for their own purposes it has to be transformed and made visible.

Information is knowledge put into the outside world and made visible and accessible through a series of transformations.

The end result of the series of transformations is information products. The activities we engage in to transform knowledge into information are what make up information presentation.

So, in organisations, decisions about information products are concerned with what to tell people, and decisions about presentation with how to tell them.

I have used the definitions, and the concept of transformation of knowledge to information and information to knowledge in practice for a number of years, in writing and in teaching, and they have proved acceptable and useful to a range of audiences. They were serviceable during the research in looking at information products and presentation, both in the literature and in the actuality of organisations. They were introduced in discussions with many of the people interviewed in the case study organisations, who found no difficulty in understanding and applying them to their own experience. The idea of these transformations can in fact help organisations to appreciate the connection – not always readily apparent to them – between their knowledge about themselves and their outside world, their information transactions, and their information products.

The rationale for the research

In justification for the proposed research, I drew on personal experience of how organisations managed their information products to argue that:

Few organisations have an overall policy for their whole range of information products, related to their key strategic objectives.
Few make any serious attempt to assess the costs to themselves and their customers/clients/public of badly presented information products.
Few have an appropriate basis for assessing the value of their information products in relation to their objectives.
Few employ appropriately trained staff to manage this aspect of their activities.

These propositions were examined in the case studies to see if they were still valid. In the early stages (see Orna, 1996) it did indeed appear that not much had changed in these respects. However, the findings as set out in Part 3, and analysed in Chapter 10, indicate that over the period of the study the practice of most organisations in these respects advanced to varying degrees. Costs and value – particularly value – remain the knottiest problem; it is probably true that the incentives to resolve it are stronger now than previously, and the means to do so are becoming available – though applying them, as the small-scale experiment with the IVM in Norwich Union showed, requires a high investment of time and effort.

Questions which the research sought to answer

The proposal for the research posed two questions

1 Is it possible to trace and identify links between, on the one hand:
How the processes of creating information products and presenting information are managed and, on the other:
Consequences to the organisation, in terms of achievement of strategic objectives in such matters as information flow, communication, cost-effectiveness, efficiency?
2 If investigation suggests that there is a relationship, is it possible to raise awareness of the relevant issues and achieve positive change through action research based on principles from the disciplines of information science and information design?

So far as the first is concerned, both the literature reviewed in Chapter 3, and observation from the case studies, support the existence of such links. In some instances in the research literature direct consequences can be attributed with certainty (for example in terms of the costs of clients lost through inadequate information products, or of staff time in rectifying errors caused by poorly designed

forms issued to customers). While the case-study findings offer few examples of this kind, the evidence suggests a high probability that information products have a major contributing effect. Clearer identification of the effects, and of features which are most sensitive in this respect, will depend on organisations developing further their practice in testing, monitoring and evaluation.

The second question was in the event not answered in the terms proposed. As explained in Chapter 2, the action research took a different form, which yielded some useful insights into value, as described in Chapter 9 and in the second-stage Norwich Union case study. In response to the question as originally posed, I had to content myself with outlining (in Chapter 11) a possible way of following through the original idea, which looks feasible in the light of the findings. The further pursuit of this must lie outside the scope of the present research, but I hope to follow it up.

Topics for investigation

The topics identified in the proposal as a means of gathering information to illuminate the questions were:

- What organisations do at present in the way of presenting information:
  For internal use
  For communication with their 'outside world'
- Whether they have a specific strategy that relates it to their key objectives
- How they relate their information products to the management of their information resources
- Who takes the decisions on information products
- Management attitudes towards information products and presentation
- The people who do the work of creating the products
  How they are trained
  How they do the job
- The technologies used
- The relationship between those responsible for in-house design and production of information products, and those who control relevant IT systems
- How information products are costed
- How they are evaluated
- Whether organisations lose by not exercising unified control over the quality and appropriateness of their information products, and the nature of the loss.

These topics formed the framework within which the case studies were carried out (only the last one was omitted, because on reflection it seemed a question which I myself needed to consider in the light of the findings, rather than one to address to the organisations concerned). They were given in advance to people who were to be interviewed to help them prepare, and used as an informal structure for discussion. In practice, they proved to make a good framework for interaction, and allowed the people interviewed to give expression to their experience and reflections.

It is worth noting that the topics are related to the model of a threefold context for information products as proposed in Chapter 4, in that they approach information products through the perspectives of: the organisation, its objectives, culture, and ways of managing; its information resources and its use of them; and the specialist knowledge and skills it brings to bear in creating the products. The original topics also provided a useful basic structure for presenting the findings from the case studies (in Part 3, Chapters 5 – 9).

Methodology

The methodology proposed was a combination of desk research, leading to a review of the field, case studies in a range of organisations of various kinds, and action research.

It was followed in practice (with some modification of the content of the last element), and I think it is fair to say that experience confirmed the validity of the original decision. The model used for the desk research, based on viewing information products in a triple context of organisation theory, information science and information design (see Chapter 3, p53 *et seq*), turned out to be helpful in identifying sources and managing the material, and a productive way of looking at the relationship among three elements which are not usually brought together.

It brought some new insights for me, especially perhaps about the place of information design and those who exercise this discipline. Viewed in this context, the activities that go to make up information design – especially those concerned with the visual aspect of products – are as I have long believed, critical and essential, and often poorly understood. What has become clearer is that a successful outcome depends on the environment in which they are exercised. Design of organisational information products is of its nature a dependent discipline, in that it cannot begin without prior decisions by the organisation in question; it cannot make good deficiencies in the management of the

organisational context which are the cause of the frustrations which its practitioners so often suffer.

The experience of carrying out the case studies reinforced the conviction, born from experience and confirmed by the literature on qualitative research, that detailed study, over a fairly extended period, of what a number of actual organisations do in practice was the only feasible approach. A questionnaire survey of a larger number of organisations, for example, would have yielded neither the kind of in-depth insights I was seeking, nor the interactions over time with contacts in the organisations, who in nearly all cases became closely interested in the research and in some contributed from a deeper understanding of its themes.

The selection of case study organisations could and perhaps should have been more 'scientific'; from the outset I defined the range of organisational types that ideally I wished to cover, and I tried to achieve it. Lacking, as an individual self-supporting researcher, the resources to pursue the aim thoroughly, however, I had to be fairly opportunistic and take what I could get without too much trouble, in order to get started within a reasonable time. The major gaps are the absence of studies of businesses in manufacturing and retailing. I hope that other researchers may perhaps take up a similar approach to looking at organisational information products, and undertake case studies in new areas.

There were two crucial features about the application of the methodology: first, as mentioned above, the case studies were designed to be longitudinal ones, so that change over time could be taken into account, with the consequent advantages of historical perspective and predictive potential for how matters may develop in the future (as discussed in Chapter 8 there was a particular bonus in the remarkable development of web sites and intranets during the period of the research). Being compelled to go back at intervals to the case-study organisations imposed the necessity of strict self-discipline in managing the material and updating drafts, but that was a price worth paying for the long-term and friendly relations that it was possible to establish with the organisations.[1]

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[1] I have to record one failure in this respect: in the case of just one organisation, which had originally agreed to a case study, I paid less heed than I should have done to the organisational culture, in particular at the top, and did not give enough care to lines of communication. After quite an entertaining exchange of correspondence with the chief executive we agreed to part company. I should have known better.

It also gave me the opportunity of asking the organisations towards the end of the research whether the experience of taking part in the case study and/or the report submitted, had led to any changes or initiatives in respect of information products or presentation. In some, reading an outsider's account of their practice in these matters enabled them to see it from a new point of view, and they found it encouraging in relation to changes they were already making or contemplating. In one instance, people who were leading an initiative for fundamental change in the organisation's approach found that the exercise of stating their position at intervals to an interested outsider helped them in focusing their thinking. Perhaps most encouraging were the effects in one organisation of a reference in the case study to the lack of any provision for information management in relation to its web site and intranet. This was read at a point when they were starting on developing an intranet strategy, and it coincided with the realisation by those concerned that they had to start thinking from first principles about the organisation's information needs. It led to an urgent request for relevant chapters of the thesis to support them in entering this new territory.

Second, the desk research and the case studies were pursued concurrently, and not end-on. That meant that they could continue to illuminate one another throughout the process (although, as explained in Chapter 11, I tried to set experience from the case studies temporarily to one side while developing the theory set out in Chapter 4).

The final proposed element of the methodology was action research – described in the proposal as the 'culminating and most important stage', to be done in two organisations, and consisting of developing and testing a pilot information product designed to help people in the organisations

- To use their knowledge of their own organisation in making decisions about information products and their presentation, and
- To draw on relevant knowledge from the disciplines of information science and information design in carrying out their decisions.

In another organisation, a change in contact, after the original person with whom I had liaised had left, almost led to termination of the case study, in a way that did not match up to the organisation's own high standards for communication. In that instance, an explanation to higher authority led to a happier outcome, with excellent co-operation through to the end of the study.

As explained earlier, the action research took a different form, with different outcomes. The approach originally proposed was probably too ambitious, but it has not been abandoned; some foundations have been laid for it in this thesis (see Chapter 11) and I hope to build on them in practice in due course. I hope, too, that others may join in the investigation of this area which I continue to find richly interesting.

The research process: advice and actuality

In the course of teaching and writing, I have offered suggestions about such research activities as defining the research territory, information seeking, making the information accessible, documenting the research, through to planning the end product, designing its conceptual and visual structure, and finally writing it. Here, I shall outline the recommendations, and describe how and to what extent I was able to follow my own advice.

Mapping the research territory

The book already mentioned suggests drawing a physical map as a means of defining the territory, showing the researcher's existing knowledge of it, and indicating the terra incognita to be explored.

I allowed myself some short cuts on that at the start, because I had a fairly well developed internal map. However when I came to draw a real map at an early stage of the research as an illustration for the book, I found it helpful in showing me where I had got to by then, and later I drew others to illustrate talks, which showed new areas of investigation that had emerged during the research.

Looking for information

The advice I give to students is to write a quick list of key topics for their own research, which will act both as set of 'hooks' when 'fishing for information' in various sources, and as the start of an indexing terminology for creating records and retrieving relevant material from what is collected and created in the course of the research.

I was able to derive my own first set of key terms from the database I have maintained for more than twenty years – consisting mainly of articles relevant

to my work interests; others were added in the course of reading in fields comparatively new to me.

I also suggest using any personal collection of material as a starting point for collecting information. My database proved invaluable as a initial information source; it allowed me to identify probably relevant material quickly, to scan and select from the actual items, and then to create a subset of records as a research database; and the references in the selected items provided leads to other useful sources.

Managing notes from reading

It is one thing to find good sources; quite another to find economic and effective ways of transforming the relevant content into usable and accessible information which will feed the researcher's knowledge when and where it is appropriate. This is something that many researchers find difficult, and the level of investment individuals are prepared to make in it is variable.

I cannot claim to have found any elegant solution, merely to have gone about it in a way matches how my mind works and that allowed me to find what I needed. It more or less followed my recommendations. Hand-written notes taken in libraries were then input, with not too much delay, to word processed files, which were printed out. They were initially filed by subject and a record for each set of notes was input to the database. When ideas about structure into chapters had developed, the chapter number was added to the records and to the printed-out notes, so that they could easily be resorting by chapter when I was ready to write. It was fairly laborious, and it had a good deal of what might be called redundancy in it, but it worked and for me it repaid the effort. I did not use software specifically designed for creating reference lists; as I cited sources in the course of writing, I simply copied the relevant bibliographic details across from the database record to the end of the file for the chapter.

This part of the research process throws some interesting light on finding the appropriate combination of paper-based and computer-based writing and document management. I find, for example, that I prefer writing notes on paper when reading from printed texts, and that nothing can substitute for the convenience of being able to physically handle and arrange documents on paper – for instance in preparing material to cite when writing a chapter. On the other hand when it comes to actually composing I am much happier

keyboarding, though I prefer to do the editing on hard copy (Harper, in a forthcoming book on The Myth of the Paperless Office, makes interesting observations on the role of paper in knowledge work, based on research in the IMF)

Documenting the research

My own practice in this respect was fairly informal and much less detailed than the recommendations in *Managing information for research*, partly because City University's requirements are less stringent than those of some other institutions.

However, I found the University's requirement that candidates should present a paper on the results of the first year's work really useful; preparing for it alerted me to aspects of documentation that later proved helpful. In particular, careful documentation of dealings with case-study organisations proved vital in one case where my initial contact left and further co-operation was at one point refused by the successor member of staff; because I was able to quote what had been agreed, it was possible to circumvent the obstacle, and to continue the contact at a higher level.

Planning the product

I suggest a checklist of questions that researchers can ask themselves in planning the end product of their research, starting with questions about the users (Orna and Stevens, 1995, pp95–96). In writing the book, I took the opportunity of applying the checklist to my own research as an example, and answered the questions at a point when it had been in progress for a year – I am not sure I would have done it so fully if it had not been for writing the book, but I learned a good deal from it.

A repertoire for presenting information

The advice offered to other researchers is to make their decisions on how to present information in their dissertation or thesis in the light of the answers to three key questions: Who will use it? How will they want to use it? What kind of information is it? The underlying aim is to promote a satisfactory 'conversation' with readers which helps them to understand what the researcher seeks to tell them.

In promoting that conversation, I found most difficulty with Part 3 of the thesis: the chapters presenting the findings from the case studies. The problem lay in how to show the differing practice of ten organisations on a variety of cross sections through the findings. It is analogous to that of structuring and presenting ideas from the research of other people (as in Chapter 3), but I think it is more difficult.

I did not solve it well. I became aware, in re-reading these chapters some months after writing them, of the difficulties they were likely to present to readers who had not lived through the case studies from the inside. That led me to try to offer some diagrams to help in visualising the content, together with end-of-chapter summaries.

Ideally the development of decisions about content, verbal and visual presentation, and standards should move forward interactively from an early stage. I was fortunate in being able to draw on the experience of the co-author of *Managing information for research* in establishing a visual structure which comfortably accommodated all the elements of information and provided consistency combined with visual distinction of different elements. Unfortunately the advice could not be given until a fairly late stage, and I was forced to defer typographic decisions till much later than I would have wished. That meant I was able to devote less time than desirable to the final stages of reformatting files to the style – and to learning several things about MSWord that I should have learned much earlier. A painful reminder of the warning I have often given to students that final tidying up takes much more time than might be imagined.

'Designing your writing'

The advice about writing is based on what I have learned from the approach which good designers of visual or material products take to their work, an approach which 'plans the end product to meet the needs of those who will use it [and] seeks a strong and elegant structure appropriate to those needs' (Orna and Stevens, 1995, p162).

I followed it in writing the present thesis; when I compare the experience with that of writing my master's thesis, I realise that designing structures to write into is a much more enjoyable experience than knitting long strips of words. Perhaps this is because the stages of the designing process leading up to actual writing, especially visualising and drawing, approximate more closely to

knowledge structures in the mind, and so form an intermediate step in the transformation of '3D' knowledge to '2D' information.

Having to write a plain account of the IVM methodology for the Norwich Union participants in the experimental application, and for the thesis, to my own satisfaction and that of the originator was particularly valuable; it gave me an understanding of the methodology that I could never have gained in any other way.

The occasional opportunity to take specific sets of material and concentrate on structuring and writing sections of the thesis, away from the normal work environment cluttered with other jobs, allowed concentration and rapid progress at times when that was of great value.

The fact that I was combining the research with other work, however, did contribute to a spiral of action and reflection – the times when other work meant the research had to move to 'the back of the mind' proved actually helpful; when I got back to it, though time had to be spent on thinking myself back into where I had left it, that was compensated for by the 'unconscious reflection' which had often moved my thinking about the research forward without my being aware of it.

Trying it out

I have mentioned elsewhere (Ch2, p42) the benefits of discussion with people professionally concerned with information in various ways, and from writing about the research while it was in progress. When the main work was completed, and my ideas about how it might be applied had developed to the extent outlined in Chapter 11, I was fortunate in being able to try them out in an informal workshop with information professionals from a variety of backgrounds, who brought their knowledge of their own organisations to bear, and provided some interesting ideas to take forward. Further opportunities for this kind of co-operative development of ideas are in prospect, and they may give pointers to an information product that could be of real use.

Managing case studies

The opportunity of maintaining contact with case-study organisations over a period of five years was even more valuable than anticipated. The advantages of observing change and the factors that influence it have been discussed in

Chapter 8. Beyond that, there was the value both of developing understanding with the people who remained my point of contact with the project throughout – especially sharing their satisfaction in positive developments; and of encountering new players who took over the duringthe course of the study and exchanging information and ideas with them. My respect for participants' knowledge of their own organisations increased during the research. I hope that as my own knowledge increased I became more aware of my own prejudices and preferences, and the effect they could have on my interpretations

I learned one other thing at first hand in the course of talking with a number of people in each case-study organisation: the same question can bring answers that reveal as many different perspectives as there are people interviewed. Each of us sees a different organisation according to our place in it, our experience there, what we bring from past experience, our external reference points etc. The perspectives may be of varying validity, some may be narrow tunnel visions, some may cast a broad beam of light, and some may be on the under-illuminated side; but none should be discounted. It is by bringing them together and trying to understand what influences the differences that we learn about the organisation, and stand a chance of seeing the topic in which we are interested in the round.

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