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Quality management and e-commerce: the role of codes of conduct governing the use of technology

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Abstract
Discussion of the relationship between TQM and information and communications technology (ICT) normally focuses either on technological issues, or on the role of ICT in enabling the achievement of quality goals by means of business process reengineering. Less attention has been paid to the effects that the increased utilisation of ICT is having on management style, and on the quality of relationships. This paper reports on research undertaken into the development, implementation and enforcement of codes of conduct designed to govern employees' use of ICT. A study of 125 London-based employers found that, although such codes had been introduced in nearly threequarters of the organisations, the majority failed to address a key issue of concern to customers – privacy of personal data. Furthermore, the codes themselves were seen to have little influence on the behaviour of employees. The reasons for this are discussed within a TQM framework, and suggestions made as to how compliance might be improved in future.

Introduction

The area of information systems has emerged as a frontline element in the implementation of any successful quality programme (Cortada, 1995). ICT enables the principles of TQM to be put into practice – principles such as customer-driven standards, customer-supplier links, the prevention of error, quality at source, and continuous improvement (Laudon and Laudon, 2000). The kinds of quality goals which information systems help firms to achieve include simplifying the product or the production process, meeting benchmarking standards, making improvements based on customer demands, reducing cycle times, and increasing the quality and precision of design and production (McLeod and Schell, 2000). Examples of the technologies include: wireless communications, groupware and shared databases to enable location-independent and time independent communication and collaboration; automatic identification and tracking technology to ascertain the location of items; networks, Extranets and electronic data interchange (EDI) for the implementation of just-in-time delivery and stockless supply; Intranets to provide employees with instant access to up-to-date information; data warehouses and data mining techniques to increase the cost-effectiveness of marketing communications; knowledge-based information systems used to aid decision-making; enterprise resource planning (ERP) software to improve and integrate the manufacturing, distribution, finance and human resource processes, and the most significant recent technology is of course the Internet. The Internet has revolutionised not only the selling of goods and services over the World Wide Web (B2C – business-to-customer) but also business-to-business (B2B) transactions.

In this paper we shall be focusing on some of the implications for TQM of this explosive growth in e-commerce. Notwithstanding the recent global economic problems, there is little doubt that the growth in e-commerce is set to continue. According to the IDC (2002) which defines e-commerce as "the value of transactions that are committed over the Internet, but for which payment may be made by other means", in 2001 there were 497.7 million Internet users worldwide, and the globale-commerce market was valued at US$615.3 billion. Their forecast for 2005 is 941.8 million Internet users, and a market value of US$4.6 trillion, with the US$1 trillion barrier being broken this year, 2002.

It is clear that the rise in e-commerce and the all-pervasive use of computer systems has had a profound effect on the organisation, with ICT playing a major role in reengineering most business processes (O'Brien, 2002). This has resulted in the jobs of more and more employees at all levels and in all functions of the organisation using technology in some way. This is a relatively recent phenomenon: until the 1980s computer use was almost entirely the preserve of the data processing department (as it used to be known) staffed exclusively by IT professionals. Quality is not an alien concept to professional information systems developers, who for decades have been required to work in accordance with formal systems analysis, design and development procedures in order to produce a robust and fully documented product that satisfied explicit technical, performance and security requirements. Many IT professionals are also familiar with the application of TQM principles or ISO 9000 quality standards to the software development process (Carroll, 1995; Stelzer and Mellis, 1998).

However, these kinds of formal guidelines are not applicable to the computer-based work of the non- IT professional. And since non-IT professionals now constitute the majority of computer-users, it is surprising that little research appears to have been undertaken on the methods used to maintain and improve quality in this area. Managers perceive several potential sources of threat to quality associated with employees whose jobs involve working with ICT; key problems include time-wasting on non-work related e-mail, games-playing, chat-rooms and online shopping, the introduction of viruses in downloaded files, the downloading and installation of non-work related software, illegal copying of licensed software, sabotage, computer fraud, and non-compliance with legal requirements related to the processing of information about individuals. In many cases, the response has been to introduce codes of conduct designed to control the use of ICT by non-IT professionals. This paper reports selected findings from an ongoing research project into the adoption, implementation and effects of this type of code. The aspects we focus on here are the extent to which organisations are using codes, the aspects covered by the codes, their implementation and enforcement. The findings are then discussed within a TQM framework.

Methodology

A survey was conducted among professional parttime postgraduate students taking an MA course in Personnel and Development in the Westminster Business School at the University of Westminster, London. It was decided to target this group for a number of reasons: almost all of these students are employed in human resources departments and

therefore have an intimate knowledge of their organisations and are well-placed to provide information about codes of conduct governing use of ICT by non-IT professional users. This approach also provided access to a wide range of types and sizes of organisations, in both the public and private sectors. A questionnaire was developed with mostly multiple-choice questions covering organizational profile, the extent of ICT use within the organisation, the scope of the codes of conduct, their means of distribution, responsibility for initiating and enforcing them, their impact on employee behaviour, and disciplinary action arising from breaches of the guidelines. A total of 130 questionnaires was distributed in paper form to students at the start of their evening class and collected during the first break. This method had the advantage of obtaining a very high response rate, with 125 papers (96 per cent) returned. A possible weakness was that it allowed for more than one student working at the same organisation each to submit a questionnaire.
However, it was felt that since such duplication was minimal this would not ultimately undermine the quality of the data collected. Following preliminary analysis of the survey findings, a series of informal focus groups was held with some of the respondents in order to obtain more detailed information.

Findings
There was a good spread of types of organisation in the survey, including banking, insurance and other financial institutions, the service sector, central and local government departments, health and education, charities and non-profit-making organisations, retailers, manufacturers, communications firms, transport operators and utilities, professional bodies and societies, catering and leisure outlets. Although there was a range of organisations by size in the survey, there tended to be a more pronounced representation from larger (1,000 + employees) organisations. The all-pervasive use of ICT was confirmed, with 87 per cent of organisations having more than three-quarters of their workforce routinely using PCs or workstations. Only 1.6 per cent of the organisations surveyed were not yet connected to the Internet; approximately 25 per cent had been online for more than five years; and most (58 per cent) had been online for between 1 and 4 years. Nearly all organisations (97 per cent) made extensive use of e-mail for both internal and external communications. Most organizations (79 per cent) had an Intranet in place, and 34 percent had an extranet. Almost all organisations (96 per cent) had an online presence through an Internet site, with a further 2.4 per cent having a site under construction. In most organisations the employees made extensive use of the Internet for their normal business activity, with 92 per cent using it to find information, and 62 per cent for marketing purposes. While the results confirmed that Internet technology is now an integral part of business activity, the survey also revealed that a significant number of employees also make personal use of the Web, with 24 per cent indicating that the company Internet facilities had been used for entertainment purposes. However, this may understate the real situation since the survey also revealed that 72 per cent of organisations allow their employees either unfettered or restricted use of the Internet for personal use.

Turning now to the codes of conduct governing the use of ICT by non-IT professionals, it was found that 74 per cent of the organizations surveyed had introduced such a code. Not

surprisingly, an association was found between the proportion of staff using computers in an organisation and the existence of a code of conduct: 64 per cent of the organisations where less than half of the workforce used computers had introduced codes, whereas 80 per cent of those where more than half of the workforce used computers had codes. Looking at the areas of ICT covered by the codes of conduct, nearly all included guidelines governing the use and abuse of e-mail: sending e-mail (96 per cent), visiting Internet sites (94 percent), and receiving e-mail (87 per cent) were the most prominent issues. Other areas to show significantly included downloading files from the Internet, protection against viruses, and the unauthorised installation of software. Areas that did not show strongly included purchasing online, publishing Web pages, backing-up data, physical movement of equipment, and the processing of "personal data", i.e. data about identifiable individuals. Of all the organisations with a code, less than half (45 per cent) contained any reference to personal data.

Factors such as size of organisation, length of time on the Internet, and location did not appear to have an influence on whether a code included guidelines on the processing of personal data. However, the level of responsibility for initiating a code was an important factor: 51 per cent of codes which had been initiated at senior level included guidelines relating to the handling of personal data compared with only 36 per cent of the codes initiated at departmental level. In 74 per cent of organisations with codes, employees had received a copy of the code on an individual basis by means such as a staff handbook, employment contract or e-mail. In 35 per cent of organisations the codes were made available on Web pages. Only 2 per cent of organizations introduced their codes to employees in induction or training sessions. The majority of organizations (61 per cent) used only one means to publicise their codes, 29 per cent used two means, 8 per cent used three or four means (in 2 per cent of cases it was claimed that the codes had not been publicized at all).

Nearly half of the codes (47 per cent) had been initiated at senior level, that is the main board, the chief executive, the managing director or another director had been responsible for the process leading to the implementation of the code. Of the remaining codes, 27 per cent had been initiated at departmental level, normally the information systems (IS) or human resources (HR) departments, and in 26 per cent of cases respondents did not know who had initiated the codes.

When asked about responsibility for the enforcement of codes, 62 per cent of respondents cited the IS department, 55 per cent the HR department, and 41 per cent line management. In half of the organisations, of codes enforcement was seen as the responsibility of a single department or individual; in the other half responsibility was seen as being shared. In 58 per cent of organisations, employees had been disciplined in connection with the misuse of ICT, mainly relating to e-mail, visiting Internet sites and downloading files. Regardless of the aspects covered by the codes, the survey found their effectiveness to be limited. Almost 60 per cent of respondents in organizations with codes were of the opinion that the codes had little or hardly any influence on the way non-IT professionals used ICT. No relationships were found between the perceived effectiveness of codes and the level of code initiation or the locus of responsibility for their

enforcement. When this lack of effectiveness was investigated further during the focus groups, a deep cynicism about the
purpose and use of the codes emerged.

Some subjects saw the codes as a means by which management attempted to control employees' behaviour; others felt that their implementation was principally driven by the desire to protect the company's information systems; or that their introduction was motivated by a desire to cover legal obligations; or that it was a "public relations" exercise to demonstrate the organisation's social responsibility credentials.

Discussion

The survey found that nearly three-quarters of organisations had implemented codes of conduct governing their employees' use of ICT. This is consistent with previous studies (Healy and Iles, 2001; Le Jeune and Webley, 1998) and in fact suggests that the use of codes is increasing. Several factors have been put forward to account for this:
the e-commerce boom; the widespread use of ICT in all types of organisation resulting in the majority of employees now routinely using PCs, workstations, e-mail and other Internet technologies; the need to maintain security of data and information systems; the need to comply with legal requirements; and the desire to be seen to be promoting ethical policies. However, the survey also indicates that these codes of conduct are generally regarded as not being effective in influencing the use of ICT by non-IT professionals.

When their implementation is considered from a TQM perspective, a number
of factors emerge which might explain this finding and suggest ways in which the situation can be improved. TQM emphasizes the importance of teamwork and the creation of a unity of purpose throughout the organisation. It is likely that the codes would have been more effective if they were the product of cooperative endeavour rather than perceived to be control mechanisms imposed by management. It is clear from the widespread cynicism about the purpose of the codes that employees have not been consulted about the need for their introduction let alone their content. This view is supported by the findings from the survey about the means by which the codes are distributed and publicized inasmuch as they reveal that in almost every organisation communication is a one-way affair. Instead of being distributed to individuals or
posted on the company intranet, the codes might have been more influential if they had been the subject of discussion at team meetings and training sessions.

The findings that the majority of organisations use only one method for distributing their codes, and half of them regard responsibility for code enforcement as resting with a single department or individual, supports there being a general lack of unity of purpose. It is generally accepted that attempting to control performance through procedures or techniques external to the individual is a less effective approach and than allowing individuals to be responsible for their own actions (Oakland, 1993). This might be interpreted as a reason for eliminating codes altogether. However, that would
be a difficult position to argue since the nature and importance of many of the aspects covered do justify the need to codify the relevant procedures, notably those connected

with the handling of personal data, avoiding breaches of security and preventing illegal acts. The challenge therefore is to promote employee cooperation and compliance with the codes.

The introduction of mechanisms for obtaining feedback from employees would help achieve these goals, and would also enable continuous improvement, and a sense of commitment to and shared ownership of the codes. Once the codes are seen as a tool for promoting common goals, then companies will be able to rely on staff to exercise a greater degree of self-management to achieve them, in contrast to the current situation where the majority of firms were found to be relying on disciplinary measures.
In addition to not achieving its explicit objectives, an ineffective code of conduct may indicate problems with the culture of the organisation, defined as "the beliefs that pervade the organisation about how business should be conducted, and how employees should behave and should be treated" (Oakland, 1993). The attempt to control rather than empower employees may be a symptom or a contributory cause of poor organisational culture, or possibly even both.

The introduction of codes of conduct can be seen as one small aspect of the profound effects of the proliferation of ICT. Information systems can be empowering or controlling: they can enrich job roles by eliminating routine and repetitive work (as was the experience generally reported by the respondents in this survey), but they can also be used for continuous performance monitoring as is often the case in call centres. This highlights the importance of promoting TQM practices within a wider ethical framework. Another key feature of TQM is its customer orientation. However, the increase in e-commerce has raised issues of customer confidence and trust. Whereas in the past customer relationships were built largely upon personal contact, this is usually not the case where relationships are mediated through ICT.

Concerns about the custodianship of personal data are a major issue. For instance, a poll conducted in 2001 by Jupiter Media Matrix found that 59 per cent of consumers who did not shop online did not do so because they were afraid their credit card information would be stolen; in addition, 54 per cent feared that their personal information would be sold to other online retailers; many were also concerned that their personal data would be sold to marketers[1]. Customer distrust in the Web was confirmed by Statistical Research Inc. which found in a 2001 survey that 67 per cent of active Web users typically abandoned a site that requested personal information[2]. The findings of the present study provide some justification for customers' concerns, with fewer than half of the codes containing any reference at all to the processing of personal data. If, as was suggested by some respondents, codes are sometimes introduced as a "public relations" exercise, then those responsible might be well advised to pay attention to this aspect since research has suggested that the promotion of ethical policies can overcome the scepticism of Web users: according to a recent Canadian study, over half (55 per cent) of respondents said they were more willing to share personal information after reading the organisation's privacy policy[3].

Since TQM stresses the importance top management commitment it was encouraging to

find that codes initiated at board level were more likely to contain guidelines on the processing of personal data than those initiated at departmental level, suggesting that top-level management was more likely to be customer-orientated. However, the lack of customer-focus at middle-management level is a cause for concern, as is the finding that in perhaps as many of half the organisations surveyed there was little or no perception of top management commitment to a code of conduct intended to impact on the working practices of the majority of employees.

Conclusion

The interaction between TQM and ICT is complex. Much has been written about how ICT can improve quality by business process reengineering. Less attention has been paid to the potential threat to TQM and organizational culture posed by widespread reliance on ICT, as illustrated by the findings of this investigation into the implementation of codes of conduct for non- IT professionals. The challenge to management today is to exploit the efficiency gains and cost savings offered by ICT within an ethical framework which recognises the importance of the individual empowerment and customer orientation.

Notes

1 Jupiter Media Matrix, Web site: www.nua.ie/surveys/, as at 25/01/02.

2 SRI press release, 7 June 2001, Web site: www.statisticalresearch.com/, as at 12/12/01.

3 Columbus Group and Ipos-Reid, Web site: www.nua.ie/ surveys/, as at 23/01/02.

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