Legal Information Management, 6 (2006), pp. 208–211
 Printed in the United Kingdom doi:10.1017/S1472669606000739

What Cost "Bad" Information?

Bad information can have a number of undesired consequences for those people and organizations supplying it, whilst those affected by its provision have a number of legal remedies open to them. Jonathan Crowhurst discusses these issues after some definitions of information and bad information have been suggested. Concluding remarks suggest that information is not neutral, that bad information is largely down to lack of end user education and lack of investment in training, and that technology does not supply all the answers.

Introduction

This article was inspired by reviewing Orna (2005) for a previous issue of this journal, and is also a result of further thoughts from the "Changing Times, New Challenges" theme of the BIALL 2004 Study Conference which I attended as a student bursary winner. In *Making Knowledge Visible*, Orna (2005: 59-80) discusses in some detail the value that information (and information products) can add to or subtract from an organization. This article does not look at the cost of bad information in an economic sense, rather it raises some points of interest to readers of this journal and, I hope, provides some food for thought. I wish to focus on "bad" information, consequences of (mis)management of information, which of course can be "value subtracting" rather than "value adding". I will concentrate on why this should be an issue for readers of this journal in the context of "Changing Times, New Challenges".

Information and information products

Rafts of books have been written on the meaning of information, data and knowledge, and on knowledge and information management in public and private sector organisations. Meadow and Yuan (1997: 698) point out that many different definitions of information have arisen because of the wide currency of the term "information", and the different contexts of the use of this term. From an information science perspective they argued "…little has been added to defining concepts of information … since the work of Shannon and Weaver in the 1950s, when their basic model of communicating information was proposed. (Meadow and Yuan 1997: 699) The essential point is that "… in popular or non-technical usage the distinction between data and information is rarely made. The word information may be used to represent what we call data or significant meaningful messages." (Meadow & Yuan 1997: 703). Information is then defined as "the process of converting received messages, data, signs or signals into knowledge" (Meadow and Yuan 1997: 706).

Fast forward to 2005 and we still seem to be no clearer in defining terminology, in spite of spirited and lively debate in discussing the utility or otherwise of knowledge management, information architecture, knowledge structures, information overload and various other hot topics *du jour*.

A 1995 report by Owens, Wilson and Abell, in which they surveyed a number of high performing companies in the UK and Finland (Owens, Wilson and Abell 1995), concluded that companies felt that their knowledge base relied on individuals more than systems in spite of large investments made by these companies on their IT and IS infrastructures. Unsurprisingly the companies saw information as a valuable asset in nearly all cases. Again in a paper of 1998, John Barber of the DTI said that "…The competitive advantage of firms lies in those business activities which the firm knows how to do well … the increasing importance of knowledge is shown by the fact that in many sectors investments in intangible assets are now much greater than those in fixed capital equipment …."

A *Computer Weekly* article bears this out in the context of the market place for business intelligence software which, while these products are widely used by many organisations "Although organisations are using business intelligence for a range of tasks and are keen to do more, questions remain about the direction suppliers are taking. Systems may generate useful corporate knowledge, but to exploit them further companies have to get smarter in using them" (Vernon 2005). Whilst there is still no definition of what information means – and I would say "it depends on the context" - it is still the case that information is valued in organisations as a highly prized asset.

Information products

A fairly new term which is defined by Orna as:

> The products, print on paper or electronic, through which information is presented for use. They embody the results of the transfer of knowledge into information … and are an integral blend of content and container. Knowledge can be made "visible" (that is to the senses of others) in many different forms of container and in many media….
>
> Orna 2005: 12

So in this definition information is all about knowledge transfer and representation. That is how information and knowledge add value (or as we shall see subtract it) in the organisation. For the purposes of this article this definition will be used, since readers of this journal and indeed all of us will encounter information products on a daily basis.

Personally I would define *information* as "discrete sets of data that when added together become meaningful, depending on the context in which the data is used". *Knowledge* I will define as "information held in an individual's mind which becomes visible through its communication via any means".

What is "bad" information?

Simply put, I define bad information as "information which is provided by a person, organisation or an entity which turns out to be manifestly false, inaccurate or untrue whether provided wittingly or unwittingly through that organisation or entity's information products and leading to tangible and intangible losses suffered by the user". Of course it can be argued that information and knowledge in themselves can be strictly neutral and it is only when we are talking about information products and whether or not they add or subtract value that questions of "good" or "bad" information arise.

"Bad" information can lead to, amongst others, the following consequences:-

- Costs of error correction
- Loss of customers/revenue
- Harm to society
- Legal action

As Orna (2005) states, these are tangible and accountable losses. The intangible losses to an organization as a result of providing bad information might be:-

- Reputation loss
- Lost information
- Lessons not learned
- Interactions undermined
- Opportunities missed
- User's time wasted

Bainbridge's excellent text on computer law (Bainbridge 2000) details the instance where computer equipment makes an error in calculating the amount of fuel required for a flight when refueling an aircraft. This is based on data such as passenger numbers, baggage weight and prevailing weather conditions and converted into information stating that x million litres will be needed for that particular flight. Less fuel is loaded than required, causing the aircraft to crash mid-flight. Bainbridge points out that though the computer system may have cost hundreds to develop, compensation and insurance claims would run into the hundreds of thousands (Bainbridge 2000: 184-185) as a result of human or technical error in processing information. In 2004 *Trail* magazine, popular with the climbing and outdoor pursuits fraternity, issued an apology for printing on a map of Ben Nevis an escape route that would have led climbers over a one thousand foot drop. This was, *Trail* admitted later, due to a technical error in which a crucial sentence was missed out that suggested walkers must first go on a particular bearing along the ridge in order to avoid the drop, before following the bearing that appeared in the article (*Daily Telegraph*, 22/01/2004).

In terms of time being wasted, perhaps slightly less life-or-death examples of problems with bad information, searches via online products, whether fee based or paid for services require correct information to be entered – bad data in, bad data out. So if you ask the right questions – the good old research interview, this can be avoided. Such instances might include searching on the world wide web for information. Unless a search is carefully constructed, trawling through lots of irrelevant web pages or poorly constructed websites wastes time and frustrates the user. By way of personal experience at work, I was asked to find for a colleague inexperienced in using the internet a printable copy of the Health and Safety at Work Act 1974. He had attempted to print an html version but could not print without the edge of the page being missed. I used the Google advanced search facility using the legislation title and selecting PDF as the format of the document. I found the unamended full text of HASAW 1974 and sent a link to my colleague who was then able to print this document in full, and save it for later use.

Information is "value subtracting" - not just bad!

More and more jobs are to be found in the service sector, where using and working with or providing information has become a key skill, and this will continue. Changing times in this information age, where mistakes are harder to correct and at the push of a button major consequences can be felt (the market trader who makes an error in his data entry and presses the wrong key, wiping millions off stock values for example) mean that information workers face new challenges every day. The issue of what information is and how it is communicated have become matters of concern to those organisations

https://doi.org/10.1017/S1472669606000739 Published online by Cambridge University Press

who want to avoid financial repercussions such as fines or law suits, or loss of reputation by appearing in a negative light in the media or in the courts.

A number of factors which have led to this concern with the added and subtracted value that information can bring to an organization stand out:-

- Legislation such as the Data Protection Act (1998), the Freedom of Information Act (implemented on January 1st 2005), mean there are now conflicting demands for how long information should be kept, whom it should be disclosed to and what should be disclosed. The Disability Discrimination Act means that more attention must be paid by website developers and information providers to ensuring that people can have all reasonable access to information products. In a speech at a DTI event in 2004, the Information Commissioner, Richard Thomas said "…Those who break the rules are running bad businesses … they will not be trusted, their businesses will fail … Data protection has become a major customer protection issue…"
- The increasing concern for business corporate governance in the light of various scandals has made information management a compliance issue with the implementation of Sarbanes-Oxley, Basel II, MIFID, Solvency II, IFRS, anti-money laundering, know your customer and fraud prevention systems. Enron, WorldCom and other spectacular falls from grace and scandals will no doubt increase regulatory interest in financial services and corporate governance. The onus is on the organisation to have good information practices
- According to an article by Stuart Lauchlan (2004) the off-shoring of certain data processing functions in the financial services sector has raised concerns about the security of personal information if regulation in those countries is not as tight as it is in the UK or Europe. This is coupled with the government's insistence on beginning to implement a National Identity Register based on numerous bits of data collected about an individual, in the name of fighting crime, fraud, illegal immigration and other tabloid journalism fodder. This is to be supported by biometric technology in the creation of a National Identity Card scheme, to be compulsory on pain of a £1000 fine.
- Increasing competition and customer expectations mean it has become even more critical for organisations to give their customers or clients timely and accurate information
- For the librarian or information worker who must demonstrate every day that their service provides value to the organisation it serves, and can meet new challenges, there is no room for error if they are to keep their jobs
- The so-called "compensation culture", due to the risk averse society we seem to be in the process of creating, means that organisations can suffer financial liabilities if they provide misleading or false information to customers

I am sure readers can think of more, this is not an exhaustive list. What is clear is that any information the legal information service provides needs to bear in mind these challenges.

Is "bad information" down to funding and end user education?

It is not only in the legal information profession where "bad" information can have consequences for those involved when things go wrong. Whilst the legal profession in general and the legal information profession in particular is facing "Changing Times, New Challenges", the NHS is another institution in similar circumstances that perhaps the legal profession could learn from. Anyone reading or listening to the news recently will be aware that the current NHS IT project is coming in for some heavy criticism from those that have to use it, opposition politicians and the like. The usual litany of being late, over budget and unwieldy is the line from the project's detractors. Its defenders argue that it is the largest IT project undertaken by any government, costing so far £6.8 billion, and as usual the media have been exaggerating problems as "yet another government IT failure". Without lingering too much on this issue it would appear that end users such as doctors and clinicians were not consulted enough about what they wanted out of the system, affecting implementation of the on line booking system to allow patients to choose and book appointments, and a projected electronic replacement for prescriptions. However an NAO report whilst critical, was less damning than expected; it was rather suggested that unrealistic expectations were hampering the project. Stephanie Wilson, in a recent article, suggested that success in a number of NHS IT initiatives was being compromised by lack of investment in technology and also educating users involved in health care informatics, working at both the clinical level and also administrative staff. Wilson sees the problems of technology and end user education as largely down to no funds being available at local level for training staff to use the technology - "bad information – or more likely an inability to use good information through lack of knowledge – really could cost lives!"

Going back to the legal information profession, the reverse side of the coin seems to be the case. Certainly in the larger firms, where there has been a long established LIS service and also a PSL function working in tandem to deliver know-how and information to clients and fee earners, times appear to be changing here too. A recent article in *Legal Week* suggested that future know-how access and information provision are likely to be driven

https://doi.org/10.1017/S1472669606000739 Published online by Cambridge University Press

by client demands such as sharing knowledge, collaboration between departments to support clients, the introduction to the law firm of the client relationship manager and changing roles for professional support lawyers. A consequence might be the outsourcing of the PSL function to free up the experience and knowledge of PSLs for value added work, rather than run-of-the-mill know-how work which can be done via third party providers (Flutsch and White 2006).

Conclusion

By way of conclusion I should like to say that though there are consequences – tangible and intangible – for providing bad information or through the use of bad information products, it is usually due to lack of investment in training staff, lack of awareness as to what end users want or the inability of end users to ascertain for themselves what they want from an information system which usually causes the greatest problems. Communication is also an important factor in establishing what information is needed and how it is to be provided. Technology, meanwhile, though investment in it is important, is only as good as the data (or information) put into it. End user education is therefore essential not only in the legal profession, but also in other fields. Indeed we still face "Changing times, new challenges", but it is my belief that the legal information profession is up to the task of meeting them.

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Biography

Jonathan Crowhurst graduated from City University in 2004, having been awarded an M.Sc. in Information Science with Distinction. He worked previously for a leading City Law firm as a trainee library assistant, having held a number of other administrative posts since his first degree in Ancient History and Archaeology (Leicester 1998) which was achieved with First Class Honours. Jonathan now works for Truro College, a leading tertiary college in Cornwall. His academic interests include information law, information organisation, information seeking behaviour, and information theory. He writes here in a personal capacity.

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https://doi.org/10.1017/S1472669606000739 Published online by Cambridge University Press