

Association for Information Systems AIS Electronic Library (AISeL)

ECIS 2009 Proceedings

European Conference on Information Systems
(ECIS)

2009

Innovation in virtual worlds: Social structure and diffusion

P Sobreperéz

Follow this and additional works at: <http://aisel.aisnet.org/ecis2009>

Recommended Citation

Sobreperéz, P, "Innovation in virtual worlds: Social structure and diffusion" (2009). *ECIS 2009 Proceedings*. 193.
<http://aisel.aisnet.org/ecis2009/193>

This material is brought to you by the European Conference on Information Systems (ECIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ECIS 2009 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

MANAGEMENT COLLUSION: KEEPING THE LID ON THE CAN OF WORMS

This paper suggests that issues surrounding non-compliance should not be dismissed as resistance but instead should be further studied by managers and developers, leading to accommodation of differing views. The technological frames of reference strand of social shaping of technology theory is used to overlay the issues arising from a case study looking at non-compliance with information systems. This procedure highlights underlying antecedent organizational conditions which are likely to underpin non-compliant behaviour. These antecedent conditions include acceptance, control and proceduralisation. Examination shows that change in these areas is within the remit of managers and yet non-compliance continues and is accepted by managers. This raises the question not of why or how these behaviours exist, but why they continue to exist in the light of their unmasking and exposure. This paper suggests that non-compliance should not be dismissed as resistance but should be addressed by managers and developers leading to a skeleton or framework for understanding problems and developing organisationally aligned solutions.

Keywords: Social Shaping, Technological Frames, Resistance, Workaround.

1 INTRODUCTION

The purpose of this paper is to examine complicity and collusion by managers who fail to address issues underlying non-compliance to information systems. Several terms in this paper are deliberately selected to differ from the usual terms used and the term non-compliance is used instead of the more usual term resistance, with all associated negative connotations. In addition terms such as complicity and collusion are used to describe managerial knowledge of non-compliance along with their inaction in addressing such behaviours, where these are identified as managerially controllable. Collusion implies secret understanding with negative intent and complicity implies tacit conspiracy in underhand matters. This paper builds on work identifying categories of non-compliance with information systems (Ferneley and Sobreperez, 2006; Ferneley, Sobreperez and Wilson, 2005). The author now ties in the technological frames of reference aspect of social shaping of technology (Bijker, 1995; Orlikowski & Gash 1994) and applies these to the case study data to identify relevant social groups. This paper applies, across case study sites, the notion of technological frame incongruence across identified relevant social groups, and uses indicators for non-compliance to construct contrasting technological frames. In this way, this paper applies the lens of technological frames theory to the findings of the original case study (Ferneley & Sobreperez 2006) and uses the identified groups of conditions underpinning non-compliant behaviour to create the structure of the technological frames. This action outlines clearly that relevant groups of employees who interact with information have widely disparate views of the nature and purpose of the information they use, and that this can stifle congruence or commensuration of attitudes to information systems.

In addition, the application of technological frames helps to identify areas where management, supervisors and developers take different standpoints and dismiss or minimise non-compliant behaviours and their subsequent negative impact on data integrity, accuracy of reporting, and organisational culture. An organisational ideal is the seeking of technological frame congruence (Orlikowski and Gash, 1994) and the comparison of stances across different dimensions helps to identify the differing attitudes, beliefs and viewpoints of the relevant social groups. In this way areas in which these differing standpoints have contributed to conditions which are precursors for non-compliant behaviour are highlighted. This action may assist in the categorising, across other contexts, those behaviours which are harmless, hindering or, vitally, essential to the completion of tasks, processes or roles within an organisation (Davis and Hufnagel, 2007; Ferneley and Sobreperez, 2006). Further, this action of categorising could become important in the identification of behaviours to

ignore and behaviours requiring action in individual organisations. Non-compliant behaviours capable of mitigation by management action are continuous in their manifestation and the action of classification could assist managers in the seeking of curative or alleviating systems

2 THEORETICAL AND RESEARCH BACKGROUND

Where users show opposition to information systems, this has traditionally been seen as recalcitrant, negative behaviour, labelled as resistance, to be minimised and overcome as much as possible throughout an organisation (Franz and Robey, 1984; Lyytinen and Hirschheim, 1987a). More recently, other researchers have pointed out that resistance can be seen as a positive force and may highlight the shortcomings of systems or of organisational arrangements (Hirschheim and Newman, 1988; Levine, 1997; Markus, 1983; Mumford, Land and Hawgood, 1978). This seems to be especially true where an organisation has distinct hierarchy and operators are distanced from those who specify, develop and implement systems (Lapointe and Rivard, 2005; Marakas and Hornik, 1996; Martinko, Henry and Zmud, 1996; Prasad and Prasad, 2000). Resistance studies are generally seen as control versus resistance, management versus workers, repressive power and subsequent response, overlooking the ambiguity and complexity often found (Thomas and Davies, 2005) and assuming polarity of management and workforce.

Some attempts have been made to create environments in which resistance is minimised and this has resulted in the development of Technology Acceptance Models (TAM) (Davis, 1993; Ventakesh and Davis, 2000) which predict the impact of external variables on the internal attitudes and behaviour of people in new technology situations. However, widespread use of these has failed to significantly affect this area, or account for social influence in the adoption and utilization of new information systems (Malhotra and Galletta, 1999); developers and managers continue to view any non-compliance as resistance, with associated negative connotations, to be overcome for business reasons.

The literature has largely been managerialist in outlook focussing on the behaviour of workforce and theories of resistance from the exclusive point of view of managers (Jermier, Knights and Nord, 1994; Lyytinen, 1987b; Markus, 1983). This has involved taking a view from the outside and above, looking at the workforce as different and separate from those who manage them, who make decisions governing their use of information systems, and who determine implementation and control of new information systems (Boje, 1995).

Managerialist ideology became popular with the rise of corporate capitalism over family-owned businesses and assumptions are that managers are different kinds of people from ordinary working people, that they have skills, knowledge and attitudes that differentiate them in a superior way (Chandler, 1977). It is argued that managers are infused with a paternalistic and 'know-best' attitude through virtue of their position, they have a 'responsibility' to the organisation greater than that of lower workforce members and are agents and functionalists of the survival and growth in profitability of the organisation (Alvesson, Mats and Willmott, 1996; Boje, 1995; Hoskin and Maeve, 1993a; Hoskin and Maeve, 1993b).

The flattening of hierarchies occurring with harmonisation and removal of layers of middle managers purports to drive down decision-making and to 'empower' lower levels but rarely are these other than operational decisions (Appelbaum, Hebert and Leroux, 1999; Harley, 1999). Thus the unitarist approach favoured by the rise of the Human Relations school of management thought is contrasted with the pluralist 'us and them' idea of managers versus workforce implying tensions, conflict, and resistance to systematic and continuous workforce subjugation. Shoshana Zuboff (1988) considered the use of computer technology as a radical discontinuity in industrial history. She observed that more data is now available on the minutiae of work based tasks than ever before, and one of her findings was that power lies with access to that data. She construed that this could constitute a fundamental organisational change and would have far reaching effects for employment, social relations and power relationships providing managers did not block the development of intellectual skill of workers to

protect their own authority. She concluded that technology could be either restricting or unleashing depending on the choices made within the organisation and that these choices might threaten the fundamental distinction between managers and the managed. Thus true empowerment of the workforce at operational level becomes a threat to the power and authority of managers.

The issue of differing groups of people holding differing views of technology is introduced by the Technological Frames of Reference (Orlikowski and Gash, 1994) strand of Social Shaping of Technology Theory. The essence of this theory is that groups of people interact with technology in different ways and are identified by shared tacit knowledge, assumptions and understanding. Groups are identified as having similar purposes and objectives of technology and similar understanding of data use, data quality and ultimate information utility.

Orlikowski and Gash (1994) suggest an ideal of frame congruence, where differing groups of people are aligned on the structure and content of their frames and thus share expectations and assumptions around key technological aspects. The existence of incongruent technological frames implies differences in the view of division of labour, autonomy of employees, and status and position of individuals are consciously or implicitly built into information systems by systems planners and designers (Hirschheim and Klein, 1989).

Should incongruence be identified, the implication is that in order to move towards congruence, one or several relevant social groups will need to amend or change their frames of reference in order to resolve incongruence. Clearly these amendments and attitude changes will be expected of the user or operator and not by the designer, consultant, manager, executive champion or financier of the project Davidson (2006). The very idea of communicating and cooperating with users and seriously considering their views and outlooks undermines the status, power and privilege of managers and developers. The groups involved in IT often have different priorities and goals (Dunlop and Kling, 1991), and added to this are social and hierarchical differentials over issues such as salaries, employment benefits and social status, and this creates the potential for conflict and controversy.

In the light of the case study, there are clear issues of resistance to or non-compliance with Information Systems and underlying antecedent conditions for these acts of non-compliance are identified as issues surrounding proceduralisation, acceptance and control (Sobreperez, 2008). This paper highlights the fact that the adjustment of these determinants to minimise non compliance is within the remit of managers and explores reasons for continuation of situations where these are overlooked or ignored..

There is much literature on the tendency of managers to support the status quo and supporting analysis of the reasons why they do this (Buchholz, 1978; Hambrick, Geletkanycz and Fredrickson, 1993; Hambrick and Mason, 1984). Top executives are not necessarily open minded about change and it is often in their interests to maintain an existing state of affairs where their position, reputation and importance are understood, accepted and believed (Jost, Banaji and Nosek, 2004). Propositions expounded in Hambrick, Geletkanycz and Fredrickson's (1993) paper are that: the longer an executive has worked in the organisation or in the industry; the greater the organisations current performance; and the more they are allowed discretion in their decision making, the greater will be their commitment to the status quo.

The upper echelons share psychological factors such as beliefs, knowledge assumptions and values (Hambrick and Mason, 1984) and these can be seen to coincide with factors that underpin relevant social groups (Orlikowski and Gash, 1984). The upper echelons theory concludes that decisions made by managers are the outcomes of these behavioural factors rather than any attempt to optimise organisational efficiency or effectiveness.

3 RESEARCH APPROACH

The GarmentCo Case study was selected as an example of a production-based conveyor system where operators follow what appear to be rigid step-by-step instructions to complete orders within a pre-arranged workflow construct. This provided the opportunity for detailed study of actual practices taking place, variations from procedures and the situations in which these occurred. In addition there was the opportunity to study the call-centre approach of the office where orders were taken.

In contrast, the fire service case study site was selected due to the unique nature of the organisation and the extraordinary context of incidents. In this case study, each incident was different in a way that cannot be true for office or production based systems. The fundamental stage of the firefighter's work is dynamic risk assessment due to the diversity in site, progress, and danger of each incident.

Although there are two case studies, it may be argued that there are multiple incidents of issues at two domains. The GarmentCo study includes several stages in the composition of outfits and also covers the ordering and despatch sections. The fire service includes reference to many divergent incidents where few factors are repeated.

GarmentCo hires out men's formal clothes for weddings and other formal functions through high street retailers. Outfits are distributed by company vehicles or other couriers to the retail branch through which they were ordered and after the event, they are returned through the retail branch and company vehicle to one of the main processing warehouses. There they are checked, brushed, dry cleaned or laundered as appropriate, and returned to stock to be available for the next order. The workspace shop floor at the Lancashire depot is arranged into six zones. Each zone is used to process and store a particular type of clothing and each garment is bar-coded either with an iron-on or card label attached to the garment. An automatic conveyancing system known as Gartner is used to transport an order around the shopfloor where the appropriate garments and other items are added. Each zone has at least one operative selecting (picking) garments, scanning the barcode and attaching them to the appropriate order. On collecting a ticket the user types in their user number to one of the 'Picking' terminals and scans the barcode on the ticket. This assigns the order to the operator and the ticket contains the garments that need to be 'picked' from that area. The garment is attached to the hanger and the order is placed onto the conveyor system. This ticket follows the conveyor system around the factory, in order, through all of the areas from 'Picking' to 'Dispatch'. The Gartner Transfer File communicates with the system tells the order where to drop off, and comes into action at every scan point on the conveyor system. An employee will assign themselves to the order by keying in their user number at the station and scanning the order ticket. This will update the system to show that the user has 'picked' the required garment and when.

The regional Fire Service case study is concerned with the mobilisation of fire engines to incidents and the reporting of said incidents. As incidents are reported to the Fire Service a centralised control office records initial incident details including incident location, who has reported the incident, Fire Service personnel and fire engines that are dispatched immediately and subsequently, the route or routes taken by fire engines, dispatch and arrival times and a log of all communications with the deployed Fire Service teams. After the incident a detailed electronic report is completed categorizing and reporting on the incident, the report is semi-structured and any level of Officer can be assigned the responsibility of completing the report. Structured attributes of the information system include cause of fire, location within the address, degree and speed of fire spread, number of casualties, other emergency services involved, specific equipment used and arrival and departure times. Free format responses include incident handling strategies and lessons learnt. These reports are collated and summarized by a centralised office that then presents the abstracted results to management who allocate human and physical resources from this data. In addition the summarized data is reported to central government who allocate funding and make policy decisions based on the data.

Data collection methods at GarmentCo included non-participant observation of work practices in the warehouse and telephone office, supplemented by semi structured interviews with warehouse staff and

managers of finance, stock and personnel functions. At the Fire Service, data was collected through focus group interviews with groups or watches of firemen supplemented by interviews with senior fire officers and administrative staff at local and national statistics offices

4 DATA ANALYSIS

Data was analysed using inductive coding and grounded theory principles of categorising and clustering data (Strauss and Corbin, 1994; Wolcott, 1982). The aim was to allow a conceptual framework to emerge during the course of study as the data was gathered, facilitating an open minded approach to analysis, although it is ‘impossible to embark upon research without some idea of what one is looking for and foolish not to make that quest explicit’ (Lincoln and Guba, 1985). Interview and focus group transcripts were read several times by two researchers and a coding framework was developed through discussion and verification of terms.

Following the development of the initial framework the analysis was conducted by firstly identifying key terms and concepts within the case studies, these terms were then restated to ensure that they remained as descriptive and literal as possible. Terms were cross validated to ensure the meaning was maintained and appropriate para-phrasing was used. An iterative clustering process was then performed with different clustering permutations being trialled. Clusters were then named (or coded) and combined to derived ‘meta-clusters’. Comparisons were made at cluster boundaries to test the cluster coherence and mini-theories (or ‘memos’) were generated for each cluster. At the highest, most abstract, level the core category is a summary of the concept of workaround rationale. The central theme of the conceptual framework is therefore ‘*workarounds are manifestations of employee deviation from the intended use of technology*’. This fits with the definition ‘*intentionally using computing in ways for which it was not designed, or avoiding its use and relying on alternative means*’ (Gasser, 1986, P216) from the earliest paper that specifically mentions workarounds.

The initial first level categorisation scheme was applied both at the time of data collection and by retrospective analysis on the completed transcripts and supporting field notes. Because qualitative data analysis is an open and iterative process applying the initial coding scheme to the case studies resulted in the emergence or induction of a richer coding set as the initial codes were ‘extended’, ‘filled in’, ‘bridged’ and ‘surfaced’ (Eisenhardt, 1989).

The case study data was analysed in two stages, within-case analysis and cross-case analysis (Miles and Huberman, 1994). Within-case analysis was performed to allow unique patterns to emerge and to gain a richer understanding of each case study. Individual acts of resistance or workaround were analysed identifying the conditions stimulating deviation from the prescribed or intended process, the objects affected by the behaviour and the associated threats. Cross-case analysis was undertaken using analytical induction to identify both common themes and unique patterns or behaviours. Abstracting from the individual cases focussed on the causes, pre-existing conditions or antecedents that generated the resultant behaviours. Segments of interview text were coded allowing an analysis of interview segments on a particular theme. The specific interest was in finding evidence of rationale for the various manifestations of workaround activity. Applying clustering techniques across the case studies identified sets of common sub-clusters.

The following set of tables display quotes from members of relevant social groups and are set against the three identified antecedents.

Antecedent Condition	Supervisor	Shop floor Operators
Enforced proceduralisation	The system is highly routine and cannot be overridden	We break down orders to find matches we can pick together
Unwillingness to Control	Targets are set too low and workers slack off when they reach them We don’t care as long as the job gets done	Some targets are way too high, impossible, we don’t even try Don’t know what they use it for, don’t care
Lack of Acceptance	Performance monitoring is not reflected in	It’s not worth the time to log out and

	pay	back in again it takes ages
--	-----	-----------------------------

Table 1 Supervisors and shop floor workers (GarmentCo)

Antecedent Condition	Supervisors	Telephone Operator
Enforced proceduralisation	The system ensures staff are hitting targets and working efficiently	The system does not allow for missing garments, damaged garments, mislabelling or amendments
Unwillingness to Control	All telesales operators have to fill in a sheet monitoring time spent away from the telephone Telesales Staff are monitored in everything they do	There's loads of things we can do to get a skive, she can't know everything, sorting post, chasing parcels, dealing with input errors are all unmonitored
Lack of Acceptance	My job is to supervise the performance, productivity and conduct of staff and to report this management	We are timed with a stopwatch and there has to be a balance between accuracy and speed.

Table 2 Supervisors and Telephone Operators (GarmentCo)

Antecedent Condition	Senior Fire Officer	Firefighters
Enforced proceduralisation	Information is used in court for insurance, to refuse housing and occasionally to remove children from families. Fire Officers are very careful how they enter data	The report I saw was not the fire I went to
Unwillingness to Control	They ask for equipment they do not need, we need to rationalise resources and there is a macho culture associated with how much equipment a station has, therefore they need to justify its use.	We sometimes request equipment we 'may' need and then justify it later by describing the incident as though we needed the kit
Lack of Acceptance	We are encouraging greater use of information systems to support record keeping and to instigate knowledge sharing and knowledge management across the service. Firefighters are trained on the use of the FDR1 system for 2 day each at least	I have never had any training on the use of the information system. There is active discouragement of IT use among the lads

Table 3 Senior Fire Officers and Firefighters (Fire and Rescue Service)

Antecedent Condition	National Statisticians	Local Statisticians
Enforced proceduralisation	The system has been in use since 1994 and works well to capture the data required by government Before 1998, local statistics offices brigades coded their own data and there were many anomalies and ambiguities and much data was unusable.	Standardisation removes ambiguities and forces firefighters to use 'unknown' and 'other' options.
Unwillingness to Control	County Fire Brigades are accredited after 18 months of external measurements and are then allowed to perform their own internal quality checks. Not everything collected is used, political considerations have changed at every level since FDR1 was designed	At the end of the training we gave up and went back to manual systems. Sending information to the ODPM is the most important work we do
Lack of Acceptance	The intention is that Brigades provide routine FDR1 information as Electronic	Accredited County Brigades send their information directly.

	Data only, there are no paper forms.	
--	--------------------------------------	--

Table 4 National Statisticians and Local Statisticians (Fire and Rescue Service)

5 DISCUSSION

Resistant Behaviours The empirical case studies conclude that at the top level there are three pre-conditions or antecedents for non-compliant behaviour with regard to information systems (Ferneley and Sobrepelez, 2006; Ferneley et al., 2005). These are identified for the purposes of this study as *enforced proceduralisation*, *lack of acceptance* and *unwillingness to control*. Under *enforced proceduralisation*, systems are overly procedural and employees must perform jobs in a certain sequence so that the system can record them. This sequence is numerical and therefore chronological despite situations such as at GarmentCo when greater efficiencies can be gained by batch processing (selecting several of the same garment at once) or by pre-emptive processing (taking jobs out of sequence) because it is known that similar non-standard items are required. At the Fire and Rescue Service, the enforced proceduralisation was in the sequence of the FDR1 form and the lists of possible responses available for selection in answer to questions. Under *lack of acceptance*, user failure to identify to the system was widespread across both case studies. There seemed to be two reasons for this: firstly the time taken to log in and out again using low specification desk top machinery and a less than contemporary network technology was seen to be wasted and secondly any attribution was viewed with suspicion and seen as surveillance. Employees were happy not to be personally accountable for the recording of events as this was a way to sidestep any possible retribution for errors, omissions or incorrect usage. The third antecedent is termed *unwillingness to control*, this nomenclature is intended to convey that managers do not attempt to eliminate or minimise the non-compliant behaviours outlined under proceduralisation and acceptance. The issue of collusion is highlighted by the contradictory and opposing views of information systems usage and utility.

Management Collusion. Across both case studies, some interviews with managers revealed awareness of resistant behaviours but no indication of actions intended to address them. Other interviews did not even acknowledge that such behaviours occurred and managers were much more likely to state the official organisational view despite evidence to the contrary. It is clearly within the control of managers to write user guides and policies, to train users to use technology in a particular way, to ensure access to support, to establish particular controls and to ensure that those who enter data have understanding of where their input is used, by whom and for what purpose. It was clear that users of information were happy to continue to use information they suspected or knew to be incorrect which leads us to the question why this might be the case. Burawoy (1979) uses the metaphor of the fig leaf to explain how the exploitative nature of the capitalist labour process uses consent to mask the true relationship between those who sell their labour and those who profit from it. He describes a mask that sometimes slips but generally does a good job of obscuring exploitation. In this way collusion becomes the tacit agreement of both (or all) parties that they must work together and reach agreement on aspects of their working life.

Managers appear to collude in several ways. Firstly, Managers deny or refute any occurrences of non-compliant behaviours, this is illustrated by the manager's comment

The system is highly routine and cannot be overridden

And the opposing view of operators

We sometimes break down orders to find matches we can pick together

Secondly Managers contradict or oppose evidence of non-compliant behaviours, note the comment below from telesales office supervisor

All telesales operators have to fill in a sheet monitoring time spent away from the telephone. Telesales staff are monitored in everything they do

And the opposing view from a telesales operator

There's loads of things we can do to get a skive Sorting post, chasing parcels, dealing with input errors are all unmonitored.

There are many examples of direct contradictions in the data collected, operator level staff giving one account of what happens and supervisory or management staff giving other, opposing views. The reasons for this may be complex but several seem to be apparent. Firstly, commitment to the status quo as mentioned earlier may well be a strong influence; secondly many senior managers throughout organisations are of an age where information systems were not taught in schools. They will tend to have learned anything they know about information systems on the job and in an applied way and may be unaware of steps that need to be taken to re-configure systems. Similarly in many organisations there are no direct lines of communication between departments and no systems for requesting modifications. Managers are likely to be wary of displaying their lack of technological knowhow by pointing out modifications that are very simple or too complex to implement.

We do not need to believe that managers consciously deceive workers or that all workers are exploited to see that some collusion is necessary simply to perform daily activities. Surveillance and monitoring are coercive and division of labour between managers who conceive work tasks and workers who execute them form constituents of the class division. However this view does not take into account the liberal view that if we believe that managers are custodians of the interests of all then we must see control by the few in the name of the many (Sewell, 2008). In the functionalist view (Durkheim, 1911) any kind of workplace 'deviancy' is a dysfunctional response that deviates from the normal and rational and consideration of this issue and the roles of managers directs the questioner to ask not how it arises but why it remains (Hacking, 1983). Information is only a small part of organisational decision processes, data are not merely an intellectual commodity but a political resource, whose redistribution through new information systems affects the interests of particular groups (Keen, 1981). There are few studies of resistance by managerial and professional employees, and polarity is often assumed in that the 'workforce' includes those 'other' than the management, and that managers work for and workforce against, the organisation. Thomas and Davies (2005) however, argue that different focuses of power require different focuses of resistance and that resistance by managers must take a different form and emphasis over that of the workforce. It may also be pointed out that management takes many forms from supervisor to managing director and that rather than viewing a polarity between managers and workforces, there is a continuum which includes many different levels of management, with all but the top level subordinate and answerable to the level above.

Culture and Control. The trompe l'oeil of information presented to managers and senior staff is underpinned by collusion in deviations and workarounds by managers and workforce (Ferneley et al., 2005). In the Fire Service in particular, a working class, masculine culture prevailed. Firefighters saw themselves as brave men and heroes, they were unconcerned with the 'paperwork' of recording systems and emphasized their 'proper' work of facing danger to save lives and property. They were strongly unionised, protective of their masculine role as 'breadwinner' and resisted the introduction of female firefighters. A culture of suspicion and criticism of management motives and practices from people distanced from the coalface of firefighting arose. This stark separation between workforce and management paradoxically created and reinforced a culture of distance which increased their exposure to management prerogative and their vulnerability to managerial discretion (Collinson, 2003).

Studies in conformity show that people are preoccupied with themselves as valued objects in the eyes of those in authority, and subordinate their own subjectivity in the process (Collinson, 2003). The conforming aspect of following a personal career path in an organisation has been identified (Grey, 1994) and aspirant individuals may perceive organisational and social relations as instrumental to career progress. In this way, the workplace becomes competitive as hierarchical positions are chased by many and allotted to few. An aggressive and competitive culture emerges and individuals may not wish to 'rock the boat' by highlighting deviation, alienating subordinate colleagues and tackling a difficult and possibly insurmountable issue.

Another interesting point is that the relevant social groups in this study are identified by their job title and status in the hierarchy. Clearly these do not necessarily map across to the different elements of the same technological frame; there may be many senior managers in any organisation who feel that systems are imposed from above, that they have no ownership of the data, and that there are significant differences between what actually happened and the recorded version. In this way then, members of a particular relevant social group, who share attitudes, opinions and points of view over their interaction with technologies, may cut across management hierarchies, job titles and salary scales. Resistance can then be seen as multi-directional and in this way, can be seen as gradually erosion of the micro-politics of power, by the use of low levels but continuous and changing methods and manifestations which weaken, destabilize and undermine established power structures enabling the construction of subtly different power relations across an organisation (Thomas & Davies 2005).

6 CONCLUSION

Information from different groups across two single case study has been examined and reveals differences in attitudes perceptions and stances around information systems. The technological frames construct is used to contrast thoughts, opinions and mindsets of different groups towards non compliance with information systems. Three indicators are employed to provide structure for the frames of reference and these were identified within the case study as precursors for non-compliant behaviour. The overlaying of technological frames theory and application of case study findings points out very clearly the differing attitudes, perceptions and expectations of the diverse groups, both to systems usage and to any non-compliant behaviour. The differing frames views of relevant groups indicate issues that are within the control of managers and developers and that could be addressed in future planning and implementation. In this way non-operational groups take responsibility for cultural attitudes, control of data entry, proceduralisation and systems acceptance.

The author suggests that issues surrounding non-compliance should not be dismissed as resistance but should addressed by managers and developers and become a skeleton or framework for understanding problems and developing organisationally aligned solutions. The contribution of this study then is to point out that case study findings can interlock and intersect across theoretical areas and the use of the technological frames of reference provides a useful way to clearly demonstrate the existence of relevant social groups and the congruence or otherwise of their technological frames, therefore clearly highlighting areas of concern.

The framework used by Orlikowski and Gash (1994) is augmented by three further subdivisions of proceduralisation, acceptance, and culture and control, which serve to focus more clearly on issues of non-compliance and seek understanding and accommodation of viewpoints rather than dismissal of issues important to users and to successful implementation of information systems across and organisation. Analysis of the data raised the issue of management collusion where managers are endorsing behaviours they know to be non-compliant and possible reasons for this are examined.

The view that managers are somehow different from the rest of the workforce and are immune from the forces that underpin resistant behaviour is questioned. The conclusion is that most managers are are subject to the same antecedents as more subordinate workers in addition to those attributable only to their status and position. They are therefore under pressure to meet deadlines, match performance benchmarks or reach targets and are answerable to upper echelons where these are not met. They are at a disadvantage if they lay blame on the workforce they are managing, as this clearly reflects on themselves as managers and their effectiveness, achievements and success. As managers often need to describe their career path in terms of success in order to reach the next level of management in the same or a different organisation, it seems clear that individual managers would not wish to reveal difficult, and possibly insurmountable problems with resistant workers, it is in their own interests to keep the lid on the 'can of worms'.

7 REFERENCES

- Alvesson, M., Mats, J. and Willmott, H. (1996) *Making Sense of Management: A Critical Introduction.*, Sage, London.
- Appelbaum, S., Hebert, D. and Leroux, S. (1999) *Empowerment: power, culture and leadership – a strategy or fad for the millennium?*, *Journal of Workplace Learning*, 11 (1), pp. 233-254.
- Bijker, W. E. (1995) *Of Bicycles, Bakelites, and Bulbs: Toward a Theory of Sociotechnical Change*, The MIT Press, Cambridge, Massachusetts.
- Boje, D. M. (1995) *Stories of the Storytelling Organization: A Postmodern Analysis of Disney as Tamara-Land*, *Academy of Management Journal*, 38 (4), pp. 997-1035.
- Buchholz, R. A. (1978) *An empirical study of contemporary beliefs about work in American Society*, *Journal of Applied Psychology*, 63 (1), pp. 219-227.
- Burawoy (1979) *Manufacturing consent: Changes in the Labor Process under monopoly capitalism*, University of Chicago Press, Chicago.
- Chandler, A. D. (1977) *The Visible Hand: The Managerial Revolution in American Business*, Belknap Press, Cambridge MA.
- Collinson, D. (2003) *Identities and Insecurities: Selves at Work*, *Organization*, 10 (3), pp. 527-547.
- Davidson, E. (2006) *A Technological Frames Perspective on Information Technology and Organisational Change*, *Journal of Applied Behavioural Science*, 42 (1), pp. 23-39.
- Davis, C. and Hufnagel, E. (2007) *Through the Eyes of Experts: A Socio-cognitive Perspective on the Automation of Fingerprint work*, *MIS Quarterly*, 31 (4), pp. 681-703.
- Davis, F. D. (1993) *User acceptance of Information Technology: system characteristics and behavioural impacts*, *MIS Quarterly*, 13 (3), pp. 319-341.
- Dunlop, C. and Kling, R. (1991) *Computerisation and controversy: value conflicts and social choices*, Academic Press, Boston.
- Durkheim, E. (1911) *De la Division du travail social*, Alcan, Paris.
- Eisenhardt, K. (1989) *Building theory from case study research*, *Academy of Management Review*, 14 (4), pp. 532-550.
- Ferneley, E. and Sobreperez, P. (2006) *Resist, Comply or Workaround: An examination of different facets of user engagement with information systems*, *European Journal of Information Systems*, 15 (4), pp. 345-356.
- Ferneley, E., Sobreperez, P. and Wilson, F. A. (2005) *Tricks or Trompe L'Oeil? An Examination of Workplace Resistance in an Information Rich Managerial Environment.*, 13th European Conference on Information Systems, Regensburg, Germany, May 26-28.
- Franz, C. R. and Robey, D. (1984) *An investigation of User-Led Systems design: Rational and Political perspectives*, *Communications of the ACM*, 27 (12), pp. 1202-1209.

- Grey, C. (1994) *Career as a Project of the Self and Labour Process Discipline*, *Sociology*, 28 (2), pp. 479-97.
- Hacking, I. (1983) *Representing and Intervening*, Cambridge University press, Cambridge.
- Hambrick, D., Geletkanycz, M. and Fredrickson, J. (1993) *Top Executive commitment to the status quo: some tests of its determinants*, *Strategic Management Journal*, 14 401-418.
- Hambrick, D. and Mason, P. (1984) *Upper Echelons: The Organization as a reflection of its top managers* *Academy of Management Review*, 9 (2), pp. pp193-206.
- Harley, B. (1999) *The Myth of Empowerment: Work Organisation, hierarchy and employee autonomy in contemporary Australian Workplaces*, *Work Employment and Society*, 13 41-66.
- Hirschheim, R. and Klein, H., K. (1989) *Four Paradigms of Information Systems Development*, *Communications of the ACM*, 32 (10), pp. 1199-1216.
- Hirschheim, R. A. and Newman, M. (1988) *Information Systems and User Resistance: Theory and Practice*, *Computer Journal*, 31 (5), pp. 398-408.
- Hoskin, K. W. and Maeve, R. H. (1993a) *The industrial revolution versus the managerial revolution: distinguishing difference in accounting practice*, , 5th ABFH conference, .
- Hoskin, K. W. and Maeve, R. H. (1993b) *The industrial revolution versus the mangerial revolution: distinguishing difference in accounting practice*, 5th ABFH conference, Cardiff, September.
- Jermier, J. M., Knights, D. and Nord, W. E. (1994) *Resistance and power in Organisations*, Routledge, London.
- Jost, J., Banaji, M. and Nosek, B. (2004) *A Decade of Systems Justification Theory: Accumulated Evidence of conscious and unconscious bolstering of the Status Quo*, *Political Psychology*, 25 (6), pp. 881-919.
- Keen, G. (1981) *Information Systems and Organisational Change*, *Social Impacts of Computing*, 24 (1), pp. 24-33.
- Lapointe, L. and Rivard, S. (2005) *A Multilevel Model of Resistance to Information Technology Implementation*, *MIS Quarterly*, 29 (3), pp. 461-491.
- Levine, L. (1997) *An ecology of resistance*, In *Facilitating Technology Transfer through Partnership: Learning from practice and research*(Eds, McMaster, T., Mumford, E., Burton Swanson, E., Warboys, B. and Wastell, D.) Chapman & Hall, London.
- Lincoln, Y. S. and Guba, E. G. (1985) *Naturalistic Inquiry*, Sage, Beverley Hills.
- Lyytinen, K. (1987b) *Different Perspectives on Information Systems: Problems and Solutions*, *ACM Computing Surveys*, 19 (1), pp. 5-46.
- Lyytinen, K. and Hirschheim, R. (1987a) *Information systems failures:a survey and classification of the empirical literature*, In *Oxford Surveys in Information Technology*Oxford University Press, Oxford.

- Malhotra, Y. and Galletta, D. F. (1999) *Extending the technology acceptance model to account for social influence: theoretical bases and empirical validation* Proceedings of the 32nd Annual Hawaii International Conference on Systems Sciences, Vol. Track 1, Maui, Hawaii, USA, 05/1/99 - 8/1/99, pp. 14.
- Marakas, G. M. and Hornik, S. (1996) *Passive Resistance Misuse: Overt Support and Covert Recalcitrance in IS Implementation*, European Journal of Information Systems, 5 (3), pp. 208-220.
- Markus, M., L. (1983) *Power, Politics, and MIS Implementation*, Communications of the ACM, 26 (6), pp. 430-444.
- Martinko, M. J., Henry, J. W. and Zmud, R. W. (1996) *An Attributional Explanation of Individual Resistance to the Introduction of Information Technologies in the Workplace*, Behaviour & Information Technology, 15 (5), pp. 313-330.
- Miles, M. and Huberman, A. (1994) *Qualitative data analysis: An expanded sourcebook*, Sage, Thousand Oaks, CA.
- Mumford, E., Land, F. F. and Hawgood, J. (1978) *A participative approach to planning and designing computer systems and procedures to assist this*, Impact of science on society, 28 (3), pp. 235-253.
- Orlikowski, W. J. and Gash, D. C. (1994) *Technological Frames: Making Sense of Information Technology in Organizations*, ACM Transactions on Information Systems, 12 (2), pp. 669-702.
- Prasad, P. and Prasad, A. (2000) *Stretching the Iron cage: The Constitution and Implications of Routine Workplace Resistance*, Organization Science, 11 (4), pp. 387-403.
- Sewell, G. (2008) *The Fox and the Hedgehog go to work: a Natural history of Workplace Collusion*, Management Communication Quarterly, 21 (3), pp. 344-363.
- Sobreperez, P. (2008) *Technological Frame Incongruence, Diffusion and non-compliance*, Open IT-Based Innovation: Moving towards Cooperative IT Transfer and Knowledge Diffusion, Vol. 1 (Eds, Gonzalo, L., Bernardos, A., Casar, J., Karlheinz, K. and DrGross, J.) Springer, Madrid, October 2008, pp. 179-196.
- Strauss, A. and Corbin, C. (1994) *Grounded theory methodology: an overview*, In Handbook of Qualitative Research (Eds, Denzin, N. K. and Lincoln, Y. S.) Sage, London, pp. 273-285.
- Thomas, R. and Davies, A. (2005) *Theorizing the Micro-politics of Resistance: New Public management and Managerial Identities in the UK Public Services*, Organization Studies, 26 (5), pp. 683-706.
- Ventakesh, V. and Davis, F. (2000) *A Theoretical Extension of the Technology Acceptance Model*, Management Science, 46 (2), pp. 186-204.
- Wolcott, H. F. (1982) *Differing styles of on-site research, or, "If it isn't ethnography, what is it?"*, The Review Journal of Philosophy and Social Science, 7 (1&2), pp. 154-169.
- Zuboff, S. (1988) *In the Age of the Smart Machine: The Future of Work and Power*, Heinemann, Oxford.