THE PURPOSE OF AN INFORMATION SYSTEM: REFLECTIONS ON A CUSTOMER RELATIONSHIP MANAGEMENT SYSTEM CASE STUDY

Abstract

The paper critiques a case study of the use of a customer relationship management system in a telecommunication company. Based on published quotations from the field study, some core concepts concerning the behaviour of information systems in organisations are developed. Discussion of the CRM implementation leads to the proposal of a definition of an information system as: An information system mediates a relationship towards an agreed outcome or purpose; To do this objects-of-interest are manipulated through processes, Conforming to a negotiated interpretation of the real world. Analysis of the case study leads to the identification of 38 concepts and the definition of a set of core concepts: purpose, objectification, legitimisation, selection-exclusion, primacy of the model and behaviour change. The gap between the information systems model and the realty of the organisation is discussed.

Keywords: Customer relationship management system, model and reality, information system purpose, information system definition.

1.INTRODUCTION

An information systems field study can generate an immense amount of data: interview transcripts, field notes, observations, meeting minutes and a wide range of documentation, providing a rich source of insights and commentary on the nature and effects of information systems in organisations. However, the danger is that. In seeking to demonstrate rigorous

analytical methodology we overlook rich and varied insights that the data offers and are satisfied with the direction that the analysis tools lead us in.

The application of a more reflective approach, in which we bring our experience to bear on the data may mine unexpected riches from the data which we might have overlooked if we remained to detached from the data, if we expected the data to speak for itself, rather than considering the process of interpretation as one involving a dialogue between the data and the researcher.

It may be that we are too demanding of the data, that we expect it to speak for itself without the researcher's influence, that we expect the emergence of laws and theories which are in a sense out there, and stand independent of the interpretation and perceptions of the researcher. Such pursuance of objectivity may mean that we alight on a small fraction of the problem space, that we sink into one attractor and are unaware of the vastness of the landscape from which lessons may be drawn.

A particular paper in the Information Systems Journal caught my eye because it described a complex relationship between an information system, in this case a customer relationship management system, the organisation it inhabited and the relationships it mediated. Furthermore, the authors' conclusion, concerning the concepts of loose and tight coupling, not only did not resonate with my industrial experience but also, I felt, did not do justice to the extent and richness of the field work. In presenting its case, the paper provided a wide range of key quotes from the fieldwork which, by my reading, suggested there was much more to this case than met the eye.

So I set about analysing each quote, breaking it down to identify what I felt were important concepts and key issues. From this, applying the same approach as the authors, I identified a series of concepts which led me to reflect on the definition of an information system, that is the underlying computer systems, the processes and data models and its day-to-day operational use.

In this paper I discuss that exercise, providing the analysis tables and conclude by attempting to define what and information system is based on my reflections on this case study.

In their 2015 study, Cunha et al (2015) explore the dark side of computer-mediated control through a case study of the use of a CRM in a large European communications company. A customer relationship management system was introduced to a new desk sales workgroup and some eighty staff were mandated to use the system by the managers. The system became the basis for recording sales and hence determining sales personnel's bonuses. For senior managers the CRM was an instrument for judging the success of the sales desk and

evaluating its viability. For sales managers it became an instrument for control, for eliciting a competitive spirit and chiding poor sales performance by individuals. For the sales employee it became a driver of ambition and a quantifier of performance. Cunha et al's study, conducted over a period of 15 months, involved 307 days of observation, 104 interviews, observation of 51 team meetings and analysis of 120 monthly team reports and 15 monthly unit reports. In all more than 3000 pages of documentation was collected.

Cunha et al's theoretical interpretation of their field research addressed the alignment between the information system and the practice. They posit a dichotomy between tight coupling and loose coupling. Tight coupling occurs when the information system records every action of the employee in some automated way. Loosely coupled systems only hold the records of work that the employee enters. Their conclusion is that information systems design should be based on what employees actually do, rather than what the organisation expects them to do. This seems to me weak conclusion, and possibly un-implementable.

2.THE CONCEPT OF LOOSE AND TIGHT COUPLING

Cunha et al draw on a range of theoretical frameworks including Foucault's Panopticon and Gidden's structuration theory, pausing at Zuboff's concept of informating on the way. Structuration theory is used to support the coding, particularly the third stage of coding, and the Foucauldian concept of the panopticon is discussed because of its prevalence in the analysis of CMCs.

However, Cunha et al use two principle concepts to drive the study. Firstly, there is the concept of the dark side of computer-mediated control. Secondly, there is the concept of loose and tight coupling, which shapes the analysis and the aggregation of the categories derived in the analysis. In this paper I focus on the loose and tight coupling concept.

Primarily, Cunha et al's theoretical interpretation of their field research addresses the alignment between the information system and the practice. They posit a dichotomy between tight coupling and loose coupling. Tightly coupled systems imply an automation where the employee becomes an object to be monitored and recorded: 'exhaustive and detailed data about employee's work practices and their achievements are produced automatically by technology *without any human intervention*.' (p321, italics mine).

Wherever the interface is between the information system and the human, the moment the two connect there is human intervention and interpretation. The human cannot be eliminated

from the loop, even in the most automated system. A CRM might automatically record the basic data concerning any call made by a desk sales employee. It could also record the conversation and transcribe it into text recorded in a database. But what type of call it was – whether a service call, checking up whether the customer has received a product, initiating a sale, closing a sale – this requires human intervention and judgement.

Rather than Cunha et al's conclusion that tight coupling of information system to work practice will avoid the 'dark side of CMC', the focus should be moved to the purpose and meaning of the IS, or the telos of the IS. A concentration on the practice rather than purpose is rather like a focussing on the apple falling rather than the force of gravity motivating the apple's descent. Developing a narrative around the design and implementation of support practices 'misdirects our attention to the apple of the digital, when the real forces that determine the apple's path are hidden from view." Zuboff (2015). Even if people's actual work practices match those which are prescribed by their company and monitored by the information system, a misalignment of, or a lack of reconciliation of the goals, purposes and internal goods pursued by various stakeholder populations will still encourage disruption and manipulation of the information system and its processes and outputs.

If the information system, that is the representation, is more closely aligned with the real world purposeful activity, it follows that the playing of the game and the temptation to manipulate the world to fit the representation will be less. In that sense, tight coupling will be a good thing, because it more closely ties the actor purposes and targets driven by the information system with the intentions of the real world purposeful activity. However, the purposeful activity system is located in practice. Its telos and purpose may well conflict with the telos and the purpose of the institution. Hence the managerial purpose of the information system is to drive the activity towards institutional goals of external goods such as profit targets and suppress much harder to measureable internal goods such as excellence in service (MacIntyre 2007).

A better way would be to engage the information system as an instrument of mediation between the institution and the practice in understanding and agreeing purpose and meaning. The benefit of tight coupling would lie in the tying together purpose and meaning rather than the improvement of the representation of the real-world activity. In reading Cunha et al's case study we have to ask: tight coupling to what?

3.RESEARCH PROCEDURES

Cunha does not tell us anything about entry to the field or the nature of the relationship between the researcher and the participants. Beyond the theoretical framework we are told nothing about the experience of the researcher or the role or positioning of the researcher in the organisation. The researcher is presented as a faceless observer, merely entering the field, almost invisibly and gathering evidence and documentation, rather like a drone flying over or a remote camera.

Not only will the researcher's mere presence over 307 days of observations affect the atmosphere, but the researcher will become a part of the world of the CMC. Participant observation is a way of knowing from the inside (Ingold,2013, p5). The researcher in a human environment is not the equivalent of the zoologist sitting in a hide in the dark of the night waiting for the panther to stride by within arm's reach and yet unaware of the zoologist's presence. The zoologist is aware that even the slightest perception of her presence by the panther would completely change the situation. And what is the case for a cat must be much more the case for humans. Furthermore, unlike the zoologist in her hide, the researcher in an interview Is part of a dialogue. The interviewee observes and socially connects in some way with the interviewer. Based on perception of power and distance, based on prior relationship and knowledge, an interaction is set up. The interview is furnished by physical environment, by prior knowledge and understanding, and by culture. It is not the static observation of a stone by a camera. The interview is also endowed with growth and emotion. Both the interviewer and the interviewee come out changed. The interviewee, by merely describing her current situation enters into self-reflection and will also take cues, look for feedback and confirmation from the interviewer. The researcher enters into a world that is continually on the boil, not a giant museum of stuffed objects (Ingold, 2010). As we question through interviews, or extract documents from meetings, the text, is torn away from the person and leaves behind an entire landscape of narratives, experience, networked engagement and embedding in the situation. Our questioning, far from producing real insights have impoverished and created distance. What we have torn away leaves behind the whole picture.

Cunha et al employ three stages of coding, firstly deriving categories from codes explicitly identified in the data. This data includes documentation such as target lists, job descriptions,

procedures and manuals, interviews, follow-up questions and so on. The implication is that these categories are there in the data, objectively identifiable. But of course, some selection and interpretation by the researcher is inevitable. The second stage of coding aggregates categories from the first stage and summarizes them in eight higher level categories. Like the output of the first stage of coding, the categories identified are purely descriptive. The exercise is one of condensing, précising, abstracting the description. In the third stage of coding a jump occurs in which the concept of coupling appears. This is clearly a subjective and interpretive step. But the mechanism of coding offers a disguise of objectivity, a suggestion that the concept of coupling has in some way naturally emerged from the data and was there in the first place. The problem here is that the rich information and conceptual space that the case study offer has been abandoned as the researchers converge on one spot. We have become trapped in a hole, a single point in a vast and rich problem space and ignore a variety of other phenomena, concepts and ideas.

4.INTERPRETIVE APPROACH

My first step was to go through every quote in the paper, considering it carefully and highlighting every comment or phrase that I felt revealed something significant in the role and outcomes of the deployment of the CRM. This was done as a desk exercise, support by copious cups of coffee. This was done by hand, without supporting software. The use of the software to 'code' the data may results in either overlooking key ideas or being so swamped by data that the important jewels are obscured by a sea of stones.

Of course, by limiting myself to the published quotes, I recognise that the hard work of condensing 3000 pages of documentation has been done by the authors and I am in a privileged position. However, I attempted to parallel the approach of the authors in moving from a general listing of concepts (see Appendix) to a set of key concepts. In developing the general concepts, I identified the concept, pasted in the published quotes and recorded commentary in a manner which you might record reflections as part of a grounded theory exercise.

TABLE 1: KEY CONCEPTS

Purpose	The perceived goal or telos of the system of which there may be multiple, conflicting purposes depending on the stakeholder group concerned.	Perceived purpose of the system Data as justification Bounded information access Information system determining purpose Conceptualising purpose Information system encourages alignment of bottom individual and institutional purpose Information system impact
Objectification	The transformation through the information system of an individual, group or artefact into an object of interest defined by the coded measurable.	Stakeholder as capital object
Legitimisation	Appeal to the information system and its characteristics as a basis for the justification of purpose and the control of behaviour.	Control perceived as result of volume and completeness of data captured. Rhetoric of transparency Rhetoric of accuracy Management of consistency Legitimisation of management expectations by data visualisation
Selection and exclusion	The selection of specific information fields in order to enforce conformity to the perceived purpose and define the boundaries of behaviour.	Defining relevancy Activity exclusion
Primacy of the Model	The information model and its implementation take priority over the real world and becomes the main focus of both telos and behaviour.	Shift of purpose results in shift of purposeful activity. Setting the agenda Productivity illusion Information system as proxy manager Information system as game representation
Behaviour	Behaviour is changed in response to the primacy of the model.	Erosion of trust Quantitative enforcing Right queries Information system determining purpose Information systems as an instrument of self-monitoring Gamification of purposeful activity Information systems as

From this exercise I identified 38 new themes (See Appendix 1). These were connected and developed into a web of meaning (Figure 1). Within this network, I created nodes of reflections and settled on 7 major concepts (Table 1).

But it should be noted that there is no attempt to suggest that my conclusions are in some way dictated by the data. The theories and concepts cannot be said to somehow pre-exist in the data, simply waiting to be dug out, like an archaeologist might dig a pot up. Rather it is the data, the participant quotes, which are dug up like a pot. The interpretation depends on the knowledge and training of the archaeologist or indeed the information systems researcher. Such concepts, ideas and theories are products of human creativity.

5.APPLICATION TO CASE STUDY

Cunha et al's study is metaphorically a creation of a grave for the preservation of artefacts for some expected afterlife. There is no living conversation. And as a research commentator, with only the final publication to work with it is as if the grave has been robbed: we are left with some fragments which suggest a once living environment. We can only infer and imagine the richness and complexity of the environment from our interpretation of the few remaining artefacts.

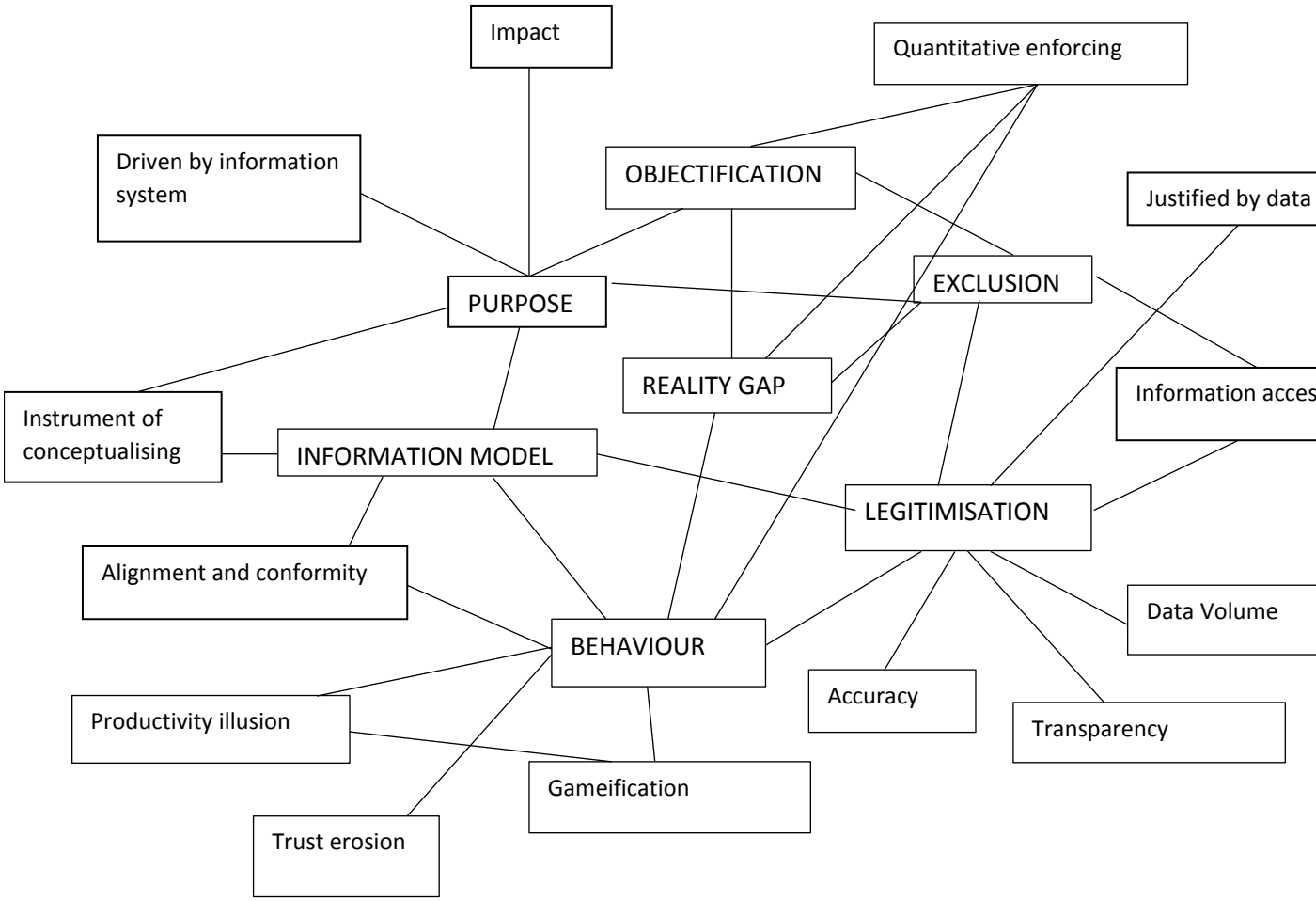

Figure 1: Web of meaning

The identification of concepts such as purpose and accuracy expose a complex role for the CMC involving power and meaning. My view of the case study is expressed in the created web of meaning which attempts to link ideas from across the quotes. The web of meaning is an attempt to portray the complex living dynamics of an information system in situ. It is in a sense of work of art: an artefact which draws out the role of the information system, not as some mechanical recorder of material information, but as mediator of the human relationships which drive an organisation. The web of meaning is an interpretation of an interpretation. The excavated artefacts of quotes point to a living organism, a network of human relationships within which meaning and purpose is negotiated.

6.THE THEORETICAL TURN: WHAT IS AN INFORMATION SYSTEM?

Alter (2016) defines a theory as an abstract account. Theory generalises. It may offer description, definition and explanation. The theory provides a lens through which to view a practical phenomenon. Its value lies in how it develops, alters, realigns the thinking of researchers and practitioners involved with the information system phenomena. A theory is an interpretation of a phenomena, an expression of human understanding, located in time and culture. It is not something that is out there, rather it is in us. It is an abstraction from complexity to create a simplicity sufficient for us to navigate through our world and make enough sense of it to survive.

Here I raise a descriptive theory which revisits debate on what an information system is. I would suggest that the critical aspect of an information system is not the data it processes, but the relationship it supports. In supporting a relationship, decisions are made about what data and processes are relevant. A relational theory of information systems, couched as a definition of an information systems may be stated thus:

An information system mediates a relationship towards an agreed outcome or purpose;

To do this objects-of-interest are manipulated through processes,

Conforming to a negotiated interpretation of the real world.

Further concepts follow from the theory:

- Closer coupling of information system with work process will be ineffective if the information system is addressing the wrong relationship.
- Hidden purpose must be made transparent.
- Purpose proceeds process.

Additionally, an effective theory will generate questions:

- Can an information system support multiple relationships and purposes? Or will there be a clash which will tend towards information system failure?
- In a relationship, who determines purpose? How is power distributed and how does that affect negotiation of purpose?
- How might changing our theoretical lens from process to purpose lead to a different interpretation of the role and function of information systems?

The CMC concerned in the Cunha et al's study may be assumed to function to support the customers of Desksales through the storing of details of the customer and recording customer interaction with Desksales. Processes and data entry will be directed at this apparent purpose. But the actual purpose of the CMC is to drive the manager / employee relationship. It becomes clear that the customer is not the subject of the relationship with Desksales, but an object of negotiation in the maintenance of the manager / employee relationship. Since the purpose of the CMC is the mediation of the manager / employee relationship, the importance of the customer as a subject of a relationship is lost. The focus of activity, the goal of the system becomes the maintenance of a model of the real world, managed and negotiated by the manager and employee. The relevance, completeness, accuracy and transparency of the data are then all points of negotiation, mediated by the CMC.

The real world becomes the servant of the information system. The focus of purposeful activity becomes the game-playing driven by the information system. The agreed outcome of the manager / employee relationship is the external goods (MacIntyre, 1981) of sales income, and presumably the bonuses that accrue from sales. Any pursuit of excellence in working with customer in the real world is compromised by the demands of the information system model, driven by the manager / employee relationship. This reification of the external good makes it almost inevitable that participants in the relationship will resort to manipulation and deception to achieve the external goods, by altering the real world to suit the system, by for example, making extra calls to the customer, or falsifying the information system model by adding fictitious calls to the CMC. Elements of coercion, deception and mistrust which contaminate the manager / employee relationship will be reinforced and reflected in the information system. The drifting away from a focus on the customer and the employee customer relationship, which should be its defined purpose, places intolerable stress on any ethical framework and leads to fracture lines in personal and corporate ethics and an amplification of any nascent unethical practice.

7.DISCUSSION

The conduct and conclusions of an interpretive study will be directed by the experience, perceptions and worldview of the researchers, combined with the outcomes of the dialogue between the researchers and participants which progresses during the field study. The view

and concepts which the researcher brings to the study are often pitched as prejudices and bias. But this has a negative connotation, as if they are something which contaminates the purity of the study. Rather they should be seen as experience and insights which may trigger penetrating reflection and deep understanding provided they are combined with a creative openness to new ideas and to exploring new directions. The problem with field research is not that we bring assumptions to the table, but rather that we suppress them.

To do this I have not blinded myself to my experience, or tried to behave as an empty automaton. Rather I have tried to bring to bear on my interpretations my professional experience in systems development and IT services, my teaching in information systems and system teaching and even my propensity towards theological and literary studies. However I recognise that my experience is very limited and others would bring different experiences to the table with different webs of meaning and conceptual artefacts. It will be through interaction and debate within a community of interpreters that rich outcomes will emerge which not only might define an academic field, but elicit real practical value and change.

7.1 The Model and the World

Critically, the purpose of the information system has to be understood. While the information system may be designed to support customer-oriented processes, that design is subordinate to the purpose. The information system is then configured to support that purpose, whether employees are aware of this or not. The information system supports, or rather enforces that purpose through the objectification of the subject of the system. Representation by numbers turns the customer into an object. The information system then legitimises the purpose through mechanisms of rhetoric and appealing to the characteristics and properties of the system. This reference to purpose is further strengthened by the selection and exclusion of data and processes. Once the model is established through the implementation of the information system, it becomes the focus of activity. The information system reifies the institutional purpose and demands that behaviour and real world activities conform to the demands of the model.

Hence the focus of institutional activity and behaviour shifts from the real world to the model. Everything done by the employees and managers serves, feeds and maintains the model. As the model takes root in the psyche of the individual and the organisation, it drifts away from reality and a reality gap develops between real world activities and the imaginary world expressed in the model. As this gap extends, more and more behaviour is directed

toward attempting to force the real world to fit the model. It is not that the model must be adapted to the real world, but that employee activities in the real world must be contained, jemmied into the model. It is through strained effort to force the real world to fit a model that is driven by institutional purpose that unethical practices and activities emerge.

Thus the information systems artefact, whether stone tablets, server farms or quantum computers is merely a substrate on which to grow the model which mediates human relationships. The model is a product of continuous social discourse and the to and fro of the human hierarchies that maintain the social fabric. Those models are both a product of negotiation within social hierarchies and enforcers or precipitators of social hierarchy. The increasing technical power of the information system only serves to increase the level of complexity that can be managed within a hierarchy, the reach of that hierarchical structure and speed of relational exchange in the maintenance of that hierarchy. This may raise questions concerning the value in equating of the social and the material as sociomateriality does.

8.CONCLUSION

Cuhna et al's study reveals a much deeper meaning of the information system beyond the coupling of data collection with work practices though automation. Indeed, tight coupling may only be a more concerted attempt to conform reality to the demands of the model. Rather the study reveals the importance of viewing an information system as an instrument of negotiation which shapes the relationship between human individuals or groups.

It also illustrates how attempts to conform the world to the model may influence behaviour and organisational strategy. I would suggest that the favouring of the model over reality constitutes a significance risk for organisations in a data driven society. If we lose focus on the complex reality of the material world and succumb to the delusion that the data is right, that what the information system say is the truth, then we may be plagued by a cognitive dissonance,

Because the information system only represents our limited perception of the complexities of human interaction. It obscures the complexities of human interaction. A gap may develop between representation and reality. And in our attempt to resolve the dissonance, to close the gap, we change our behaviour and organisational behaviour to conform to the model. Thus

the model has primacy over reality: never mind what the situation may be, the data has the final word, the data is right.

This is a fundamental danger in data science: that we believe the human-constructed fiction over the truth. The relationship is defined by the model, rather than the model being a simplified tool to support the negotiation of a human relationship.

It is therefore the information system researcher's task to interrogate the model, to expose the gap between reality and representation and to ensure that the focus is on the reality and to subordinate the model to the reality.

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APPENDIX 1. . CASE STUDY ISSUE IDENTIFICATION

Issue	Issue description	Quote and page no	Theoretical Commentary
Perceived purpose of system	Stakeholders in a relationship have a perception of the actual purpose of a system, beyond the formally stated purpose. There may be a difference between what is stated as the purpose and what is the known purpose. This can be generated by explicit communication, or by rumour.	They feed it [sales data] back to [the company] so that they can say that 'we are getting value for money'. P329.	Every information system has one or more purposes, agreed by each stakeholder relationship it supports or mediates. That purpose may be explicit – defined in the system documentation and agreed by stakeholders. Implicit, unstated but accepted by stakeholders, or hidden understood by one stakeholder by no reveal to the other.
Stakeholder as capital object	The information system may support the moving of one stakeholder from the role of relationship participant to managed asset.	You know, [the company] could turn around and say, 'right, I could get that money in with or without him anyway', they never know that. But I think the reports show in some way the value we add into the accounts. p329	Information system mediates redefinition of stakeholder as a resource and by objectifying the stakeholder changes the stakeholder relationship.
Control perceived as result of volume and completeness of data captured.	The more complex and comprehensive the information system is, the more complete the picture it gives and hence the greater the perception of control and reduced uncertainty,	How can you justify in that case, if you don't have the revenue, how can you justify that your salesforce has been working? Because they can't come around here and check every day that you are with your headset and that you're taking calls, but if you log all these data it's a backing for them. p330	Driving an information system to provide greater quantities and reach creates a greater perception of certainty and control.
Defining relevancy	Capturing certain information and ignoring others defines relevancy and defines what acceptable action is.	If the business doesn't work, if higher ups say why don't you have a $4 million revenue, you	The information system data model defines relevant and irrelevancy activity. This in turn influences behaviour.

		can turn and say 'my [salespeople…] made 2 million calls last year and they've contacted 2 million people, they've sent 10 million e-mails p330	
Rhetoric of Transparency	Putting numbers in an information systems and making them available creates a consensus in the organisation.	"KPIs [key performance indicators extracted from Siebel] measure the way we do business and how successful we are" and that " Siebel is completely transparent", and that's one of its major advantages p330 I supposed [it's there] because of transparency, so that the account team [desk and field salespeople] can see what sales have been made, see what deals are currently underway, get an idea of the customer is leaning towards, what products they're buying. P334	The lodging of numbers in an information system creates an illusion that everything is visible. And that the organisation is sharing information for the common good. But what has been left out, and the interpretation of the data, and the meaning associated with the data by the powerful ensures that there is no transparency.
Rhetoric of Accuracy	Capturing data in an information system gives it a legitimation of accuracy	She added that "as you know, Siebel is part of the E-Tel transformation and DeskSales is on top in accuracy". She adds that "we need to keep being the most accurate".p330	Accuracy as rhetoric, meaning our results are correct because they're in the information system.
Data as justification	Justification of purpose activity and employee actions is enshrined in the recording of data.	having to produce these things to feed them up so that [our General Manager] can justify what we're doing and when we're doing it, so that [top managers] and especially [senior managers]	The outcome as digitally represented becomes a virtual proxy for the actual real-world outcome of the activity. Work is justified by the information system representation alone.

		are happy. p330.	
Shift of purpose result in shift of purposeful activity.	Focus of work become the maintenance and population of the model, not the pursuit of real-world activity	So it takes a lot of time and it's unproductive work as well because it doesn't help you make more sales, it's just looking back, so that justification process is quite frustrating p330	The work on the information system becomes a purpose and goal in itself which is disconnected from the actual work it is supposed to represent.
Erosion of trust	The use of an information system as a prime source of evidence of activity and a means of judgement amplifies and speeds up the erosion of trust	if you don't have the revenue, how can you justify that your salesforce has been working? Because they can't come around here and check every day that you are with your headset and that you're taking calls, but if you log all these data it's a backing for them.	The information system becomes a focus of conflict and argument about the nature and legitimacy of real world activity. The extended use of the information system may start from an erosion of trust in a relationship, but only serves to increase the lack of trust as the focus moves away from what is actually happening to what the system says is happening.
Climate effects	Real world effects and influences on the performance of a human purposeful activity system may be excluded and ignored because they cannot be capture d in the information system	unfortunately they don't want to buy, the customer doesn't want to buy, because of climate. P330	Climate change, culture and context cannot be captured in the bounded limited model of the information system. Hence exclusion of those produces a narrow and myopic view of the system resulting in employee frustration and conflict.
Quantitative enforcing	The information system pushes thing towards the focus on institutional derived measurable which enforce a specific perception of what is legitimate action.	KPIs [key performance indicators extracted from Siebel] measure the way we do business and how successful we are" p330	Use of measurables which simplify the complex and are selected by the powerful bias the argument and disempower participants in the relationship which is mediated by the information system.
Setting the agenda.	Information system becomes the focus of the power of meaning.	"Siebel is where DeskSales can be ambassadors and leaders".p330	Engagement with the information system can be imbued with meaning concerning institutional aims and goals and concerning what is legitimate in leadership.
Productivity illusion.	Illusion that entering data into an information systems and manipulating models is productive work	So it takes a lot of time and it's unproductive work as well because it doesn't help you make more sales; it's just	Management and use of information systems seem by managers as productive work, but may not actually be productive but actually inhibiting productivity through a shift from reality to model.

	affecting reality.	looking back, so that justification process is quite frustrating. P330	
Information systems reality gap.	Information system measures something different from what actually happens.	all they're doing is managing their email, […] they do take a lot of orders, they do a lot of work that they're not supposed to do and I don't know how much time is wasted p331	Activities measured by information system are not the ones undertaken by staff. This arises from a purpose gap. Here the purpose articulated by managers is creating sales. But this does not align with the purpose of the employees. The question is where is that mismatch? Someone must be telling the employees what to do.. manage email, take orders. Therefore the gap arises from hidden conflict in stakeholder's purposes.
Immeasurability of human purposeful activity	Management requires measuring and trapping information in the information system. Many aspects of purposeful activity cannot be measured or lose their meaning and value once they are measured.	My initial feeling is that there is a lot of time wasted, but I don't know how to measure it p331	Many human activities are very difficult to measure and once we measure them, they loo their value. An analogy is in quantum physics in the uncertainty principle where momentum and position cannot be simultaneously observed. In information systems an organisational phenomenon is reduced in its information richness once an attempt is made to observe and measure it. Hence we have a paradox, that one the one hand, systems cannot be managed without measuring, on the other hand the system we wish to measure are fundamentally immeasurable and the organisational phenomenon disappears once an attempt is made to measure it.
Administrative detachment of information systems	Sales persons are so focussed on their purpose that they don't get round to, or specifically don't want to enter sales details to gain the reward.	human beings don't want to do that side of administration really, particularly the kind of people that you have in here that want to earn money, that want to spend their time making money. They don't want to spend their time on Siebel, do they?	If the IS is sufficiently disconnected from the actual purposeful activity, motivation will become so long that even the advantages for the user are lost. Here the internal goods, the internal purpose so overrides the external goods or reward that the system ceases to be used.
Bounded information access	Figures on a whiteboard exposed every sales person, while using a spreadsheet provided some smokescreen.	I don't particularly want to be exposed. Exposed the people that made the least deals.… [The spreadsheet is] not something people can walk by every day and look at. P332	Information system can restrict access so that only a selected group of stakeholders have knowledge of what is important to the institution.
Right queries	Company experts certain figures, certain queries to be	He said, "next week, we'll go into a meeting room	IS open to interpretation. Interpretation set by, defining meaning of data and declaring how the data is to be

	focused on; determines what is right. Sets agenda through training.	and I'll walk you step by step on what you need to do to get the right queries on Siebel. […] p332	understood through the definition of queries.
Management of consistency	Consistency in reporting required by management.	He said that because, when they are preparing their own report, "you need to be consistent about how you get your numbers."	Dominant stakeholder or group of stakeholders exercising power will define what is consistent. I.e. what is the accepted single view of the data.
Information system determining purpose.	Seibel defines targets which employees are required to know if they are questioned by senior managers.	He went on by saying that with senior managers being around the floor, in addition to all of the top management's visits, "if somebody comes and ask you, you want to know [your targets]."	Information system as instrument of purpose definition. Moving purpose and hence motivation to quantitative measurables.
Information systems as an instrument of self-monitoring	Desk sales staff are expected to monitor themselves.	Siebel. […] it's the way we're going to help you monitor yourselves, so that you know where you are at any moment in time." P332	Once an information system is socially accepted as a mediator for behaviour in a relationship, the user's focus on the relationship will be such that the information system becomes the behavioural mirror.
Conceptualising purpose	Purpose is determined by the IS artefact and driven by the IS artefact, The goal becomes improving numbers in Siebel, rather than improving customer service etc.	He added that "this week you need to be on 60% against target, so if you could pull some good numbers this week, that would be great." He said that he was willing to pay for a night out for them if they did "really good numbers in these next six weeks."p332 George started his meeting by saying that he wanted to talk "about your numbers," p333	An IS accepted by a practice as the mediator of that practice will move the focus and reward from goods of excellence to good of efficiency. The IS further shifts the purpose from a real-world achievement of material or human change to a focus on a cognitive purpose.
Gamification of purposeful activity	Focus on Siebel data and targets means the purposeful activity of serving	He got up and went through the first six rows in his league table and told Jeffrey, "you're in	Creation of comparisons, league tables, reduces actual purposeful activity to a servant of a game. Hence actions are undertaken in order to obtain rewards in the information system. A behavioural

	customers is reduced to a secondary activity performed in order to play the game dictated by the information system.	sixth." Mark was in second; " p333 He added that "next week we need to be on 63% target." He then told each person what their percentage was against their target and told the lower scorers, Peter, John and Ann, "you're on 30% but with a couple of big wins, you'll be able to pull back." P333	condition occurs, where the actual actions are undertaken for a reward inside the system, in this case hitting targets. The real world action becomes a lever pulled to obtain the virtual reward. Since this indicates a total focus on external goods, the external good dictated by the institution, there is a total inhibition of the pursing of internal goods and hence leaving an open door to deception and manipulation.
Reification of the external good	The targets, logged data becomes the purpose, the point, the goal of the activity.	George then talked about the top wins for last week worth about 2million dollars each. He then said that they had logged in 19 opportunities last week and congratulated them on that. P333	Use of information system not only gives preference to quantitative measure of external parameters such as income etc., it also turns qualitative, internal goods, measure of internal motivation into external goods. So the pursuit of excellence becomes a measure of excellences which acts as proxy for the qualitative phenomena.
Information Systems as impression management tool	Desksales employees status, identity and the impression colleagues and the company have of them is determined by the figures in Siebel.	He said that his manager told him that he had to have a pipeline because "it looked bad on Siebel" if he didn't have one. P333	Workplace identity is enshrined in the information system. And identity is then affected if not determined by the figures, the image in the information system. Workplace identity is enshrined in the information system. And identity is then affected if not determined by the figures, the image in the information system. There is a feedback loop created whereby a dependency on the information system is established. The information system becomes an adjustable mirror. I look in the mirror to change myself, but I also paint over or manipulate the mirror towards the perception I have of myself, or of what I want to be.
Activity exclusion	The model in Seibel assumes that all activity is sales activity for which the entire responsibility lies with the employee. It excludes complex team interactions, dependencies, complex classes of activity and cuts to	Victor explained that he didn't have anything in the pipeline because his accounts are subcontracting, so he is dependent on his customers having a pipeline and sharing it with him. P333	Information systems work because they: Cut complexity and limit options, Create standardisation, Isolate the individual. This means that any complex network of activities constituting a purposeful activity system will defeat the information system.

	the isolation of the individual.		
Reinterpretation of reality to match the perception of the information system	Calls to check goods have arrived, to give a quote are interpreted as winning revenue.	Nina explained that though Robert's involvement was limited to calling the stores to make sure they got the discs, 'even making a quote [giving the price of a product] is involvement.' She concluded: 'What I would do is ask the account team [i.e., field salespeople] if there's something I can do to help.' She added, 'basically, the more you look, the more you'll find, and it's a way to get revenue without having to sell anything. Of course, you will eventually have to sell something, but it's a good way to hit numbers.' P333	Desire to when the game, as defined in the information systems results in reclassification of real world actions to fit the virtual game being played in the information system.
Information systems as a tool for coercion	Figures put in Siebel are interpreted by employees and by managers as a tool for coercion because employees are penalised if the figures aren't good.	it's just another system. Something that I have to use, something that I have to put stuff on there, otherwise I get penalized, so that's the reason I hate it. P334	Figures in an information system are used to reify the gap between expectation of planned activity and perception of delivered activity. This can then be interpreted as a evidence of bad behaviour to be punished. Hence the information systems is used to support threat of punitive action. Conversely, the exposure of a gap could be interpreted as an opportunity to support and help the employee to do better, as an indicator of a need for wise managerial intervention to help develop the employee.
Alignment of the real world and the model world is a moral activity.	There is an awareness of what Siebel records is a model world which has drifted away from the real world.	I believe that my sales managers are stats driven. They have to produce spreadsheets day in and day out, and they can only talk about figures. Figures isn't the real world. Figures is not a sales world.	Alignment of the real world with the virtual world, the information models residing in the information system is a moral human activity. It requires an understanding that the information system isn't the real world. This is sometimes not there and the IS is the real world as far as the actors are concerned. That having been discovered, it further requires the exercise of moral strength to: Balance the external and internal goods in a reasonable way, It requires the

			practice and expression of courage and honesty translated into transparency and trust in declaring the provenance of information captured by the system and the relationship between the information and the real world.
Information system as proxy manager.	Siebel becomes the way desksales are managed. Examining the figures and managing jus by what the numbers say creates a kind of management automation,	So I think that most salespeople are driven to fulfil the role of Siebel, and if you ask who my internal manager is, it's Siebel. P334	The information system which starts as a tool for mediating and supporting interaction between the manager and the employee, one tool in an ongoing supportive and productive relationship becomes a means of automating management. In pursuance of a total automation of management, the IS becomes effectively a robot manager. Hence the IS becomes a tool by which managers abandon responsibility to actually manage, to engage meaningfully with the employee and make deep decisions rather than surface decisions, superficially justified by the information model.
Legitimisation of management expectations by data visualisation.	Introduction of traffic lights system give increase legitimacy to management expectations.	Jeremy said this morning [in the team meeting] that they're going to introduce something that will have red-amber-green, which will tell you how far away from your target for the month that you are. P335	The use of visualisation approaches such as traffic lights enables managers to set targets and expectations which are perceived as legitimate and are less likely to be questioned. Traffic lights are a classic example of a visualisation which connects with underlying behavioural conditioning.
Information system as instrument of power.	Employee, referencing whiteboards, highlights the use and deployment of the system as making him feel like a kid.	I hate [the whiteboards]. I don't think they're useful at all: they don't help, they don't increase morale, they don't make you want to work hard, they make you feel like kids, you know. P335	Use of IS by managers treats employees as children and creates an inferiority complex, trivialises ambition and purpose and pushes towards trivial external goods. Creation of a behavioural conditioning system nullifies deep purpose. The reduction of meaning to trivial point scoring games, creates managerial simplicity and employee pliability.
Information system encourages alignment of bottom line individual and institutional purpose.	Employee states that his goals is to make money and that this aligns with the organisation's goal.	"My goal is to make money." He did not have any career aspirations within E-Tel, "this means that my goals are aligned with the company because what the company wants is to make money." p335	Information systems reflect and enforce company goals. This makes the quantitative much harder to support than the qualitative and shifts the focus to external goods.
Amplification of	Managers	"I'm getting	Focus moves from actual purposeful

unethical practice.	encourage employees to make up sales figures.	pressure from [my sales managers] to make up fictitious sales calls to hit targets".p335	activity to representation of purposeful activity. As targets are dissociated from real life, temptation to unethical practice increases because of the behavioural need to reduce the cognitive dissonance between the actual and the representation.
Information system as game representation	The support and manipulation of the game becomes a prime purposeful activity in itself, taking time away from the actual service activities.	After finishing entering three new opportunities in Siebel, Marion complained aloud, "not enough time for customers in a day, there's so much internal stuff to do". Jeremy, another desk salesman on Marion's team warned: "focus on your customers, girl, otherwise you won't earn any bonus." Marion replied: "it's all fun and games!" Jeremy agreed, "it's complete a waste of time […,] it takes forever". Marion concluded, "this is what I hate about this job, having to do all this admin crap." After finishing entering three new opportunities in Siebel, Marion complained aloud, "not enough time for customers in a day, there's so much internal stuff to do". Jeremy, another desk salesman on Marion's team warned: "focus on your customers, girl, otherwise you won't earn any bonus." Marion replied: "it's all fun and games!" Jeremy agreed, "it's complete a waste of	The information system becomes a trading game in which the actual purpose activity is subjugated to the purpose of the game. And the information system becomes the determiner of purpose, the actual world must then be manipulated to fit the representation.

		time […,] it takes forever". Marion concluded, "this is what I hate about this job, having to do all this admin crap."p336	
Honest representation	The representation of activity in Siebel is regarded from an ethical viewpoint.	… granted I haven't done much but at least [the number of calls reported in Siebel] is an honest representation of what I've done. What if my [field salespeople] look at Siebel and see them [the fake sales calls] and ask me 'what is this?'" p335	Honesty and trust in an information system requires that the data entered correspond to the real world and is not fabricated. However, interpretation of the agreed reality and te4h alignment of its representation in the information system requires a consensus as to what the norm is. It requires a single view of the data, a single agreed interpretation of representation and meaning. Actors may claim that there is an objective view of this, but that is a matter for debate.
Relationship mediation.	Siebel mediates a relationship between two groups of actors: desksales staff and managers. If the key relationship is between desksales staff and customers, Siebel does not address that.	The key to it all is the actual relationship with the customer because the customer will come to me.… One of the good things about [DeskSales] is that there's always somebody there for the customer to speak to, outside the service arena. And I think that as far as I'm concerned, I've built trust with my customer and that helps. P336	Information systems mediate relationships. They provide a basis for interpretation and consensus between two groups. Data within the information system becomes the object of discussion and debate between the two groups in the relationship. Here Seibel does not align or couple because it is not addressing the relationship between the desksales employee and the customer which is the focus of the purposeful activity. The critical role of an information system as a relationship mediator also requires and engagement with issues of trust and power.
Information System Impact	The actual impact of Siebel is purely in sales person remuneration. It appears to have no impact on the customer. Hence a 'reporting system' is requisitioned to drive the behaviour of sales staff through the distribution of rewards.	Siebel is a reporting tool and a reporting tool only, and this is why I'm amazed we're paid off a reporting tool … because you can put a figure in and that figure can be anything and you're paid on that.…[Field salespeople] are paid on [the revenue tracking system], which is	A key question is what is the impact of an information system and how does the manipulation of the representation change the real world and how does that *feedback* to the representation. Analysing the impact, the decisional output and their effects on the organisation and the system will tell us something about the real purpose of the information system and the relationship it mediates. An information system which is reporting must have an impact transmitted to the real wold through managerial / organisational decisions. If this is not occurring the IS is then

		money that goes into E-Tel's bank. We're paid on the money that we think is going to go into the bank, but nobody ever checks that it's going into the bank. The reason is that it's so difficult with all the opportunities on there to track them through to [the revenue tracking system] that I am not sure it will ever happen. P337	sterile, has become a servant of a reporting for reporting sake culture and should be decommissioned.