The Reuters Guide to Good Information Strategy

Abridged version for the Reuters Web site

PREFACE

Welcome to the *Reuters Guide to Good Information Strategy* - a helpful reference volume to help managers plan and implement an effective information management policy within their organisations.

There is no doubt that businesses today need information to stay competitive. 'Knowledge is power' has become one of the catch-phrases of the nineties. As a long-standing provider of information to the world's media, financial markets and businesses, we at Reuters are acutely aware that the demand for information is growing exponentially, along with the quantity of sources and the number and variety of media through which it is disseminated.

Yet information does not equal knowledge, and as the quantity of information mushrooms, the gap between these two entities widens. Disorderly or poorly managed information actually impedes knowledge, rather than increasing it. As the Information Age reaches maturity, the most pressing concern for many businesses today is not how to obtain the information they need, but how to control the information they have.

Creating an effective information strategy takes time, effort and ongoing commitment from everyone within an organisation. It is not easy, but it is essential. Reuters has produced this guide to help managers take the necessary steps towards good information management so that they can be sure they are getting the best from their data and from their people.

These are crucial issues. Success in the next millennium for every organisation will depend on the creative, competent and clever use of information.

I hope you find this guide useful.

Peter Job

Chief Executive, Reuters Plc

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Introduction

Computers have revolutionised business, industry and the public sector by enabling organisations to process vast amounts of information at high speed. But there has been a price to pay. The explosion in corporate information has created almost as many problems as it has solved.

People have to deal with a colossal amount of information from day to day. Around 1,000 books are published internationally every day and the total of all printed knowledge doubles every five years. More information is estimated to have been produced in the last 30 years than in the previous 5,000. The New York Times alone contains more information in a weekday issue than the average 17th century person came across in a lifetime.

New information technologies have contributed to the deluge by promoting communications both within organisations and with customers, suppliers and business partners. Meanwhile, business trends such as downsizing are intensifying the pressure by reducing the number of people available to process data and increasing the burden on the individuals who remain. Leaner, meaner management practices are also squeezing out time for planning ways to deal with information overload.

The huge wealth of data waiting to be exploited on dial-up information services and the Internet adds to the pressure. Use of phone-based information services is soaring. In 1985, the world spent 15 billion minutes on the phone, talking, faxing and sending data. By 1995, this figure had quadrupled to 60 billion minutes, and by the millennium it is expected to be 95 billion minutes. Small wonder some people feel unable to cope.

Occupational stress, of which information overload is a major component, is costing organisations millions of pounds a year in lost productivity, delayed decision-making and the failure to spot opportunities. In the UK alone, information overload contributes to up to 30m working days a year a lost through stress-related illnesses at a cost of some £2 billion. Yet many companies are doing nothing to address the problem. At best, this is wasteful, at worst it could cripple business.

As a leading producer of business information, Reuters is well aware of the problems. But there are ways to minimise them, and this guide is intended to help begin that process.

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"Only a minority of organisations appear to be directly and deliberately addressing the management of occupational stress."

Tom Cox, Professor of Psychology, Nottingham University

Chapter One: Dying for Information?

Information overload may have crept up on us almost without our realising it, but there is no doubt that it is now a major problem. Surveys highlight a number of stress-related illnesses and the increasing pressure felt by individuals as they grapple with the torrent of information they need to carry out their jobs.

The cost to business is colossal. Stress and tension induced by information overload in the workplace can cause sufferers to procrastinate, waste time, delay important business decisions, and become distracted from their main job responsibilities.

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- Almost half of employees in Europe admit to often finding themselves looking for information that should be easy to find.

- As many as 60% spend an hour or more a day duplicating the work of other employees.

European Business Connection Survey 1997, Novell

A tremendous price is also being paid by people in their personal lives. The problem of coping with the information deluge is damaging their personal relationships and eroding their leisure. Many feel trapped in a vicious circle of having to stay late at the office or bring work home in the evenings and weekends. They have less time to spend with friends and family, or to relax.

Dying for Information? An Investigation into Information Overload in the UK and Worldwide **- a Reuters report**

Published by Reuters in 1996, *Dying for Information*? *An Investigation into Information Overload in the UK and Worldwide* is the most extensive and comprehensive study of information overload that has ever been conducted. It incorporates a survey of 1,300 managers from five continents, and investigates the phenomenon of information overload and the scale of the problem.

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Other research

- Large companies will need to store 400 terabytes (trillion bytes) of data by the year 2000.

Unisys

- Forty-three percent of employees agree that there is too much duplication of effort in accessing and distributing information internally.

- Almost half of employees across Europe believe that there is not enough knowledge sharing in their companies.

Chapter Two

When information becomes a problem

Walk into the average office and it is not hard to spot the signs of information overload: desks piled with paper; in-trays spilling over; filing cabinets bulging; and shelves groaning under the weight of periodicals, box files and books.

Downsizing, combined with the advent of desktop computers, which have decimated secretarial support, has dramatically increased the time pressure under which many executives now work.

The situation is exacerbated by the fact that people have an ever increasing volume of electronic information to contend with. The fax machine, for example, has become one of the most heavily used items of office equipment. Moreover, when people send faxes they generally want them to be seen as more urgent and important than classic paper mail - "p-mail" or "snail mail" as it is sometimes dubbed.

In addition, there is electronic mail, or e-mail, which is becoming so widespread that many managers have to allocate an hour or more each day to deal with it. At present it is not unusual for someone to receive 60 e-mails a day, and senior people in large multinational corporations may typically find more than 200 e-mails waiting in their electronic in-baskets in the morning.

Many office workers also have access to dial-up services providing news and business information, travel information and specialist reference databases. Of course there is the World Wide Web. Internet search engines can help hunt down specific items of data, but on the other hand they may come up with thousands of "hits" to choose from. Of these, a huge proportion may be irrelevant, but picking the wheat from the chaff can be a time consuming and arduous.

Network congestion, access problems and slow transmission times are further contributing to make using the Internet a more frustrating experience than rush-hour on the motorway. Not surprisingly, many people are suffering symptoms similar to "road rage" when they can't get what they want.

Intranets, which are internal company networks modeled on the Internet, are now being hailed as a possible solution to the corporate information problem. They have certainly helped cut down on the number of in-house phone directories and copies of company employee handbooks, but in most cases they are yet to be deployed to great effect.

Pressure, fear and frustration

Once information overload hits an individual it becomes extremely difficult for that person to escape from it. The further they fall behind, the more the backlog builds up. People may find they can get away from it for a couple of weeks in the summer. But returning from holiday becomes a nightmare because of the deluge of information waiting to be dealt with.

This scenario is striking all kinds of workplaces, but it is particularly common among professionals such as business people, government officials, lawyers, civil servants

and doctors. Financial planners are worried about failing to notice an accounting error that might end up costing millions of pounds; marketing managers are concerned that they might miss an important move by a competitor; lawyers are under pressure to spot key precedents that could win their clients' cases. The pressure is on for such individuals to be prepared for all eventualities.

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Every day, approximately 20m words of technical information are recorded. A reader capable of reading 1,000 words per minute would require six weeks reading eight hours every day to get through one day's output. At the end of that period he would have fallen five and a half years behind in his reading.

Information Fatigue Syndrome

Constant information overload may eventually lead to a condition termed Information Fatigue Syndrome (IFS), which in turn can manifest itself in a number of ways:

- An inability to make decisions or cope in other ways

- Irritability and anger

- Pain in the stomach and muscles

- Frequent feelings of helplessness, listlessness and lethargy

- Inability to sleep at night, waking in the small hours with a sense of panic

- Loss of energy and enthusiasm for hobbies or leisure activities

IFS sufferers recount stories of pouring milk in the bin rather than the coffee mug, holding the phone the wrong way up and shouting into the earpiece: "I can't hear you!", and turning up for meetings at the right time but a month early.

Not surprisingly, all aspects of their personal lives begin to feel the strain. Personal relationships start to feel the strain, and the victim may be drawn into a downward spiral of illness, depression and inability to cope.

IFS is a primitive survival response. Our forebears reacted to pressure in one of two ways "fight" or "flight." However, neither of these is really suitable for dealing with the stresses caused by information overload. Research shows that when forced to choose from a series of options in the face of vast amounts of potentially important information and against the clock, we move into a state of excessive stress. Our brains go into panic mode.

This creates a sense of hyperarousal that dulls the senses and undermines performance, making it harder to think clearly or act sensibly. Foolish decisions and flawed conclusions are then inevitable because data is misread. Perspective is distorted as information takes on gigantic proportions in people's minds.

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"I can see the pile of papers on my desk grow right before my eyes just like those time-lapse films of flowers opening up."

Peter Guilford, spokesman for the European Commission in Brussels.

How it feels

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Diana Harris, a marketing analyst, knows all about IFS. At the age of 22 she joined an oil company where she was expected to work an average of 13 or 14 hours a day. Her task was to compile information for the management of the company which she received and researched from a variety of sources. She had to sift through a great deal of information in order to acquire the relevant facts, scouring three computer print-outs each day as well as dealing with phone-calls and faxes from five accountants in subsidiary companies. She also had to work through memos from managers, computer spreadsheet information, and management profit and loss reports. In addition, the job involved a lot of traveling.

Diana was given no formal training on the specific areas that she covered, and she was always held to very strict daily, weekly, monthly and quarterly deadlines. "I had information all around me and did not know what to do with it all," she says.

While at work, Diana was permanently exhausted, and had to take quite a few days off because she simply could not get out of bed. She suffered panic attacks, palpitations and stomach pains because of the deadlines. Other symptoms included depression and muscular and joint pains. Finally she felt she had no choice but to leave her job, and to have a break from work.

Her recovery from IFS was a long and painful process, and required her to take a complete break from work to alleviate the stress.

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Ruth Sacks, an independent management consultant, had similar experiences. Ruth, who is also a part-time university lecturer at Sheffield Hallam University, describes herself as an active, healthy person. Yet over a period of time, she felt her health was suffering as a result of IFS. The symptoms she developed over this period included extreme fatigue and stomach pains, and deterioration of eyesight. "I couldn't sleep and was always tired," she says.

Ruth attributes her problems to severe stress induced by the feeling that she had more information to deal with each day than she could feasibly cope with. She was forced to work late and felt the need constantly to accumulate more and more information to make decisions.

Fortunately, Ruth works for herself, so she has been able to change her work schedule and devise a rigorous time management plan. Now she is much more assertive in asking for information and in saying she doesn't want it. Other helpful measures have included taking up exercise and investing in a huge waste-paper basket.

The need for an information strategy

An information strategy is not just nice to have - it is a business imperative and an essential weapon in the battle against increasing information overload. It is the only way to ensure that everyone in an organisation has the information they need to do their jobs effectively. It should also greatly reduce the quantity of data that is erroneous, irrelevant, or duplicate.

Organisations that want to compete in the next millennium will need to adopt a completely new way of thinking about information as knowledge. They will need to evolve a culture of knowledge-sharing, and to work out ways of rewarding people for disseminating their expertise.

If this sounds expensive or difficult to achieve, consider the consequences of failure: employers could face a barrage of litigation as employees take action against their employers for causing information overload. In 1996, for example, a social worker from Tyne and Wear made legal history when he became the first person to argue successfully in the High Court that his employers were liable for his nervous breakdown.

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"I think it is pretty well established now that companies owe a duty of care to employees' mental well-being as well as physical well-being. The best protection is to be able to demonstrate that the company has taken steps to help employees cope with information so that you can't have the finger pointed at you."

Dr David Lewis, psychologist and author

There are also important business reasons for managing the flow of information through an organisation. As many companies are aware, information is a key asset and it is fundamental to the value a company adds. The efficient handling of corporate information is crucial to competitive advantage.

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- Half of UK companies believe that their information is more valuable than their brand names and trademarks.
- Nearly one in four regards information as their most important asset.
- One in ten values it more highly than their people.

Information as an Asset: the Invisible Goldmine, Reuters 1995

Chapter 3: Information as a resource not a threat

Whose role is it to construct and implement an information strategy?

The first essential step in ensuring the success of an information strategy is to appoint a senior member of staff with overall responsibility for ensuring that information procedures are correctly set up, put in writing, and used - and to raise the alert when things start going wrong.

Many staff are at the mercy of their employers when it comes to the amount of information they have to deal with, so it is from the Board that the lead in the battle against information overload must come.

In certain large organisations it may be appropriate to create an entirely new information management role and appoint an individual specifically for the task. Common job-titles for this area of responsibility include: chief information officer(CIO); chief knowledge officer (CKO); and director of information.

Even in smaller companies, a senior executive or board director should be appointed to the role of managing the organisation's information flow, and this should then become a significant part of this person's function within the organisation.

Selecting the right person for the job can be complex. There can be confusion over the function with which information management should be aligned. Common candidates are human resources, IT and PR or corporate communications. HR, because in order to define an individual's information needs, it is necessary to clearly define their job responsibilities; IT, because information systems are traditionally the role of the company systems manager; and PR, because the dissemination of corporate information is frequently seen as a communications function. In practice, the role incorporates all three, and others besides.

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"An information director could usefully combine some of the roles of a corporate strategy manager, an information technology manager, and a librarian."

Paul Waddington, marketing manager at Reuters Business Information, and information management specialist.

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- 35% of organisations see information management as the domain of the HR department, while 25% see it as a PR role.

Business Intelligence

The enterprise-wide information audit

For organisations that do not have an information strategy in place, an enterprise-wide information audit is a crucial first step.

An audit identifies where information is located, and how accessible it is. It should look at information needs and compare them with the systems in place to meet these needs, to pinpoint any gaps or excesses. The information audit will ultimately help in the assessment of the strategy's success, as it will provide a yardstick to monitor progress.

A prerequisite of the information audit is the accurate definition of job responsibilities.

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Information audit checklist

- What information does each individual or work group within the organisation need to do their job effectively?

- How frequently is this information needed?

- Do other individuals or work groups in the organisation require the same data?

- What systems and resources are in place to fulfill these requirements?

- Do current information systems and resources match users' needs?

- Do individuals within the organisation receive information they do not need? Do they lack essential or useful information resources?

- Could some information be shared? Is it being duplicated?

- *What action needs to be taken to ensure that every individual within the organisation has the necessary information to perform effectively?*

The audit should also examine the effectiveness of each single information resource in turn, the benefits it brings to the organisation, its cost to the organisation (and whether this compares favourably with the benefits achieved), and how the cost/benefit ratio could be improved. Examples of information resources are a periodicals library, a customer database or an online information system.

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Information resource validity checklist

- How many users access this information source?

- How often is it used?

- Is it used effectively? Is training required?

- Is everyone aware of its existence?

- If there are problems, do these arise because people are simply unaware that information is available, or are they put off by the difficulty of getting hold of it?

- Could the information be rationalised with other sources within the organisation?

- How much does it cost to set up and maintain this resource, or in other words, how much corporate investment does its existence represent?

- How could these costs be reduced?

- How much is it worth to the organisation?

- If its main creator left the organisation, would it effectively be lost?

- What would be the cost of such a loss?

The technology audit

Although information-sharing is essentially a cultural issue, technology can do a lot to help or hinder it. Companies have known this since the early days of business computers when compatibility became a problem. Many organisations found themselves "locked in" to one manufacturer's hardware because of the difficulty of transferring programs and data between different systems and technical architectures.

The introduction of open systems, industry standards and the Internet have done much to resolve these issues, but even so many organisations do not have IT systems that are optimised for the easy flow of information. An enterprise-wide technology audit should help find out whether systems are reliable and flexible, and ascertain how easily they can be upgraded and expanded as requirements grow. Organisations should ask themselves whether they are maximising the knowledge potential of their data.

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Technology audit checklist

- What technologies are in place?

- Which of these are stand alone and which are integrated?

- Could any cost or efficiency benefits be obtained by integrating stand alone systems?

- Could any archaic IT or even paper based information systems be improved by technological changes?

- Would the organisation benefit from a system that enables people to extract knowledge from their corporate data, such as a data warehouse?

- Are individuals hampered in their search for information by a slow or unsatisfactory network? Would this situation be alleviated by a systems upgrade?

- Are employees properly trained to use systems correctly and efficiently?

- Could pay-back times be calculated for desired technology upgrades?

There are a number of IT issues and new technologies currently being debated in the media that have a bearing on information management. Some of these are examined below.

Intranets

Tremendous benefits can be gained from corporate intranets - fast-growing internal networks using Internet technology, but generally running on private networks, and protected from outsiders by firewalls and encryption. Like the Internet, they can be used to store, send and retrieve all forms of information including data, image, text, and full-blown multimedia. This information can be accessed by all individuals within the corporation, even internationally. In the case of 'extranets', other organisations, such as certain suppliers or customers, may also be able to access parts of the network so that information can be exchanged electronically.

Intranets are now being used for the publication of a vast range of internal documents from company handbooks and staff phone directories to customer profiles, product information, supplier contact details and instructions for carrying out certain procedures or for operating equipment. Having this type of information in a public place within the enterprise relieves a large burden of work from departments such as the IT and HR departments, who frequently spend a large amount of time answering the same employee questions about information systems and company policy respectively.

In the future, organisations are likely to become increasingly reliant on intranets to share knowledge as well as factual data.

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- Seventy percent of IT directors believe intranets will change the way their business communicates.

- More than three quarters predict that the vast majority of companies will have installed an intranet over the next five years.

- Eighty-five percent believe that intranets will be a valuable information resource, and 89% believe they will help with knowledge-sharing.

European Business Connection Survey 1997, Novell

As with other information resources, the corporate intranet must be carefully maintained to ensure that it contains only up to date, accurate material, of genuine value to users. It must be managed to prevent it becoming congested by trivia, gossip or non-profit making activities, or duplicate or conflicting information. And it must be user friendly and easily navigable, so that it becomes the first place that people go to for information, rather than a last resort when no one else can help.

The Internet

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"The Net for the first time is causing information overload."

Marc Andreesen, co-founder of Netscape Communications, and co-writer of the Navigator browser

The Internet is a vast resource of predominantly free information on every conceivable topic, but organisations are well-advised to examine closely who should use it, when it should be used and how useful it is. It can be extremely time consuming to retrieve information of value from the Net, and it can be highly diverting, as there is so much non-business related content. Furthermore, Internet information is frequently difficult to verify unless it comes from a known and trusted source.

In order to make using the Internet viable in a business context, users need to be properly trained and able to use search engines to cut their research time. It also pays to give them powerful PCs and high-speed modems to minimise the time spent downloading. Other software tools such as firewalls, filters, intelligent agents, end-user query programs and hierarchical storage management systems may also help to relieve the burden on information users by limiting the amount they have to sift.

However, for all its drawbacks, the Internet is a vital information resource that cannot be ignored. More and more organisations throughout the world are now expending large amounts of time, energy and money on posting websites which often contain much that is as useful to their competitors as it is to their potential customers. But it is becoming a practical imperative to maintain a corporate website, and organisations that don't are increasingly seen as behind the times.

Webcast

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"Manually searching the Web is not a sustainable model, long term."

Eric Schmidt, XX, Novell

The speed at which the Internet is expanding is making it increasingly difficult for individuals to find what they want. It is rather like having to spot the interesting documentaries or classic films among thousands of simultaneous TV channels.

Software developers have realised that what business users need is a few channels containing relevant, reliable and targeted information. In order to achieve this, they have developed powerful search engines that automatically monitor large numbers of web sites and other information sources for content that conforms to the user's requirements, and 'push' this information onto the desktop at user-defined intervals.

Webcast programs cut through Web clutter to deliver personalised news, business information and other data services without any effort on the part of the individual user. Webcasting agents are not restricted to text and data but can cope with full-scale multimedia including image and animation of near-TV quality. They are also known as "tuners" and "transmitters", because they allow Internet content to be "narrowcast" or targeted at particular groups or individuals. Webcasting is a useful method of disseminating company news and information via a corporate intranet.

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Alan Archer, director of corporate programmes, SmithKline Beecham Europe, currently publishes the company's Media Monitor - a paper based summary of the most relevant news stories for SmithKline Beecham, covering issues such as cancer, asthma, vaccines and pricing matters relating to the National Health Service, for the company's senior executives. The size and scope of the company makes it impossible for individuals to track every story they might potentially be of interest in every specialist publication. There might be 150 such stories coming in off the wires within five minutes, according to Archer.

 "At present many senior people still prefer to see things on paper rather than on the screen," Archer says. "They tend to circle items in pen and pass them down to other people to act on." But similar facilities can be emulated on the screen, and ultimately Archer believes that news clippings will be delivered to everyone via their desktop PCs. One advantage of this approach is that each set of electronic clippings can be tailored to individual profiles. Another is that alarms and triggers can be set to go off automatically - for example, when share prices hit a certain level, or when component costs began to change.

Data warehousing

As the name suggests, data warehouses are repositories where vast quantities of electronic data can be stored, queried and manipulated to show business trends and produce knowledge.

Data warehouses can take data from several operational systems, and integrate it to produce overall 'snapshots' of all the data at a given time. Once in the data warehouse, the data is not changed by subsequent additions, but it is stored in a consistent form and in a way that supports business analysis.

Data warehouse users are likely to be involved in an organisation's strategic planning or marketing.

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PPP healthcare prides itself on being the UK's most supportive private healthcare company, with over 2.3 million customers. Due to increasing competition from insurers wanting to move into the health sector to cross-sell to existing customers, PPP healthcare must make best use of its data resources to stay ahead. It has implemented a data warehouse to achieve this.

There are currently over 15 million treatment records on the system, making it possible for analysts and statisticians to analyse treatment trends and historical costs of providing care, with unprecedented levels of speed and accuracy.

"The system has had a fundamental impact on the way information is managed in PPP healthcare because control over data usage has been de-centralised," says Malcolm Lambell, director of IT at PPP. "It has given analysts the information they require, on their desktops and under their control, so that they can work independently from

specialist IT staff. This has had a knock-on affect on our ability to provide our customers with a better and more cost effective service."

Chapter Four: Making it happen

- **Lead from the top**
- **Lead by example**
- **Promote the strategy internally**

An information strategy must have champions at board level if it is to be a success.

In addition to driving the strategy, senior management should be seen to subscribe to it themselves, and to be active exponents of the information-sharing philosophy.

Only when working practices aimed at spreading, sharing and expanding information access pervade every level of an organisation can it be positioned fully to exploit business opportunities.

But example alone will not ensure that the information strategy is understood and adhered to. People also need to have the issues clearly spelled out to them. The information strategy must be heavily promoted to staff, so that everyone recognises why it is necessary, what it involves, and why it will benefit individuals and the organisation as a whole. This will be the first test of its effectiveness.

Quality control

- **Clean existing data**
- **Verify incoming data**
- **Don't ignore mistakes, take action!**
- **Review content regularly**

One of the first tasks of the CKO or CIO will be to arrange for all existing company information to be checked and cleaned. In this way, the new information strategy can begin with a clean slate, onto which clean data can be added.

It is also vital that staff understand the need for corporate information to be of the highest quality. Individuals who are keying in data must be aware of the importance of getting it right first time, verifying their input, and looking out for inconsistencies or duplication.

Those who subsequently access and use the information should also be vigilant in checking its validity and identifying mistakes. Staff should be encouraged to correct erroneous material where appropriate, or draw it to the attention of the CKO. The procedure for correcting data should be clearly laid out and well communicated, so that everyone in the organisation knows whether it is his/her own responsibility to correct mistakes, or whether he/she is responsible for alerting the information manager.

Software checks should also be embedded into information systems where possible to help avoid errors.

Training

- **Time management**
- **Prioritising data**
- **Information procedures**

Individuals need to be aware that they are responsible for developing certain informational skills to help them identify useless data before it gets in the way of doing business.

Nevertheless, they also require training to improve their information management techniques. This involves prioritisation of tasks and effective time management. People can also be instructed in techniques that enable them to separate primary information, that which is essential to the task in hand, from secondary information, which, no matter how interesting, is irrelevant to the specific situation.

Training should ensure, too, that people know where to find the information they need to carry out their tasks, and also how to record, store and disseminate the information they have generated in the course of their jobs.

Templates can help by giving staff a standard format which clearly identifies the action to be taken. Some of the major supermarket chains have pioneered this area and have developed guidelines which cover all forms of communication right down to the tannoy systems.

BOX

"People need to learn to read in a completely different way: to ask the data a question, then skim down until they find the answer."

Dr David Lewis, psychologist and author

Information sharing incentives

Research by Reuters[1] has proved that many executives are reluctant to share information for fear that it undermines what they perceive to be their unique value to their organisation.

> Comment [CO1]:

One of the best ways to encourage people to share information is to reward them for doing so. The reward may be in the form of pay or professional status, but the crucial point is that people do not see information sharing as any kind of loss. Rather it should be seen to enhance their image and increase their worth. The most effective information sharers should be held up as examples to be admired and emulated throughout their organisations.

Many of these points are highlighted by Tom Peters in his book *Crazy Times Call for Crazy Organizations*. According to Peters, knowledge-sharing is rare even among professional service firms, where knowledge and expertise are clearly key. Some

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[1] See Appendix I

management consultancies, on the other hand, have been exploring techniques to share and disseminate knowledge for some time.

BOX

- At management consultants McKinsey & Co, virtual communities of practice specialists have been created to offer their know-how aggressively to the rest of the company. Colleagues around the world can tap in to these centres to get quick responses to their queries, usually in the form of pertinent documents retrieved from databases or referrals to experts.

- Coopers & Lybrand's Knowledge Network is modeled on cable TV. It features dozens of different channels including industry segments, C&L specialisations and geographic regions. Users can tune into "shows" on each channel sponsored by an expert in the field with up-to-date information on the subject, relevant industry reports, and discussion groups.

Crazy Times Call for Crazy Organisations, Tom Peters

Management control

Fundamental to maintaining a successful information strategy is the ability to check its progress and current state of health. Feedback mechanisms are necessary to pinpoint strengths and weaknesses so that managers know which areas to build on and which to review.

Some of this can be done automatically. It makes sense to harness the power of computers themselves to analyse performance and help plan enhancements for the future.

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Coopers & Lybrand has implemented automatic monitoring of its Knowledge Network to track weekly ratings and monitor overall system usage. It uses this information to adapt the service in order to continually increase its effectiveness.

Direct feedback from users is an even more effective monitoring device. It is the role of the CKO to ensure that the information strategy serves the needs of everyone in the company. This can be done through regular staff questionnaires, dedicated intranet bulletin boards - or even the good old fashioned suggestions box!

In addition to helping set targets for development, this process of encouraging staff to 'own' the strategy and have an influence on how it moves forward, will help win enterprise-wide commitment to it. This in turn is likely to have a positive effect on general company morale.

Pastoral care

The onus is on employers to set standards for working hours and to ensure that employees do not routinely exceed them. Long hours do not ultimately lead to higher productivity. If individuals or groups of employees are consistently working late, this should be addressed.

Facilities can also be provided to alleviate stress if it occurs in the workplace. This needn't extend to a company gym or sauna; even setting aside a dedicated relaxation room can help.

Even better if a therapist can be employed, even on a part-time basis. Having a trained professional in the area of stress management means staff can get expert advice about what to do if they start to feel the strain.

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- Internet service provider, America On-Line, offers in-house physiotherapy and massage.

- Mail-order company, Freemans Catalogues, has a special rest room where employees can lie down.

Ten steps to a good information strategy

- **Appoint a senior person with overall responsibility for information management.**
- **Conduct an enterprise wide information audit.**
- **Conduct an enterprise wide technology audit.**
- **Pinpoint information dearths and excesses and define an overall strategy for rationalising these.**
- **Ensure the information strategy is championed at board level.**
- **Communicate the strategy and its importance to all members of the organisation and gain their buy-in.**
- **Train staff in effective information management and systems operations.**
- **Clean corporate data and maintain its veracity.**
- **Incentivise information sharing.**
- **Implement procedures for continually monitoring the strategy's effectiveness.**

Is it working?

An organisation's information strategy should deliver tangible, quantifiable benefits.

One of the clearest signs of success should be improvements in staff productivity and efficiency. To gauge success you need measurables which need to be established from the outset, through the information audit, and then re-measured through regular checks to establish progress.

If the strategy is working, the following benefits will become apparent:

- higher sales
- lower overheads
- better customer service leading to better client retention
- enhanced public image (this can be measured by conducting a customer, public or media audit)
- improved efficiency
- faster and better decision making
- smarter identification and creation of opportunities
- improved corporate knowledge
- improved understanding of the market and of customer requirements
- increased motivation and team work
- reduced staff turnover

- improved recruitment quality

- increased competitiveness

Ultimately, it is likely to become increasingly easy to spot organisations that don't have an effective information strategy, as they will fall further behind the field as time progresses.

BOX

"As a direct result of our information strategy, we move farther faster together, our design, development and deployment cycle times shorten, and we leverage every employee's expertise more effectively."

Marcus Gonzalez-Flower, Sequent Computer Systems.

Case study: Sequent Computer Systems

Knowledge is regarded as a key asset by US-based Sequent Computer Systems, one of the leading suppliers of high-end open computers. By "knowledge" it doesn't mean simple data, it means the rules applied to make a decision based on the data.

In the legal profession, for example, a lawyer's knowledge would be his understanding of how the law would work in any particular situation, gained by studying previous cases. For companies such as Sequent, knowledge means the company's collective skills in putting together complex, integrated IT systems for clients in industries such as finance, airlines, telecommunications and government.

Sequent's ability to make the most of the skills of its workforce is crucial to the company's success as it moves towards a devolved management structure. Individual executives are now making many more decisions close to the customer. "The requirements of this structure are very different from conventional command and control style of management," says Marcos Gonzalez-Flower, head of the strategy and planning group for Sequent in the UK.

"Instead, you rely on education and on pushing information down to the front so that people understand what it is that they are trying to achieve. Decisions can then be made more quickly."

The reapplication of tested knowledge minimises risk for the company and for its customers. So during the last few years, Sequent has set a high priority on capturing, storing and reusing as much of the knowledge generated in its projects and with its customers as it possibly can.

"We found we could gather the information quite quickly and accrue huge amounts of raw data, but we couldn't easily put that information into a context that allowed us to understand how and why it was created and where it could be applied," says Gonzalez-Flower. "Let alone find it when you needed it."

For example, Sequent's many consultants had a good understanding of business problems, but every time they gained a new client they would tend to re-invent the wheel. The company needed a method of informing its employees as to when their colleagues had previously solved similar problems.

During the early 1990s, Sequent began to adopt a number of technologies such as e-mail and intranets to distribute this type of knowledge. At first, this proved highly cost-effective and successful. E-mail was an easy and efficient way for staff to keep in touch, while the intranet proved an ideal way for people to store and access information.

But corporate joy was short-lived. In a short time, the technologies had become their own worst enemy by causing a veritable explosion of information across the enterprise. In the case of e-mail, for example, some people were receiving more than 200 e-mails a day. Many of these provided minuscule quantities of information, or, even worse, were totally irrelevant. This was caused partly by sheer enthusiasm for the new technology, and partly the practice of forming groups, or alias lists, according to topics of interest.

For example, in addition to many business topics such as sales, architecture, strategy, or social activities, individuals were invited to subscribe to lists for those interested in

golf or theatre. These lists were then linked to other lists and before long people found themselves belonging to multiple aliases and receiving several hundred messages a day, some of which would often be duplicates from different sources.

The result was widespread disenchantment with e-mail and before long people began back-tracking and deleting their names from the lists or paying minimal attention to e-mail sent to them. In the end, they found themselves in a situation where the tool which had been implemented to improve communication was actually hindering it in many cases. For example, in many cases people would rely on e-mail and ignore other more direct forms of communication such as the telephone.

Meanwhile, similar problems had arisen with the intranet because people from all over the company began to create their own "pages" on the system. Masses of information could be found on the intranet ranging from details of what was on the menu at the canteen in corporate headquarters in Portland, Oregon, to the hobbies and sporting interests of individual members of staff. The effect of this was to make the intranet increasingly difficult to navigate. There were numerous different standards and presentation methods and there was confusion over definitions. People didn't always mean what others thought they meant and a huge problem of duplication began to emerge as different groups within the company began putting up information in whatever format they wanted to.

Another hazard was that the information rapidly became out of date. Web sites would be set up with great enthusiasm and then their originators would lose interest so that the information become irrelevant, or, even worse, wrong. Moreover, with all this activity, the network was becoming saturated, so that when people wanted to do something useful like file their sales figures to the US the lines were congested and slow.

"The situation was becoming acute," says Gonzalez-Flower. "Unless we did something fast there was a risk that things would spiral out of control." Furthermore, as a leading IT company, Sequent wanted to resolve these problems so that it could help its clients achieve similar gains.

The solution Sequent hit upon was to appoint an individual at the highest level with overall responsibility for knowledge management. The post was dubbed chief knowledge officer.

Next, a long-term project was set in train aimed at analysing, systematising and formalising knowledge management within the corporation. This process centred around adapting the company's corporate digital library (CDL) technology to create the sequent corporate electronic library (SCEL). A CDL is like an indexed library which is electronic. It holds information which can be retrieved or downloaded as appropriate. In order to add to the library, an individual must publish his or her work and follow certain procedures.

The intranet is a collection of wires and boxes but it is a useful way of cost-effectively providing access to this library and it allows additional information to be added and presented. It's a bit like a real library: as you walk in there are noticeboards telling you what's happening in the library and the geographic area. It also displays items of information which are of interest but may have limited longevity.

The library will have a map, index cards, and cross-references to different parts. As you move between the aisles of books, you see posters, reviews and other displays that might be of interest or help you find what you are looking for. Of course, rather than having to move yourself physically do a different part of the library, you are electronically teleported according to the source of information your require.

"Once the system was set up, we discovered that there was a lot of additional information that people felt was worth sharing which hadn't so far been considered," says Gonzalez-Flower, so the system was expanded. Not all of it related to customer-facing activities. For example, somebody in the finance department might need to solve a problem that had previously been encountered on a customer site. Using the SCEL they could call up that existing internal expertise gained on a customer site and exploit it in-house.

The SCEL was also extended to encompass areas such as human resources. For instance, all the company's personnel forms were put on the system, as were notices of any positions vacant and details of employee complaints procedures. Another category of information that was put on the SCEL related to customers: who they are; which are the biggest; what sectors they are in; how successful the accounts are; and who at Sequent works on them? The idea is that whatever people's interest might be, whichever part of the company they come from, they would find the system useful and accessible.

Built-in search engines make accessing the information fast and efficient. "You very quickly home in on what you want and don't get bogged down with superfluous information," says Gonzalez-Flower. The idea is to let people access the information at whatever level and in whatever quantity they need it. If people want lots of technical data they can easily find it, but if they don't want it, they still move forward. "It is streamlined and arranged in simple hierarchies for detail and networks for relationships," says Gonzalez-Flower.

Not all the information in the SCEL need to be accessible to every member of staff. Details of the hobbies and lifestyles of individual members of staff might be interesting, but they don't support revenue and margin. Moreover, it makes sense to regionalise some information. For example, people in the UK might want to know about Sequent job opportunities in the US, but there is little point in them being able to read the menu or room-bookings for the Portland office. On the other hand, they might well want to know what is for lunch at the UK headquarters in Weybridge or details of UK employment contracts. So although much of the information is centralised, there are also local or regional components.

Similar rigour has been applied to the e-mail system. Sequent has begun to unpick the alias lists and find out which individuals belong to each group and for what purpose. New aliases are being discouraged. "It is very laborious process because we are trying to find out in each case which alias is relevant and which ones are dead," says Gonzalez-Flower. A mechanism is also being put in place to store and retrieve previous e-mails so that, for example, if someone joins a customer alias half way through a project they can go back and check what they missed.

According to Gonzalez-Flower, the main benefit of knowledge-management has been to allow Sequent to make new mistakes, rather than repeat old mistakes. "It is an effective way to minimise delays, design problems and bad practices," Gonzalez-Flower says. "As a result, we move farther faster together, our design, development and deployment cycle times shorten, and we leverage every employee's expertise more effectively."

One problem that does seem to have been successfully cracked is getting individuals to contribute their own knowledge and information. "Most organisations, including our own, did not start out focused on knowledge management and knowledge-sharing," says Gonzalez-Flower. But Sequent has gained a high level of commitment. Staff understand that the value of the whole is greater than the sum of its parts.

This has been achieved partly through leading by example and partly by appealing to people's egos - a "very effective" method according to Gonzalez-Flower. "The idea of getting something published appeals to a lot of people," he says. Moreover, people who want their careers to progress need to get their name known. If they are not good at presentations, for example, the CDL offers them another way to gain recognition. "The main problem then becomes the fact that some people are ego maniacs and contribute hugely when they haven't anything worthwhile to say," Gonzalez-Flower says.

Now the system's popularity is soaring and it is being used extensively by Sequent employees worldwide. One of the reasons for its success, apart from content, is ease of use. People can access is simply by commencing an Internet session and going to the page or typing in the address for SCEL. As with Internet web sites, they can set up their systems so that their favourite Sequent pages will be automatically summoned to their screen when they switch on their machines.

In the past, people often had to make decisions without the facts because some types of information were unavailable or hard to get hold of," says Gonzalez-Flower. "Then there was so much information that people felt they might as well not start to read it all so they still didn't have it - rather like the problem with email." SCEL means that information is available and accessible, although it is by no means finished. "We are continuing to learn by our mistakes," says Gonzalez-Flower.

There are also some limitations that will persist for a while. For example, some types of knowledge will continue to be difficult to encapsulate until storage is plentiful enough and bandwidth capacious enough for large volumes of video. But enormous gains have been made. The concept and value of knowledge-management are widely understood across the enterprise - a significant accomplishment . In the words of Gonzalez-Flower: "Everyone understands what it is the company is trying to achieve and everyone will do whatever it takes to achieve it."

Case Study: Amerada Hess Ltd.

Few industries are as data intensive as oil and gas: success lies not so much in being able to extract oil, although that clearly has a role to play, but in knowing where to look for it in the first place. Essentially, it means knowing how much a piece of the earth's crust is worth.

For the scientists at Amerada Hess, a US-based oil company which is one of the biggest operators in the UK, this means sifting vast quantities of seismic and geological information — hundreds of thousands of data items per hectare of land. But although Amerada Hess is a relative newcomer, having entered the European market just 15 years ago, this is a familiar challenge.

"The problem of processing huge amounts of data was an issue we had to address from the very beginning," says Mark Duthie, the company's head of information services. "It is crucially important because this data has cost millions of pounds to acquire: unless we can exploit that data by spotting major accumulations of oil and gas our multi-million pound investment is effectively wasted."

Exploration is not the only data intensive part of the oil business. A huge amount of information is also associated with production. Take health and safety for example, which is governed by stringent regulations in the North Sea. "Compliance is an absolute must," says Duthie. "This is an area of data management at the production end where you can't compromise."

At the production end of the business, Amerada Hess adopted a mechanistic approach from the outset. It set up regular information audits during which senior managers sit down with their colleagues to work out exactly what is required to comply with the rules.

The highly mechanised approach works very well in this part of the business because everyone can easily understand why it is necessary. It did not prove so successful, however, when Amerada Hess decided to adopt a similar approach on the exploration side of the business. The information in the exploration division is chiefly in the form of maps and cross sections of the earth's crust along with masses of seismic data. Imposing mechanistic disciplines for information flow in these areas proved a major headache.

A number of strategies were tried. One involved new technology. Amerada Hess made a major investment in a document management system which required every document that came into the organisation to be scanned, indexed and available as an electronic image to employees on their PCs. It was a courageous idea for its time, but it didn't work.

"People felt it was useful to have access to the information, but feeding it in so that it was all catalogued was not worth the payoff," says Duthie. After a while, the amount of information coming through the document management system began to diminish — people had simply stopped using it. Nor was there an obvious way of forcing them to adopt it: sanctions didn't work. "When people asked their bosses if they would prefer a deal to be closed or a document filed the deal won every time," Duthie says.

At one stage, Amerada Hess's managing director toured the exploration division preaching the importance of mechanised information handling. But although people listened, they didn't change their working practices. The problem was that too many pressing requirements were pulling them in the opposite direction. And the trouble with information management is that it doesn't have an immediate payoff for individuals, and most people are not driven by long term gains. "You can convince people intellectually that it is a sound idea," Duthie says. "But in practice, they pay more attention to closing deals and managing crises than they do to keeping their files up-to-date."

Clearly a different approach was needed to win the hearts and minds of people in the exploration division. It was recognised that there needed to be a shift in emphasis towards short-term gains that would make people think information management was worthwhile.

"We looked at how people work and how the organisation values what they do," says Duthie. "We realised that in addition to recognising people's contributions in making good deals, we also needed to show appreciation for those who contributed to the company's knowledge base."

This time, the company began to involve people in the process of designing systems to handle information flows. The focus was less on the technology than on the business processes. "We asked people how they wanted information to travel across their desks and what would be the best way of carrying out quality checks." The aim of this approach is to push ownership on to individuals. It is not something that will be achieved overnight. After the document image processing system, Amerada Hess has learnt to avoid a Big Bang approach. This time it is adopting taking the slower road.

The real challenge is to become a learning organisation and to keep a handle on corporate know-how, says Duthie. This is leading to a number of key changes in working practices. Traditionally, in an organisation such as Amerada Hess, knowledge has been power. People were secretive about what they knew because they saw that knowledge as an intrinsic part of their value. "People tend to harbour knowledge because they think it secures their jobs," says Duthie. The fact that the information is so valuable exacerbates the tendency to secrecy. Now explorationists at Amerada Hess are learning that they are valued for their skills and expertise, but that their knowledge has to be shared with as many people as possible. This is the only way that the company can hope to exploit that knowledge to its full advantage.

The new style of working is bringing with it all the stresses normally associated with business change. In addition, there is a tremendous amount of competitive stress because resources in the North Sea are becoming scarcer, and now that the easily identified resources have been tapped, the remaining deposits are more difficult to locate. The pressure is on for companies to spot them ahead of their rivals.

Although technology is not a panacea, Amerada Hess recognises that it can help. So new integrated systems are being implemented that can display seismic and geological data from several different angles. They help explorationists cope with the barrage of data by presenting it visually in the form of graphs, charts and sectional views of earth's crust.

The problem of information overload can only increase, reckons Duthie. Explorationists need to assimilate data from an ever-widening range of sources. The Internet, for example, is set to become an invaluable way to access scientific data held in universities, geology and geography departments and research institutes worldwide. Amerada Hess plans to give its explorationists as wide a range of sources as possible, both within and outside the organisation.

Tools are being put in place to make this easier. At present about 35% of the company's time is wasted looking for information which is hard to find or difficult to trace. This figure has fluctuated between 15% and 50% during the past 10 years. Despite his efforts, Duthie doesn't see it reducing to zero. "Coping with information overload is rather like squeezing a balloon," he says. "No sooner have you resolved it in one part of the organisation than it pops up somewhere else." However, significant strides have already been achieved and more are on the way. "It is certainly not something you can sit back and ignore."

Case Study: Ogilvy & Mather

When Ogilvy & Mather (O&M), the London-based advertising agency, was recently invited to respond to overtures from a luxury goods company, the agency was faced with a tough challenge. It had no experience of the luxury goods business and its staff were already under intense time-pressure on other contracts. Even so, within just two days it had produced a comprehensive piece of research complete with suggestions for new business opportunities. Skilled use of online information services enabled the swift and well-informed response.

At O&M, some 200 staff now have direct access to online information from their desktops, a facility which is proving extremely popular, but it has not always been so easy. In the late 1980s, O&M, like most advertising agencies, had a conventional library catering for the information requirements of its account executives, creative department and senior managers. Then came the recession and the library was closed to cut overheads.

It became increasingly clear, however, that the agency still needed an effective information resource to succeed in the highly competitive advertising market. "The company recognised the need, but it didn't want to go back to a conventional reference library," says Yvette McGreavy, the agency's head of information.

So two years ago, she was hired with a brief to look at the most efficient way of meeting the agency's needs. McGreavy was keen to maximise the use of technology and online information services. She had previously been involved in running a traditional library for another advertising agency and could see that it was not cost-effective. "You try to anticipate all possible information needs which might occur at any time in the future, but this is a daunting task because an advertising agency's potential range of interests is so vast," she says.

Instead of this "just-in-case" strategy, she wanted to adopt a "just-in-time" approach. This involves focusing on being able to access information on demand for a specific purpose and at a specific time.

The first stage was to provide access to information sources without physically holding the data. To achieve this, McGreavy set up connections to the main suppliers of online information, mostly specialist systems designed for information professionals. The problem with this approach was that the information tended to be channeled through an individual in the organisation, thereby creating a bottleneck between what was available externally and what people could access from within the agency. "It was a good first step, but it was not the final solution," she says.

Next she consulted a number of people with different functions in the business including managers, planners, creative staff and media executives. They spanned the complete hierarchy from junior account executives to board-level directors. "I wanted to find out what kind of information those people needed to do their jobs and get the full range of opinions," McGreavy says. Her aim was to ascertain their current sources of information, how the information was being used, and the optimum way for it to be received. "I wanted to understand the overall pattern of requirements for information use in the agency.

McGreavy then drew up the basis of a strategy for developing the agency's use of information. One of her conclusions after consulting the agency's staff was that

individuals needed to have more personal control over information. "I believe this very strongly because individuals themselves need to decide what information is most relevant to them, and to establish how much is sufficient for their needs." The advertising business is very time-pressured and information only has a small opportunity to make a real impact, McGreavy points out. "If it is available instantly on the computer in front of people's faces they can't ignore it." The result is that the agency is in a better position to respond to commercial opportunities and to generate a new business proactively.

"This is something I'm very keen to encourage," she says. "People should be able to see information as a way to understand their clients' businesses and spot opportunities, rather than just looking for answers to their questions. At the very least, it enables us to increase our knowledge and understanding of a particular sector, so that we are better able to talk to our clients." The agency's image is also enhanced if it is seen to be exploiting technology to improve its own efficiency and effectiveness.

Getting the information strategy right in an organisation depends much on ensuring individuals have research skills. Information only has a value if it is in the right place at the right time, McGreavy says. "The crucial point is not to be dazzled by the quantity of information available but to concentrate on that which is relevant." It is the organization's ability to process information and get to that which is important that can make the difference. "The key challenge is to be able to filter information and pinpoint what you want." This is going to become all the more important as computers enable a greater volume of information to be accessed.

"It's like the Sorcerer's Apprentice - our ability suddenly to turn on the tap of information has created an unmanageable situation," McGreavy says. The thrust of O&M's strategy is not to throw vast quantities of information at people, but to give them the means of receiving useful, apposite material.

Fundamental to achieving this is the ability to integrate information access with business processes so that it becomes part of working practices. "It should be just like picking up a phone, just another item on the screen that people click in to like any other application," McGreavy says.

Given her commitment to providing a service that would be easily accessible to non-computer experts, McGreavy selected Reuters Business Briefing. "It is so simple, straightforward and easy to use that minimal training is required," she says. Reuters long history of working in the extremely demanding banking environment was another attraction. "Reuters is a large, well-established company with a good reputation. We had confidence in the product." McGreavy felt that Reuters made a good strategic partner, because it was prepared to collaborate with O&M in putting together a proposal and building up a good working relationship. Reuters financial strength and willingness to develop the product and invest in it were added incentives.

In November 1996, McGreavy launched a trial that put 200 O&M people online to Reuters Business Briefing. A series of staff workshops and training sessions were held to demonstrate the various applications. McGreavy even set up competitions to encourage people to explore the full potential of the service. To access it, they simply click an icon onscreen.

The response has been extremely positive. "Some people have said it has changed their lives because they can now get instant answers to their questions," says McGreavy. In addition to the general news coverage, the photo library is particularly

useful in the advertising environment. "I have no doubt that there is a business case for continuing with the service. It would be inconceivable to revert to traditional methods of information provision."

During the next few months, McGreavy will focus on increasing information literacy in the agency and extending the skills of each member of the client teams. The plan is eventually to migrate to Reuters Advertising and Media Briefing which will be ideally suited to the agency's needs.

McGreavy expects Reuters online services to meet 80% of the agency's information needs. She will then focus on the other 20% by accessing even more specialised sources. Paper will not be totally eliminated, however. Some data such as UK government publications are not yet available online.