Information Systems in Organisations

Appendices

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Appendices

Appendix 1: The Nine Papers

Appendix 2: Letters from Co-authors

Appendix 3: Related Publications

Appendix 4: Publications Prior to 1990

List of papers

Paper no & type	Short Name	Title
1 Journal paper	Integrating IS	Brown A, (1994) 'Getting value from an integrated IS strategy', European Journal of Information Systems vol3 no 2 pp 155-165
2 Journal paper	DBM model	Lewington John, De Chernatony Leslie & Brown Ann (1996) 'Harnessing the Power of Database Marketing' Journal of Marketing Management vol 12 no 4 pp329-346
3 Journal paper	DBM construct	Lewington John, De Chernatony Leslie & Brown Ann (1998) 'Building a Scale to Assess Levels of Sophistication in Database Marketing Systems', Journal of Targeting, Measurement and Analysis for Marketing, Vol. 7, no 2 pp. 164 – 190
4 Conference paper	Valuing email	Brown A (1997) ' Valuing the soft benefits of Information Systems: the case of email' Occasional paper based on (1994) 'Appraising intangible benefit from Information Technology Investment' CUBS working Paper and in The Proceedings of the First European Conference on Evaluation of IT investment, pp 187-199
5 Conference paper	Intranet evaluation	Heather Magrill &Ann Brown (1998) 'Evaluating Intranet Applications' The Proceedings of the Fifth European Conference on the Evaluation of Information Technology, pp77-109 Reading University
6 Journal paper	Colruyt	Janson M, Brown A and Taillieu T (1997) 'Colruyt: An Organization Committed To Communication', Information Systems Journal vol 7 no 3 pp175-199
7 Occasional paper	IT for CAT	Janson M and Brown A (1998) 'Information Technology in support of Communicative Action theory: a practical investigation' occasional paper
8 Journal paper	Rationality Framework	Cecez-Kecmanovic D, Janson M, Brown A (2002) 'The Rationality Framework for a Critical Study of Information Systems' Journal of Information Technology vol 17,no 4 pp215-227
9 Journal paper	ebanking	Brown A, Remenyi D and Bajomo A (2004) 'Electronic Banking for SMEs: A case study of Fortis Bank UK' accepted for the special issue of the International Journal of Electronic Business, on Achieving Competitive Advantage in e-business, vol 2 no 4 July- August 2004

Paper 1

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Journal of Targeting, Measurement and Analysis for Marketing vol 7, no 2 pp164-190

PUBLISHED PAPERS NOT INCLUDED

Paper 4

Brown A (1997) ' Valuing the soft benefits of Information Systems: the case of email'
City University Business School working paper based on
Brown A (1994) 'Appraising intangible benefits from information technology investment', proceedings of the 1st European Conference on IT investment Evaluation, OR Society

Valuing the Soft Benefits of Information Systems: the case of email

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Valuing the Soft Benefits of Information Systems: the case of email

Abstract

It has proved difficult to incorporate the soft benefits of IS/IT applications into the appraisal or evaluation process. This paper explores the issue of assessment through an investigation of one type of application, electronic mail. It makes use of one case study carried out by the author on the implementation of an email system, as well as cases documented by other writers to show that email can offer an astonishing range of intangible benefits. The paper offers an example of how appraisal might be approached for this application.

Valuing the Soft Benefits of Information Systems: the case of email

1 Introduction

As organisations move from computerising basic transactional operations to the more sophisticated applications that support existing job roles or improve the performance of existing operations, productivity gains become less significant. It is the longer term strategic advantage gained or the intangible benefits of quality improvements that emerge as the most valuable potential benefit. These are proving difficult to assess in any effective way. Ignoring these effects as many researchers suggest is the standard approach (Farbey et al, 1993; Bacon, 1992) jeopardises both good projects (Earl, 1989; Keen, 1991) and the capture of the potential benefit (Zmud and Sambamurthy, 1996)

Intangible benefits differ from the indirect or strategic soft benefits in that they are rooted in existing operations. The benefit often comes in the form of quality improvement. Computer Aided Design tools for example offer presentational possibilities far more powerful than the pencil. Yetton et al (1994) describe a case of an architect's practice and its adoption of CAD. The firm achieved a number of significant productivity gains. But the most valuable benefit came from the increased volume of work developing from the company's ability to give clients a much greater understanding of how their building plans would look when completed. Clients came because they could visualise the final building before plans were finalised. In general intangible benefits that improve existing operations can be attributed to a particular application but cannot be directly linked to cost reduction or revenue generation (Remenyi et al, 1991). This makes them much more difficult to estimate or measure than hard benefits. Moreover they often only develop their full potential when changes to the social system also occur (Sproull and Kiesler, 1991a, Walsham, 1993). They can be seen to have a positive effect on the firm's business but the timing and magnitude of this effect on profits is difficult if not impossible to determine (Earl, 1989; Morse, 1993; Willcocks, 1992; Kaplin, 1986).

The value of the intangible benefits of a particular application depend on the business and organisational context within which the application is implemented. There is no obvious routine or simple way of estimating their value. This paper explores the issue of assessment through an investigation of one type of application electronic mail (including computer conferencing). Email has the powerful attribute that it can be used successfully to obtain productivity increases at a very basic level of implementation. It has however many facilities that can yield a wide ranging set of intangible benefits when used by an experienced and skilled group of users. Experience shows that organisations vary greatly in their use of it.

This paper makes use of one case study carried out by the author on the implementation of an email system, as well as cases documented by other writers. The case study describes the investment appraisal of email carried out by the company and the subsequent installation and initial use made of the system within a company.

	Telephone	Face-to-Face	Paper	Fax	*Email*
Participants **joint location** in time in space	Same differing	Co - present	differing differing	differing differing	*differing* *differing*
Speeds: creation transmission reception	Fast at the rate of speech		writing speed slow - dependent on distance & mail system reading speed	writing speed Fast for 1 page text; depends on no pages reading speed	*writing speed* *Potentially Virtually instantaneous for any amount of text* *reading speed*
Receiver(s) Geographic location number possible Marginal Cost as numbers increase	telephone specified one high	agreed meeting place restricted group very high, increases with increasing numbers	geographic location specified Large moderate; increases in direct relation to no of recipients	telephone specified one high	*anywhere on network* *Large* *low; any no at same cost*
Message; automatic record made	No		Yes	Yes	*Yes*
retrieval & editing options	infrequent, manual		manual	manual	*Electronic*

Table 1: The physical characteristics of email compared to other communicating media

2 The basic case for electronic mail

The case made for email is normally based on the benefits obtained by replacing existing communications media for current activities. Traditional financial methods of appraisal are used in which the final value is measured using discounting or cost/benefit techniques (Remenyi et al, 1991; Earl, 1989; Willcocks, 1992). Email is assessed for its ability to deliver current communications demands in a more efficient way. Hence in many appraisals, the costs of installing a system on existing equipment are balanced against the measurable benefits and disbenefits (mainly cost reductions) achieved within the current pattern of messages. For even the most routine of communications this is likely to capture a limited picture.

Electronic mail has many facilities (Sproull and Kiesler, 1991a; Nohria and Eccles, 1992). It transfers text messages almost instantaneously from computer to computer connected in a network by telephone or cable. Messages can be sent to a group of thousands as easily as to one and across a continent in the same time as to the next door office. The early packages developed on mainframes had the basic facilities of a moderate text editor. People wrote and received text originated within the email package. Messages received could be electronically filed, edited and returned to sender, printed out (but often with some difficulty), forwarded or simply deleted.Packages developed for PC LANs have led the way towards a more user friendly environment with for example text produced by standard word processors being taken seamlessly into the email package. Current software choices cover a variety of combinations of functions. Some offer more information on the message sent, such as symbols that tell the sender whether his/her message has been opened by the recipient. Some offer more information on the messages received, such as levels of urgency. Some offer better facilities for sending messages such as the attachment of documents to an individual message. The email message acts as a transporting device for documents created in any other package. Some offer more sophisticated filing facilities and text based search routines. Some offer facilities for group messaging such as diary management, bulletin boards, computer conferencing and the creation of distribution lists (DLs).

Table 1 compares the main physical characteristics of five communicating media; telephone, face to face meetings, paper, fax and email. Paper covers all paper based communications such as memos, letters, bulletins/newspapers and reports. As this table shows, email offers an interesting combination of unique characteristics when compared to telephone, fax and paper mail; faster and easier delivery to many recipients, message pick up at many locations at any time by recipients with an electronic record of the whole communications transaction and the facility for joint editing between sender and recipient.

The obvious advantages of virtually instantaneous delivery irrespective of distance or size of group given by email has led some organisations justifying a system from the cost savings on paper and telephone alone. For most organisations productivity gains expected for office workers have been the main basis for justifying the installation of email. Assessments appear to be based on an estimated percentage gain per worker. Figures commonly used are at or near 7%, a figure said to be found by IBM in an early study. Interviews with a number of companies suggest that where this has been checked through post implementation studies it is usually found to be a conservative figure. Staff typically report time savings for many routine administrative messages previously sent by telephone or memo. Telephones are often used in preference to memo when messages are urgent. Contacting many people by this method has to be carried out in relays, whereas one email message to the relevant group will perform the same job. Neither is there any need to hunt for people over time and location. Memos to even moderate size groups of people by email rather than paper can save staff time by cutting out all the paper manipulation (one electronic message to the group instead of paper and envelope per recipient) and reducing the number of people involved if the originator types the message. Since most post implementation studies on productivity rely on the staff's own

subjective judgement on time savings, the scale of these effects must be open to dispute.

The most feared disbenefit is that of information overload. The ease with which memos can be sent to large groups can lead to 'junk email' being received about subjects of no conceivable relevance to the recipient. Weeding out these messages takes time and reduces both staff effectiveness and productivity. Mature email sites seldom see this as a problem (Finholt and Sproull, 1990; Hiltz & Turoff, 1993; Rudy, 1996).

The basic case for email can be (and usually is) made on just the hard benefits to be obtained from replacing other communicating media. But these direct effects are far from the complete picture. In a study of an email implementation within a company in the retail sector (Retail Ltd), and in other published cases a number of additional intangible benefits and disbenefits can be identified. These fall into two main groupings:

- those due to the replacement of existing communications media
- those due to the creation of new types of communication.

Retail Ltd demonstrates many of the intangible benefits to be obtained from the replacement of other media by email for routine administrative messages.

3 Retail Ltd and the proposal for electronic mail

The case follows Retail Ltd through the proposal for and implementation of an email system. It is based on interviews and some documentary material. Initially the CEO and managers at head office were interviewed on the company's operations and performance. Later after the email system had been implemented a study was carried out into how it was being used by the staff of the company. Interviews were arranged so as to obtain as wide a view of the company and its use of email as possible. Staff included the IS department head, several stores managers and representatives from across the HO departments. The interviews were semi structured with the broad aim of eliciting a description of the respondents job, their use of email and their judgements as to its effect. The principle documentary evidence used was the feasibility report written on the electronic mail system.

The company operates an expanding and very successful chain of many stores, selling mainly to the general public. It sells quality products through a standardised store layout. The company aims for high standards in the provision of its advertised products and ensures that they are delivered in well kept surroundings. It has earned a good reputation for reliability and for its ability to identify and respond to changing customer demands.

Decisions on the layout and running of the stores are made centrally. There is little scope for autonomy on the part of the store management. Central departments decide on new product lines, sources of supply, delivery to the stores and prices. They organise special promotions (which are normally offered chain wide simultaneously), specify the layout and allocate space. Stores reorder and sell.

'The Store' is regarded as an organism in itself, qualifying as a depersonalised target for relevant information, in contrast to Head office where the targets are normally individuals. Head Office send out many directives which they require to be received and acted on by all stores simultaneously. This need has been met by a paper bulletin sent out to all stores 3 times a week.

Hence communications between HO and stores are characterised by the outward flow of instructions to all stores and the inward flow of reports and requests for guidance. The mass communications need from HO to all stores is channelled through one department, operations. Such a setup leaves the stores vulnerable to errors or slip ups in other parts of the operation, and hence peculiarly sensitive to the centre's ability to respond to their messages. Head office is just as sensitive to the stores ability to receive and respond quickly to directives.

There are more than eight head office functions most of which are located on one site. Each has a well defined responsibility. One takes care of ordering, for example, another new product choice and promotions. Any change to products will typically involve many departments, entailing considerable cross communication, before the effects reach the stores. Most activities are covered by standard procedures. 'The company culture is based on form filling' according to one informant. Confirmation and follow up are core activities for all managers in both stores and at head office.

The proposal to install electronic mail, which emerged from a stores survey, was seen as a way of ameliorating the perceived dissatisfaction of both stores and HO with existing communication media. The survey brought out a range of concerns. HO dissatisfaction focused on four main areas; the high cost of current methods, poor feedback from stores, the perception that stores response to HO directives was weak, the excessive time needed to get information to them and the disruptive effect of the telephone. The stores had two main concerns; their perception that they obtained poor response from HO and the excessive volume of information and paper that they received, much of it not relevant. These problems divide into those that relate mainly to productivity (cost, volume of information for processing) and the more intangible of those that concern people's ability to do their job well (poor responses, delay in delivery of messages).

A project to assess the value and propose action was initiated by the Managing Director and carried out by a line manager.

The final decision to invest was the responsibility of the Board. The Managing Director's perception was that such a project would only gain Board acceptance if the hard cost savings justified it. Not even productivity gains would sway the decision in its favour.

The report carried out an appraisal by cost benefit analysis. Most stores were already linked to the mainframe at HO by terminals and many head office staff already had microcomputers, so the choice of a mainframe electronic mail package seemed obvious. This ensured that the costs of installing the system were not high. Initially only the 'hard' cost savings in paper, postage and telephone were included. Electronic mail was expected to replace at least 1/3 of the paper being carried to stores. The 'knock on' effect on courier service, copying, labour and telephones was based on this assumption. So the direct cost savings estimate used was based solely on the anticipated reduction in the one major communications channel, HO to stores. This showed a small financial net benefit from the first year. When productivity gains were included, based on 7% for HO staff alone, the net benefit became very substantial. Productivity gains far outweighed direct cost reduction and quickly repaid the costs of installing the system.

What is particularly interesting about the report is the handling of the original store/HO concerns. One section of the

report did discuss them and a good case was made for email being able to ameliorate many of the problems identified. However these arguments were not carried forward into the final section, in which only the cost/benefit was presented. Although the feasibility report went further in identifying intangible effects than comparable studies, the final appraisal and decision were based on the hard cost reductions alone.

4 Valuing the intangible benefits of email at Retail Ltd; replacement of existing communications media

The replacement of existing communication media by email for routine administrative messages at Retail was found to yield 4 different types of benefits;

- cost savings
- productivity gains
- improvements to the quality of an operation
- improvements to staff effectiveness

Of these the last two are clearly intangible benefits.

The weekly operation in which stores at Retail Ltd request refills of notices from head office is a good example of the third type. The use of electronic mail was said to have transformed the operation. Notices or tags for new products or prices are ordered centrally in bulk for all stores. Some stores will eventually need refills, due to loss, theft or under ordering. This was dealt with at the end of each week and as the deadline for orders approached the demands by telephone escalated, constantly interrupting the operators in their immediate job of filling and loading the orders already on hand. All orders now come by electronic mail. This has reduced the direct cost of telephone usage. It has freed the operators to organise their time more efficiently as they now no longer have to drop all activity to answer the telephone. The performance of the operation has been improved. Requests can be made closer to the distribution time (ie later) and are being filled with less errors.

Operational improvements of quality such as the tag delivery illustrate the difficulties of putting a value on intangible benefits. The reduction in telephone usage can be estimated and the cost saving measured. Some attempt at estimating the time saving (and hence cost saving) for the men can be made. But how do we assess the value of the improvement in quality to the whole operation - the fact that stores can check their needs for more replacement tags and send an order that will be filled with less chance of error and at a time closer the departure of the delivery van? The value is clearly rooted in both the scale of improvement (how many fewer errors, how much closer to departure time) and the importance of this operation to the company's overall activity.

Similarly improvements to staff effectiveness are difficult to value. At Retail Ltd the electronic mail package recorded the message, the time at which it is sent, and the times at which the recipient read and responded to it. For some staff this was extremely valuable. If we picture each individual working as part of a chain, dependent on information about actions by people further up the chain and themselves having to deliver similar information onwards in circumstances of fairly intense time pressure, we can see how significant this is. Requests and the response obtained for example are now in the public domain. The handover of responsibility is clearer. For an action orientated organisation with many people's activities dependent on how well others do their job, this could have an extraordinary effect on morale. A typical comment was 'I have actioned an item,

which is now waiting for others to deal with. I can clear my mind of it and concentrate on the next job'. This member of staff felt that she carried out her responsibilities more effectively as a result. In addition the basic routines should be processed with less error.

Emailing the twice weekly bulletin from Head Office to all stores has produced hard cost gains in the reduction of carrier and paper costs. It has also shown productivity gains in the reduction of time needed from all the contributors involved in its production. Copy is delivered electronically to the editor direct from the originator. Many jobs are no longer necessary in the same way as for newspapers that moved to use of electronic text. Secretarial help, layout specialist and printers are no longer needed. The process is speeded up and has become easier to organise. Through the fusion of several activities, the editor now has fewer people and jobs to co-ordinate. This was an effect that McLuhan (1964) predicted from the use of electronic communication.. Co-ordinating many people's activities is both difficult and time consuming. A great deal of management theorising has centred on how to co-ordinate effectively and efficiently. Reducing the size of the co-ordination job has both quality and productivity benefits. The fewer the number of people the easier it becomes to be effective in co-ordinating their efforts. The editor can now handle a wider range of operations.

Almost every operation investigated at Retail Ltd showed intangible benefits similar to those described above as well as productivity gains. Each individual quality improvement has value for the company in that most appear to support the company's performance in those areas that are thought to be the key to business success, reliability and speed of response. The accumulation of benefits reaped in operation after operation could well be highly significant to the company.

5 The impact of email on routine communications

This case illustrates some of the ways in which email has the capacity to significantly change the character of basic routine communications previously carried out by paper mail, telephone or small face-to-face meetings.

When message content degrades quickly, telephone or face-to-face discussion would be the preferred media. In such circumstances email can deliver a higher volume of messages to each individual, offers the receiver greater control over the message transaction and keeps a record of it. The receiver has time to formulate a more thoughtful response (by choice of reception, response time and type of response). It is now the receiver who determines the degree of urgency not the sender. Both organisation and individual can retain a memory of the message transaction, clarifying the roles of sender and receiver and keeping the sender informed of reaction to the message.

Many issues can arise suddenly and be quickly overtaken by events. Discussion by conventional media is often perceived to be too time consuming or expensive to locate all those concerned and obtain their views. An email memo through the forward facility can be passed around the relevant group cheaply and quickly, adding comments cumulatively. The ability to hear about issues in time and respond gives the receiver a greater power to affect activities and increases the potential for collaboration. Administrative procedures become more open to debate by those affected by them.

It is not easy to move around electronic

text. The screen imposes a linear progress through any document. Hypertext and paging do not offer the same ease for the reader to jump from item to item as paper. For the newspaper type of document and for lengthy documents electronic media are less attractive except as a transportation vehicle.

In general we can look for quality improvements in those operations which generate short messages; for which volume of messages is significant; for which the receiver has an important contribution to make; on which many have useful contributions to make but comment can be made sequentially ie there is no need for group discussion; for which a record is valuable either of the message itself or the message transaction and for the co-ordination of administrative actions that are not totally standardised and routinised. Organisations, like Retail, for which administrative efficiency and effectiveness is an important ingredient to their business success stand to gain far more from an email system than the productivity gains usually cited.

6 Effects of computer mediated communications on individuals and groups

An important question for any organisation using email is whether and under what conditions computer mediated communications can replace face-to-face discussions between 2 or more individuals. Just as significant is the issue of how the behaviour of both individuals and groups might differ between face-to-face meetings and email discussions. If behaviour patterns can change this will affect the way electronic discussions go and in particular the nature of the decisions made by electronic groups. A considerable amount of research has been carried out into media choice (how individuals and groups choose between media when more than one is available) and into what effects different media have once they have been selected for a message. This section discusses the results of this research and the implications for electronic work teams and electronic discussions and decisions.

Face-to-face meetings are expensive and sometimes impossible to arrange. Hence their replacement by email is of critical significance to many organisations. The focus of the research work relevant to this question has been on media choice. One of the most influential theories of media choice is that of information richness developed by Daft and Lengel (1986) in which they sought to establish a way of matching communications media to type of message. Messages vary greatly. Some deal subjects like routine administration within a highly structured situation using words for which there is a clear unambiguous meaning. These have low equivocality. Trevino et al (1990) have described situations of high equivacolity as those, for which messages are subject to as many differing interpretations as there are receivers, in which the subject under discussion is complex and surrounded by ambiguity, about which the participants hold many, varying and strongly felt emotional views and there is a high degree of conflict as to which questions are important. Multiple interpretations can stem from the lack of a common group understanding or an agreed vocabulary for either the subject under discussion or the organisational context within which the group operates. Trevino refers to the differing frames of reference of the participants. To resolve issues of high equivocality, discussants need to achieve a common understanding of terms and assumptions about the situation and through debate, negotiation and feedback attempt to decrease ambiguity and conflict..

	Telephone	Face-to-Face	Paper	Fax	*Email*
Social impact Cues:					
Physical; bodily language, verbal tone, physical presence	Verbal tone	Full possible range of physical, psycho-emotional and social context cues	None		*None*
Organisational position/status	Verbal tone		For sender; job title etc		*Little, by convention*
Emotional; personal feelings	moderately high, Verbal tone		very little		*written*
Interaction levels:					
Interruption & repair	Possible, restricted	Best possible conditions for all forms of interaction	None	None	*None*
Speed of Feedback	Fast, Verbal		Slow	quite slow	*fast, written*
Speed of Learning	high		moderate	moderate	*moderately high*

Table 2: Social impact cues and interaction level characteristics of email compared to other communicating media

Some communications media are better at expediting this process than others. Daft and Lengel defined information richness as the ability of a medium to facilitate understanding and convey meaning. The 'richer' the medium, the greater its ability to overcome ambiguity, convey the full expression of each individual's position and hence handle equivacol messages. The original theory ascribes a ranking to each media independent of context. Hence the idea of matching media to type of issue. The original ranking worked up from paper based communications through fax and telephone, with face-to-face being identified as the richest medium available to us. Trevino et al(1990) adapted the original ranking to place email between fax and telephone.

Table 2 shows the reasoning behind this ranking. Email conveys little of the non verbal messages or the emotional signals that go to make up the subtleties and richness of social life. Nor can it convey the range of language variety possible in the spoken word. Compared to telephone and face-to-face it has a restricted set of social impact cues. It does better on interaction. Feedback and learning can be comparatively fast, but interruption is not possible. Interactive communication can reach a reasonably high degree, but still less than that possible by the other two media.

Hence an email document, according to this theory is a lean medium. Most analysts have agreed with this ranking (Markus 1994). Indeed commentators such as Nohria and Eccles (1992) have been extremely pessimistic about the medium's

capacity to handle any but routine messages. This would suggest severe restrictions on the type of group discussions possible via email. However a substantial body of empirical research results appears to offer a modification of information richness theory. Richness is neither an invariant property of a medium, nor the sole criteria by which individuals choose. The social influence theory (Fulk et al, 1990) suggests that individuals make media choices on a range of factors, including perceived richness, the attitude and choices of their colleagues, perceived organisational norms, their own skills, their perception of richness, accessibility of the media and time constraints. It could be argued that many of these factors relate to speed of adoption rather than the underlying potential of electronic communications. Hence after the current transition period we may see information richness and physical factors (speed and distance) re-emerging as the dominant choice factors. The argument posed by Lee (1994) and others that richness is a property of both the medium and its organisational context has important implications. He cites a number of examples where email has been used for rich communications (Zuboff 1988; Markus, 1991; Yates and Orlikowski, 1992). He gives a detailed analysis of a case example from Markus (1991) in which he concludes that a rich conversation took place through a number of email memos. Lee's analysis brings out the key role of the 6 contributor's common view of the social construction of the organisation within which they worked and to which these memos related. Their understanding of how the organisation functioned, its various constituent parts and the position of some individuals, endowed the memos with a wealth of unwritten meaning and allowed the participants to discuss a complex subject (crossing political and department boundaries responsibility) through a lean medium. In the process of analysis, it becomes clear how much more likely it is that media choice is made by a group not an individual. A further implication of this work is that the degree of richness of any media (including face-to-face discussions) will vary according to organisational context and to the degree of shared understanding of those using it.

Under what conditions can computer based communications be used for comparatively rich discussions? In the example analysed by Lee (1994) the participants had a common understanding of all the terms and language used on the subject discussed and a common frame of reference from which to view the organisational framework within which the discussion (and any solution reached would be enacted) took place. Their aims were fairly specific and attainable within the timescale. Mueller (1991) describes a case in which statisticians within the Canadian Department of Information began to use email. The department employs a geographically dispersed community of highly trained experts located at the 12 regions of Canada. A major part of their work is the production of reports answering the queries of legislators. These reports seek to present and interpret data drawn from all regions. Prior to email, interpretation was carried out by local experts. The centre collated and sought to interpret the national picture using mail and telephone communication media. After email was installed, the reports became the joint work of the local and centre experts, improving the quality of interpretation and reducing the average production time from 2 weeks to 3 days. Again we see that participants have a common understanding of the organisation and use a technical language with well defined meaning. Objectives are clearly defined (the report production). Both cases would be considered to use rich communications

applying Lee's definition of leanness, 'meanings.. were not limited to those of the dictionary definitions of the words in which it was written..'

These examples suggest that electronic media can handle a certain type of equivacolity. It seems possible to have discussions on complex subjects, involving some ambiguity, for which there is no clear initial agreement on what constitutes the important question and about which participants may have differing and strong views. This can happen, provided participants have a reasonably clear common framework from which they view the organisational context within which the discussion is taking place (many may have met) and the language and symbols used also have a clearly understood meaning for the group as a whole. An additional factor that appears to be important is that the participants have enough time to converge on an effective end point for the subject. This is also true of course for face-to-face meetings.

The possibility of successful work teams that span large geographical distances have been noted by several writers (Mueller,1991; Rockart and Short, 1991; Zuboff, 1988; Hiltz & Turoff, 1993). The conditions for such groups to flourish include such factors as the technology and participants experience of it, the structuring of the discussion and the extent to which the elapsed time available for the discussion is enough to deal with the complexity involved. The preceding discussion suggests that the degree and type of equivacolity is also a key factor. It seems clear that work teams can utilise computer based communications media to substitute for some of the face-to-face meetings that would have taken place in more traditional groups. Electronic communications are a powerful addition to all other available media. However successful electronic work teams do not happen without careful planning. Osborn (1996) gives us a detailed example of one failure. Some experiences point to the need for at least some face-to-face contact between most members, if these teams are to function successfully (Holtham et al, 1997)

An important debate has arisen over the issue of how email differs from face-to-face communication and whether individual and group behaviour is significantly altered by using it. The results have been conflicting and to some extent mirror the information richness debate. Table 2 establishes the extent of the reduced social impact cues given by electronic media which lies behind the widespread feeling that email is different. We have no sense of physical presence (Short et al, 1976) of the receiver. We cannot see them or their body language. Their emotional commitment is signalled less clearly. We cannot interrupt them. Discussions proceed at a different rate. We 'hear' other contributions more quickly, at the rate of reading but contribute ourselves at our own typing speed. (See physical characteristics in Table 1). There is a public record of the debate. Hence the media can help to create an environment of more even contributions.

Reduced social impact cues are thought by some researchers to reduce the effect of formal social and organisational roles and personal characteristics for electronic discussions (Sproull & Kiesler, 1991a). Behaviour consistent with this theory shows a greater degree of self disclosure, honesty, misinformation, 'flaming' language and a willingness communicate to cross departmental and hierarchical barriers (Sproull & Kiesler, 1991a; Zuboff, 1988; Nohria and Eccles, 1992; Stone, 1991; Mueller, 1991). Zuboff (1988) records a revealing comment by an anonymous user

of DIALOG, a computer conferencing system at DrugCorp, that 'DIALOG lets me talk to other people as peers. No one knows if I am an hourly paid worker or vice president. All messages have an equal chance because they look alike....It strips the halo effects from age, sex or appearance.' An alternative theory is developing that recipients of email messages are most strongly influenced by the social dimension (Spears et al, 1990) and that almost all behaviour can be explained by the receiver's degree of identification with and perception of the rules of the group to which the message has been sent. As Rudy (1996) points out a significant amount of the empirical work on this subject has been carried out in controlled laboratory-like experiments with groups of subjects that are unlikely to be representative of organisations generally. And these results appear to conflict.

The outcome of this debate affects our views on group decision taking. The way in which conventional groups reach decisions is fairly predictable. Participation is unequal based on status. Controversy is avoided where possible and group norms dominate. Members tend to converge on a decision quickly. The reduced social impact theory predicts that electronic groups work differently and some empirical results support this. Participation is more equal. High status members do not dominate as much as they do in face-to-face meetings. Electronic groups tend to consult more of their members increasing the number of alternatives considered. They are more likely to ignore faulty reasoning promulgated by people with social skills or high status. They tend to behave with markedly less politeness, experience more conflict and take significantly longer to reach a decision (McKenney et al, 1992). Indeed some groups may find reaching one impossible. This is consistent with the forecast made by McLuhan (1964) that electronic communications is likely to focus discussion on the issues rather than personalities. The alternative theory suggests that such behaviour could be duplicated in face-to-face groups given the appropriate social norms.

7 Valuing the Intangible benefits of email; replacement of face-to-face communication

The replacement of existing communication media by email for face-to-face meetings adds a further type of potential benefit to the previous list (shown in section 4);

- cost savings
- productivity gains
- improvements to the quality of an operation
- improvements to staff effectiveness
- new types of dialogue

Work teams using email to supplement or replace face-to-face meetings and telephone discussions stand to gain much the same range of benefits as was identified for the replacement of other media for routine administrative messages. Direct cost savings arise from reduction in travel, telephone usage, paper and postage. Staff productivity gains are more difficult to identify, but improvements to the quality of any individual operation seem certain. The inclusion of experts that would be beyond reach without email should ensure higher quality output. The Canadian example (Mueller, 1991) demonstrated benefits not only of quality enhancement but also of the speed up of delivery of the final product.

Electronic decisions may be able to change the way we discuss difficult issues and make decisions. Whether the electronic media is needed to achieve this or has merely shown the way to alter social norms and relationships, which will in turn

achieve it, the effect is potentially significant. For organisations where the quality of the decision is more important than the speed and decisiveness with which it is reached, this could be of great value. The characteristics of computer conferencing offer conditions that encourage wider participation in discussion. Decisions could be based on broader participation draw on wider range of knowledge and experience and command more widespread support. We have too little experience or understanding of these processes to make much attempt at valuing this at present.

8 Valuing the intangible benefits of new connections

Computer based communications media do not function solely as an alternative to other media. In some situations they offer communicating connections that would not otherwise be possible.

The isolated worker can be brought into the organisational discussions. The peripheral worker isolated by physical distance or shift times can obtain a 'window on the corporation' (Sproull & Kiesler, 1991a; Zuboff, 1988; Eveland and Bikson, 1988). Through email they can register opinions, influence decisions which concern them and learn what issues are of importance to the rest of the community. The disabled worker can contribute more effectively. At Retail Ltd for example, a deaf office worker found that the installation of email allowed him to discharge a job much closer to his colleagues now that telephones were not the main vehicle of urgent messages. Routine administration by and for these workers would yield similar benefits to those noted in the preceding sections. For these workers face-to-face discussions were a luxury that they could not often afford. Email gives them the chance to partially fill this gap. Apart from the potential to make quality improvements to their current operations, several writers have noted the increased sense of belonging to the community within which they work (Zuboff, 1988). Organisations that we might expect to value these effects more highly than most would include those with a large sales force or like consultancies, with many employees out of contact with the rest of the organisation (both home office and other colleagues) for long periods of time.

Perhaps the most extraordinary development has been the two new main types of large scale electronic groups - the distribution list and the open ended computer conference. Membership of such a group is achieved by joining the list usually through the agreement of the moderator. Messages sent to the list/conference are automatically sent to all members simultaneously. Hence groups can reach very large sizes indeed. Participants are isolated physically while making their contributions. They may meet other members seldom or never. Asynchrocity is the rule so there is time to think through responses. They have similarities to a newspaper, carrying adverts public arguments and specialised news, but the readers create the copy and decide what is published with no interference from the editor. Computer conferences even maintain a public record of all past contributions as do newspapers. There is a record for distribution lists but only with those individuals that decide to archive messages received. Finholt and Sproull (1990) have argued that they behave like true social groups. Operation spans the range of some formality with membership by invitation only to almost the casualness of hallway conversations The formality and specialisation that comes with large scale conventional groups does not appear necessary for these electronic

ones. It is possible that to their members their large size is masked and the social interaction generated (messages sent) feels similar to a small conventional group. Distribution lists and computer conferences expand our range of contacts but in a highly selective way to a tightly focused group. Email offers each individual worker a tool for maintaining and enhancing their own personal network. 'Does anyone know...?' is a question that can be asked to very large groups at relatively little cost. In the Tandem example discussed by Sproull and Kiesler (1991b) the entire staff of over 10000 could be reached in this way. The information sought by most originators was typically personal experience or technical knowledge that could not be found in formal documents and most respondents were unknown to the questioner

The case at DrugCorp described by Zuboff (1988) shows how the value of new communications channels like computer conferencing groups depends totally on the nature of the company's business. For one division of DrugCorp computer conferencing was seen as crucial to its strategy. To the rest of the company electronic communications was viewed as a support for basic administrative procedures.

The idea for developing an electronic communications facility originated in the R&D division, who determined that their prime need was for computer conferencing. The in-house version, DIALOG was developed and installed by the Systems Development division. This was primarily designed for the creation and maintenance of computer conferencing. A record of all entries was preserved for members to access at any time. For the first 3 years use was voluntary and most users came from R&D and 2 other staff departments, systems development and engineering. DrugCorp then decided to install a more conventional email system and extend this to the rest of the company. If usage is a measure of success it seems that DIALOG was a great success in the staff divisions but results were less happy as the system spread.

To the R&D division email was a strategic application. Repeated studies had established that interpersonal communication was the key to innovation. Personal communication far outweighed all other means (libraries, papers) as a source of relevant knowledge and ideas. Innovation was their business and computer conferencing was seen as a way of increasing the personal contacts of all R&D personnel. In implementing DIALOG, the division exercised little control over users. Any one could organise a conference on any topic. Rules of membership and operation were determined by the founder and the members. Conferences could be private ie secure from any readers but the members. In the early years the growth of conferences was rapid and topics ranged from highly technical to social. The comments by users revealed not only a high level of enthusiasm but an awareness of a new and unique contribution to the quality of debate. 'Many people felt less inhibited with the conferencing system than in direct interaction'. There was a 'sense that the conferencing medium made it easy to disagree with, confront, or take exception to others opinions'. Mastery of one's subject and the ability to share knowledge became new sources of power and influence. The quality and quantity of personal communication, the key business tool, appears to have been fundamentally increased by DIALOG. However many of the conferences could be viewed as of no direct relevance to the business, language was extreme and some came to discuss sensitive issues such as retirement and redundency conditions and company

policies.

To the rest of DrugCorp, electronic communication was seen as a potentially useful support to existing operations, which were conducted on bureaucratic lines. These divisions operated a highly structured chain of command and official communications were handled hierarchically. The flavour of existing conferences ran counter to this culture. As middle managers began to use the system and discover the nature of exchanges within in particular the social groupings, many responded with anger at the 'nonproductivity' and negativeness displayed. Management began obtain access to 'private' conferences and use the material contained there as a means of control. The almost inevitable result was a dying away of conferences and a change in the nature of the comments.

The business aims and needs of the two parts of DrugCorp differed profoundly. The difference gave computer based communication a strategic role to one and not to the other. The R&D division wanted many of the softer benefits of computer based communication media identified in this section. The main part of the company wanted the basic benefits identified in earlier sections. Both attempted to create the behaviour they wanted by the way they implemented the system. Unfortunately the approaches needed for success differed from group to group. The R&D division managed to align its use of IT with business need and implementation practice. Bu their approach did not work for other divisions.

This example suggests that organisations that sell creativity, whose services or products rely on their employees ability to create or apply new ideas, can derive enormous benefit from any tool that increases effective communication. Effective communication here means putting an individual into personal contact with others working in similar or complementary areas and encouraging the exchange of opinions, ideas and information along new paths and with less regard for person and more for the points made. The problem is balancing the time of finding and talking to those people likely to spark important ideas with the chance of a payoff. Email offers a way of reducing the time of locating likely sources of inspiration.

9 Assessing the value of the Intangible benefits of email

This paper has identified 6 quite different types of potential benefit to be gained from the use of email;

- cost savings
- productivity gains
- improvements to the quality of an operation
- improvements to staff effectiveness
- new types of dialogue
- new connections

Whether attempting to carry out an investment appraisal for a proposed new system or a post implementation evaluation, the analyst faces the same problem of valuation.

Traditional financial methods are designed to measure the effects of the 1st two types of benefits and hence offer an acceptable way to value email if these are the only benefits expected. But these methods are highly inappropriate for the remaining 4 types of benefit.

Alternative approaches such as Peters (1990), Kaplin (1984) and Information Economics (Parker et al,1989) recognise the existence and importance of intangible and strategic benefits but provide only

limited help in identifying and assessing them. Peters focuses on operational improvements and assumes that it is possible both to identify these effects and to translate into cash terms through the use of managerial judgement. Kaplin and Parker et al want to make use of indices. Both are concerned with the problem of producing a final score for a particular application that balances all factors realistically. Kaplin produces a method that looks at the organisation as a whole and attempts to capture effects over all activities. Parker offers a way of bringing together all types of effects (direct, intangible, indirect, strategic, technical risk, business risk). They both rely on obtaining their estimates of the various scores from appropriate managers.

There has been little work on the estimation of intangible effects. It would be difficult for example to give a realistic judgement on the value of email to any individual organisation without working through a detailed analysis of the full range of potential effects similar to that undertaken in this paper. Each effect would need to be considered for relevance to the business need (Scott Morton, 1991; Earl, 1989; Holtham, 1992; Ward et al, 1990; Kovacevic & Majluf, 1993) and assessed for the type and cost of implementation required in order to realise those of value to the organisation. Using such techniques as Information economics (Parker et al, 1989) is of little use without this level of detailed thinking. Only then can managers be asked to make their estimates of the required rankings on risk and value.

10 Conclusions

Electronic mediated communications offer an astonishingly wide range of potential intangible effects. This application demonstrates the range and complexity that intangible effects can take. Replacement of telephone and mail for routine administration can yield at least 4 types of benefit (cost reduction, productivity increase, quality and staff effectiveness improvements) often simultaneously. It is organisations like Retail, for which administrative efficiency and effectiveness is key that stand to gain most from these effects. Replacement of face-to-face meetings promises not only very serious productivity gains and quality improvements but also new types of dialogue that may offer more control over the process of group decision taking. It is organisations with far flung specialist personelle for whom the functioning of their work teams are crucial which stand to gain from these effects. Perhaps the most exciting prospect comes from the new communication connections made possible by email. It is companies for which creativity is key that stand to gain most from the increased level of communication that this makes possible.

Retail Ltd reaped many more benefits from email than the formal feasibility document and basic appraisal methods considered. The company included only the 1st type of hard benefit in the formal appraisal, although they stood to gain substantially from the intangible benefits of quality and staff effectiveness improvements. The company received many of these benefits from a basic implementation that made little effort to consider or obtain the full potential of the system.

Realistic appraisal and evaluation of the value of the soft effects of electronic mediated communication systems requires some fairly detailed analysis of the acquiring organisation's activities as well as an assessment of the range of effects that can be achieved by email. It is the judgements made on what operations are key to the survival of the company that put this analysis into perspective. Soft benefits

call for the business case to be made in the same way as for strategic initiatives.

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success is noteworthy considering local business conditions: stringent and wide-ranging governmental regulations and a retail industry dominated by several well-established large food retailers. These competitors worked with paper-thin profit margins, strict hierarchical managerial structures and worker representation by unions of diverging ideologies with extensive influence over local and national government. Colruyt's strategy and approach to running core operations differed markedly from these competitors.

The company has been developing an unusual organizational form since its start-up in 1965. Mr Colruyt, the firm's founder, set out to create a company that not only was profitable but also embodied as far as possible his set of deeply felt values and beliefs. This is unusual in that most new forms are driven by business or technology changes. Few companies are designed with a value set as one of the objectives. An exception in the last century were the Quaker-controlled companies such as Rowntrees and Pilkington (Quinn, 1989), which were developed in compliance with a strong belief system. Mr Colruyt had strong beliefs on the rights of customers and employees. Some of his ideas also look remarkably similar to those of post-modernism (Hassard, 1994). An additional factor of profound importance in the shaping of Colruyt was the early recognition of IT as an essential tool for developing the company in the direction that the founder wished it to go. As a result of these and other influences, Colruyt has developed a unique corporate culture which places great emphasis on obtaining the maximum participation and commitment of each employee.

This paper describes Mr Colruyt's philosophical beliefs and goals and the company he created. It argues that these beliefs had a profound effect on the eventual structure and form of the Colruyt organization. Over 30 years ago Mr Colruyt had a unique vision of how he wished to operate his company. His model is one that is beginning to have features of interest to a number of companies in the 1990s. The company's experience offers an unparalleled example for learning how to design and manage an organization that can deliver this vision.

Our research will be of value to other executives and business leaders who attempt to pursue innovative approaches similar to those followed by the Belgian company.

RESEARCH METHOD

Our project used an interview-based qualitative method for uncovering and making explicit the conditions and individual actions surrounding the creation and further development of Colruyt (Gummesson, 1991; Millar *et al.*, 1992; Cassell & Symon, 1994; Walsham, 1995; Remenyi & Williams, 1996). Stake (1995) refers to this procedure as an *instrumental* case study.

The interviews were predominantly carried out between 1992 and 1994. Document analysis focused on policy statements, work procedures and rules formulated by upper, middle and lower level managers. Also included in the analysis were external documents such as union reports and newspaper and magazine articles. The documents reflect views on corporate objectives, policies and reactions to day-to-day events.

The interviewees were selected from all levels of management. A 4-hour in-depth semi-structured interview was conducted with Mr Colruyt, company founder and president of the

board of directors. Further interviews were conducted with general managers for distribution and warehousing, the director for information systems (IS), the marketing director, store managers and clerks. The interviews focused on top, middle and lower management's thinking about corporate philosophy, customer service, employee relations, union relations and the employee work environment. These interviews were carried out in four distinct stages. Interviews completed at one stage were analysed and then used to prepare semistructured interview plans for the next stage (Lofland & Lofland, 1984).

Because the evolution of the company was closely tied to Mr Colruyt's unique philosophical beliefs system (a mixture of Catholic and Marxist ideas), we first present these ideas and then show how they impacted the corporate structure, values, and policies.

MR COLRUYT'S CORE BELIEFS

Mr Colruyt had clear philosophical views on the type of company he wanted to be part of. His views shaped the company at its inception and many of the company's more unusual characteristics can be traced to his influence. His major philosophical views stem from his boyhood in Catholic Belgium and his Marxist experiences during and immediately after World War II, when he was a member of a communist cell in Paris.

Catholicism

Towards the end of the nineteenth century, Pope Leo XIII issued his *Rerum Novarum* encyclical letter (Newman, 1979). In this pastoral letter, which was a direct response to issues raised by socialism, the Pope threw his support firmly behind the emergent Catholic social movement. The encyclical dealt with five topics: the right to private property; the role of the Church in social affairs; social action by the Church; responsibilities of the state; and the right of workers to form voluntary associations such as unions (Newman, 1979). First, the Church concluded that without its active involvement no solution to the social questions posed by socialism would be possible. Second, the Church resolved that its care for man would include his earthly condition as well as his fate in the hereafter. Third, the Church rejected *laissez faire* economics and held the state responsible for protecting private property, regulating working conditions and guaranteeing workers a living wage. Finally, the Church accorded workers the right to voluntary association such as unions and Church societies preoccupied with social action (Harte, 1979).

The encyclical admonished the employer to pay a living wage, to respect the worker's human dignity and to promote the worker's physical and moral welfare. Furthermore, the Church suggested that the employer temper instrumental rationality with charity by ensuring job security in the face of short periods of seasonally caused unemployment (Lowrey, 1979). The encyclical admonished the worker to fulfil obligations agreed to in the work contract. The worker had to refrain from idling on the job, coming late, leaving early and committing similar unlawful acts. The Pope's (Giordani, 1979) interest in labour relations emanated from the sanctified character of work: 'Since work is the God-ordained means of man's subsistence, man has both the duty and the right to work.'

The encyclical would have had little effect on day-to-day work life were it not for the great influence that the Catholic Church had and continues to have over large segments of Belgium's social life. For example, in 1963 more than 80% of Belgian youths who had joined organizations were members of Catholic ones, and 25% of Flemish business leaders belonged to the Catholic Association of Business Owners (Dierickx, 1979). Furthermore, in 1963 the Christian Unions had over 800 000 members, whereas the Socialist Union counted 700 000 members. Moreover, a survey by Harding *et al.* (1984) found that 72% of the Belgian population continue to be Roman Catholic. These numbers show that, even today, Catholic ideas are at the centre of cultural life in Belgium.

Mr Colruyt's concern for the rights of customers and his insistence that everyone in his company should participate in corporate life as much as he or she is able can be traced to these religious ideas. Catholicism also led him to put great value on the honouring of any contractual obligation.

Marxism

Mr Colruyt's experience immediately after World War II when he joined a communist cell had a profound effect on him. In confronting Marxist philosophy he stated:

> 'I learned a completely new language [with which to interpret my life world]. The experience changed my entire way of thinking. [However,] despite the close camaraderie among cell members, my knowledge of Stalin's crimes ultimately prevented me from totally embracing Communism. I observed that Marxism is intensely rational to the point of creating among its adherents a deep-felt emotional need for human contact.'

Asked how his Marxist experiences affected the organization of the company, Mr Colruyt (April 1984) responded with:

> 'Marxists see alienation as the essence of the modern work process. Nevertheless, I have tried over the years to reduce alienation by the careful organization of work. Naturally, my efforts have only been partially successful but, still, things are better than they used to be.'

Mr Colruyt continued with the following observation:

> 'It all happened when I was eighteen and nineteen years old. Experiences at that age resonate through the rest of one's life. On the other hand, the experience was not lost on me — during a fifteen-year period I had employees who were Marxist union members. I was able to keep the discussion with these employees going because I placed it in the context of Marxist ideology.'

Despite his attraction to Marxist theory, the results of its implementation led him in the end to reject it. In rejecting Marxism, he rejected rationality as the sole criterion for decision making. Instead he augmented rationality with emotionality. However, he still valued some of the other ideas of Marxism. For example, job rotation and job enrichment are at the root of his attempt to counter his perception of the alienating influence of organizations. As he stated:

> 'A large degree of empowerment and a critical attitude are the signs of a strong involvement in

company affairs, of satisfaction (*plaisier de travaille*) on the job and, ultimately perhaps, appreciation for the company.'

Mr Colruyt also accepted that people can hold multiple, conflicting but equally valid views about the world around them. This led him to value open discussion of alternative courses of action. He felt that such discussions can only be effective when participants have access to the relevant information and appropriate channels of communications.

From modernism to post-modernism

The previous sections illustrate that Catholic and Marxist concepts have had profound influence on Mr Colruyt's world view. They also reveal his doubts concerning the overall validity of Catholicism and Marxism. Lyotard (1984) would categorize Catholicism and Marxism as two grand narratives. Mr Colruyt's questioning of the validity of these two narratives marks a shift from modernism to post-modernism.

Lyotard (1984) defines modernism as follows:

'Modern is any science that legitimizes itself with reference to a metadiscourse making an explicit appeal to some grand narrative, such as ... the emancipation of the rational or working subject.'

Lyotard (1984) formulates post-modernism as:

'... I define postmodern as incredulity toward metanarratives. This incredulity is undoubtedly a product of progress in the sciences ...'

Concerning the relationship between modernism and post-modernism, Lyotard (1992) states:

'A work can become modern only if it is first post-modern. Thus understood, post-modernism is not modernism at its end, but in a nascent state, and this state is recurrent.'

Post-modernism signals the abrupt break with modernism (Lyotard, 1984). It is a reaction to the modernist idea that reality can be conceptualized, described and forecasted. Post-modernity allows multiple realities, whereas a modernist strives to achieve the 'optimal' reality. A post-modernist is less concerned with forecasting reality and more with creating it. Furthermore, he or she does not subscribe to the idea of inevitable progress created by human action (Harvey, 1990; Lyotard, 1992, Lyon, 1994).

Post-modernism recognizes that rationally argued positions do not constitute the totality of knowledge. It is but one form of understanding which has always existed in addition to, and perhaps in competition and conflict with, other types of knowledge such as the emotional. This is very close to the position taken by Mr Colruyt.

A particular example of the realization of this within the company is given by one employee (Denayer, 1985) as follows:

'Attending the many in-house courses are among the best of my experiences at the company. I learned to understand myself. I learned that my emotions play an important role concerning

my relations, communication, and contacts with other company employees. This process has made it possible to get insight into others, to understand others, and to create an open dialogue with my cohorts.'

For a post-modernist such as Lyotard (1984), access to knowledge is most optimally effected by information technology. In other words. Lyotard's (1984) ideas led directly to the conclusion that information technology is a basic necessity in the world-wide competition for power:

'... society exists and progresses only if the messages circulating within it are rich in information and easy to decode.'

This is also Mr Colruyt's (May 1984) opinion:

'The disadvantages of the hierarchical organization and the possibilities of new technologies were the drivers of an entirely new approach to organizational communication. We have been encouraged in this direction by 1) a rapidly growing organization, 2) employees who do not work well in hierarchical situations, 3) training in team work, organizational development, and 4) new communication technologies.'

Knowledge as defined by Lyotard (1984) is a question of competence that goes beyond the simple determination and application of the criterion of efficiency; knowledge is what makes someone capable of forming good denotative, good prescriptive and good valutative utterances. This type of knowledge is totally different from technical knowledge, which follows the principle of optimal performance: maximizing output while minimizing input. Lyotard (1984) argues that technology is a game pertaining not to the true, the just or the beautiful, but to efficiency: a technical move is better when it results in more output and/or less energy. Lyotard (1984) further argues that dissension and conflict rather than consensus are the basis of new inventions. He maintains that access to knowledge is indispensable to productive power. Dissension is kept alive by equal access for all participants to knowledge and information.

Mr Colruyt placed great emphasis on the role communication technologies play in his company. This is consistent with Lyotard (1984), who suggests that elementary training in informatics and telematics should be a basic feature of a university education. It is our observation that, although Mr Colruyt did not claim to be a post-modernist, he very much acted like one. In doing so he created a company that exhibits a large number of post-modern characteristics.

Communication

All Mr Colruyt's beliefs point towards the value of encouraging cross-communication between all organizational members. Again quoting Mr Colruyt (April 1993):

'The exchange of knowledge is not limited to the company's board of directors, rather it takes place throughout the company. Direct and open communication among employees implies that one transcends one's own limitations.'

The notion that multiple models of the same situation are possible accords with the idea that a world view is consensual and imparted through communication. Mr Colruyt equated models with

'hypotheses', which in turn give form and content to interpersonal discourse. The outcome of arguing for and testing of the ramifications of alternative and conflicting models is key to Mr Colruyt's view of analysing reality. In fact, Mr Colruyt considered launching conflicting models his most important contribution to the company.

Messages are multifaceted and possible interpretations are legion. Hence, Mr Colruyt was concerned with understanding, and he insisted on the availability of multiple sources of information. For example, when the company expanded into the French-speaking region of Belgium, Mr Colruyt not only identified that this brought a second culture into the organization, he also recognized the extent of the complexities that this fact brought about.

Putting these ideas into practice calls for effective interpersonal and group communication. Long before computers were generally seen as necessary to company operations, Mr Colruyt saw them as essential to communications among upper management and shop floor personnel. He considered computers essential to the type of company he wanted to create.

The importance Mr Colruyt ascribed to communication is shown in his support for and contribution to the company's newsletters. He expressed the role of communication as follows (Colruyt, 1993):

> 'It is urgent that we learn to communicate. Not because of some lofty ideal but by way of practical everyday discourse. Check whether the words [used] mean the same for all parties; they seldom do. [Communicate to achieve] understanding of the position of the other, before going full steam ahead with action.'

COLRUYT, THE COMPANY

Business strategy

Competing on price remains the essence of the company's strategy:

> 'The business strategy was concise, that is +10%, –10%, and +1%. It means that we pay the employees 10% above average industry rates, we charge customers 10% below our competitors and we realize a 1% return on sales.' (Lengeler, 1993)

However, a comparison between customer offerings by Colruyt and competing stores shows that Colruyt also competes by product differentiation (Table 1). The company sells its products in unique package sizes, with substantial amounts of useful information, and by sales clerks who will offer personal service. The company projects a sober internal image. In Mathur's (1992) terms, the company's strategy is one of differentiation in product, content, and support. In Mr Colruyt's words:

> 'The client is to be taken seriously, which implies that he determines for himself which products to purchase. Store personnel stand ready to help by offering the client advice which enables well informed purchasing decisions of products selected from a wide assortment of quality items, in a friendly ambience, and in a minimum amount of time.'

Table 1. Colruyt's business strategy (adapted from Clegg, 1990)

Subject	Traditional supermarket	Colruyt discount supermarket
Product offered	• Wide product assortment offered in standard package sizes • Inventory is replenished periodically • Supply-driven inventory policies • Stockouts are frequent	• Extensive product assortment offered at below-competitor cost and in many different package sizes made possible by using IT • IT-based daily inventory replenishment • Demand-driven inventory policies using IT-based historical customer purchasing figures • Stockouts are rare
Store environment	• Aesthetically pleasing store interior • The intended message — a pleasing store interior corresponds to quality products	• Sober store interior lacking any but the most basic architectural features • The intended message — a sober store interior enables low prices
Support	• Customer assistance is limited to friendly service at the checkout • Average to long customer waiting times are the rule	• Clients receive IT-based assistance throughout the store • Clients are assumed to be capable of making rational purchasing decisions when provided with the correct and right amount of information — product contents, product unit cost and product preparation guidelines • Short customer waiting times made possible by extensive IT application — during slack times checkout clerks restock shelves
Policy on cost reduction	• Cost reductions are achieved by paying low wages, offering few benefits and by using many part-time employees	• Cost reductions are achieved by employing few but mainly full-time employees, by improving employee and organizational efficiency and effectiveness and by bargaining for large-volume-based product cost reductions

The company's ideology

Since the company's inception, upper management has focused on rational discourse, reducing power differences among employees, encouraging personal initiative towards action at all company levels and on the relation between human rationality and emotionality. It is important to note that the centrality of communication among company employees was conceived ahead of any thought concerning its practical implementation. After serious debate upper management settled on IT to effectively and efficiently implement meaningful communication. In contrast to its competitors, where information technology was introduced into already existing organizations, the Colruyt company defined its business around IT. All business decisions were made in the light of the possibilities as well as the restrictions arising from information technology (Colruyt, 1993).

The desire to use IT for obtaining employee involvement wherever possible and the belief in their right to satisfying work is consistent with the radical humanist view of organizations (Burrell

& Morgan, 1979). Radical humanists believe that the primary goal of management should be towards harnessing the competence of people. They believe that society is anti-human. Human beings achieve their full potential within organizations that accept and work with the subjectivity of social experience and radical change. Mr Colruyt and the radical humanists clearly agree that organizations should be built around people and the realization of their potential (Table 2). By implication they both assume that a company based on this premise can be successful in the business arena.

Table 2. Labour structure (adapted from Clegg, 1990)

Traditional supermarket	Colruyt discount supermarket
• Employees focus on a single task with a high degree of task demarcation	• Employees focus on multiple tasks with a low degree of task demarcation
• Employees have little formal education	• Employees have much formal education — store clerks have high school diplomas and managers possess university degrees
• Little on-the-job training	• Much on-the-job training • An extensive company educational programme — course offerings focus on organizational and interpersonal communication competencies
• Little job rotation	• An extensive job rotation policy
• Limited worker job responsibility	• Extensive worker responsibility — clerks perform multiple assignments ranging from checkout duty to reshelving and cleaning the store's interior
• Limited worker empowerment	• Extensive worker empowerment — clerks decide when and how to perform their multiple job responsibilities
• A hierarchical management structure with decision making located at the top of the organization	• A flat management structure with decision making throughout the organization
• Limited job security for full-time employees • No job security for part-time employees	• Much job security for full-time employees
• High employee turnover	• Little employee turnover
• Homogeneous labour markets	• Heterogeneous labour markets

THE COLRUYT COMPANY AND INFORMATION SYSTEMS

Over the years there has been a prolonged and systematic attempt at Colruyt to design systems that support the business and its culture. The results are fascinating. Information systems (IS) played a key role in the company's strategy as the company moved quickly to exploit the full potential of IT. Some of the important success factors for the process of systems development such as the close relationship between business and information system designers owes much to the culture of the company.

The role of information technology

Snellen (1991) defines informatization as the combined application of information and communication technology. Informatization profoundly affects the way in which customer sales operations are organized. To quote Mr Colruyt (1993):

> '... when we opened our first discount [store] we concluded that large computers were coming and, hence, we organized our operations so that the entire sales function could run on computers. This contrasts with what Delhaize [a major competitor] and others did. These firms introduced information systems into already existing organizations and, hence, ran into much internal resistance.'

Mr Colruyt (1993) continued with the following observation:

> '[IT] does have commercial consequences. We were limited to selling products which our information system could accommodate; others we simply did not sell.'

For example, in 1965 it was simply impossible to handle meat products using the current punchcard-based IS, and the food assortment was limited to staple items. During the 1980s, the food assortment greatly expanded because just about any item could now be bar coded.

Two information systems are absolutely essential to the company's operating philosophy. The first system supports company-wide communication, whereas the second system supports the company's policy of offering consumers quality products at below-market prices. In keeping with the idea that information should be available to anyone, the Colruyt Company developed an interactive system for information dissemination (ISID) to enable decentralized decision making (Table 3). This system ensures access to information in unencumbered, effective and efficient ways. Furthermore, company policy ensures that information regarding any decision, action or event is captured by ISID. All interoffice correspondence, outbound and inbound communication, and minutes of meetings are captured by ISID. Documents less than 1 year old are stored online. Any document older than 1 year is stored on optical disk (Table 3).

The policy of distributed decision making required the sharing of information with a wide audience. Furthermore, decision making throughout the company justified the creation and continued maintenance of ISID. In keeping with decentralized decision making, 80% of the information stored is accessible to all within the company, including union stewards. The remaining 20% of information is confidential and access is limited to a restricted subset of employees. The system is absolutely essential to the company — each month one hundred thousand documents and one million document pages are printed. The systems capabilities are also impressive — documents less than a year old can be accessed in 1 second or less, a very short time indeed, considering that the online database consists of one million documents. Access time increases to 15 seconds for documents over a year old, which are stored on optical disk. This is certainly not excessive considering that the optical disk-based database holds over 10 million documents.

ISID is key to the company's communication infrastructure. Mr Colruyt (1993) illustrated with an actual example of how top management uses ISID:

Table 3. Interactive system for information dissemination

	Characteristics and specifications
Monthly volume	• Documents: 100 000 • Printed pages: 1 100 000
Response time	• On-line documents: 1 second • Archived documents: 15 seconds
Data base storage	• Recent documents: direct access storage • Old archive: optical disk
Data base structure	Three VSAM file types: • Glossary: keywords, documents numbers • Text: texts, document numbers • Title: keywords, document numbers
Document search	• On keyword with Boolean operators
Document confidentiality	• Restricted: keywords and contents accessible only to individuals named in the document • Non-confidential: keywords and contents accessible to anyone
Document access	• Restricted: 5% • Confidential: 15% • Non-confidential: 80%
Terminals	• Total number: 700 • Per store: 3

'I am a member of several steering groups ... how do I stay informed? After checking into the office I turn on my monitor and scan the memoranda that members of upper management have received and sent. I peruse the two hundred or so memoranda and I get good insight into the issues that my managers are dealing with. Then I make the rounds and discuss matters with the person in question.'

A second example provides insight into communication among managers and subordinates. After meeting with union representatives top management may want to comment on the company's job rotation policy. This is typically done by composing an ISID message, which is then sent to all the members of the organization. A transcript of an actual ISID message reads:

'We try to organize work so as to minimize job alienation. This enables workers to act according to their natural spontaneity and to experience pleasure and satisfaction on the job. Of course we cannot create paradise, but we should still try to make things better than they normally are.'

Mr Colruyt (1993) saw the use of ISID as essential to keeping management and workers appraised about what goes on in the organization. He stated:

'... to understand society one needs many models — economic, social, capitalistic, and Marxist models. These ... embody a collective intelligence which is activated by open and frank communication. Naturally, communication among individuals occurs at meetings, on the telephone, by using ISID. All these are key to the company's success.'

The second IS is a key component of the company's strategy to underselling the competitors' prices. The company views the policy as an information technology-supported contract with the customer — to be less expensive than the competition, under any circumstance and on every sales item. To achieve this it needs up-to-date information on the pricing policies and promotional campaigns of every competitor located within a 20-mile radius of each of the 130 Colruyt stores and the means to ensure that stores change their prices appropriately.

What makes all this possible is the largest computer software application which Colruyt has developed and implemented. It is maintained by 20 employees, who track competitors' pricing policies and special sales promotions. Despite their best efforts to stay abreast of the competition, omissions do occur and, therefore, stores are outfitted with red phones which customers use to report, 'I saw this or that product priced lower in a store belonging to the competition.' The customer is then returned the price difference plus a small cash bonus for his or her trouble. Within 24 hours, prices can be adjusted to again beat the competition. In addition, each Colruyt store has the flexibility to adjust its prices in response to local competitive pressures.

In summary, the role of IT at Colruyt has been an unusual one. From start-up, company operations and strategy have been designed around the possibilities offered by existing IT equipment and applications. Few new companies have approached the development of company strategy in this spirit even in the 1990s, let alone the mid-1960s. The design of the company's business strategy and work practices has gone hand in hand with the development of its information systems, producing an unusually well-aligned IS strategy. The value of achieving such alignment was beginning to be generally recognized in the early 1990s (Earl, 1989; Ward *et al.*, 1990; Scott Morton, 1991; Symons, 1991; Holtham, 1992; Kovacevic & Majluf, 1993). Almost as a side-effect we see the development of a rich communication systems that looks remarkably like that identified by Lyotard (1984) as necessary for a post-modern organization.

Information systems development

Most information projects are now started at the request of the user — who can be a checkout clerk, a district manager or a store manager. The user describes how the information system will improve job performance, calculates the system's contribution to the company's bottom line, estimates its development and annual system maintenance expenses and specifies the financial resources he or she is willing to contribute towards its development. This request is then submitted to a steering committee comprising high-level managers, end users and information specialists. The steering committee rarely rejects a request for an information system which shows a positive cost–benefit analysis. If the believability of the cost–benefit figures is in doubt, this issue is resolved by judging the reliability of the person behind the estimates.

Management determines a person's reliability by comparing the cost estimates against actual cost figures for previous software projects.

One example of an end-user-driven information system development project concerns a computer software package to simplify checkout procedures. Checkout clerks experienced problems with food items sold as single units and in shrink-wrapped multiple units. To check out shrink-wrapped food items, the clerk would first scan the barcode of a single unit. Next, he or she would manually enter the number of items in the shrink-wrapped package. Occasionally, clerks failed to enter this number. Customers would then purchase shrink-wrapped items at single unit prices (Le Roi, 1993). Checkout personnel convened to discuss the problem. They recommended a separate barcode for shrink-wrapped food items which circumvented the need for manually entering the number of items in the shrink-wrapped package. The clerks then successfully made a proposal for a computer software package, including projected one-time software development and annual maintenance costs and annual profit. This application has saved the company millions of francs in lost revenue.

The company must have been one of the first to try alternative ways of managing the three major stages of system development: finding and designing new systems that are aligned with business need; delivering a functioning application efficiently; and achieving a successful implementation in which the user population is persuaded to use the new system effectively (or at all). The approach of the 1980s, in which system professionals dominated the first two stages of new systems development, leaving implementation to the users, was being severely criticized by the early 1990s, as the evidence of poor returns from IT investment mounted (Kearney, 1990; Bessant & Buckingham, 1991; Axson, 1992; Brynjolfsson, 1993; Duimering *et al.*, 1993). Many of the actions being promoted as best practices in the 1990s seem to have been adopted by Colruyt over 20 years earlier. The way in which users are closely involved with all stages of new systems, the acceptance of responsibility for new investment by all levels of management (in particular senior management) and the attempts to foster a close working relationship between system designers and users all accord with current thinking for delivering effective IS (Earl, 1989; Ward *et al.*, 1990; Scott Morton, 1991; Symons, 1991; Brown, 1992; Grindley, 1992; Holtham, 1992; Kovacevic & Majluf, 1993; Earl & Feeny, 1994; Hunt & Targett, 1995; Rockart *et al.*, 1996).

IS developers are guided by a scientific rationality which tries to achieve an optimal relationship between system inputs and outputs. This was the group which dominated early system development, and Lyotard (1984) would argue that their approach is essentially modernist and hence flawed. Walsham (1993) proposes that we look on all system projects as change programmes, often with more than one objective involving multiple stakeholders and almost certainly bringing changing work practices. Many other writers have identified some or all of these elements in a wide variety of IS projects (Zuboff, 1988; Legge *et al.*, 1991; Scott Morton, 1991; Smithson *et al.*, 1994; Sviokla, 1996). Post-modernism, in holding that scientific knowledge is not the totality of knowledge, seems to have offered an insight that is proving relevant for IS development. The modernist approach of the 1980s has for the moment been found to be too restrictive. However, the idea that systems should be built with many models in mind based on contributions from many sources is easier said than achieved. The Colruyt company

gives us considerable detail on its experience over the last 20 years in trying to manage in this way.

Information systems delivery

A user-driven software budgeting procedure was implemented 20 years ago with the explicit purpose of controlling information systems costs. Contrary to management's expectations, the financial resources allocated to informatization projects have increased enormously. During the last decade the company has experienced annual informatization budgets in excess of 20% of before-tax profits.

User-driven software budgeting was a shift from centralized to decentralized decision making concerning informatization projects. Yet management retains an important measure of control. Mr Colruyt strongly believed that upper management should delegate decision making to the lowest possible level. However, he was equally convinced upper management should retain accountability for the company's resource expenditures. Mr Colruyt (1993) stated:

> 'Because of the huge outlays, the role of the information systems department and outsourcing of application development and operations have been debated vigorously. However, in the end we concluded that outsourcing inevitably leads to a loss of control and, instead of outsourcing, we have created an independent software house that develops our information systems but which also competes for business on the open market.'

The planned growth of the Colruyt information systems department illustrates an alternative approach to outsourcing (Lacity & Hirschheim, 1995). The information systems department had its start in 1982 (Lengeler, 1984). Before that, individuals with some technical knowledge augmented by a healthy dose of on-the-shop-floor practical experience formed an informal group that took charge of the information systems function. This development occurred quite naturally if one considers that tabulating machines were mechanical devices which could be programmed by anyone with a mechanical bent.

As the complexity of computer programming increased, the need for a group of more specialized individuals became clear. Competent individuals were a scarce commodity and Colruyt decided to train a number of its employees as systems analysts and developers. A significant part of the training focused on the relationship between shop personnel and systems analysts. The information systems department became so successful that it was spun off as an independent profit centre which now develops software and provides consulting services to Colruyt and outside clients. In short, Colruyt developed an ideal outsourcing arrangement — the IS department stands on its own and can be called on to help whenever needed.

MANAGING COLRUYT'S OPERATIONS

The attempt to realize Mr Colruyt's vision has produced interesting results in the way in which the company is managed. The following sections discuss some of these results with respect to

work roles, decision making, employee development and training, corporate norms and organizational structure.

Work roles

The work roles of many members of staff show unusual facets (Tables 2 and 4). Sales clerks have a real but limited power over their working environment. They have the power to make broad decisions. To illustrate, consider a customer who informs the checkout clerk of a product which is sold cheaper in a competitor's store. The clerk is empowered to reduce the price to the customer to beat the competition. States a checkout clerk (Le Roi, 1993):

> '[If the customer] shows [me] a competitor's flyer, stating a lower price [compared to Colruyt], then I give [this customer] an immediate price reduction.'

Through a series of verbal exchanges with the customer, the clerk seeks the information necessary to make a decision. After granting the customer's request, the clerk then keys in the item's price. A further example involves a customer who, planning to buy a substantial quantity of a particular item, requests a concession on price from the clerk. The clerk has the authority to grant such requests.

Sales clerks also exercise power over their choice of job. There are two distinct jobs to be carried out — checking out customers and reshelving. At the start of a shift, it is the team of clerks who will get together and agree on how the division of work is to be made. Finally, all clerks are expected to contribute to the company's ongoing debate on information systems, as described earlier.

Middle management in the form of store managers also faces a somewhat non-traditional role in decision making. Store managers conduct biweekly evaluation meetings with store personnel. Discussion revolves around work issues such as how the interviewee gets along with coworkers and customers. The store manager provides feedback to the employee, supported by past conversation which he has previously summarized and stored in ISID. These reports go only to the supervisor and employee. In a real sense, ISID is a memory mechanism that dispels future problems related to loss of information or misinterpretation of facts. The manager may suggest appropriate action to help the employee with the perceived problem, such as going to a seminar. Zuboff (1988) suggested that in an informated organization the managers' roles move towards 'drivers of learning ... rather than drivers of people'. This is a role that Colruyt's managers are beginning to play.

Decision making

Mr Colruyt's belief that all employees should participate as much as they are able, together with his acceptance of multiple models of any situation, have been translated into the decision-making process with fascinating results (Table 4).

The Colruyt Company first practiced, but gradually abandoned, group decision making. Consensus on decisions is still sought. Final decisions are not made during meetings but are

Table 4. Company ideology (adapted from Clegg, 1990)

Traditional supermarket	Colruyt discount supermarket
• Modernism, which is based on the concepts of instrumental rationality, informs the company's ideology • Socialization of the individual into larger group entities	• Post-modernism, which is based on questioning the grand narratives, informs the company's ideology • Attention is on the individual
• Fordism — mass production and mass marketing of homogeneous products • The aim is mass consumption of a limited assortment of products	• Post-fordism — small batch production of many heterogeneous products and niche marketing • The aim is individualized production and selective consumption from among a very large assortment of products
• Rigid organizational structures coupled with top-down command structures and bottom-up communicative structures • The organizational structures are based on bureaucratic concepts • Employees mistrust management	• Flexible organizational structures couple with networked command and networked communicative structures • The organizational structures are based on democratic concepts • Employees trust management
• Planning — short term • Spatial centralization — product pricing on system-wide basis	• Planning — long term • Spatial decentralization — product pricing is determined on a store-by-store basis
• Managerial decision making — consensus seeking • Managerial decision making — rationalism	• Managerial decision making — consent seeking • Managerial decision making — deconstructionalism

scheduled to occur later. The chair calls and controls the meeting, but he or she does not automatically make the final decision; neither does the group. One individual agrees to or is nominated to make a final decision. Decisions are never made during the meeting. The decision is finalized by one individual and communicated to all affected individuals on ISID. This procedure avoids decisions for which no one feels responsible but links decisions to specific individuals. Mr Colruyt (May 1993) noted:

> 'It is always an individual [who finalizes the decision]. The decision is announced a few days after the final meeting. [Because] a group decision is some of this, a little of that. That is [a sure recipe for] catastrophe.'

The quote reflects many years of practical managerial experience and is corroborated by independent research findings that criticize consensus-based decision making for avoiding uncertainty and promoting groupthink.

Because it is assumed that a lack of fixed starting and adjournment times leads to conflict, meetings start and adjourn on time. It is believed that decision making during meetings does not enable careful deliberation, which in turn puts the decision maker under undue stress. Such stress is lessened by scheduling decision making to occur 3–4 days after a meeting. Finally, emotional stress is relieved by making it discussible during the pursuit of rational argument. Mr Colruyt (May, 1993) noted:

'[During] a meeting someone may say: I feel discouraged, you totally backed me into a corner! That person speaks about his emotions. If others understand these emotions, that creates an environment for [meaningful] human interaction. Both rationality and emotionality should be open for discussion.'

The Colruyt Company appears to have gone some way to solve the problem of involving large numbers of people in the decision-making process while retaining the ability to translate the decisions into effective action. Furthermore, after the decision is made, ISID is used to communicate the decision throughout the company. This allows a further chance for feedback and revision.

Corporate norms

Company norms are considered important and talked about frequently (Table 4). Norm creation, change and enforcement are a part of every occasion that company principles are interpreted in actual situations. As such, they are a subject to which everyone contributes. The company has many mechanisms for carrying this out: company seminars, communication devices such as ISID and written instructions.

One example of norm creation was provided by a French-speaking employee. She came across an ISID document which had been translated from Flemish into French. After pointing out legitimate shortcomings in the French translation, this employee then followed up by severely berating the document's translator. While scanning recent ISID documents, a high-ranking manager noticed the exchange of fire. He responded on ISID to the notes' author, the group of translators and to company managers. In his note, this manager stated that one should refrain from flaming (e.g. getting emotional) on ISID. He further specified that the correct way of handling issues is to make a personal appointment to discuss the matter, and then write an ISID note. In other words, this metacommunication illustrates that the norm of a critical attitude goes hand-in-hand with the norm of civilized treatment of individuals (DeHertog, 1993).

The company takes its employees seriously, and it expects a similar attitude from them in return. This means that each employee has the responsibility for what goes on in the organization. It also means that each individual is given the necessary tools for decision making, such as decision-making power, information, education and training and ways to avoid senseless tasks. The advantages of these principles imply personal creativity, consensus concerning organizational decision making and ultimately relationships that are more functional and less hierarchical. Employees are expected to think and act with the future in mind. The emphasis here is on opportunity cost. This norm is based on the notion that a company may miss important opportunities for future profits by being too focused on the present or the past (Francois, 1983).

Another norm is that each Colruyt customer is to be taken seriously. This implies that the client is considered sufficiently mature to be able to make his or her own purchasing decisions. The company's task is to provide the customer with a large assortment of quality products at a

competitive price and to position a sales force ready to advise the client capably in a customer-friendly environment.

Colruyt is unusual in the extent to which it will go as a company in making explicit the norms of the organization. It has created a process by which behaviour can be discussed openly. This makes norm changes a more consciously planned process than is the case in traditional supermarkets.

Employee development and training

The company practises job rotation, which increases the likelihood of understanding among individuals, based on a shared life world (Rogge, 1985). Practical experience on the shop floor is a must for information systems analysts, designers and top corporate managers. Job rotation is a significant commitment. For example, systems analysts spend years in different functional areas (Table 2).

The questioning during meetings about situations, decisions and rationality of statements can create high levels of stress, and safeguards are needed to keep the stress within acceptable limits. Therefore, educational seminars are available on self-empowerment, self-expression and assertiveness to help individuals deal with their emotions. The validity and relevance of norms are topics of utmost importance in these seminars. Courses have minimal theoretical content and focus instead on building communicative competence under practical day-to-day conditions. Our discussions with employees found no evidence that any feel compelled by their managers to attend a particular seminar, or any seminar, for that matter. When asked what the employee might do if material presented during a seminar goes counter to his or her personal opinions, a store manager responded (Le Roi, 1993):

> '[My experience indicates] there is only one thing to do, [which is] leave! Or else [I] discuss the matter with [the instructor or other seminar attendees]. Yes, [such actions] are possibilities. [After all], forcing someone to attend a four day company seminar is ludicrous if [the employee] does not absorb anything.'

Organizational structure

At all levels of management, our informants discounted the concept of formal structures, and some even went so far as to deny the existence of formal structures. Mr Colruyt's (1984) reaction to a publication in a national newspaper exemplifies the reticence concerning organizational charts:

> 'The ... article published an organizational chart. This is absolutely wrong and should never happen again. The furthest that I am willing to go is publishing pictures of members of the managerial cadre with a short accompanying statement concerning their job. Future official publications should focus on why managerial personnel exist — to support the sales people on the shop floor. The managerial cadre is a necessary evil and its members should never become the centre of attention.'

However, based on our interviews with members of top management there appears to exist a much scaled-down version of a hierarchical organization (Fig. 1 and Table 4). We conclude that the reason for the reluctance to discuss organization forms can be attributed to two causes.

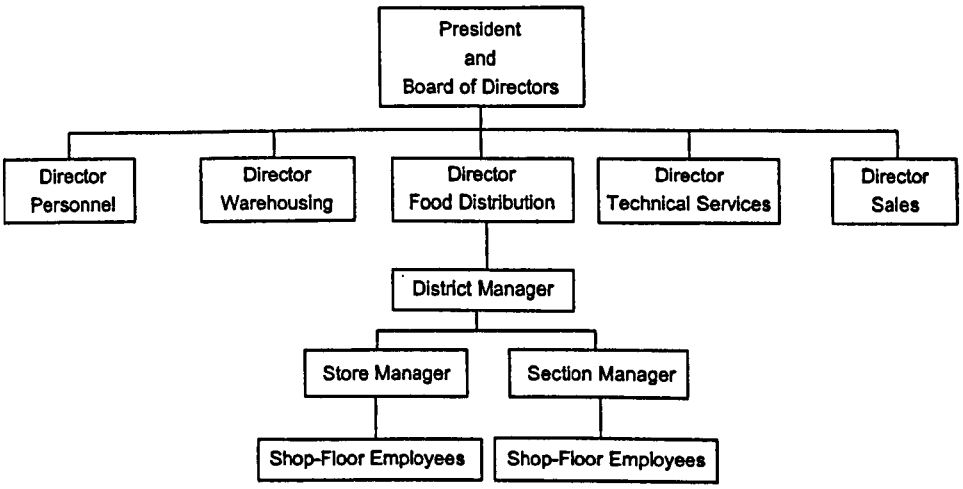

Figure 1. Approximate Colruyt organization chart.

First, different organizational forms exist side by side. Thus, for example, interpersonal relations on the shop floor are very egalitarian and all members have great latitude to organize their daily tasks. The warehouses, on the other hand, are organized quite hierarchically with an emphasis on the job descriptions. Lengeler (1984) describes a disagreement between Colruyt warehouse workers and members of the human resource department. These were almost without exception recent university graduates who believed that warehouse personnel should adopt informal and egalitarian work relations. This led to confrontation because each group believed that there existed one *ideal* organizational form which could be applied across the entire organization. Stated Lengeler (1984):

> 'Organizational form depends on the type of personnel members and the tasks that they perform. By this I mean that within the same firm, such as Colruyt, different managerial forms can be necessary. The most important question is how to coordinate cooperation between the different organization forms.'

Second, Mr Colruyt (May, 1984) was averse to official organizational forms because he believed that the ensuing bureaucracy stifles communication and action. Mr Colruyt stated (May 1984):

> 'A hierarchical system turns into a bureaucracy for two reasons. First, there is the refusal of upper management to relinquish control. Second, there is the refusal of lower management to make decisions.'

Mr Colruyt reduced the bureaucratic structure by using the concepts he observed during his Communist days in Paris, France. Marxism's influence on Mr Colruyt's belief system was discussed earlier in this paper. Throughout Colruyt one finds cells or groups of individuals who work at solving problems. These groups use the latest communicative technology. Most change is effected through work teams. For example, a work team including cooling engineers, meat preparation supervisors and meat preparation clerks may be formed to resolve frequent food cooler malfunctions. Memoranda and other documents concerning the team's objectives are distributed automatically to all other group members in electronic and printed form through the use of ISID. Joining such a work team would be at the discretion of the individuals in question and would not be controlled by the existing work group members. Functional teams are normally temporary entities organized around particular issues. A work team consists of people who, via ISID, receive information on the issues involved. Membership in functional groups is determined by a need to know and not by considerations such as position in the organizational hierarchy, technical expertise, and project type.

The inherent conflict between team responsibility and line responsibility appears to be handled in an informal way. It was never raised as a problem by any of our informants. Potential conflict is handled in biweekly debriefings of a subordinate by his supervisor. During the debriefing the subordinates discuss the problems that occupy their time. The supervisor discusses concerns he or she may have about the subordinate's performance. The two-way discussion ensures that supervisor and subordinate have a clear idea about each other's feelings. The two-way discussion is summarized by the supervisor and placed on ISID. The biweekly debriefings are a method of resolving conflict that may arise concerning the subordinate's responsibility towards his supervisor and work team members.

In summary, Mr Colruyt had a strong desire to eliminate the deleterious aspects of bureaucracy while retaining some of its good features. His suggestions for flexible, transient work teams as the organizational engine of change and decision appear to stem from Roman Catholic and Communist concepts and from his own experiences and observations. Work teams are a feature of post-modern organizational life. The Colruyt Company has been using them for some considerable time. The way in which they are formed, their membership, methods of working and interaction with the rest of the organization were clearly designed to encourage wide-ranging employee participation. The process of creating and running these teams is crucially dependent on the information system, ISID.

DISCUSSION

Colruyt has achieved success through its ability to deliver the chosen business strategy. Food retailing, the industry within which it operates, is highly competitive. The strategy itself was low risk in that it was only moderately innovative (customer focus of packaging and staff) and the product of great attraction to most consumers (food — a basic need at low price in a welcoming environment). The company set out to create a working environment with very special and specific characteristics. In doing so, it has apparently created a culture in which all staff

understand the strategy and are expected to contribute their best efforts towards continuous improvement of all operations. In studying the Colruyt case, certain characteristics emerge as critical for an organization's success in the post-modern world. These characteristics are discussed below.

Values

Traditional supermarkets have sought advantage through cost and quality control and product choice. Cost control is achieved through standardized procedures, designed and tightly controlled from the centre. By contrast, Colruyt has sought advantage through cost and quality control and customer information. Cost control is achieved through standardized procedures designed and delivered by staff involved in the relevant operations. In the 1990s this has become a sought-after quality by management gurus but not one that is easily created. Colruyt has spent over 30 years creating such a culture, and the case evidence suggests that it has met with remarkable success (Table 4).

Applying major organizational theories to individual entities determines much about the way people inside and outside view it. They establish the issues and questions that rank most highly for those designing and running it. However, these theories still tend to leave a wide range of choice on large numbers of practical questions concerning how the organization is to be managed. Mr Colruyt's core values are in sympathy with both post-modernist and radical humanist ideas. The idea of making knowledge available to anyone in the Colruyt organization using a special company-designed information system for the dissemination of information and his aversion to decisions based on consensus are very much in the spirit of post-modernism discussed in an earlier section. Mr Colruyt was committed to decision making in the spirit of open discourse and conflict. His concern with the rights of customers and employees fits into the radical humanist paradigm. His acceptance of multiple world views accord well with the subjectivist assumptions of radical humanism and post-modernism. The Colruyt Company shows how one organization has attempted to realize these organizational values.

Information technology

The current realization of Mr Colruyt's ideals owes much to the possibilities opened up by developments in information technology. Since 1965, IT has transformed the job of collecting, analysing and distributing information, both hard and soft. Costs have plummeted. The range of applications has both expanded and become more accessible to the average user. Transmission speeds have jumped. But perhaps most significantly, the delivery points are now potentially ubiquitous. This communications facility has made possible many of the company operations that support the original vision. IT looks set to continue offering new facilities for the next 20 years at much the same rate as the last 20 years. It seems reasonable to predict that some of these facilities could help the company to develop a structure that comes even closer to their ideals.

Empowerment

It is instructive to see the type of organization that the Colruyt Company has created in making staff empowerment one of the company's prime objectives, together presumably with profit and growth (Tables 2 and 4). There is a clear, but mostly unwritten, work structure. As the company is running a repetitive set of operations delivering near-commodity products, this is not surprising. However, it is organized to ensure that change is an option under continuous review. The norms expressed by management were for fluid organizational structures. Team composition and remits are extraordinary, offering access to a very wide range of potential sources of ideas within the company, yet ensuring that new ideas are subjected to searching and rigorous analysis by all relevant stakeholders before resources are committed to implementation.

Despite the desire on the part of the company to create interesting work, the job roles of many of the 'front line' workers are still fairly narrow. The solution arrived at when resolving the conflict between the needs of the company's operations and the desire for responsible, interesting job roles is worth noting. Each shop-floor worker has two job roles — the main operational one and its redesign. Many of the operational roles have been extended beyond the most basic (e.g. sales clerks). But it is clear that the scope for job complexity and job control is limited by the very nature of the business that the company is in. The second role as potential change agents is a serious move towards some degree of empowerment precisely because the option to exercise this responsibility lies with the worker.

Decision making

The process of decision making adopted by the company is perhaps the most interesting and significant result of its 30 year experiment. Again, in resolving the conflict between the need for effective decisions that will be implemented and the desire for wide-ranging participation, the company has reached an unusual conclusion. Widespread participation is achieved by publishing the issue (through ISID in particular) and by the selection methods used to create the working group charged with the responsibility of making the decision. Effective decisions that, more importantly, will be implemented are achieved by nominating one member of the group as responsible for both decision and implementation (Tables 2 and 4).

Norms

The emphasis on the creation and maintenance of norms is not in itself unusual. Most organizations engage in this activity, although many do so in a covert fashion. What is unusual at Colruyt is the open discussion of these issues and the nature of the norms aimed at. The current norms will to a great extent reflect Mr Colruyt's values, but he has left a legacy in terms of organizational structure and norms that ensures that these issues, like all else at the company, are legitimate subjects for discussion by all staff and will continue to undergo some form of continuous interpretation and change.

CONCLUSION

The Colruyt case offers several important lessons to future business leaders. First, IT-based communication enables the effective operation of tomorrow's organizational structure. Traditionally corporate top management operated a 'one-to-many' communications system — one communicator and many recipients (Coyne, 1995). Nevertheless, IT-based techniques make possible 'many-to-many' communication, which will set the company apart from its competitors.

Second, a value system is a significant factor in the effective management of a business. The Colruyt Company is unique because, although highly profitable and successful, its organizational structure is informed both by changing business conditions and by Mr Colruyt's personal system of values.

This system of values can be traced to two great metanarratives — Catholicism and Marxism. During our interview Mr Colruyt indicated time and again that these metanarratives have lost much of their original validity. Despite the loss of validity, several core concepts of these metanarratives continue to inform the culture in which the Colruyt Company functions. The incredulity concerning the validity of the metanarratives combined with the selective use of some of their core concepts signal a post-modern approach to managing the company.

Business conditions in other countries, such as the United States, are informed by different metanarratives from those in Belgium. Nevertheless, a sensitivity to the unique aspects of the metanarratives underlying prevailing business conditions as demonstrated by Mr Colruyt should be of interest to any business managers. This is particularly so as the continuing trend towards globalization prompts many companies to extend their operations abroad. It is our belief that business leaders can learn from real-life examples such as the Colruyt case how to organize their companies successfully in the current post-modern era.

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Paper 7

Janson M and Brown A (1998) 'Information Technology in support of Communicative Action theory: a practical investigation' draft working paper

INFORMATION TECHNOLOGY IN SUPPORT OF COMMUNICATIVE ACTION THEORY: A PRACTICAL INVESTIGATION

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ABSTRACT

This research reports a case investigation into a successful Belgian company, Colruyt, which made extensive use of information technology (IT) in support of its unusual organizational vision. Our analysis suggests that this vision is in accord with the social theory called communicative action theory (CAT) which puts great emphasis on the individual's actions and contributions to company goals. Despite recent attention to CAT within the IS research community, there is little published on the issues involved in actually implementing CAT. Our case-based results show that IT is indispensable to the realization of CAT ideals. Our findings have direct relevance to any organization that relies predominantly on its human resources to achieve business success. Hence our study is of interest to managers, practitioners and researchers alike.

1 INTRODUCTION

Early applications of Information Technology (IT) sought to automate routine tasks and hence such projects contributed significantly to improving operational efficiency. As the potential of IT to act as a tool in support of managers and experts began to develop, goals changed to include organizational effectiveness (Smithson and Hirschheim, 1998). Later, competitive advantage developed as an additional goal when the potential of IT to transform business activity became clear (Zuboff, 1988; Scott Morton, 1991; Walton, 1990; Ciborra and Jelassi, 1994; Tapscott and Caston, 1993; Keen, 1991). All these aims centered on business activities and were directed at using IT to improve organizational performance in terms of its primary goal of producing goods and services.

A growing body of literature on the impact of these developments on organizational structure and job roles attests to the transformational potential of IT on our work lives (Zuboff, 1988; Yetton et al., 1994; McLuhan, 1964; Duimering et al., 1993; Scott Morton, 1991; Liker et al., 1992; Channon, 1996). However, the aim of much of this work is to describe the nature of the changes wrought by IT on people and organizational structures or to identify what job changes to make in order to improve the payoff of IT investment in terms of business goals such as profit and growth. Our research takes a different point of view - it investigates the extent to which IT may be used to achieve both business goals and predefined organizational goals. Just as IT can be used to further business goals it can also be utilized to nurture a particular organizational environment. For this to happen an organization must have both business and organizational goals. Because few companies in this century were concerned with both, there is little experience on

how IT might be deployed to create and support particular types of work roles and organizational structures.

Many current organizational structures derive from the 'Taylorist' model designed in the early part of this century (Taylor, 1911). The basis of this model is the division of labor into repetitive tasks, which can then be carried out by any unskilled worker. Operational efficiency of the whole organization was the ultimate design goal. To achieve this, organizations need to resolve the problem of co-ordination of many people. Large and complex hierarchies are the usual solution, with power associated with seniority of position rather than expertise or experience.

Changing business conditions and dissatisfaction with the Taylorist model and its effects on people's working lives have led to much theoretical discussion about, and experimentation with, alternatives (Heydebrand, 1997). Almost all seem to be attempts to vary the Taylorist model in order to make the work environment more 'humane' without sacrificing business success. Critical social theory (CST) represents an important and influential school of thought, that totally breaks with the Taylorist tradition in that the individual and his role are important factors in the overall design of the business. Thus ideals of open human dialogue take on far greater importance than in Taylor's model. Communicative Action theory (CAT), developed by Habermas (Habermas, 1973, 1979, 1984, 1989), stems from CST and offers a picture of what society would look like if it were to operate according to CAT ideals.

Our proposition is that for medium to large sized organizations in particular, IT is essential for the realization of the ideals embodied in CAT. Without IT we suggest that the practical problems of achieving this ideal are

overwhelming. To investigate this proposition we needed a large and successful company that professes organizational aims similar to those described by CAT and that had had some success in achieving this vision. If this company made substantial use of IT to support its business and its organizational vision of CAT, this would then offer significant evidence in support of our proposition. Because the Colruyt company appeared to come close to this description we chose it as our case. The company has been successful over a long period of time and has grown to employ over five thousand people with a multi-billion dollar annual turnover. Its founder and chief architect, Jo Colruyt, had values that ran counter to Taylorism and conformed far more closely to CAT ideals. Furthermore Jo Colruyt attempted to realize these ideals at his company using IT. Basing the study on this case also sets the limitations of our work since it is restricted to one company, in one industry, and in one country.

There is still little published work on the realization of CAT ideals in practice. Habermas himself offered little guidance on how to achieve his ideal society. We know little of how he saw the various aspects of his theory working within a functioning state, let alone how a single organization would operate within a social environment that was essentially not based on CAT ideals. Hence an important part of our research has been to develop a model showing the key characteristics of an organization adhering to CAT ideals. To our knowledge ours is a first attempt of its kind.

This research is important because organizational change is now essential to the success of more and more companies. For many products and services, the human contribution is becoming the most significant resource, ahead of other resources such as capital and plant. Human conditions and work environment are

clearly assuming much greater importance than in the past. What is needed is an understanding of the conditions that enable staff to deliver the maximum contribution they are capable of, and then to put these conditions in place. This is a central concern of CAT. Therefore, our results have direct relevance to any organization that relies predominantly on its human resources to achieve business success.

This paper reports on the results of our investigation and analysis of the Colruyt company. The aim was to establish the degree to which this company supports our research proposition that IT is essential to the working out of its organizational vision. The paper is arranged as follows. Section two is an in-depth discussion of the theory of communicative action. Section three constructs our model for an organization based on CAT ideals. Section four introduces the Colruyt company and describes the research methods used to investigate it. Section five discusses the evidence for CAT at Colruyt using the model developed in section three. Section six evaluates the extent to which IT is crucial to the implementation of CAT ideals at the Colruyt company. The final sections discuss limitations of the work, the contribution it makes to IT research and the implications of the results found for the use of IT.

2.0 CRITICAL SOCIAL THEORY AND COMMUNICATIVE ACTION THEORY

In this section we draw on the many excellent reviews of Critical Social Theory (CST) (Horkheimer, 1972, 1974) and Habermas's theory of communicative action (CAT) (Habermas, 1973, 1979, 1984, 1989) in order to identify those characteristics of the theory that have implications for organizational behavior. CST proposes an ideal by which to organize human relationships. It seeks not only

to understand social behavior but also to critique it and the situations from which it arose. Ngwenyama and Lee (1997) place CST in perspective in the following way: "traditional social theory aims at explanation whereas CST aims to go beyond understanding by making explicit unjust and inequitable situations."

A key purpose of CST is to help individuals emancipate themselves from all forms of domination arising from such sources as ideology, misinformation, and economic or physical coercion. It seeks to provide individuals with ways of freeing themselves from false or unwarranted beliefs, assumptions or constraints (Ngwenyama and Lee, 1997) so that they may be enabled to act according to their own beliefs, values and understanding. At the core of CST is the belief that each individual is an intelligent agent capable of independent and rational action. Within this view of the world, each individual is expected to take an active role in every incident, taking full responsibility for their own actions and the subsequent outcomes.

Habermas's CAT is grounded in CST (Alveson and Willmott, 1992, Hirschheim and Klein, 1994). His concern is the individual and how each can deal with the circumstances around him so as to achieve emancipation from structures of domination (White, 1995).

2.1 ACHIEVING APPROPRIATE ACTION

According to CAT the actor has five main types of social action available to him; instrumental, strategic, communicative, discursive, and dramaturgical action. In every situation, he is expected to use these action types in an appropriate fashion.

All actions are embedded in an organizational context. It is this context that defines the possibilities for social action and gives meaning to it through its

organizational policies, norms, culture, and routines. It determines the power, authority, and status of its members and what is proper and improper behavior. It is against the backdrop of organizational context that the actions of individuals become possible, interpretable, and meaningful. The meaning each actor attaches to his or her actions and to the actions of others is an important facet of organizational life. Participants in a common incident may attach differing interpretations according to their varying perception of the organizational context. For communicative action all must not only have total command of the context but have reached a mutual understanding (Rockmore, 1989) of it so that there is agreement as to the terms and language used. Each can then exercise critical self-reflection to detect and analyze distortions in the message. Mutual understanding is a crucial step in the process of achieving consensus, without which emancipation cannot occur. The reason for Habermas's focus on communication now becomes clear. One of the purposes of the discursive action type is to achieve exactly this.

The quality of communications between individuals and groups is a key concern for Habermas. Communications can suffer from distortion in several ways. They can be factually inaccurate, unclear, incomplete, or simply false. The sender may be insincere or lack the authority or position to carry out the communicative act. For Habermas it is necessary for the receiver to emancipate himself from this distortion before planning his own actions. The means to do this is by applying the relevant validity checks. The individual initiating one of the five action types makes it an appropriate action by meeting the series of validity claims associated with it. The receiver or participant must test these claims before accepting the action. Each of the five action types has its unique set of validity claims (these are described in greater detail in the next five sections). The individual draws on his knowledge of

organizational context, the situation itself and the orientation of the sender to critically assess the action. By correct application of these validity claims, distorted communication cannot remain undetected. Should an individual have unresolved doubts about the action he or she can start a discussion with the initiator and other interested parties with the aim of clarifying and agreeing on what is appropriate. One of the purposes of discursive action is to help achieve this harmony.

For CAT several norms for individual behavior must be met. Individuals are allowed to express their opinions fully but are expected to defend their proposed actions in terms of the relevant validity claims. Further each is expected to 'honor the outcome of open rational argument' (Ngwenyama and Lee, 1997). According to CAT, breakdown in communication occurs when actors fail to observe the norms or fail to comprehend the actions of others. The next five sections discuss in greater detail instrumental, strategic, communicative, discursive, and dramaturgical action types.

2.2 ACTION TYPES

Instrumental Action

By engaging in instrumental action, which occurs in the nonsocial world, the actor seeks to bring about a wished for condition (Habermas, 1984). Often a desired condition can be obtained by performing one of a number of possible alternative actions. Under the circumstances just mentioned an individual brings about the desired condition by performing that act, namely the instrumental act, that he deems most appropriate, effective, and efficient given the particularities of the situation. The instrumental act is success-oriented and the individual predicts the results and human behavior arising from the performance of an instrumental act by using causal, probabilistic, or logical relationships. An essential aspect of

instrumental action is that it intervenes in an objective world involving facts and humans as abstract or real objects, respectively. The actor assumes a position outside the situation and discounts how his presence affects the outcome of his actions. An essential prerequisite to successful instrumental action is that the actor has an accurate set of facts or a true picture of the relevant relationships (Table 1). Hence the validity norm to be met is truthfulness. It then follows that instrumental acts are classified as purposive rational acts (White, 1995). The individual, by performing the instrumental act, aims to advance his personal interests. Instrumental action is entirely goal-oriented.

Strategic Action

Strategic action occurs in the social world and involves two or more individuals who seek to bring about a desired state of affairs. Strategic action is goal oriented and directed toward success. The individuals comprehend that they are anchored in a social context, and by engaging in strategic action each assumes a rational and strategically responding counterpart. Each individual adapts his performance of strategic acts in response to the strategic acts of his counterpart. The success of a strategic act depends on the extent to which it complies with prevailing contextual social rules and norms. The important validity claim in the case of strategic action is correctness. That is to say has the actor been granted the authority explicitly or by organizational norms to act in this way (Table 1)? As pointed out by Habermas (1984, p.85), the concepts underlying strategic action find their expression in decision making models used in economics and sociology.

Communicative Action

Communicative action aims to bring about consensus through rational argument under ideal speech conditions, which are characterized by symmetric

power relationships among the interlocutors (Habermas, 1973, 1979, 1984, 1989). This is the action type that most closely conforms to CAT ideals.

It aims to bring about a specific type of interpersonal relationship in which there exists a shared understanding or consensus about a situation (Habermas, 1984, p.86). This shared understanding concerns states of affairs, organizational realities, and prior decisions (Ngwenyama and Lee, 1997). Shared understanding is closely tied to agreement on essential aspects of social reality and it occurs when the actors agree on a common definition of the objective reality of facts and events, the social reality of norms, and the internal reality of intentions, emotions, and personal needs (Table 1). Truth of facts, rightness of norms and sincerity function as the validity claims for communicative action (Kunneman, 1986, p.230).

A central aspect of communicative action is that consensus is obtained by discussion under conditions of symmetric power relations. This implies that agreement is not imposed by the more powerful individual on the weaker one. Habermas (1984, p.287) stated:

> "...Communicatively achieved agreement...cannot be imposed...whether instrumentally through intervention in the situation directly or strategically through influencing the decisions of opponents...Agreement rests on common convictions."

Communicative action can turn into strategic action when, for example, an actor creates the false impression that all the validity claims are open to being tested by critical argument (Kunneman, 1986, p.68). If other individuals fail to notice this fact, they will continue with their communicative action. The deceitful actor can successfully perform the strategic action under the guise of communicative action insofar as he is able to hide his true motives from others.

Discursive Action

Discursive action plays a central role in supporting and furthering

communicative action. It aims to establish a set of common norms for all participants. It entails the explanation and discussion of the validity norms that govern communicative action. It is the main tool for ensuring that successful communicative action will occur (Table 1). Its success relies on the sincerity of the actors. Hence the validity claim is sincerity.

In response to, for example, a communicative action that appears dubious, the participants can choose among three alternatives: they can 1) discontinue their communicative action and cease to strive for common understanding; 2) abandon their communicative action, cease to strive for common understanding and shift to strategic action; or 3) engage in discursive action and seek common understanding by creating conditions which enable a rational discussion concerning the adequacy of the validity claims.

Habermas (1984) introduced the term discursive action to refer to discussions concerning the adequacy of validity claims. Such action should satisfy the following requirements: 1) all concerned have an equal chance at signaling the need for discursive action whereby validity claims can be tested by argumentative methods, 2) all concerned can critique any assumptions and have an equal chance at introducing alternative opinions, 3) all concerned can enjoy equal power so that no one is prevented from critiquing assumptions and opinions and, 4) all concerned are sincere, which means that no one tries to manipulate anyone. Habermas (1984) referred to these conditions as the "ideal speech situation."

Dramaturgical Action

Dramaturgical action deals with the subjective worlds of individuals (Table 1). It is the presentation of self in a public forum (Habermas, 1984, p.90; Outhwaite, 1996, p.134). This type of action performs a function that is of great

significance for communicative action. It disseminates understanding about the individual's strengths and weaknesses and hence enables each to gain legitimacy in situations and for subjects and actions for which this is appropriate. The more an organization makes use of communicative action the more significant dramaturgical action becomes.

Concerning dramaturgical action Habermas (1984, p.136) stated:

> "[Dramaturgical action] is a social interaction whereby those involved constitute a 'public' for each other...The actor seeks to be seen and accepted in a certain way by his public."

For example, a systems analyst practices dramaturgical action when he projects an image of the specialist with privileged access to the skills necessary to satisfy the user's information requirements. The actor purposefully controls for his public audience the disclosure of his experiences, thoughts, cognition's, wishes, attitudes, and emotions to which he alone has privileged access (Outhwaite, 1996, p.136). In this manner the actor aims to create a shared understanding between himself and his audience (Habermas, 1984, p.329). CAT would suggest that every member of an organization would engage in dramaturgical action to some extent in order to establish legitimacy toward action. This means that everyone projects a reasonably accurate image of himself to the other members of the organization toward which he acts. Dramaturgical action helps establish an individual's role or contribution to the organization. Dramaturgical action is evaluated by testing the validity claim of sincerity (Habermas, 1984, p.447). Dramaturgical action can take on strategic overtones when the actor uses it to influence and steer his public to see him in a certain light (Outhwaite, 1996, p.142).

2.3 COLONIZATION OF THE LIFEWORLD

Habermas (1984) suggests two world constructs - the *lifeworld* and the *system*. The lifeworld designates the shared social world of individuals which is maintained primarily by three steering mechanisms — instrumental action, strategic action, and communicative action.

The system refers to the environment which is dominated by economic, market, and administrative rules (Habermas, 1984). Whereas the lifeworld is ruled by communicative rationality, the system is governed by a functional rationality (Braaten, 1991). Thus, different forms of rationality characterize the lifeworld and the system.

Habermas contends that money and administrative procedures increasingly invade the lifeworld, where they replace communicative action. This results in a breakdown in communicative action between individuals. The causes of this communicative breakdown can be understood if one appreciates that the lifeworld and the system operate on different forms of rationalizations. Rationalization is an essential concept of Habermas's theory and it designates the internal logic of a method of coordination (Cooke, 1994).

Concerning the lifeworld, rationalization centers on the cultural reproduction of society with a primary focus on understanding. Alternatively, system rationalization centers on the material reproduction of society with a primary concern for effectiveness and efficiency. Mixing the two worlds interrupts communicative action. Thus, the cultural reproduction of the lifeworld, which relies on understanding achieved by communicative action, becomes dominated by noncommunicative procedures. This in turn leads to alienation and a loss of legitimacy (Braaten, 1991).

3.0 ORGANIZATIONAL IMPLICATIONS OF COMMUNICATIVE ACTION THEORY

CAT is very precise on certain issues and therefore organizations committed to it will not look like other organizations in certain aspects. Some ways of working would be ruled out under CAT whereas other ways would be absolutely essential. From the theory we can deduce several characteristics of organizations aiming at CAT ideals. Figure 1 gives a framework showing the major aspects of a typical company and we use it to analyze what an organization aiming at CAT ideals would look like.

3.1 ORGANIZATIONAL VISION

Many companies claim to have a business mission and a strategy to realize it. Few would appear to have an equivalent organizational vision. The application of Habermas's vision of an emancipated society to the operation of a typical company would yield organizational aims that start with the role of individual staff members rather than formal structure. The concern for operational efficiency shown in Taylorism is replaced by a concern for the way people are asked to work and in particular how they relate to each other. However, for the company following CAT ideals we expect some degree of tension between the demands of the organizational vision and those of the business strategy. Achieving a balance between these two potentially conflicting demands may prove difficult.

3.2 VALUES

An organization committed to CAT ideals would want to develop and nurture certain values within its own workforce. These values centre on how to treat people, their roles, and the way they interact with each other. Furthermore the

organization must be seen to operate by these values.

Open communication on all subjects is the norm. There are no 'taboo' topics. Discussion of all subjects pertaining to the health and operation of the company are a feature of daily life. Two subjects are of especial concern to organizations committed to CAT ideals that other organizations do not usually discuss: norms and the potential threat of colonization. Social structures and norms must and will change continuously. According to CAT it is important that such changes are made explicit and are recognized and agreed to by all. Colonization of the lifeworld is an ever-present threat to each member of the organization. With CAT its effects must be countered vigorously. Open discussion of how the organization's values impinge on the other areas of a person's life is a way of countering colonization.

Truthfulness and sincerity are held in high esteem and self-reflection is valued. Achieving consensus rather than attempting to get agreement by personal domination is an absolute requirement. Commitment to the organization's goals is also an absolute necessity. Furthermore there is no room in such organizations for those whose participation or contribution is lacking in significant ways.

The problem for the organization comes in dealing with individuals who fail to conform to these values. It cannot tolerate major deviations from norms, as this will undermine the remaining group memberships' commitment. But in all its dealings with individual staff the organization must conform to and be seen to conform to these values.

3.3 ORGANIZATIONAL STRUCTURE

Habermas has been criticized for never clearly stating how to achieve an emancipated society (White, 1996). As Hirschheim et al. (1996) have noted

Habermas offers little guidance on what type of organizational design would best support CAT ideals. Habermas, however, does clearly specify the features of an emancipated society.

CAT norms imply near symmetric power relations. Only under these conditions is it possible that each individual's contribution to any debate will be taken seriously and given its due weight, irrespective of position within the organization. A traditional hierarchical, many-layered organizational structure works directly against this. Such an organization is set up to enforce the domination of employees down the chain of command. A flat and fluid organizational structure reduces the power asymmetry and increases cross communication among its members. Ad hoc team formation to respond to changing business demands is a feature of such organizations. Self-managed teams are perhaps the closest approach to an organizational form within which CAT ideals flourish. Each team member plans and manages his work, while liaising with other team members as needed. Team leadership moves around among the membership as the group thinks right and there is no formal power asymmetry.

However, conditions for 'ideal speech' are always difficult to achieve. A structure with even a few layers of command offers those individuals at senior levels the opportunity to wield power through their position in the organization. These individuals can generate their own ways of exercising undue influence through their history of past successes, special expertise and personality. This behavior can occur in any group including self-managed teams. Wilson (1997), in an interesting critique of the value of emancipatory principles for information systems design, claimed that an organization could never fully realize CAT principles as 'power relations are inherent in social relationships.'

3.4 PEOPLE

For all staff to join in the debate it is imperative that they have the skills to contribute effectively and a comprehensive understanding of the organizational context. Self-reflection and personal self-knowledge; interpersonal skills such as assertiveness, verbal and presentational skills and leadership skills; an ability to learn from personal criticism; a willingness to assume responsibility; decision taking abilities; ability to make rational judgments are some of the requisite personal skills. A full understanding of all aspects of organizational life is not possible nor is it easy to assess what a good approximation would be.

Organizations committed to CAT ideals need a high level of these skills scattered throughout all functional areas. Furthermore such organizations will have to create ways of encouraging staff to acquire these skills and contextual knowledge through such mechanisms as training days, workshops and seminars. Some people find it particularly difficult to acquire these types of skills and sometimes no amount of training will help. For these individuals the only recourse is to leave the organization.

The desired work roles are totally opposed to those of the Taylorist model. The greater the control that actors can exert on the design of their job, the better as far as CAT is concerned. Organizations committed to these ideals would encourage job design that passed the maximum possible authority and responsibility to its employees.

3.5 BUSINESS PROCESSES

In organizations committed to CAT ideals business processes fall into three categories; instrumental, strategic and communicative action. For Habermas the

most significant requirement is that these actions are carried out appropriately. Instrumental action is normally appropriate for routine activities such as inventory control. Strategic action normally occurs when participants are involved in negotiation. A key requirement for strategic action to be appropriate is that all participants are aware of the nature of the action and agree that this is the best way to proceed. Such is the case, for example, when dealing with external stakeholders like customers. In a company committed to CAT we expect to see communicative action spread throughout all levels of the organization. In particular actors explicitly recognize it as an option and only reject this approach in cases where one of the two alternative action types were openly agreed to be more appropriate. Communicative action (and discursive and dramaturgical action) becomes more appropriate as the complexity of business situations increases. In our view communicative action is particularly needed in situations which call for significant changes and that involve many staff. It offers the best way to harness the expertise and support of many actors in decision making and implementation.

Furthermore there will be processes that exist mainly to support the needs of CAT. These will include, for example, systems designed to allow public discussion concerning correct action and norms. It must be possible for all staff to discuss how and when to use the three types of action discussed above. It must also be possible for the results of these discussions to be disseminated throughout the organization. A system that addresses the handling of communicative breakdown is also needed.

Habermas offers no guidance on such important practical concerns as decision making methods, recruitment, promotion and termination. Neither does he help on the subject of conflict. If several individuals come to a major clash in

judgment over some proposed action, even when they completely agree on context, norms and language, a solution cannot be reached solely by using communicative action. Any organization has to work out its own method of resolving such conflicts. Nor do organizations always have the luxury of time to hold the extended discussion that communicative action demands. The latter is particularly true in situations where immediate action is imperative.

3.6 INFORMATION TECHNOLOGY

The selection and design of new information systems reflect organizational priorities and worldviews. For organizations committed to CAT ideals we expect the information system selection process to also accord with these ideals. Furthermore, information systems so selected are expected to support CAT ideals in all other aspects of the organization's life.

A significant body of research argues for a need toward democratization of information system selection and development processes (Ehn et al., 1982; Williams, 1987). It is generally accepted that introducing information systems into any organization leads to fundamental changes in labor processes (Ehn and Kyng, 1987). These authors state that management desires the implementation of information systems to improve corporate profit, to increase work intensity, and to get better control over workers and labor processes. Klein and Alvarez (1987) draws the conclusion that such information systems have the potential to engender worker alienation. Reducing this potential toward alienation has been the concern of many researchers, many of whom have promoted the direct participation of users during information system selection, development, and implementation (Jones, 1982; Klockare and Norrby, 1982; Mambrey and Schmidt-Belz, 1982; Munk-Madsen, 1982.

Of great significance in this context are the findings arising from the UTOPIA project, a wide-ranging Scandinavian industrial experiment that involved worker unions in the design and use of information systems (Botsman and Rawlinson, 1986; Howard, 1985). Ehn and Kyng (1987) state unequivocally that the case of UTOPIA shows that "there are possibilities to design new technology based on social criteria such as skill and democracy at work." Ehn and Kyng (1987) further posit that interaction between system users and designers is in effect a "language game," the success of which depends on effective communication between the parties. Effective communication ensures that users and designers reach a consensus about the ultimate information system to be designed (Andersen et al., 1987). The considerations just listed are in agreement with CAT ideals, which encourage reaching consensus by way of communication. Researchers such as Hirschheim and Klein, 1994; Hirschheim et al., (1996); Klein and Hirschheim, (1991); Lyytinen (1992); and Wilson (1997) have discussed how IS design and to a lesser extent IS project selection would benefit from using CAT methods.

3.7 SUMMARY

It is clear that CAT inspired methods of information systems development allow systems choices that support organizational aims. Moreover, a CAT inspired development process will encourage a higher than usual level user commitment to those systems that are eventually implemented. It seems that organizations aspiring to CAT ideals can never completely reach them, but the exercise of attempting to meet these goals will have a powerful impact on all aspects of organizational life. Developing processes that keep staff informed on the overall business and organizational context and that support the full discussion of all relevant issues

becomes of great importance. In this scenario, IT offers a valuable contribution as a tool to underpin many of the needed processes.

4.0 RESEARCH METHOD

Our approach was to carry out an in-depth investigation of one company that appeared to operate along CAT ideals. Our case study's primary objective is determining the extent to which Habermas's CAT ideals have been realized at the target company, Colruyt, and the extent to which IT has enabled this to happen. The focus is on corporate and individual decision making processes, including implementation, personal empowerment, privacy, and company educational programs aimed at developing and maintaining a structure for decision making. Because understanding and interpreting the general human experience of members of the firm are key, an interview-based qualitative research method suited our research purpose best (Cathering and Symon, 1994; Cavaye, 1996; Gummesson, 1991; Jönsson and Solli, 1993; Remenyi and Williams, 1996; Walsham, 1995).

4.1 THE COLRUYT COMPANY

The Colruyt company started in 1965 as a single food discount store - a revolutionary concept for Belgium at the time. The company is extraordinarily successful. Since the 1990/1991 fiscal year its market share, annual sales revenues and profits have shown a high rate of growth. More remarkably, during this period the rate of growth in profits (30% annually) has increased at over twice the rate of sales revenue. Moreover, even though total employment increased steadily, sales per employee increased even faster. Finally annual sales increased by 9% per square meter, signaling a more intensive use of available sales area (Table 2).

Competing on price is the essence of the company's strategy. On-site comparison of product offerings in Colruyt stores showed that the company

competes on product differentiation as well. The company sells its products in unique package sizes, with substantial amounts of useful information from sales clerks who offer a personal service. In short, in Mathur's (1992) terms the company's strategy is one of differentiation in product, content, and support.

Mr. Colruyt had clear philosophical views on the type of company he wanted to be part of. His views shaped the company at its inception, and many of the company's more unusual characteristics can be traced to his influence. His major philosophical views stem from his boyhood in Catholic Belgium and his Marxist experiences during and immediately after World War II, when he was a member of a communist cell in Paris. Catholicism led to Mr. Colruyt's concern for the rights of customers, his belief that everyone in his company should participate in corporate life as much as he is able, and to his conviction that work should be meaningful for everyone in the company.

From his Marxist experience arose the desire to minimize alienation among his employees. Thus, Mr. Colruyt advocated that employees throughout the company should have a significant input into how to perform their daily tasks. He stressed the abolition of monotonous work procedures and he advocated their replacement by IT and other forms of automation. During his Marxist days he learned to argue conflicting worldviews vigorously. These convictions appear to have led him to focus on the importance of communication and a concern for how people relate and interact with each other.

Thus, since the company's inception upper management has focused on rational discourse, reducing power differences among employees, encouraging personal initiative toward action at all company levels, and emphasizing relations between human rationality and emotionality. It is important to note that the high

value put on communication among company employees was conceived ahead of any concern for its practical implementation. After serious debate upper management settled on IT to effectively and efficiently implement meaningful interpersonal communication. Hence, in sharp contrast to its competitors who introduced information technology into already existing organizations, the Colruyt company defined its business around IT (Colruyt, September 1983).

4.2 RESEARCH APPROACH

The case study is based on a number of important company documents and interviews with a representative cross section of employees at Colruyt. In response to a highly critical study published by the union that included numerous charges of abusive company practices (Adele, et al., 1984), the Colruyt company published a book explaining its activities (Penneman, 1985). It took the form of a compilation of policy statements on corporate operating philosophy with respect to customers, employees, unions, and society at large together with many of the existing employees' views on how these beliefs and values impacted them individually (Penneman, 1985). These two books are very significant sources of information because their contents cover some twenty years of company policy. The books, combined with newspaper and trade journal articles, provided a road map for composing a series of semi-structured interviews. They identified the levels of management and staff that were important to interview and the direction and content of the interviews.

The study's first stage started with interviewing the former general director of information applications who, over a twenty-five-year career, had served the company in a variety of high level functions (Lengeler, May 1992, March, 1993, May 1994). Topics covered during the interviews included company objectives and

beliefs and the use of IT. Thematic analysis of this three-hour interview gave rise to a rich set of questions for the next interview. All interviews were audiotaped, transcribed, and subjected to in-depth textual analyses.

The study's next stage was an interview with the divisional marketing manager and centered on divisional policies, procedures, and work processes, including user requests for IT applications, budgeting, and prioritizing application development. This manager gave an online demonstration of one of the most important and unusual company-wide systems. This system, the interactive system for information dissemination (ISID) stores day-to-day information concerning the running of the company. It is accessible to all company employees, including union stewards. The marketing manager discussed in great detail how daily work activities are supported by ISID (De Hertog, May 1992).

The results of the first two interviews enabled the design and planning of the last set of interviews. The analysis also helped to identify who were the most appropriate members of staff for the remaining interviews. These included Mr. Colruyt (May 1993), who was the president of the board of directors, the general director for distribution, the director for warehousing, a store manager, and several checkout clerks. We also made several on-site observations in different Colruyt shops, its warehouse, other facilities, and competing stores. Our research strategy allowed us to obtain multiple views, which enabled triangulation. Each interview was analyzed and the results used to refocus the plans for the remaining interviews.

5.0 EVIDENCE FOR COMMUNICATIVE ACTION THEORY AT COLRUYT

This section discusses the evidence for CAT at Colruyt. It describes some of the solutions that the company found to the practical problems of CAT

implementation and the varying reactions of stakeholders such as the Union and individual members of staff. The analysis follows the framework developed in section four.

5.1 ORGANIZATIONAL VISION AND VALUES

Perhaps the most striking corporate characteristic is the degree to which Mr. Colruyt's fundamental personal ideals accord with CAT ideals. It is these ideals that he has built into the company culture and norms over a period of thirty years.

His conviction that work should be meaningful and challenging for everyone within the company has lead to his insistence on the norm of participation. Individual employee identification and personal involvement with the company have been part of the company's culture from its very inception. The following quote shows the depth of commitment required from all employees (Colruyt, May 1993):

> "...The person has to participate in a very real way, or else the individual is placed on the sidelines; or even worse - he is singled out or rejected! A nonparticipating individual gets run underfoot in a competitive environment."

Mr. Colruyt's desire to minimize job alienation and his belief in the value of debate led to his advocating employee input into the design of the daily tasks. He demanded employee involvement in any debate over aspects of company operations that concerned them. The company seminar program offers an occasion on which all company norms are up for discussion. Seminar attendees are presented with the chance to discuss the validity of corporate norms and to change them. These seminars are very successful, hugely popular, and attended at some point by almost everyone in the company. Mr. Colruyt (May 1993) stated that the seminars are so central to the organizational life that his senior management has to attend these

seminars regularly to stay abreast of changing company values.

Mr. Colruyt stressed the importance of self-reflection for his managers in the following quote;

> "The executive acts publicly but he also has a continued need for introspection. He should understand the functioning of his own personality. Not in terms of theories or management training courses but rather on the bases of observing his own day-to-day functioning. He should know how his thinking functions...What are the strong and weak sides of his intellect...Where does he need help discharging his responsibilities and when he can rely on his own strengths...He should understand his emotions, his working hypotheses...his creative potential. [However], he should avoid at all cost the mistake of wanting to change himself, to improve himself so as to be a better man...There should be a definitive acceptance of himself as a person."

The astonishing end of the above quotation illustrates the widespread beliefs concerning management throughout the Colruyt company.

The company is aware of the potential towards colonization. For example instrumental efficiency and the use of power which may be appropriate for achieving production quotas are inappropriate in situations involving human relations. The company seeks to counter the threat of colonization through the seminar program, which teaches staff ways to act without being unduly influenced by company, ideology, or group norms.

However some forms of colonization do occur, as this quote from a low-level employee (Alen, July 1984) demonstrates:

> "The right to privacy and respect for fellow employees is something about which we are daily informed by the top brass. However, the right to privacy appears to go only one way."

The clerk explained that top management expects to be treated politely by lower ranking personnel but do not necessarily reciprocate. In this example power differences allowed top management to pursue instrumental efficiency at the expense of individual courtesies. Furthermore the union charges that Mr. Colruyt

consistently applied an aggressive and direct way of dealing with individuals (Adele et al., 1984). These are examples of colonization because company power relations were allowed to penetrate the clerk's lifeworld.

Both Mr. Colruyt's organizational vision for his company and the values that are explicitly discussed and set up as the ideal are consistent with CAT ideals. However it would be difficult to establish how far these values are adhered to in practice.

5.2 INFORMATION TECHNOLOGY

Mr. Colruyt (September 1983) observed that the supermarket was an American invention, introduced in Europe before the widespread commercial use of information technology. Hence in many organizations IT was introduced later into already existing structures, where it often met with considerable resistance (DeSanctis, 1984). The Colruyt company, however, took a different approach to IT implementation. At the start of the first discount store in 1965 the company's top management took the calculated risk of organizing its new venture around the potential and the limitations of the then existing IT. This meant that each store item had associated with it a punchcard. When customers put an item into their shopping cart, they also pulled the appropriate keypunch card. Both were then presented at the checkout. Keypunch cards were later replaced by universal product codes, which were then processed by checkout readers. Mr. Colruyt (September 1983) contended that the definitive choice for IT had proven to be a very fortunate decision. He felt that by using IT the Colruyt company had become the most efficient and effective food retailer in Belgium.

The Colruyt company places great importance on system selection. Most informatization projects are started at the request of the user, who can be a checkout

clerk, a district manager, or a store manager. The proposer (normally a user) fills in a standard form (Lengeler, 1994) that asks for a comprehensive range of information. Among other things the form requires a description of how the information system will improve job performance, a calculation of the system's contribution to the company's bottom line, estimates of its development and annual system maintenance expenses, and the amount of financial resources that the proposer is willing to contribute toward its development. This request is then submitted to a steering committee comprising high level managers, end users, and information specialists. The steering committee rarely rejects information systems requests, that show a positive cost-benefit analysis. If the believability of the cost-benefit figures is in doubt, this issue is resolved by judging the reliability of the person behind the estimates. Management determines a person's reliability by comparing the cost estimates against actual cost figures for previous software projects.

System development is user controlled. The company practices extensive job rotation with information systems staff members working in the business and many non-information systems staff members are gaining working experience in the information systems department. Hence, the possibility of a serious communication gap between systems developers and business sponsors is minimized and is unlikely to present a major problem during the design stage of new systems. New information systems incur major investments and they often have significant change implications. The selection and development process involves decisions and actions that are handled no different as are other company change projects. That is to say, to the extent that the company realizes CAT ideals in its general activities, to the same extent do system selection and development conform to CAT ideals. The remaining

parts of this section (5) establish how far this can be claimed for the Colruyt company.

We give an example of a system that is more important to the organizational vision than it is to the business strategy. In keeping with the idea that information should be available to anyone, the Colruyt company developed an interactive system for information dissemination (ISID) similar in function to modern groupware packages. The idea for this system originated with Lengeler (1993) in the early 1980s after he had worked in many parts of the company on a variety of assignments. He saw the system's potential for meeting the company's desire for open, clear and efficient communication. ISID ensures access to information in effective and efficient ways. Company policy ensures that information regarding all decisions, actions, or events is captured by ISID. For example interoffice correspondence, outbound and inbound communication, and minutes of meetings are captured by ISID. Documents less than one year old are stored online. Any document older than one year is stored on optical disk (Table 3).

In keeping with decentralized decision making, 80% of the information stored is accessible to all within the company, including union stewards. The remaining 20% of information is confidential and access is limited to a restricted subset of employees. The system is absolutely essential to the company - each month one hundred thousand documents and one million document pages are printed. The system's capabilities are also impressive - documents less than a year old can be accessed in one second or less, a very short time indeed, considering that the online data base consists of one million documents. Access time increases to fifteen seconds for documents over a year old, which are stored on optical disk. This is certainly not excessive considering the optical disk-based database holds

more than ten million documents.

The company makes a large investment in IT. Many systems are similar to other food retailers and can be justified on productivity gains. But there are many other systems which were installed to meet organizational vision and values. ISID is a prime example of such an information system because it supports Mr. Colruyt's values (i.e., making the opinions of every employee count) by making a tool available enabling broad-based access to company information and company-wide communication. Moreover, the Colruyt company frequently uses information systems also found at other organizations differently. Many organizations use point-of-sale systems for employee control purposes by collecting data on worker productivity, worker accurateness, and worker honesty (Klein and Alvarez, 1987). Within the Colruyt company, however, point-of-sale data are made available to the clerk and are accessible to management in aggregated form only. Hence, managers cannot target individual clerks for special treatment. Furthermore, even though many competing retailers in Belgium presently have computer-based information systems they only acquired these during the early 90s. In short, the Colruyt company had a twenty-year head start on its competitors because its founder believed that the improvement in effectiveness gained through employee performance more than balanced the high costs of software development, system implementation, employee training and system maintenance.

5.3 ORGANIZATIONAL STRUCTURE

The Colruyt organization is a scaled-down version of a hierarchical structure in which there are relatively few levels. This has important implications for the role of the executive. As the following quote (Colruyt, May 1993) concerning the basis for executive decision making, makes clear.

> "An executive is someone who decides and communicates his decision to subordinates, colleagues, and superiors. First [he] contemplates the decision, next [he] explains [the decision], then he summarizes the decision in written form which is then stored [in ISID]...Furthermore, an executive needs to be [a] humble [person]...The demands are enormous...[His] expertise has to embrace many areas of knowledge . . . His performance should be 100%...[However] if the executive is very lucky his performance will be 30%...Thus the executive should be able to accept that he falls short 70% of the time."

Notice that the quote specifically deals with corporate norms: the executive derives his decision making authority from the group. This authority must be tempered by the realization that the executive is a fallible human being with definitive personal limitations.

Throughout the Colruyt company one finds groups of individuals who work at solving problems. These work teams are the prime way in which corporate change is effected. The rigidity of conventional bureaucratic structures is much reduced by the work team concept. For example, a work team including cooling engineers, meat preparation supervisors and meat preparation clerks might be formed to resolve frequent food cooler malfunctions. Memoranda and other documents concerning the team's objectives are distributed automatically to all other group members in electronic and printed form through the use of ISID. Joining such work teams is at the discretion of individuals and is not controlled by the existing work group members. Functional teams are normally temporary entities organized around particular issues.

The company has made significant progress in reducing power asymmetries, but cannot be said to have totally eliminated them.

5.4 PEOPLE

The Colruyt company makes huge investments in training its employees. Seminars are available on self-empowerment, self-expression, decision making, and

on assertiveness to help individuals deal with their emotions. These seminars have minimal theoretical content but focus instead on building communicative competence under practical day-to-day conditions. The seminar program seeks to instill in individuals a capacity for self-reflection and offers an occasion on which all company norms are up for discussion. An employee quote exemplifies this concept (Denayer, 1984):

> "Attending the many in-house courses are among the best of my experiences at the company. I learned to understand myself. I learned that my emotions play an important role concerning my relations, communication, and contacts with other company employees. This process has made it possible to get insight into others, to understand others and to create an open dialogue with my cohorts."

Our discussions with employees found no evidence that any feel compelled by their managers to attend a particular seminar, or any seminar, for that matter. When asked what the employee might do if material presented during a seminar goes counter to his personal opinions, a store manager responded (Le Roy, May 1993):

> "[My experience indicates] there is only one thing to do, [which is] leave! Or else [I] discuss the matter with [the instructor or other seminar attendees]. Yes, [such actions] are possibilities. [After all], forcing someone to attend a four-day company seminar is ludicrous if [the employee] does not absorb anything."

As previously noted, the company practices job rotation, which enhances understanding among individuals because of a shared life world (Rogge, October 1984; Van de Perre, July 1984). Practical experience on the shop floor is a requirement for information systems analysts and top corporate managers. Middle and top managers get direct experience in the IS department. Systems analysts spend years in different functional areas. These examples of job rotation show the massive investment made in employee development. They also demonstrate the company's commitment to helping employees learn in day-to-day operative settings

(Jönsson and Grönlund; 1988, Jönsson, 1991; Jönsson and Macintosh, 1997).

Because of the nature of the company's business involving many routine repetitive tasks, designing job roles that give some degree of control to the employee is a challenge. How well the company has met this challenge is best illustrated with the sales clerks' job. They have real but limited power over their working environment. This is exercised in three ways - over product prices, over the choice of job, and in their contribution to continuous improvement. The company's commitment to competitive pricing is discharged by reducing the price of any product to match competitors. The job of implementing this pledge falls to the clerk, who must judge the customer's evidence and decide whether to alter prices. He must then log this action and notify the information system that keeps all pricing information (both Colruyt's and competitors). Sales clerks work in shifts as a team and have the joint responsibility of agreeing on how team members are to be distributed between two jobs, re-shelving and working at the checkouts. Clerks and all other staff members are expected to make suggestions for operational improvements. Example suggestions that have come from sales clerks include new information systems and significant modifications to existing systems.

All these actions show the high level of commitment that the company has to its employees, as an organization committed to CAT ideals would have.

5.5 BUSINESS PROCESSES

Retailing is essentially an instrumental business relying heavily on good logistics. Hence we would expect to observe many instances of appropriate instrumental action types (Table 1). Of far greater interest is the occurrence of the remaining action types. Communicative, discursive and dramaturgical action types are at the heart of Habermas's theory, and strategic action types are a common

feature of all organizations. What routines and procedures have been developed to support appropriate behavior? Perhaps even more significantly, can the organization detect communicative distortion and inappropriate action types and take action to ensure non-repetition? In the following section, we give examples of the five action types at Colruyt. For each action type we consider how far its validity claims were met and discuss organizational routines invoked by the actors concerned.

Instrumental Action in the Sales Function

Store clerks strive to keep customer waiting time at the checkout counter to an absolute minimum. At the end of each shift an information system provides the store clerk with the waiting times of those three customers who spent the longest time in the checkout queue. Klein and Alvarez (1987) argue that point-of-sale systems are frequently used by management to measure worker productivity, worker accurateness, and worker honesty. When management uses these systems in an oppressive manner it leads to worker alienation. However, at the Colruyt company the information system supports the company's aim to provide employees with information that enables them to measure their daily performance. To avoid the problem of alienation the performance measures are normally not available to anyone but the store clerk (Colruyt, April 1984). This practice is based on the presumption that empowered individuals should have control over their work environment, which includes having access to performance measures. Furthermore, because the performance measures are intended to motivate the store clerk to provide maximum service to the company's customers, their accuracy is most important. Hence, the necessary validity claim of the performance measures is truth (Table 1).

Strategic Action in the Sales Function

In our view when anyone terms a situation 'political' he implies that all the individuals concerned are acting strategically. For many occasions this is a legitimate approach. In the following case a Colruyt employee and a customer act in a strategic manner that is expected by all parties (Table 1).

At times customers make unusually large purchases, for example ordering ten cases of beer for an office party. In this situation, it is not unusual for the customer to request a discount. The clerk finds himself in a situation where strategic action is appropriate. The clerk has the authority to grant discounts and he has access to his supervisor for advice when needed. Hence, the validity claim of rightness of corporate norms is met. There are arguments for and against granting the discount and it is the job of the clerk to balance these conflicting arguments. The clerk has at his disposal an information system, that will tell him the effect of the proposed price discount on profits. The customer, however, can choose to reject any offer made. Opportunities for checking and discussing validity claims of accuracy reside in the availability of an information system.

Communicative Action in Decision Making

The teams described in the section on people (5.4) are a major vehicle through which many decisions for change are made. The chair calls for a meeting. All staff affected by the decision must be notified via ISID in time to contribute to the discussion. The administration of the work group subsequently formed is handled by ISID and hence its progress and actions are part of the public domain. This offers many opportunities for comment and reflection by both members of the

group and those outside it. Reflection is key to many of the validity claims necessary for communicative action and we see it being used in this way at Colruyt (Table 1). The chair does not necessarily make the final decision; neither does the group. The Colruyt company first practiced, but eventually abandoned, group decision making. However, group consensus on decisions is still sought. Under the current procedure one individual either volunteers or is nominated by the group to make the final decision. This individual finalizes the decision and communicates it to all affected individuals using ISID. This procedure avoids decisions for which no one feels responsible but links decisions to specific individuals. Mr. Colruyt (May 1993) noted:

> "It is always an individual [who finalizes the decision]. The decision is announced a few days after the final meeting. [Because] a group decision is some of this, a little of that. That is [a sure recipe for] catastrophe."

It is believed decision making during meetings does not enable careful deliberation, which in turn puts the decision maker under undue stress. Scheduling decision making to occur three to four days after a meeting lessens such stress. Finally, emotional stress is relieved by making it discussible during the pursuit of rational argument. The final decision is reported to all staff again via ISID and the decision maker is responsible for implementation.

An interesting example decision shows the detection and discussion of an incident of communication breakdown. In this case, the decision maker managed to subvert this process, turning the communicative action into a strategic one. By careful timing he managed to complete the process during the absence of a key member of staff on holiday. According to Mr. Colruyt (1993) this was later detected and analyzed from the documentation stored in ISID. The resulting very public discussion left the original decision unaltered, but established that in future,

actions of this type would be unacceptable.

The system at Colruyt is a fascinating attempt to make the decision making procedures satisfy the validity claims of communicative action - accuracy, contextual appropriateness, and individual sincerity. To achieve this it has armed its staff with the requisite skills, knowledge and information to contribute effectively. The company has also sought to create the conditions in which all individuals involved have a good chance of being heard. The appointment of one person to be decision maker and implementer is an interesting approach to solving one of the major problems that bedevil organizational life - effective action. It seems that we are far better at planning than achieving results. Individuals begin to reduce their involvement in discussions about change as they begin to perceive that either the decision has already been made or that action is unlikely. Colruyt's open decision making process and clear allocation of responsibility for action is a notable attempt to fight this tendency.

Discursive Action Concerning Appropriate Behavior

There are many examples of discursive action at Colruyt (Table 1). In July 1984, Mr. Colruyt dispatched via ISID to all his employees a statement on personal and company privacy. The message was a reaction against certain union members who had used ISID to obtain internal company documents. The contents of these documents had been made public without company consent. Colruyt's message was in effect a discursive act because he invited the union members in question to discuss privacy norms during the next meeting with company representatives. The intent of Mr. Colruyt's writing was to engage the union in a discussion with a view to obtaining agreement about the standards of proper behavior. This meets the validity claims of accuracy of information, correctness of norms, and sincerity of

intent. First, accuracy was a matter of public record. Second, as CEO Mr. Colruyt clearly had the authority to engage the union in discourse. Third, sincerity of intent could be deduced from all his previous actions and public statements.

This action by Mr. Colruyt shows his commitment to proceeding by consensus where possible and to striving for accurate communication, both necessary building blocks for communicative action. The existence of and support for discursive action types is essential for communicative action to flourish.

The following entails an incident surrounding the translation of a certain document from Flemish into French. As Table 2 shows, a significant minority of the workforce is French speaking (20%) and the company maintains a full-time staff of translators for ensuring that all documents are available in ISID in the two languages (DeHertog, May 1992). A French speaking employee came across an ISID document, which had been translated from Flemish into French. After pointing out legitimate shortcomings in the French translation, this employee then followed up by severely berating the document's translator. While scanning recent ISID documents Mr. Colruyt noticed the exchange of ire. He responded on ISID to the note's author, the group of translators and the company managers. He stated that one should refrain from getting emotional on ISID. Mr. Colruyt then initiated a discussion on how to handle situations of this sort - a classic example of discursive action. This meets the validity claims of accuracy of information, correctness of norms, and sincerity of intent. Accuracy was a matter of public record. As CEO Mr. Colruyt clearly had the authority. Finally, sincerity of intent could be deduced from all his actions and public statements.

Successful communicative action implies a high degree of shared context. Mr. Colruyt's personal conviction of the importance of effective communication in

achieving this are well documented. A typical statement on this subject follows (Colruyt, May 1993):

> "It is urgent that we learn to communicate. Not because of some lofty ideal but by way of practical everyday discourse. Check whether the words [used] mean the same for all parties: they seldom do. [Communicate to achieve] understanding of the position of the other before going full steam ahead with action."

The seminar program is also a major vehicle through which discursive action can take place.

Dramaturgical Action by Mr. Colruyt and by Sales Clerks

Dramaturgical action is practiced throughout the Colruyt company (Table 1). Thus, for example, Mr. Colruyt presented himself to his managers and to his workers. His uses of dramaturgical action were copied by other members of upper management and many employees of lower rank.

For example, in a company communiqué sent to all personnel members in electronic form via ISID Mr. Colruyt (April 1984) explained:

> "Newspaper reporters seek to assign me superhuman qualities: the 'great intellect' who planned and organized the company's twenty-year growth and who continues to control the enterprise to this day...I explain that the great strength of the company is 'open' communication...actually realized by computer-based and other communication techniques...It enables the continuous exchange of ideas among company workers and, hence, frees us from the limitations of our own thinking...and this becomes the 'great intellect' We [perform] better than others because we continuously communicate in different ways, with immediacy, efficiency, and without the loss of time."

The question here is what Mr. Colruyt was projecting and why this has validity. The quote shows a company founder who assigned the causes of success to team work, which is made possible and supported by computer-based communication techniques. The central idea is that communication makes the exchange of knowledge possible and enables the individual worker to transcend his intellectual limitations. The effective and efficient use of this knowledge, which is

generated among workers, is then augmented by an organization characterized by networks, the delegation of power, a common vision, and consensus. This dramaturgical act has validity because it is contextually correct and it appears to reflect Mr. Colruyt's sincere beliefs. It is contextually correct because Mr. Colruyt was the company's CEO and hence his role was to create and disseminate the company's vision. His sincerity is shown through the consistency of this quote with all his other statements and actions.

The sales clerks offer a second example of dramaturgical action. When dealing with clients the clerks practice a different form of dramaturgical action than when they interact with each other. One clerk (Leveau, June 1984) described his relationship with clients in this way:

> "There is not a single client who enters our store without being greeted by a clerk with a sincerely meant 'good day.' Clients seek out and shop at Colruyt stores because of the goodwill, politeness, and friendliness which they receive nowhere else...[Later on] at the checkout [clerks] don't [treat] the client as automatons...We engage him or her in conversation and [the client] helps us with our checkout task."

This has validity on account of the clerk's sincerity, his contextually defined authority and the extent to which the statement reflects corporate vision concerning the treatment of customers.

Utilization of IT within Business Processes

Information systems have been developed for all parts of the business at Colruyt. They automate or support almost all activities. The examples of the various action types given here show just how far IT has penetrated the company operations. All levels of staff routinely use systems in support of their jobs. As the strategic action of the sales clerk illustrates, the systems are not only widely accessible but in many cases the users are expected to interrogate and to take responsibility for data updates.

Summary

The support for and the many examples of instrumental, strategic, communicative, discursive, and dramaturgical actions at Colruyt establish that communicative action is a real option for all staff. It is clear that communicative actions of all five types do occur at Colruyt. However it would be difficult to assess how often they occur or whether there are occasions calling for communicative action when it is not practiced. It is equally clear that there are times when distorted communication occurs. However, the company recognizes the possibility and has set a classic CAT norm that whenever distorted communication is detected it is discussed and corrected. It is the myriad opportunities for discursive actions that provide the strongest evidence for the enactment of communicative action.

5.6 COMMUNICATIVE ACTION THEORY: ALTERNATIVE VIEWPOINTS

It is important to state that not all stakeholders hold the same opinion about the company's vision. Table 4 shows company, union, and employee views concerning several important topics. These comparisons are essential to a balanced treatment of the company. They also show the limitations of the practical implementations of CAT ideals.

As we have argued elsewhere, the Colruyt company has a unique corporate culture (Table 4). Two important aspects of the corporate culture are open communication and great employee involvement in corporate affairs. Realizing these two objectives requires employees who are assertive, self-reflective, and communicatively competent to analyze situations critically and to express ideas cogently. This degree of worker involvement leads to employees who are unusually critical, which in turn results in a very demanding work environment. The employee view is that open communication is a fact but that it led to a company

atmosphere and a communicative style, that is very much "in your face." That is to say, interpersonal contacts are characterized as very aggressive, unusually blunt, and at times offensive. We want to make clear that the view is held by a minority of workers. Most employees appreciate this no nonsense approach. The Union, however, maintains that open communication has indeed resulted in a demanding work environment especially for shop floor workers.

An additional aspect of the corporate culture is a wide-ranging decentralization of decision making. The company holds that decentralized decision making counters worker alienation and gives individuals a much greater freedom on the job than would otherwise be the case. Workers who have made public statements agree with the company's opinion and profess that control over their work and its simplification is part of their job. The Union, however, accuses the company of Taylorism and argues that company management determines job content and that workers have little choice but to blindly carry it out. In other words, the Union charges that workers are hoodwinked into believing that they have control, but in reality they do not.

We have shown that the company makes extensive use of computer-based information systems. Not every one welcomes them. For example the company sees ISID as supporting its philosophy of reducing bureaucratic rigidity and decentralizing decision making throughout the company. Company workers attest to the usefulness of the system for providing everyone with the information needed to do his job. The Union, however, claims that the system invites abuse because it enables the easy creation of employee dossiers. In fact, the Union as well as some workers recall an example of such abuse. In this incident one employee gathered information and data on a colleague that he then used to construct a dossier.

Management did not approve of such system use and put a stop to it.

Our analysis of Table 4 shows a comparatively high degree of agreement between employee and company views. The union, however, tends to have a totally different view from both the company and its employees. This undoubtedly arises from the Union's philosophical position and from its stated objective, to demonstrate that "modern software technology" enables managerial practices of old style US cotton mills (Adele et al., 1984).

It is self-evident that the introduction of information technology systems has profoundly altered the work environment. The Union, however, has not altered its traditional focus on wages, working hours, and terms of employment. Playing a meaningful role in an environment dominated by IT requires that the Union change from attending to clear objectives, easy to quantify demands based on practical experience. The Union should instead focus on vague objectives, difficult to quantify demands based on technical and scientific knowledge (Ehn and Kyng, 1987). These authors further state that "The design of new models for work require more...qualitative aspects to be considered than can be easily fitted within traditional trade union strategy." Thus, even though the union might be justified in criticizing the Colruyt company on some issues, it has become almost irrelevant in an environment, that is characterized by IT.

5.7 SUMMARY

The Colruyt company has aimed for organizational ideals that are consistent with CAT ideals. Its efforts have met with considerable success. The company compromises on organizational structure by combining functional hierarchy with teamwork. The nature of the business appears to have exercised constraints on the ability to deliver job roles of variety, interest, and individual control. However, the

company's high level of investment in staff self-development, its astonishing insistence on staff participation in all aspects of the company's activity, its commitment to and success in providing up-to-date information to all its members, the existing climate of public debate on all issues, and the open nature of decision making processes, all work to counter the potential for communicative distortion inherent in its organizational structures. The result is a highly successful business and organizational culture close to CAT ideals. However, not all members find the situation easy to deal with; pressures on each individual are high and the company's culture is abrasive. Those who do not like or cannot manage the situation have only the option of leaving the company since the union had trouble finding its role as employee advocate.

The driving force behind this outcome was unquestionably Mr. Colruyt. It was his vision and his ability to translate it into reality that made the company what it is. IT played a pivotal role in this achievement. The next section analyzes its contribution.

6.0 INFORMATION TECHNOLOGY AND COMMUNICATIVE ACTION AT COLRUYT

This section discusses the role played by information and communication technologies at the Colruyt company. The current systems portfolio is the result of system selection and development processes that were informed by CAT ideals. Some of these systems have been developed primarily to support organizational aims; others are used in ways that are unusual and very much determined by the company's organizational aims. Over a long period of time, the company has grown a sophisticated user population, which makes intelligent and proactive use of all available systems.

Of all the information systems at Colruyt, ISID is the most significant because it supports open communications and in particular communicative, discursive and dramaturgical actions. It acts as a communicating channel, company memory, and corporate knowledge base. It was initially designed specifically with the company's organizational aims in mind.

As a communicating channel it has the same properties as E-mail - potential transmission to any size of group simultaneously and a record of communication exchanges that become part of the company memory. So the company has a centrally kept electronic record of many important exchanges available to all staff. Through this channel many activities take place; the company presents its organizational vision, staff discuss values, norms, and changing ideas on company functional models, administrative procedures such as those needed for group decision taking are made publicly available to all interested individuals, and all employees swap ideas on social and company issues.

The record of important transactions kept on ISID offers an opportunity for reflection unmatched by any other channel. Reflection is key to many of the validity claims necessary for communicative action. The example of communicative breakdown quoted in an earlier section when communicative action turned inappropriately to strategic action (5.5) illustrates the potential of ISID to reduce distortion. It was because the decision maker's action was recorded on ISID that the incident became available to a wider audience enabling the organization to discuss the incident. As a result it was able to lay down rules for future conduct that would deter repetition. Hirschheim and Klein (1994) speculate that IS could help to mitigate distortion by facilitating the widest possible debate of organizational problems.' This is what happened here. Lyytinen and Hirschheim

(1988) went further when they suggested that IS could support discursive action through the dual role of providing the means for criticism and learning. They identified three ways in which IS could contribute to discursive acts: by establishing new channels for communication, redistributing access to existing information, and providing new information relevant to the subject at hand. These are all accomplished by ISID.

Communicative action calls for an 'ideal' speech situation where all parties involved have an equal chance of being heard (White, 1995). This implies that individuals should have equal access to knowledge and operate under symmetric power relations. ISID, the company's memory and knowledge base, was specifically developed to reduce power asymmetry by making information available. The system is accessible to all employees. Colruyt stated (June 1984):

> "Knowledge is power. To effect power decentralization requires information decentralization...Hundreds of employees become invested with a great deal of power toward taking initiatives...[These employees] experience this as an enormous enrichment of their personal life and work life."

Systems such as the pricing system and the point-of-sale system offer management information on operational performance. However, by putting this information into the hands of the sales clerks rather than a supervisor or manager, the company explicitly 'informates' its staff (Zuboff, 1988) and thereby supports the CAT ideals of empowerment and self-reflection. Mr. Colruyt explicitly identified IT as a tool for achieving satisfying and interesting work. Information systems for inventory control reduce the amount of routine repetitive work, releasing staff for more taxing and responsible assignments.

We have argued elsewhere (Janson et al., 1997) that this early espousal of IS enabled the Colruyt company to become skilled in the development,

implementation and use of new systems. The examples quoted in the previous sections establish how well the systems have been integrated into the working lives of the appropriate staff. McLuhan (1964) suggested that to get maximum value from new technologies like IS, users must embrace it and use it as a natural extension of themselves. The importance of user mastery of new information systems in obtaining organizational value has been well-recognized (Yetton et al., 1994; Zuboff, 1988; Walton, 1990; Hales, 1991; Ostermann, 1991). Colruyt's high level expectations for its employees and willingness to invest in them, together with its long time use of IS, have created a sophisticated user population, well able to fully exploit new systems for instrumental, strategic, and communicative action. This combined with their organizational ideals has led to an unusually high level of system use. The use of the pricing system illustrates how widespread the responsibility for database interrogation and data update are within the company.

As we have shown, at the Colruyt company IT has been essential to the realization of CAT ideals. Company systems discharge at least four key roles in support of communicative action: first, automating routine and repetitive instrumental tasks; second, storing and disseminating information supporting contextual knowledge and reflection; third, enabling communication between individuals; and fourth, supporting staff empowerment through access to managerial information and other performance measures. Staff discharge the equally critical role of exploiting the potential offered by the technology. Without their high level of knowledge and expertise IT would have played a far less significant role.

7.0 LIMITATIONS OF THE STUDY

Our study has several significant limitations. First, it is a study based on a

single case in the food retail industry. Jo Colruyt founded and guided the company during a thirty-year period and, hence, he was able to mold its development around his own strongly held belief system. Executives who assume responsibility for existing organizations are much more limited in what they can do because they inherit an already established corporate culture and philosophy.

Second, according to Jo Colruyt, relative stability is an important characteristic of the retail industry. This implies that decision making under extreme time pressures is uncommon. Hence, lengthy group discussions made necessary by implementing CAT ideals may be costly but they are normally not problematic. The same cannot be said for industries that operate in a more turbulent market.

Third, the company exists in a national culture that still attaches great value to ideas, that arose out of the Protestant Reformation and the Enlightenment. These ideas include respect for individuality and personal responsibility, an attitude that no one is any better than anyone else, a need to make societal contributions, an assumption that problems can be solved by rational individuals working together, and a belief that work has sanctifying value. In addition, Belgium ranks relatively low on Hofstede's (1985) power distance and risk aversion dimensions. These limitations suggest that extending our findings to other companies, industries, and cultures should be done with extreme caution. However, we would expect that CAT ideals might be successfully implemented in countries other than Belgium, that have national cultures ascribing to the above ideals.

Finally, our study does not make value judgments concerning CAT ideals. Consequently we do not evaluate whether the Colruyt company's effect on society is good or bad. We have limited our study to analyzing a company, that has come

close to successfully implementing CAT ideals and in the process has made extensive use of IT.

8.0 CONTRIBUTION TO IS RESEARCH AND IMPLICATIONS

The main thrust of much of the existing CAT IS research has been largely theoretical. A considerable body of recent work contends that information technology (IT) should be able to support practical communicative action among the members of an organization (Auramaeki, Hirschheim, and Lyytinen, 1992; Deetz, 1992; Dietz, 1991; Klein and Hirschheim, 1991; Lyytinen and Hirschheim, 1988; Lyytinen, 1992; Ngwenyama, 1993; Koningsveld and Mertens, 1992; Kunneman, 1985, 1986; Ngwenyama and Lee, 1997; Hirschheim and Klein, 1994). However, neither Habermas's writings nor the theoretical contributions of other IS researchers are specific on how CAT ideals can be put into practice.

Our work, because it has a highly practical focus, is a valuable contribution to the body of theoretical research. It draws on extensive casework carried out over several years and offers insight into the potential contributions of CAT ideals based on empirical results. Our paper explores the practical implications concerning the realization of CAT ideals for information systems selection and development. Our paper also offers several conclusions on the importance of IT in realizing the organization's CAT ideals.

Our work contributes to a neglected avenue of research in email and computer mediated communication. Rudy (1996) in a comprehensive survey of the literature on email research pointed out that little work has been carried out on the effects of email at the organizational level. Most work concerns the effect on and use of email by individuals, i.e. media effects (Short et al., 1976; Sproull and Kiesler, 1992) and media choice (Daft et al., 1987; Markus, 1994; Lee, 1994). Of

the studies that Rudy cites (Huber, 1990; Perrin, 1991; Feldman, 1987) all appear to be theoretical and produce predictions on what type of impact computer mediated communication will have on organizational life. Our work focuses on a different aspect, the degree to which computer-mediated communication can support organizational objectives.

The experience of the Colruyt company suggests that IT offers powerful support to the realization of other organizational visions. Furthermore, value arises from the integration of the technology with business and organizational imperatives as well as from the day-to-day activities of staff. If technology proves to have potential then investment in information systems is likely to be high but this will be dwarfed by investment in people. Seamless integration does not come easily of quickly. In the Colruyt company's case success came as a result of more than twenty years of corporate effort.

The perception of many information systems researchers that information system and design choice is more a political issue than a technical one is well borne out by this case example. In the case of Colruyt information system selection was very significantly affected by the deep-rooted value system of the company. Moreover the use to which information systems were put was also clearly affected by the organizational vision, and the design choices were affected in line with this.

The Colruyt company exemplifies a rather successful way to apply CAT ideals to information system design. To us it is highly significant that this worked within an environment committed to the same ideals. We speculate that this is an essential ingredient for the successful use of a CAT-based approach to systems development. The importance of effective collaboration between IS professionals and business staff in new system development mandates effective communication; this is

only to be achieved in an organization with a common culture and where similar values are held by stakeholder groups.

Two interesting directions for further work can be discerned; an extension of the Colruyt case, and the study of other appropriate case organizations. Colruyt's organizational development after the founder has passed away may change significantly and would invite additional investigation. An in depth study of the information system design process used at the company would yield greater insight into the impact of CAT on it. The study of other case examples of companies espousing CAT ideals, preferably within other industries and countries could be used to confirm, extend, or refute our findings. Of particular interest would be the identification of a broader range of information systems that clearly support CAT ideals.

9 CONCLUSIONS

CAT represents ideals that cannot be fully achieved by any organization. Companies, however, can make great progress toward realizing CAT ideals and in so doing they will develop some clearly defined and unusual characteristics. Mr Colruyt's values corresponded closely with CAT ideals and he designed these ideals into his company, leaving us today with an organization that has many of the characteristics that we have identified as consistent with CAT (Figure 1). The experience of the company suggests that although formal arrangements such as job empowerment, flat and fluid organizational structures, and decentralized decision making are important, the organizational climate created by the company in managerial and staff attitudes is the dominant factor in determining the company's level of success in reaching CAT ideals. Most importantly, the central CAT requirement for discursive action was fully met by establishing a norm of open discussion of all topics and by creating the myriad ways in which this could happen.

In short, Mr. Colruyt created an exciting but demanding environment to work in, suggesting that CAT ideals are not an easy option.

The case supports our proposition that IT is essential for the practical realization of CAT ideals within organizations. Mr. Colruyt's vision could not have been implemented to this degree without IT. Moreover not only does the current systems portfolio support the organizational vision, but these systems themselves were developed through a process that conforms to CAT ideals. The strong common culture of both systems developers and business staff is also an intriguing factor. A further clear finding of this study is that even though some information systems were developed with the sole aim of meeting the demands of the organizational vision, many more were used in ways that supported both business and organizational aims. In short, it is the way staff members use the systems that is key to the realization of the vision.

Mr. Colruyt's decisions were the more remarkable considering that McLuhan (1964) had already predicted that adoption of IT would lead to an erosion of hierarchy and the authority of knowledge in place of delegated authority, characteristics similar to CAT ideals. Mr. Colruyt, however, started the other way around - he adopted a vision and a set of values consistent with CAT ideals and then considered potential tools for their practical realization. It is self-evident from Mr. Colruyt's writings and from his interview with the authors that he settled on IT as the only tool to implement his vision in a manner that was consistent with his values. The way the company now operates is the result of a long period of time during which corporate culture and philosophy and IT have been used to reinforce each other.

Much of current IS research is theoretical and focuses on the potential of CAT to improve IS development process, the potential of IT to realize CAT ideals,

and the potential impact of computer mediated communications technology on organizations. This study provides empirical results on one attempt to put some of these theoretical ideas into practice. Because this case illustrates what can be achieved, the limitations of a single case approach are not too serious. However, research into further appropriate case examples would immeasurably improve our understanding of the power and limitations of organizational visions and of the potential of IT to support such visions.

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Table 1. Communicative Action Theory

Type of Act	Function	Orientation	World View	Type of Knowledge	Validity Norm
Instrumental	Presentation of State of Affairs	Oriented to Success	Objective	Technical, Practical	Truth
Strategic	Influencing Counterpart	Oriented to Success	Social	Practical, Strategic	Correctness
Communicative	Establishing Interpersonal Relations	Oriented to Understanding	Social	Normative, Practical	Sincerity
Discursive	Establishing Common Norms	Oriented to Understanding	Social	Normative, Practical	Sincerity
Dramaturgical	Representing Self	Oriented to Understanding	Subjective	Aesthetic, Practical	Sincerity

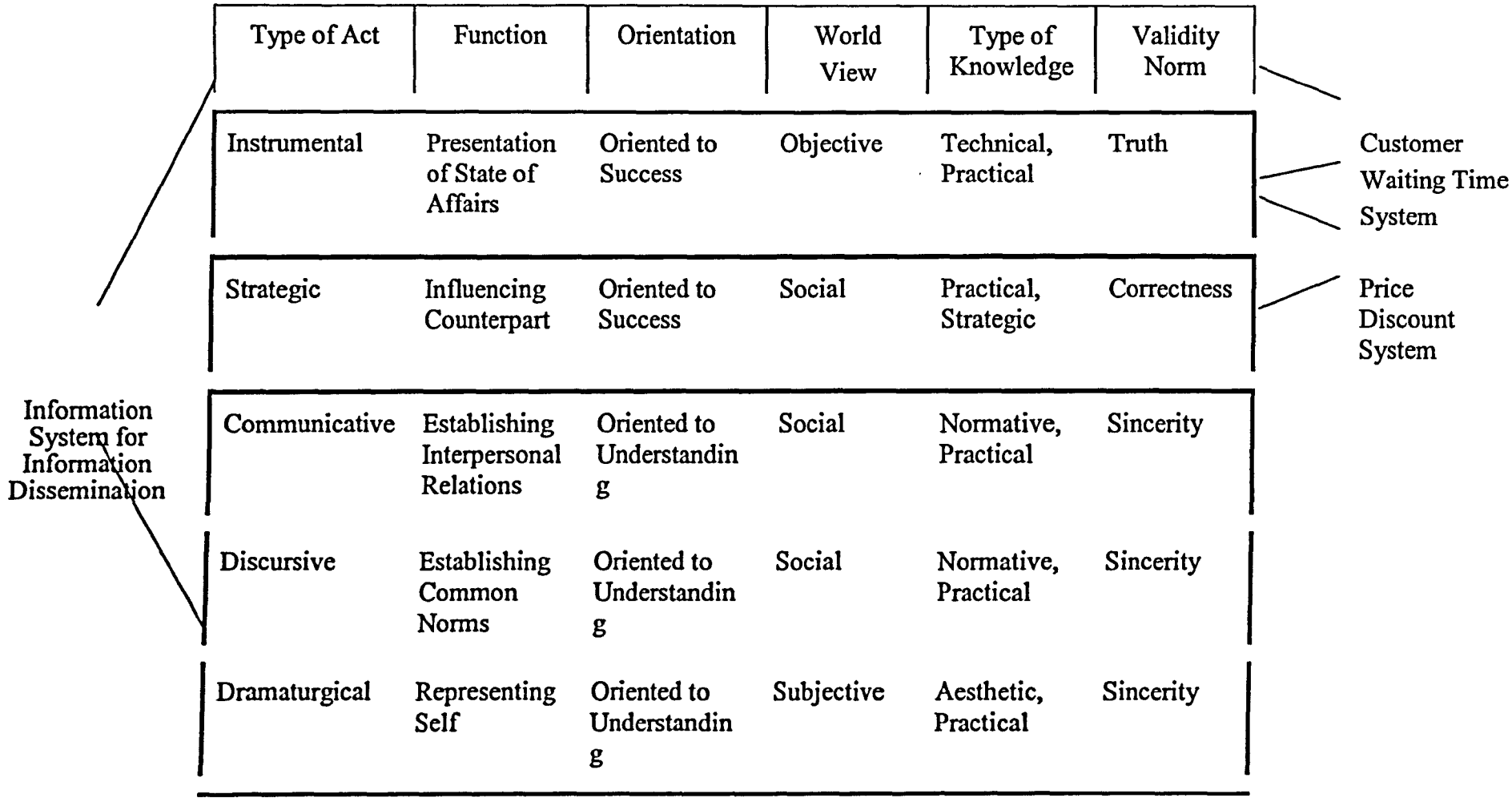


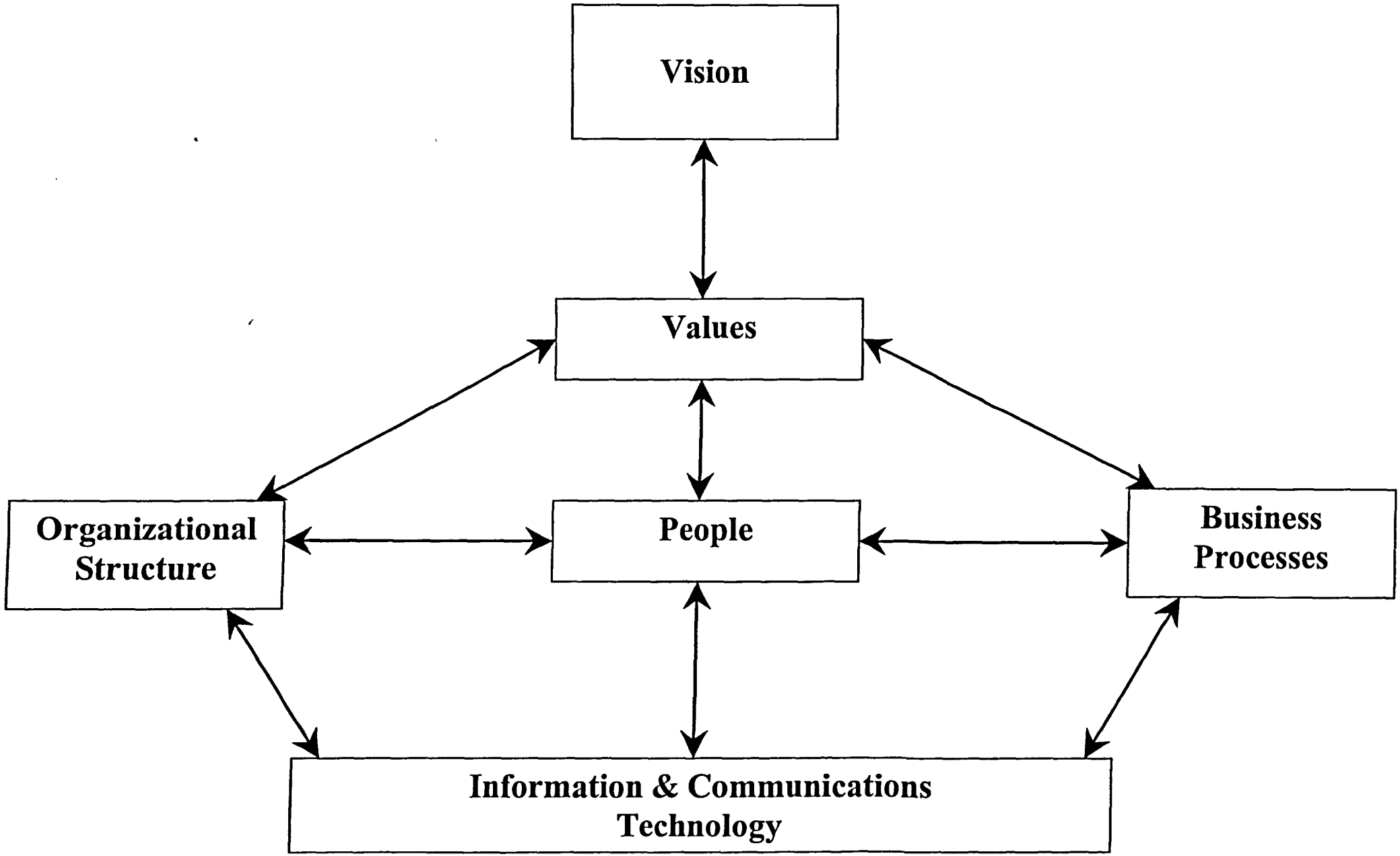
Table 2 Colruyt Company Statistics
(All currency figures in billions of Belgian Francs)

	1990/91	1993/94	1996/97	annual growth rate (%pa)
Performance				(whole period)
Revenue (BEF bn)	32.3	46.2	68.4	
Growth (average ann.%)		14%	16%	15%
Profit (BEF bn)	0.9	2.3	3.9	
Growth (average ann.%)		55%	23%	39%
Market Share (%)	7.1	9.15	10.4	
Growth (average ann.%)		10%	5%	7%
Patterns of employment				
No of employees (000)	3.954	5.174	5.491	
(total workforce)				
Growth in employees (%)		10%	2%	
Profit/employee BfEF=000/emp.	217	441	707	
Growth in profit/emp		34%	20%	27%
Full-time/Part-time ratio				
Full-time %	84%	82%	93%	
Part-time %	16%	18%	7%	
Dutch/French speakers				
Dutch %	82%	80%	79%	
French %	18%	20%	21%	

Table 3: Interactive system for information dissemination

Characteristics and specifications		
Monthly volume	X X	Documents: 100,000 Printed pages: 1 100,000
Response time	X X	On-line documents: 1 second Archived documents: 15 seconds
Data base storage	X X	Recent documents: direct access storage Old archive: optical disk
Data base structure	 X X X	Three VSAM file types: Glossary: keywords, documents numbers Text: texts, document numbers Title: keywords, document numbers
Document search	X	On keyword with Boolean operators
Document confidentiality	X	Restricted: keywords and contents accessible only to individuals named in the document
Document access	X X X	Restricted: 5% Confidential: 15% Non-confidential: 80%
Terminals	X X	Total number: 700 Per store: 3

Figure 1: Organizational Framework



Paper 8

Cecez-Kecmanovic D, Janson M, Brown A (2002) 'The Rationality Framework for a Critical Study of Information Systems' Journal of Information Technology 17, no 4 pp215-227

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Paper 9

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Electronic Banking for SMEs: A case study of Fortis Bank UK

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Abstract

This paper focuses on the UK banking industry's current approach to meeting the banking needs of SMEs. It investigates the questions raised by the industry's assumptions that Internet banking will replace PC based banking as the preferred electronic channel between banks and their SME clients in the future. The case reports on the two-year project at Fortis UK to develop and sell an Internet business banking service to its SME clients. SME response has been unexpectedly negative. The paper explores the reasons for this and proposes a model of the factors that affect adoption, for SMEs.

Key words

Electronic banking, PC banking, Internet banking, innovation, cost pressures, Internet, web, case study, SME

1. Introduction

The Small and Medium Enterprises (SMEs) sector is growing in size, diversity and importance to the UK economy. As a result it is attracting increasing attention from government, academics and bankers alike. The provision of banking services to this sector has been an important and profitable part of the UK banking industry's business for many years. But the future of this business looks less promising as SMEs start to make a variety of new demands on their banks. The banks have sought to use information technology to help meet these demands. Electronic banking is one of the latest initiatives designed to meet the perceived new banking needs of these business clients.

Electronic banking is a term used to encompass two distinct types of electronic communication between banks and their customers – PC based and Internet banking. The term PC Banking is used to describe systems which were based on proprietary technology and which required point-to-point telecommunication technology. It offers remote access to the bank's systems via a private electronic communications link (dial up telephone line or private network). In contrast, Internet banking uses the World Wide Web to deliver similar services and as such is open to all with the appropriate passwords. PC based banking has been available from most banks for at least a decade. Internet business banking, however, is a comparatively new service.

All the major UK clearing banks offer (or are about to offer) an Internet banking service for their business customers. Most of these services are the fruit of projects started in 2000. At this time banks, able to provide Internet banking services, were deemed to have accrued a distinctive competitive advantage by being able to offer services to a wider customer base without the inherent start-up costs of the "bricks and mortar" channel and the installation costs of the incumbent PC Banking solution. It was thought that first mover advantage provided early adopters with a tool to dislodge the inertia often associated with bank customers in moving their custom to competitors. These developments were of particular relevance to SMEs as they were expected to be the main clients. The very large corporates (blue chip) would be in a position to continue with their existing personalised banking services.

This paper focuses on the UK banking industry's current approach to meeting the banking needs of SMEs. It aims to investigate the questions raised by the industry's assumptions that Internet banking will be the preferred electronic channel between banks and their SME clients in the future. Has this been vindicated? Does Internet banking confer the competitive advantage expected and sought by UK banks? To research these questions it was decided to use a case study approach. A case study approach is the natural way of understanding new situations in complex environments where there are multiple variables influencing behaviour and where context plays a critical role [1]. This is the situation with respect to the development of electronic banking services. Such services will change the working lives of several groups of stakeholders. Success is likely to depend on a range of technological, commercial and organisational issues. The case study reported in this paper investigates the development of electronic banking at Fortis Bank SA/NV in the United Kingdom. It reviews the bank's development of PC banking and the subsequent project to move to Internet banking. Fortis Bank was chosen as it is a well-established bank with a sound reputation and for whom the SME market was clearly important. The Internet banking project at Fortis was agreed by early 2000. The case covers the period from this point in time to mid 2003. One of the authors was in charge of the project with access to relevant internal documentation and bank staff. The case is based on interviews with Fortis IT staff who worked on the project, internal bank documents, a report on the project [2], the first hand knowledge of one of the authors and his interviews with bank line staff throughout the three years of the project.

The paper is organised into six sections. The next section describes the banking needs specific to SMEs and develops the argument for using Internet banking to meet these needs. The following two sections describe the case of Fortis and its project to move from PC based banking to Internet banking. The case identifies the main characteristics of both types of electronic banking and presents and assesses the Fortis experience in developing the new service. A model of adoption is presented in section five.

The value of this research lies in the lessons learnt through the Fortis case with regards to the value of Internet business banking. Despite the apparent strength of this case the general response of SMEs to Internet banking has been unexpectedly

negative. The paper explores some of the reasons for this response. As the SME sector is of considerable importance these results have practical business value. The paper contributes to the developing literature on both the IT productivity paradox and e-business. The model of adoption based on the experience of Fortis in offering this service suggests a promising direction for future research.

2. Background: The Banking sector

Traditionally banks manage their client's money. This has always been a profitable business particularly during the latter part of the 1990s [3][4] as the recent financial accounts for clearing banks such as Barclays [5] show. Every bank performs three basic functions [6]. It accepts and safeguards deposits of money from its customers. It manages such money transactions as payments and withdrawals on behalf of its customers, and it advances funds to its customers. However the two main sources of profits –from advancing funds that they safeguard for depositors, at higher rates than they pay for the money, and from fees for the products and services offered, have been under continuous threat for the last two decades. Externally, customers, stakeholders and regulators have become more demanding. Internally, the cost structures have been changing due to increasing product customisation, variations in input costs and the potential contribution of new information technology.

For more than two decades banks have been among the biggest investors in information technology. They have been among the most consistent of early adopters of technology. Many of their innovations like the Automated Teller machine have been very successful in changing customer behaviour. By the early 1990s great claims were being made for its potential to transform banking operations [7]. A myriad of information systems had been developed and installed to process the enormous numbers of transactions and amounts of data that are the core business of banks – information systems to manage individual customers current accounts, systems to handle products like loans, mortgages and foreign exchange transactions, to name but a few. However these developments have been largely piecemeal over a long period of time and have left most banks with the legacy system problem. Customer data tends to be scattered between the computer systems of different functional areas, and many still cannot communicate to utilise the data effectively [8]. This presents the classic picture of 'islands' of data of an un-integrated enterprise [9]. This has led some commentators to argue that the effect of all this

investment has been limited [10], having a disappointingly low impact on productivity. Other research, like that of the McKinsey Global Institute agree as to poor productivity growth, but take a less pessimistic view [11]. They suggest that new systems have been successful in handling the vastly more complex banking operations engendered by the growth in product range and complexity and that the effects would have been to enhance revenue rather than improve operations. Overall the track record of the banking sector with respect to exploitation of its information systems investments remains moderate. The promise of the internet needs to be seen in terms of this background.

In general banks serve four categories of business clients, which may be described as Small Businesses, Mid-corporates, Larger Business and Blue Chip. The services offered to each of these groups differ and have historically been delivered in different ways. Table 1 describes how Barclays Bank perceives its business client market place.

Table 1: Barclays Business Lines

Small Businesses (Turnover of £1/2m)	Mid-corporates (Turnover of £1/2-£10m)	Larger Businesses (Turnover of more than £10m)	Blue Chip Companies
Online banking reaches about 40-50% of the target market	PC banking reaches 60% of the target market	PC banking reaches 80%. The remaining 20% probably use another bank ie multibanking	No figures available. Every client in this category is managed on an personal basis

It is the SME companies and their banking needs that this paper is concerned with. From the DTI definition of an SME the sector can range from companies or organisations employing 10 people and a turnover of at least £1/2m to companies with 200-300 employees and turnover of £100m or more. The categorisation of business customers adopted by Barclays underlines the scope and diversity of the SME market as two of their four business categories - mid-corporates and larger businesses – fall within this definition (Table 1).

2.1. Banking for SMEs

The SME market is an important one, both to the UK economy and to the banking sector. It forms the largest single sector of the economy employing more than 55% of the UK working population in over 3.75m organisations [12]. This sector is also important to the banking industry as it represents a substantial and profitable part of their business. Barclays bank, for example, obtained approximately a quarter of their profits for the year ending 2001 from their business banking [13]. Their retail business with many times more customers only achieved a similar proportion of the bank's profits.

SMEs form a diverse and changing market. They are subject to high rates of births and deaths as new companies form and old ones go bankrupt. If Barclays estimate of 400,000 annual business start-ups (with a similar number of deaths) during the 1990s is accepted, then on average over 20% of SME customers change each year. The banks have to deal with this fluid market. Traditionally SMEs largely saw banking as a utility. Despite the scope and variety of business activities in this sector, core banking requirements revolved around payments (the clearing system) and borrowing. Lacking the in-house expertise of a typical corporate, they needed an easy to use service delivered seamlessly by their bank at a reasonable price. Much of the business is still handled by a relationship manager through the traditional channel of the bank branch network. This is in part because the relationship manager's participation is seen as important by SMEs most of whom will be within a 30-minute journey of their branch office [14].

According to Fortis, the opportunities offered by the technological and business developments of the new economy during the last half decade are impacting both old and new SME companies [15]. They exhibit characteristics that are beginning to make greater demands on their banks. Globalisation is opening new markets to SMEs. This offers both an opportunity and a threat. With reduced trade barriers, deregulation, global standards and increasing mobility of goods and services, SMEs are now able look beyond their home market. At the extreme some SMEs will have the prospect of dominating a global niche. All this brings greater competition and global banking needs. The competitive pressures will force SMEs to greater levels of professionalism. In turn SMEs will put demands on their bank not only for global services but for cost effective service that can tailor more complex products and

services to fit their individual needs. The range of banking products and services on offer has exploded in recent years and SMEs will want easier access to them. Technology developments have opened up a new world for many SMEs. Perhaps the most significant is the revolution in telecommunications. Cheap, fast electronic communication for traditionally somewhat isolated businesses is changing the mental and business horizons of many SMEs. E-commerce is creating not only ways to improve basic business processes but also new e-business models in which wealth creation comes from many new directions – in particular new types of services in traditional markets and extended reach to larger markets. Knowledge-intensive work or services seem to be increasingly replacing labour intensive work. These are the businesses that make most use of the functionality provided by computing and telecommunication technology. SMEs are expected to use these technologies for efficiency gains and to communicate with and respond more quickly to their suppliers and customers. They will expect the same from their banks.

While the bank's stakeholders now demand higher profits for both dividends and substantial bonus payments to their top executives, regulators want the banks to offer greater value to SMEs. The very success of this business has made it the most recent focus of their attention. Two reports – one from the Banking Review and the other from the Competition Commission [16] have found profits made on this sector by the clearing banks to be excessive. This is not surprising as banking services to this sector are concentrated in the hands of four banks with little effective competition. The various measures proposed by the Competition Commission for example, seek to drive down prices directly through price control and indirectly by encouraging greater competition.

The costs associated with branch networks, have been steadily increasing due to the rising labour and physical site costs. Hence banks have been under pressure to find other more cost effective ways to service their SME clients. Electronic banking was seen as a promising new mode for delivering banking services. It cannot replace the branch network completely for some time, if ever. Too many services like cheque processing still require manual intervention and SME clients have evinced a continuing need for some face to face discussions with their bank managers.

The regulators [17] want a better service for SMEs at less cost while shareholders and executives want the profitability of the last years to continue. Meanwhile Fortis and the banking industry's perception of their SME clients is that of a changing business profile with attendant more demanding banking needs.

2.2 The promise of the Internet

PC banking has proved to be extra-ordinarily successful for business clients. It has automated some operations and started the process of developing self-service banking [18]. Those customers that have adopted it have been enthusiastic as to its value. All clearing banks offer this service and penetration of the SME market has reached rates of between 40-50% [19]. However, as the Fortis experience shows (in the next section), the range of services that can be offered over this channel is fairly limited.

In their development of Internet based services, the banks have so far been most successful in the retail sector and niche business services. Consumer response to this service has been enthusiastic. Barclays had 3.3m customers registered as on-line customers at December 2001 [20]. It is interesting to note that it is not eliminating the use of previous channels like ATMs, or telephone banking. Rather the emerging model of consumer behaviour is that of a multi-channel user. The foreign exchange business is an example of a niche business banking service that has successfully transferred to the Internet. The new entrants like Currenex, Gain Online and Matchbook FX are coming to dominate the market by offering customers direct access to the foreign exchange market via the Internet. Forecasts suggest that around 75% of foreign exchange transactions will be executed over the Internet by the end of 2002 [21]. These companies have demonstrated both the advantages of using the Internet and the type of products and services that can be successfully handled through this channel.

The argument for Internet based banking to serve the SME market is based on the key characteristics of the Internet [22]. It is a single consistent electronic channel for customers to reach many, if not all the bank's available services and products. It offers new more flexible ways to develop and distribute banking services and to complete financial transactions. Its reach to anyone with access to the web makes banking services more easily accessible. Meeting the demand for global presence,

speedy and responsive service and access to the sort of sophisticated products and services that historically were only available to the corporates, for such a widely flung and disparate group of customers as the SME companies only seems possible via the internet.

3. Fortis Bank SA/NV Case Study

Fortis Bank is an international financial services provider active in the fields of insurance, banking and investment. With a market capitalization of EUR 37.7 billion and around 69,000 employees, Fortis ranks among the twenty largest financial institutions in Europe. At year-end 2001 Fortis had total assets of EUR 483 billion, and its net profit amounted to EUR 2.6 billion. In its home market, the Benelux countries, Fortis Bank occupies a leading position and offers a broad range of financial services to individuals, companies and the public sector. In this market it is equivalent to a UK clearing bank. Growth through acquisition is a key objective.

3.1. Technology development at Fortis

The parent bank invests significantly in technology and automation to improve internal operating efficiency and provide competitive products in the marketplace. It operates a matrix management organisation. IT investment may be led locally or from the centre. The IT director at Fortis UK works closely with the central IT department in Belgium. He contributes to the ongoing discussions that seek to identify issues of common interest to all parts of Fortis. He helps to set broad organisational standards where appropriate.

The process by which IT systems are approved and the development approach taken stems from this structure. The proposal for a new system in the UK would come from a business sponsor, in one of the eleven business lines. The sponsor would work out the specification with the UK IT director and the decision to develop is then made. The UK IT director liaises with the central IT department head over the key choice as to whether it is to be sourced locally or through the Head Office. Some systems, for example, much of the back office systems have been imported from Belgium. Others, like the Internet business banking system, have been developed by the UK IT department.

3.2. *Fortis UK*

Fortis UK was established in its current form in March 2000. It is a corporate Bank with eleven business lines. It has no presence in the retail sector. Of the eleven business lines it concentrates on the four sectors of SMEs & Corporates, Financial Markets, Private Banking and Derivatives Clearing. SME and Corporate banking is its largest business line, representing approximately 65% of the UK bank's total business. An important aim for the bank was to grow its SME market as fast as possible. The size and importance of its parent in Europe ensures that the UK company is more than usually aware of the special banking needs for cross country trading.

Fortis UK, unlike its main banking competitors, was not burdened with an expensive branch network. It has only a small branch network in the UK, which customers primarily visit for advice. Over 80% of the payments service is carried out electronically with the remaining transactions being processed by fax, post or through an HSBC branch, with whom Fortis has an agreement. Fortis could hope to avoid the costs and pain associated with branch closures that other banks have been experiencing, by growing its SME business through use of electronic communications technology. Fortis inherited clients using PC based banking and a proven software package. Hence this was the obvious application to support and develop. First Atlantic Bank of Nigeria was led to a similar conclusion as to the potential of electronic banking when faced with a comparable situation a few years later [23]. It also had a small branch network and a need to grow both retail and business customers fast. By this time Internet banking seemed the more practical approach and this was the development that First Atlantic chose to support.

3.3. *Operation of PC based banking*

At the core of PC based banking is a series of PC packages developed for the Bank. Each will automate to some degree an individual banking product or service. At Fortis, existing packages include the current account balance reporting and payments for both domestic and cross-border accounts and foreign currency quotes. For a customer to access this service the bank's software package must be loaded onto the client's computers and a direct private communications link set up between bank and customer. The addition of another application requires the installation of a separate software package. This is an example of a fat PC client structure, in which

processing is carried out at the client's PC. The bank controls the database and the software package design. The communication link carries data from bank to client and requests and actions on the account from client to bank. The alternative structure of a thin client in which all processing is carried out at the bank with results only sent over the communications link was not a technical possibility when PC banking started in the early 1990s [24]. Only since the advent of web browsing technology has this become viable. With Fat client structure software distribution and support are cumbersome. The marginal cost of each customer system is high, rendering this application unsuitable for the retail market. Installation and training take a visit from members of the electronic banking team (EB) at Fortis. Major software updates take another visit from a member of the EB team, except for the larger SMEs who tend to have internal IT support and can work under telephone support guidance provided by the EB team. Hence system upgrades become increasingly unwieldy as customer numbers go up. Each upgrade necessitates a visit to many of the existing customers. Most customers tend to pick one package of which the most common one is that dealing with the current account.

Fortis has a core package, Aquila, giving a range of functions around the basic current account statement reporting. This was inherited from one of the companies that it acquired in the UK. The bank standardised on it in 1998 because of its ease of use. Other packages provided by Fortis were more powerful at the time but Aquila was perceived as more user friendly by the clients and works with all major existing operating systems. With this package the client can make electronic payments to its own customers (provided such customers also have PC banking facilities). Clients can have daily updates of their current cash position and export this data to other PC analysis packages. The package includes a range of search and manipulation functions. Clients can search for specific transactions or individual customers. Clients can manipulate their accounts in many ways, of which consolidation of multiple current accounts, forecasting of month end balances and currency conversions are but a few examples. It is strong in facilities for cross border transactions and hence would consider itself a natural choice for SMEs operating in both the domestic and foreign market places.

According to Fortis this is an application that offers significant benefits to both bank and client. The spectacular growth rate in takeup during 2001 by Fortis UK clients

gives evidence that Fortis customers would support this view. Their escalating requests for changes and enhanced functionality establishes their appreciation of the value of this service. For the bank almost all the main effects add up to less demand on their staff (apart from the IT group) and hence cost reduction. The development of some self-service options like electronic payments for example, reduces staff load both directly and indirectly by reducing the level of errors. There is also an indication that PC banking helps build a stronger sense of brand and increases the barrier to switching banks for client companies [25]. For customers the direct access to their accounts reduces their own staff load. But perhaps of more value is the increased control that they can exercise over their cash flows through their own analysis of their money flows. This represents a new activity that could not be done without PC banking packages. These are typical benefits of PC packages that support existing operations – efficiency gains difficult to quantify and quality improvements unlikely to make major changes to existing practice. The moderate level of use that can be made by Fortis clients, of Aquila's facilities, like electronic payments, suggests that its potential still far from fully exploited.

Fortis concurs with the view expressed by other clearing banks that PC banking supports the traditional banking model offering efficiency gains and quality improvements difficult to quantify. It is not regarded as a strategic application but is considered necessary to compete in the SME market at all.

4. Internet banking at Fortis

By early 2000 there were a significant number of e-commerce related initiatives at the Fortis Group. One of these was a so-called pure play online bank in France, which never prospered and has since folded. Now the company has been embracing a more integrated approach to e-commerce. An attempt at complete integration was made, with one web interface for all countries. This approach encountered difficulties, as it proved impossible to treat each country in the same way. Regulatory and banking practice vary from country to country and it was necessary to allow each country to develop its own site, leading to extended delivery timescale and high cost. However Fortis does provide a common infrastructure for security, facilitating the single sign-on of clients to access banking services and systems provided by the bank via the web on a global basis.

4.1. The case made for Internet banking

By mid 2000, the head of SME business line at Fortis UK had agreed to support an Internet banking initiative and the committee with responsibility for new IT developments for the SME business line had authorised its implementation. The business case made for the new application included a detailed cost/benefit assessment. But the main justifications for the decision were [26]:

- The need to demonstrate to its current and prospective customers that Fortis was embracing current technology in the form of Internet banking.
- The belief that Internet banking will be a key success factor for the bank over the next few years.
- The potential value to be gained from exploiting the cost savings from moving clients from PC based to Internet based systems.

At this period of time, belief in the future of the Internet rested in part on the expectations created by the telecommunications industry. The extravagant plans of this industry for installing an infrastructure that would offer high levels of communications capacity through both fixed line and wireless channels within a very short time (months rather than years) supported the belief that the Internet would have the capacity to meet all demands.

An important additional factor was the behaviour of Fortis clients. As clients realised the potential of electronic transmission for banking services, their requests for changes and new services began to escalate. PC banking was apparently too successful. Based on research carried out by its electronic banking and cash management staff on its PC banking customers, Fortis Bank concluded that the only realistic way to meet these demands was through Internet banking. At the time it was believed that this would become the main way of serving its SME clients.

4.2. Comparison of PC and Internet Business Banking

Internet banking is a thin client model where everything comes through the browser and by comparison with PC banking there is little to download. It is characterised by:

- No requirement for client side software
- Dependence on centralised databases kept at the bank and hence dependence on the internet communications network
- The use of web enabled software for applications development

- The web environment with its single channel to the bank

For a client to move from PC to Internet banking requires web access. Most SMEs have this already and are familiar with the look and feel of the Internet. All the software is located on the bank's servers, hence change requests can be handled more easily. Customers do not have to change their own software (as for PC banking). New functionality, once developed, can be made available to all customers as soon as it is completed. All authorised personnel can reach the system from anywhere in the world. This is of particular relevance for Fortis with SME clients that work across country borders. This extended reach is bought at the price of dependence on the world wide web communications network. Clients lose the ability to dictate their own standards of performance in the communications link to their bank.

The use of web enabled technologies offers very significant advantages over the PC technology. The authoring languages are more flexible, enabling easy reconfiguration. Changes can be made with far more ease and in shorter time. The Internet is the first electronic channel to the bank that can handle many applications of differing types with ease. Existing and planned new electronic banking services are accessible with an ease not possible via PC banking. The contact point with the bank is a portal that can be used to provide an information and education service to its SME clients. Information on subjects like financial markets, relevant foreign trade legislation and macro economic forecasts, which would be difficult and costly for an individual SME to produce could be provided by the bank to a wide range of clients. The Internet environment lends itself to interactivity in a way that PC banking does not. The ultimate impact of this is yet to be determined. The bank has some control over the nature of the client-bank communications link. Moreover it is already clear that the demands of Internet banking for in house bank support are likely to be of a different nature to those for PC banking. Some are already beginning to emerge. For example, interactivity puts a high value on up to date information. Fortis already delivers data updates every 90 minutes. It is working to speed up this turn round time and this is expected eventually to be in real time. Reliability of systems and data will be subject to more intense scrutiny from client companies since failures will be more visible and have greater impact on customers. With interactivity, clients can and expect to make their individual needs known quickly. The bank's support teams will be expected to provide faster responses to change requests.

The economics of servicing each new client differ from PC banking. At Fortis it is expected that setup costs at the bank should be marginally higher for Internet banking as more software and hardware are required to run web servers. However the setup and installation costs of each new client will be significantly less, while operating and maintenance costs will be very significantly less.

From the banks point of view Internet banking seems to promise a great deal. Apart from the forecast cost savings, customer relationships could enter a changed world. The Internet opens up an access channel that is wide compared to previous channels. This provides a way to integrate the bank's package of services and hence offers cross-selling opportunities. While it's interactivity will help the banks to get closer to their client base [27]. In particular this environment speeds up the bank's response to client demands for new services. For the client the current advantages are lower marginal cost, wider geographical access and faster response. In the future however they also stand to reap the advantages of service integration, access to a wider range of banking services and changed banking relationships.

4.3. Early developments at Fortis UK

Fortis UK launched its Internet business banking service at the end of 2001, but access at that time was provided through a unique web address not through the bank's public portals. In strategy terms Fortis UK has been a fast follower of the first movers to develop Internet business banking. The design of the project took one year, with a pilot launch in October 2001. The full launch came at the end of 2001. By taking the route of fast follower [28], Fortis has been able to observe developments in the market place and believes that it has acquired a presence in Internet banking at a significant lower investment than many others in the industry.

Six months later in May 2002, visits to the Head Office website [29] and the individual UK country site [30], established that web site development was at an early stage. It also highlighted the major problem of Internet usage at present – variable access speeds. Some screens loaded quickly – others were slow. This typically seemed to relate more to the time of day and to the bandwidth of the local network from which the visit was made, than to the site characteristics.

The bank is concerned to offer the highest possible security in its communications with its clients. Each customer that registers for Internet banking at Fortis UK is given its unique website address for added security. The bank planned to create links so that all these customer sites will be accessible through one entry portal – the head office one. This was expected by the end of 2002. To become a registered customer involves a number of steps. The heart of the bank's security is its use of digital certification. New clients obtain not only a user identification and passwords but also a digital certificate password. As an organisation becomes a client it nominates individuals to become authorised users. The passwords are held by individuals on their own computers and are non transferable. Once registered the client accesses Internet banking through a separate URL.

To some extent take-up of this service can be affected by the bank's pricing strategy. UK banks, have in general, offered Internet banking facility free of charge to customers - as they provide only limited functionality (but cost much more). Fortis UK does not currently provide a "list" price for either system. The cost of electronic banking is included in the total annual banking charge for each client. However Fortis does aim to offer Internet banking initially to its relatively lower income generating clients, as the cost of training and rolling out of Internet banking is less than that of PC Banking.

Even six months after launch at mid 2002, the functionality offered by the new service was not equal to the PC banking package. The Internet banking project was still at an early stage with considerably more development work to be completed. Fortis clearly believed that time was of the essence and that having a product even if incomplete in the market place was an important strategic move. The main screen offered a single access point for Fortis UK banking services and products but at that time this was restricted to two – one of which was the current account. At this time the range of functions was more limited than that available on the PC package, Aquila. Further development work was to include expanding the range of services available through this channel and enhancing the functionality of the current account application. The bank's plans were ambitious. The development team expected to be able to exploit the Internet in many ways. They planned for example to leverage the bank's existing products and services by connecting customers to these systems through the common front end of the bank's Internet portal. Fortis believed that the

infrastucture required for this portal was sufficient flexible and versatile to allow them to accommodate requests from clients. It was their ability to be responsive to specific requests from clients that Fortis believed would be their most important competitive advantage.

4.4. Lessons learnt from the 1st year

Fortis had hoped that customers would quickly migrate to its new Internet banking solution, within a two-year timeframe, allowing it to consolidate on Internet banking and ditch the current PC banking infrastructure. However, existing customers of the bank have not been too eager to migrate from the current PC Banking solution. Many new customers are also opting for the tried and trusted PC banking solution. By mid 2003 Fortis estimated that its Internet banking client base was around 7% of PC banking and that this was in line with the experience of other banks of similar size. Consequently, the short term potential to remove the PC Banking channel and consolidate electronic banking services through Internet banking has been much diminished.

Technology has created problems. Due to a lack of proven products in the market when Internet banking took off, most solutions providers, riding on the wave of opportunities available during the dot-com bubble produced Internet banking solutions with short term functionality objectives in order to gain first mover advantage and consequent market share. Most early adopters, including Fortis are now working with these suppliers to enhance the product set. One result has been that the PC banking package has remained an attractive and very competitive product longer than was originally envisaged.

SME clients have according to Fortis, also cited security concerns (perception of vulnerability) and variable access speeds over the web as key barriers to adoption. Variable access speeds depend on the capacity and levels of use on the network as a whole. The expectation created by the telecommunications industry in 2000, that high capacity cheap communications networks would be soon be available has not yet been met. The continuing concerns with security are disappointing when Fortis UK has made such extra-ordinary and public efforts to deliver secure Internet communications links to their clients. The very public problems suffered by retail banking, seems to have had a big effect. This has not weighed with retail customers.

Despite incidents like the website crashes at the launch of Cahoot and Egg [31], the suspension of the Barclays and Inland revenue websites due to breaches in the confidentiality of personal data [32] and the attempt to hack into Egg's on-line systems in 2000[33] the number of retail customers banking on-line continues to grow at a high rate (approximately 37% pa in Europe since 2000 [34]). The latest survey on security from the DTI claims that many companies devote little intelligent effort to their own security arrangements [35]. This suggests that the problem is that of ignorance rather than a careful assessment of the dangers incurred by the bank's arrangements.

It is not clear whether it is these technology concerns or lack of a compelling business case that is the most important factor in the negative response of SMEs to Internet banking. Despite a customer survey that revealed a low level of interest in both Internet and mobile service, First Atlantic Bank of Nigeria [36] went ahead with both projects. In the event response to Internet banking has been low but the mobile banking service seems to be generating a greater degree of interest. The survey by Baets in 1996 among four European banks for example, found that banking executives did not know what drives their clients decisions with respect to products and services [37]. The case made by Fortis for offering Internet banking to SMEs rests to some extent on the bank's perceptions of SME banking needs as outlined in section 2.1, backed up by a customer survey and views from the field relationship managers. How much importance SMEs attach to these perceived needs is not clear. What is apparent is that the move to Internet Banking among the existing customer base has been slower than expectation.

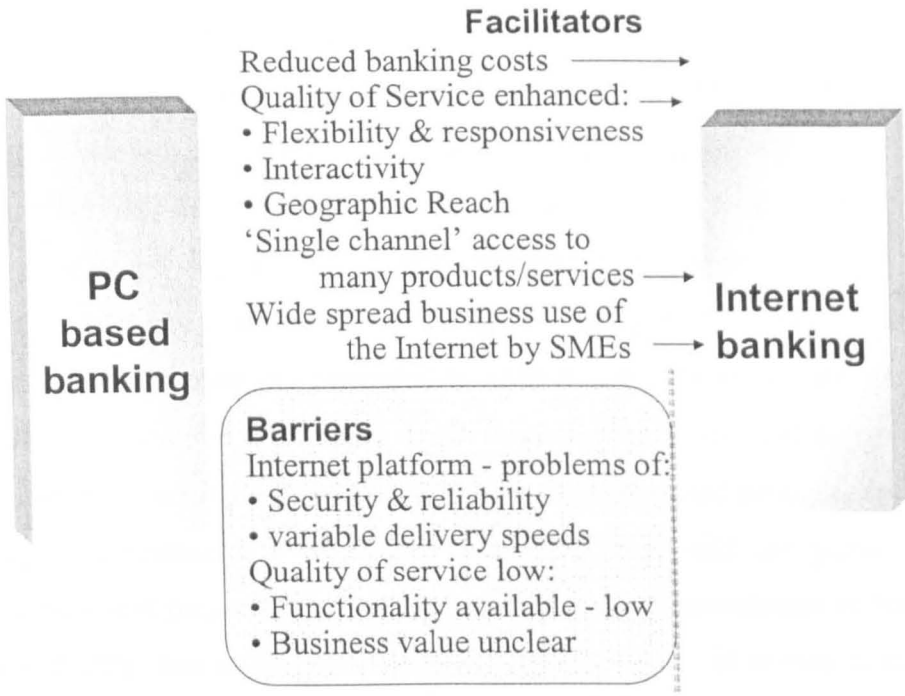
The growth of Internet banking within Fortis is now driven by a clear business plan, which identifies the role and fit of the new product in a multi-channel banking strategy and primarily involves targeting the most appropriate customers and product offering for the service.

5. A model for the Adoption of Internet banking by SME companies

Internet business banking has opened an additional communications channel to business clients but SMEs have been slow to adopt it. The model of adoption that we propose in Figure 1 represents a hypothesis as to the key factors governing the adoption of Internet banking by SME firms instead of PC based banking. It is based

on the Fortis experience described above, the characteristics of the Internet and current understanding of SME banking needs.

Figure 1: Model for the adoption of Internet banking by SMEs



The facilitators are the potential benefits of the services that only the Internet can deliver (described in section 4) and which Fortis (and other banks) understood to meet the banking needs of the SME sector (described in section 2). Many SMEs still rely on traditional methods such as telephone, catalogues and visits to bricks and mortar outposts, for carrying out most of their business transactions and purchases The wider use and acceptance of the Internet as an additional medium for transacting business would also act as a facilitator for Internet banking. The case identifies the barriers listed in the model. Currently the most significant appears to be the limitations of existing information and communication technologies. There is an additional problem presented by the uncertainty as to the scale of business value that SMEs actually consider can be obtained from these new facilities when fully operational [38].

At present the barriers to Internet business banking appear to outweigh the benefits. Further research into SME banking needs could be used to test and refine the above model, which in turn would facilitate a greater understanding of the factors that

govern demand for this service. Banks would then be in a better position to focus the new Internet banking service more effectively on SME customer needs.

6. Conclusion

As demonstrated by Fortis electronic business banking in the form of PC based packages has proved a major success with the UK SME sector. Internet banking has yet to so do. Exploiting the Internet for commercial advantage is not a simple exercise [39] and the evolution of Internet business banking will take longer than originally envisaged. As yet the investment in Internet business banking has not delivered many of the advantages originally suggested to either banks or their clients. Early movers have not appeared to reap a competitive advantage. The McKinsey Global Institute in their study of the banking sector in 2001 suggested that among a number of factors responsible for lower-than-expected productivity benefits from IT capital investments were 'Some initiatives (that) did not yield expected benefits (some CRM projects, and selected mergers)' [40]. Investment in Internet banking for UK SMEs has so far performed in a similar way. However if the reasons for the lack of take up of this new service are due mainly to problems with the technology, then as these are overcome the growth of the new service is likely to rise fairly dramatically. The experience of Fortis suggests that further research into what is really important to SMEs would reap valuable insights into the best direction for future IT banking investment.

Acknowledgements

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Appendix 2

Letters from Co-authors

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Frances Owen,
Academic Registrar,
City University,
Northampton Square
London EC1V 0HB

September 15 2003

Dear Ms Owen,

I have been asked to comment on the relative contribution of Ann Brown to the following paper, which we wrote jointly.

Heather Magrill & Ann Brown (1998) 'Evaluating Intranet Applications' Proceedings of the fifth European Conference on the Evaluation of IT.

It is difficult to be precise about our respective contributions, however I can confirm that we each made an equally important contribution to the paper and the paper certainly would not have been completed without Ann.

I, therefore, feel that it is appropriate for this paper to form part of the PhD thesis of Ann Brown.

Yours sincerely

Heather Magrill

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Ms. Frances Owen,
Academic Registrar,
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September 12, 2003

Dear Ms. Owen,

I have been asked to comment on the contribution of my colleague Ms. Ann Brown to four papers, that we co-authored:

Janson M, Brown A and Taillieu T (1997) 'Colruyt: An Organization Committed To Communication,' *Information Systems Journal*, vol.7, pp. 175-199.

Ms. Ann Brown's contribution to the above article is 50%.

Janson M., and Brown A (1998) 'Information Technology in support of Communicative Action theory: a practical investigation,' (submitted to *MIS Quarterly* and not accepted for publication after 2nd review).

Ms. Ann Brown's contribution to the above article is 60%

Janson M, Cecez-Kecmanovic D, and Brown A (2001) 'Information Systems Development : A Study in Communicative Action,' *Proceedings of international workshop in (Re-) Defining Critical research in Information Systems.*

Ms. Ann Brown's contributin to the above publication is 30%.

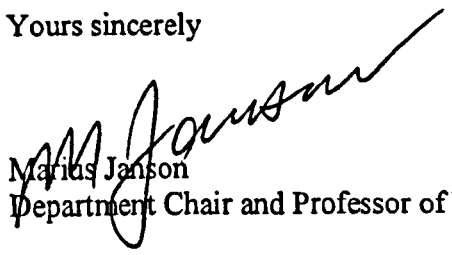
Cecez-Kecmanovic D, Janson M, Brown A (2002) 'The Rationality Framework for a Critical Study of Information Systems,' *Journal of Information Technology* 17, pp. 215-227.

Ms. Ann Brown's contribution to the above article is 30%.

It is not always easy to be precise about the respective contributions of the main authors to the papers. However, the first two papers were written jointly by Ann and myself with our third co-author Dubravka Cecez-Kecmanovic making a major contribution to the last two papers. I have greatly benefited from my collaboration with Ms. Ann Brown – she is academically astute, encouraged me to critically evaluate my ideas and research topics, she made a critical contribution to our co-authored publications, and she is a very effective and efficient collaborator. I confirm

that Ann Brown's contribution was comparable in terms of extent, scope, and in terms of academic standards, to that of students submitting a conventional doctoral thesis. It is therefore appropriate that these papers form part of the PhD thesis of Ann Brown.

Yours sincerely



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Frances Owen,
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September 4th, 2003

Dear Ms Owen,

Contributions to Published Papers: Ann Brown

I have been asked to comment on the relative contribution of Ann Brown to several papers that we collaborated on almost continuously between 1994 and 1997.

The first, and most significant paper, '*Harnessing the Power of Database Marketing*', John Lewington, Leslie de Chernatony, and Ann Brown, Journal of Marketing Management (1996), Vol.12, pp. 329-346, was a fully collaborative paper. The paper was drafted, edited, and the model re-designed several times before submitting a draft paper for refereeing to the prestigious Journal of Marketing Management. It was the *first paper* outlining a model for database marketing systems to be published either in the U.K. or the U.S.A by a leading refereed journal. I can confirm that all three authors made equally important contributions to this unique paper.

The second paper by the same authors, '*Building a Scale to Assess Levels of Sophistication in Database Marketing Systems*', Journal of Targeting, Measurement and Analysis for Marketing (1998), Vol. 7, pp. 164 – 190; defined a scale, based on the model above, that used grounded statistical research and empirical data to quantify the model. I can confirm that Ann made an equal contribution to the extensive statistical modelling contained in this paper.

Therefore, it is entirely appropriate that one or both of these papers can be used to substantiate the Ph.D. thesis of Ann Brown.

Yours sincerely

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28 November 2003

Dear Ms Owen,

I have been asked to comment on the relative contribution of Ann Brown to the following paper, which we co-authored.

Brown A, Remenyi D and Bajomo A (2004) 'Electronic Banking for SMEs: A case study of Fortis Bank UK' accepted by Electronic J of E-Business for publication in August 2004

Ann Brown was the lead author on this paper. She undertook most of the empirical research as well as being the primary interface with the reviewers. I would estimate that she did at least 80 per cent of the work involved.

Yours sincerely

Dr Dan Remenyi
Visiting Professor
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Appendix 3

Related Publications

Ann Brown - Publications including those forthcoming

Refereed Journal papers

2004

Brown A, Remenyi D and Bajomo A 'Electronic Banking for SMEs: A case study of Fortis Bank UK' Special issue of the International Journal of Electronic Business on Achieving Competitive Advantage in e-business, vol.2, no.4, 2004 also at http://www.inderscience.com/catindex.html

2003

Ann Brown, Martin Rich and Clive Holtham 'Supporting Information Literacy for starting MBAs through Action Research' forthcoming Electronic Journal of Business Research Methods,.vol (2) issue 1 August 2003 at http://www.ejbrm.com/

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