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Virtual workforces and the shifting frontier of control

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Virtual workforces and the shifting frontier of control

Abstract

Adopting a networked organisational model is argued to improve organisational performance mainly by providing opportunities for innovation and creativity. The model is premised on introducing a range of Information and Communication Technologies into the work environment. ICTs establish a fundamentally different interface between workers and their tasks and also connect managers and workers in new ways that require a reconceptualisation of labour management relations. This process, in turn, necessitates adapting existing organisational arrangements such as the division of labour and traditional managerial practices to account for changes in the way work is scheduled and organized and the way workers are managed. It is argued that organisations implementing such new organisational forms create non-traditional boundaries and fewer bureaucratic structures through the formation of networks. These network arrangements may present an opportunity for a shift in the labour management control nexus.

Virtual workforces and the shifting frontier of control

Introduction

The industrial revolution resulted in a shift from craft industry to factory, the rise of bureaucratic hierarchies as an organisational form and the development of the managerial profession (Braverman 1974; Burawoy 1979). Labour Process Theory (LPT) emerged as a means of analysing industrial relations in capitalist workplaces controlled by owner-appointed managers. LPT suggests that the fundamental role of management is the conversion of labour power into labour effort in an environment that supports the accumulation of capital (Braverman 1974; Littler 1990). Through management, corporate owners seek to maximise profit and minimise loss of capital necessitating the extraction of maximum effort from employees. This is achieved by controlling the labour process through the exercise of power (Dufty & Fells 1989). In return the employee relies on the investment of capital by the employer to maintain their income. This interdependence results in a frontier of control. It is contended that where this frontier is crossed conflict emerges (Dufty & Fells 1989). In an environment in which traditional bureaucracies are breaking down through the emergence and adoption of new organisational forms, this paper examines the potential impact on the frontier of control and explores the implications in relation to labour management relations.

In contrast to the traditional bureaucratic structures dominant for much of the 20th century, the late 20th century has seen the emergence of the ‘networked society’ and the ‘networked organisation’. In this new society, the starting point to think about the

future of collective actors in industrial relations are the determinants from the business environment such as the increasing relevance of decentralisation, deregulation and flexibility as well as internationalisation and globalisation. All these developments have an impact on the workforce, including, among other things, the chosen organisational forms which directly affect employees and employers and their relationship with one another. Therefore it is important to investigate if and how the frontier of control may be shifting because of the emergence of these new organisational forms.

In an age of the 'networked society', the emphasis is argued to be moving to an organisational form that avoids the problems of markets and hierarchies by adopting networked structures that add value and enhance performance (Jackson & Stainsby 2000). In this way, networks establish an organisational form that has the flexibility to transcend traditional organisational boundaries and the rigidities of bureaucracy and avoid the adversarial relationships inherent in contractual market-based agreements. Such networked arrangements rely on Information and Communication Technology (ICT) as a means of linking the various functions and dispersed sectors together. Relationships between relatively autonomous parties therefore exist within a 'virtual reality'. In their 'virtualness', non-traditional boundaries and fewer bureaucratic structures, networks provide an opportunity for a shift in the labour management control nexus, that is to say, changing organisational forms impact on labour management relations and the way the traditional forms of control of workforces are exercised in this new organisational world.

The dislocation of the labour management control nexus may provide for the possibility of a self-directed and empowered workforce or locate the locus of control with either new forms of managerial control or with peers at the level of the team. In this way, 'self-directed' may become 'peer surveillance' and power relations may involve new managerial control strategies. Additionally, since virtual workplaces require purposeful design, through design exists both the ability to control and be controlled (Laurel 1991). Thus, it is not clear how a networked organisation with a reliance on virtual workforces will affect the control nexus. This research examines the implications and outcomes of adopting networked organisational arrangements in relation to managing virtual workforces. In summary, two research problems should be addressed: (1) Are the new organisational forms a challenge to managerial power? And (2), do these developments actually change the frontier of control?

A case study of a public sector organisation adopting a virtual workforce model through a refined project management approach was undertaken to elaborate on the issues surrounding managing and utilising virtual workforces. With the Department of Main Roads, Queensland, Australia for the case study, an organisation in a traditional sector was chosen. This case is especially pertinent for this research because Senior Management of the organisation have signalled their intention to alter the department's current form from a traditional hierarchy to a networked organisation so that it is more able to cope with what the organisation perceives as challenging times. The department has a significant presence throughout the entire state of Queensland, Australia and is a major employer in many rural and regional centres.

This paper addresses the two questions posed above through firstly presenting the form such networked organisations may take and examining what this may mean to the locus of control. The case study organisation is then introduced and consideration is given as to whether the case demonstrates a shift from control to co-operation.

New Forms of Work Organisation

Studies of networked organisational forms have tended to focus on technological aspects of virtual networks through examining the utilisation of Information and Communication Technology (ICT) and the interface of ICT and users (Allcorn 1997; Wilson 1999). Other studies have focused on a sociotechnical approach to provide a more holistic view of how the various elements of an organisation combine to deal with ambiguity through technology, organisational structure and participation (Herndon 1997). ICT systems provide the framework and interconnectedness that mediate traditional organisational structures to form networked arrangements.

Different types of information and communications technologies establish the base of the organisational networked arrangements. In order to adopt a networked organisational model, it is necessary to consequently exploit the opportunities of existing technologies in the areas of information management and communication (e.g. video conferences, e-mail systems, workflow management, groupware concepts, etc.). Without the advent of information and communication technologies, these new working arrangements would not have been able to be established.

ICT thus plays a dominant role with regard to the success of networked organisations in terms of being the basis for these organisational forms. The new technological possibilities such as video conferences, e-mail functionalities, workflow management

or groupware concepts make these new organisational forms possible. On the one hand ICT is the basis for networked organisations and on the other ICT represents a necessary condition of such organisational forms but its presence is not sufficient by itself for an organisation to be considered a 'network'. Other elements are considered necessary.

The literature also proposes two other significant aspects of 'virtual' network forms of work organisation, namely, characterising the features of the new work organisation and second, outlining different ways of managing within the organisational framework. The features relate to identifying the characteristics of these emerging work arrangements and the way in which labour is deployed to undertake tasks in the virtual workplace (Markus et al. 2000). Networked forms may, for example, comprise temporary contracted teams that work across organisations (Markus et al. 2000) or groups such as those formed to deal with intractable social issues (Klijn et al 1995; Provan & Millward 1995), and these forms of organisation cut across traditional management and labour utilisation techniques. The second aspect considers how traditional management approaches may therefore need to change to respond to these different organisational forms.

New forms of division of labour thus become possible and success in shifting the frontier of control appears promising in the context of the new organisational forms. Team orientation and managing dislocated employees gains importance. Human beings become the dominant source for competitive advantages and therefore the centre of attention. Next to the positive effects of self-organisation and motivation new forms of labour division also lead to a movement away from firm orientation to

an orientation towards the goals of the project. This can be considered as a cognitive, rather than technical, division of labour and forms a development away from a technically-oriented logic of the division of labour to forms of competencies- and qualifications-oriented division of labour (Moaty & Mouhoud 1994). Relevant dimensions to be analysed are team-based organisational forms as well as the virtualisation of workplaces.

In examining the social construction of virtual workplaces, Panteli and Dibben (2001) argue that the traditional forms of control through formalised rules and close supervision are no longer tenable and that new norms relying on output rather than input-based criteria need to be implemented. These new organisational forms may have the potential to disrupt the cycle of control-resistance by workers and management postulated by labour process theorists (Braverman 1974; Littler 1990). Through this literature it is argued that the crucial success factor in achieving a network organisational form is the ability to cooperate.

Cooperation as a 'higher-order' mode of work organisation in networked arrangements, then, requires a different conceptualisation of labour-management relations. It is argued that traditional models of labour-management relations are premised on a notion of conflict as underpinning the employment relationship with a specific focus on conflict at work and the institutions regulating that conflict (Deery et al. 2001). Concomitantly, control has been a central and problematical factor in understanding organisational operation and participation (Kouzmin 1980). Due to a propensity for cultural manipulation and an inability to garner the benefits of team

synergies, it is argued that self-managed teams may in fact deliver a greater degree of control rather than achieving cooperation (Korac-Kakabadse et al. 1999).

Cooperation in the form of personal relationships between the often dislocated employees in virtual teams and between different virtual teams in a network is therefore the essence of successful networked organisations. Managerial dilemmas in this context often arise because the structure makes it difficult to have ad hoc meetings and more preparation and planning activities are necessary in this area (e.g. video conferences have to be prepared and technically scheduled in advance, etc.).

Cooperation between the different actors needs to grow over time. If cooperation is short lived this is a problem because no trust can be built and therefore no successful cooperation seems possible. Figure 1 summarises the outlined determinants of networked organisations and identifies the three main features of such organisations.

(Insert Figure 1 here)

Parallel Virtual Organisations (PVOs) or intranets exist alongside the more traditional bureaucracy and are argued to be the communications medium that has the potential to equalise relationships between executives and employees (Allcorn 1997). Allcorn (1997: 412) suggests that PVOs combined with the more traditional organisational structure of hierarchy can create an organisational form that promotes innovation to 'keep pace with rapid and unrelenting change in the marketplace'. However, it is argued in this paper that other types of networked organisational forms may also reside within or beside traditional hierarchies in organisations, with the express purpose of creating a culture of innovation, often over the traditional boundaries of firms.

Virtualisation makes new forms of labour division necessary; team orientation and the management of dislocated employees are the focus of attention. The design of ICT systems thereby provides opportunities to control the labour process through, for example, inclusion or exclusion from the system, while at the same time empowering work teams either inter or intra group and excluding management from the locus of control.

One way of managing the division of labour in virtual workforces is to adopt a project management approach. Typically a project management approach seeks to achieve the goals of a 'networked' organisation through further transcending organisational boundaries linking together dispersed internal and external organisations and people. The aim of project management is to bring together experts in different fields to achieve successful project completion. This approach requires parties to form 'self-managing, fluid teams', requiring a different cultural and managerial orientation to that found in hierarchical, bureaucratic organisations (Lewis et al. 2002).

More and more tasks to be undertaken in an organisation are unique in character; fewer and fewer are of a standard type to be fulfilled by the same workforce in the same way over many years. Therefore traditional organisational structures and forms that are stable over longer periods are ineffective and have to be supplemented by project teams which are established for fulfilling a specified unique task. Because of its uniqueness, such a project is not integrated into established organisational structures. The flexibility and innovative strengths necessary to cope with modern business environments can be realised through project teams within large corporations. Such project teams do not necessarily have to work in the same

locations or even time zones but they can be established on a virtual basis (that is, become virtual teams). This kind of team only becomes possible because of the existence of ICT. ICT also functions as a coordination mechanism in this context. Such ICT even makes it possible that team members never meet in person (although this is the extreme case as face-to-face meetings are usually crucial supplements to virtual meetings to make teams work). Members of virtual teams also do not necessarily have to belong to the same organisation so there is also the possibility of extra-organisational virtual teams. Such a project management approach utilising elements of a virtual workforce is argued to disrupt the traditional managerial control of the labour process and works to initiate new types of labour-management relations through aligning with networked organisational forms of virtual project teams.

In a networked organisation virtual teams and project teams work together on a more permanent basis on an organisational level, again quite often across the borders of organisations, leading to a situation where organisational borders become less distinct. Such arrangements are usually strategically formulated by the upper management levels of organisations.

The three organisational forms mentioned – virtual, project management and networked - actually cannot be seen as completely different forms but rather as a continuum of virtual workforces. Project management is already very common in many traditional industries and virtual teams are also increasing in number due to organisations actively using the potential of ICT. Networked organisations are common in some areas already but are still not used widely in all sectors, especially in traditional industries where they are still uncommon.

Many approaches and existing examples in business show that research is fairly advanced with regard to the success factors relating to ICT (Konrad & Deckop 2001; Rockart 1998). This situation is somewhat different in relation to the success factors of the division of labour leading to the ability to cooperate (Markus et al. 2000; Korac-Kakabadse et al. 1999). The ability to address issues surrounding the division of labour appears to be a central determinant in achieving cooperation in the virtual organisation. Moreover, cooperation relies on bringing together the complex of relationships in sub-organisational structures across cultural, technical and structural frameworks. There are many unanswered and interesting questions in this context, such as: How is it possible to make employees work together, even though they work in or are based in different locations and often in different organisations? What possibilities exist to actively foster network relationships between people?

The concerns that then arise are whether it is possible for a technically oriented bureaucratic organisation to successfully move to a networked organisation and what are the exigencies that need to be considered in altering the existing hierarchical division of labour? This avenue of investigation leads to the issue, where networked arrangements are introduced, what effect does this have on the labour management relationship? Organisational cultures characterised by rigid bureaucratic reporting lines, minimal interdepartmental interaction, and little tradition of change have been demonstrated to have particular difficulty in adapting to a project management, cross functional structure (Brown 1999). This research finding suggests that there may be a tendency within such organisations to seek to maintain the management locus of control.

It seems obvious that management is not unnecessary in the context of the networked organisation but is more important than ever because new forms of labour division need coordination to be successful. Adequate managerial strategies and imperatives, however, require a new kind of thinking: instead of accurate planning, visions gain more and more relevance; mobilising resources becomes more important than organising a firm in a traditional sense; empowerment is as important as control; personnel policy develops to a competition for the most valuable employees; direct instruction loses importance in favour of long-term goals; efficiency of the organisation is not the only goal managers strive for but effectiveness in the form of long-term-oriented strategies gains importance and internal orientation is widened to an external orientation (Handy 1995).

Therefore the question arises as to whether many organisations are on a path from control to cooperation or whether control is merely changing form. Managing project teams totally without controlling the teams still seems to be an illusion for the majority of teams. Direct control, however, loses relevance in favour of controlling work results – small project groups make it possible to attach exact responsibilities (e.g. for products) as well as performance results, so that control, monitoring and coordination are easier for smaller project groups. By concentrating the responsibility for results in one organisational unit, performance-oriented reward systems can be more easily implemented. This is further supported by surrogates of private ownership of group culture such as information transparency and social control (for example Picot et al. 1999). With regard to the shift in control from input to output, problems arise if the output is hard to measure or if output needs significant time to be

produced. In summary, there are some indicators that suggest that control just appears in a different outfit, while others suggest that only cooperation makes the new organisational forms viable because, with regard to long term goals and difficult to measure output, control does not work in this new organisational environment.

The paper posits that a combination of cooperation and co-optation are needed in organisations using networked structures and seeking innovation. However, the degree to which such co-optation resembles or extends into coercion needs to be explored. Cooperation within an organisation appears necessary as it brings together the stakeholders and employees to jointly achieve organisational goals (Brown et al. 2002). Traditionally, it has been argued that cooperation relates to a focus on working together to achieve outcomes for oneself rather than gains for another party, that is, coordinating action and behaviour with other parties to achieve one's own goals (Eisenberg & Witten 1987). Cooperation involves at the least, compliance with other's requests enabling them to meet their needs and solve their problems. Co-optation differs in that the driver is top-down and joint action is achieved through assimilating divergent groups into the dominant culture. The question of whether the use of co-optive techniques can avoid the use of coercion is posed.

Methodology

The research seeks to examine the management and control issues surrounding the implementation of virtual teams that may cross organisational boundaries. A case study was chosen as these are identified as useful mechanisms in identifying and establishing causal links between the phenomenon being studied and the context in which it occurs (Yin 1993). Since the aim of this research was to establish causal

links between a change process and the implementation of a networked organisational structure in a highly bureaucratic, technically oriented public sector organisation, the use of case study was supported. The case study inquiry was able to address the technically distinctive situation where there were many more variables of interest than data points. Therefore we relied on multiple sources of evidence, with data to converge in a triangulating fashion. Our case study investigated a contemporary phenomenon within its real-life context, where the boundaries between phenomenon and context were not clearly evident.

The research therefore adopted a predominantly inductive approach as it aimed to establish previously unidentified consequences of specific interventions and sought to establish causal links between such interventions and what was being observed (Maxwell 1996).

The data collection started with introductory interviews with senior managers. These managers were chosen because of their strategic position in the organisation. Two focus groups with management participants followed as well as four focus groups with employees. This procedure ensured that all major groups of the organisation were covered (i.e. a vertical as well as horizontal slice of the organisation was taken by including administrative, operational, professional and technical staff. Rather than achieve proportional representation, interviewees were purposefully selected from volunteers within the department to give as broad a spread of perspectives as possible.

One-on-one semi-structured interviews were conducted with a range of senior officers within the department including a group interview with all Regional Directors in the department. These directors are geographically dispersed, being located within their regions throughout the state of Queensland. Given their role as instigators, and in some cases both instigators and recipients of change, it was considered important to gain Regional Director and Senior Manager perceptions of what changes they were seeking to implement, as well as their perceptions of what the most senior management in the department were seeking to achieve. Semi-structured interviews were considered the most suitable method to accomplish this as they allow the main topics and general themes to be targeted through specific questions while also allowing the freedom to pursue other relevant issues as they arise (Maykut & Morehouse 1994). These research methods are designed to elicit managerial attitudes towards, and understanding of, networked arrangements and their implications for labour management relations in their organisation.

Background to the case study

The Queensland Department of Main Roads (DMR) is a large public sector department responsible for the management and development of the state-controlled roads as well as joint management responsibility of the total public road system through a network arrangement with local government (Main Roads 1998). It is a geographically dispersed organisation consisting of four regional and 14 district offices (Main Roads 1998/99). Main Roads is also a technically oriented organisation with high-level expertise in construction and engineering, undergoing change processes. One such change is a planned shift to a networked organisation because the department aims to become managers of the road network instead of staying the

builder of it. Managing and policy were regarded as the new objectives that called for new organisational forms.

While other national road agencies have privatised or contracted out large parts of their operation, and in some cases all their roadwork, DMR have retained an in-house 'build and maintain' capacity. This approach has been due in part to their regional capabilities structured through a purchaser-provider split with RoadTek . RoadTek forms a commercialised unit of DMR that competes against private sector contractors for construction work. Our case study is concerned with the commercial operations arm of Main Roads, RoadTek. It provides civil infrastructure delivery to local governments, the private sector and to the non-commercial arm of DMR through this purchaser provider arrangement (Ryan et al. 2000).

In moving from a regionally based organisation to a statewide operation, RoadTek is aiming to capture the benefits of vertically and horizontally integrating activities thereby gaining economies of scale and scope. The goal is stated to be a self-driven organisation with high levels of leadership skills and a culture of innovation. While ICT in the form of an integrated business process is an important aspect of the project management approach, another crucial aspect is considered to be communication and the linking of teams through a relational approach to stakeholders. The vision for the organisation reflects the notions of self-learning, empowerment and networked organisational structures facilitating learning, informal education and alliances. While not directly espousing learning organisation protocols, these aspects exhibit a strong similarity to learning organisation principles (Richardson 1995). The development of Main Roads thus can be summarised in terms of having a bureaucratic structure and

culture up to the early 1990s. Today a hybrid organisation has evolved through the purchaser provider split where the organisation is now comprised of half commercialised/business structures, half bureaucratic/traditional administrative structures.

Networked organisational approach

The initial changes implemented in RoadTek sought to shift the previously bureaucratic program approach to embrace a ‘commercial project management culture’ through:

... Ensuring the implementation of a common and consistent business system and process; the development of a project management culture within commercial operations; clearly defined business principles; and clearly defined policies, business rules, procedures and instruction in terms of business management (Lewis et al. 2002).

The objective of these changes was to become a ‘networked organisation’.

Networked arrangements were expected to gain economies of scope, improve innovation and introduce flexible workforce utilisation.

The proposed changes also included goals of making the organisation more inclusive of broader whole-of-government objectives in areas such as the environment, social justice and community relations, providing a framework for developing and implementing a new approach to operating through more effective monitoring of performance and aligning people, systems and structures to organisational goals

(Ryan et al. 2000). These changes were aimed at the entire organisation, while the project management focus at this stage was confined to RoadTek.

Thus for the future, the organisation has to solve the dilemma of the parallel organisational forms in one organisation. Main Roads therefore has to achieve a real shift from a traditional bureaucratic policy, culture and structure of a public sector organisation and forego authoritarian positions and enter into true network relationships. An overarching structure has to be found for both parts of the current organisation that is compatible with the new world order.

Adoption of Information and Communication Technology

ICTs established a significant base for developing the chain of linkages to achieve the 'ideal' of a cooperative networked organisation. The Department adopted an intranet system, an electronic forum for dispatching messages called 'Main Roads Junction' and Gateway, an integrated payroll and Human Resource Information System. Main Roads also maintained a high level of in-house capability in engineering and design systems. However, the introduction of several other innovative ICTs formed the basis of the platform to shift to a new level of interconnectedness through networks. The DGs Hotline and Project 21 were two ICT programs that were innovative and, it is argued, effected the delivery of new forms of labour-management relations.

In 1999, the Director General instituted the 'DG's Hotline' to allow employees an anonymous avenue to raise issues and provide feedback on change management initiatives via an internal departmental electronic system (Varghese 1999). The system operates on a 24-hour access on both electronic and telephonic platforms.

Issues raised by employees are lodged electronically and assigned a random number. Address information is removed by the system to ensure confidentiality for the user. Responses are requested from relevant Senior Managers and finalised by the Director General. The resultant replies are either published on Main Roads Junction or on the DG's Hotline bulletin board to all departmental staff.

Project 21 was not only an integrated ICT to improve organisational processes and business systems but also a change management program. The aim of Project 21 was to shift the commercial operation part of the organisation away from a 'hierarchical, functional structure' to a structure 'based on project teams' through implementing ICTs that integrate business systems (Lewis et al. 2002). Project 21 adopted an holistic approach to achieving these aims by focusing not just on operations and systems but also on financial and delivery outcomes, the management of stakeholder relations and a training and development program that sought to achieve skill based career progression. All these objectives aimed to contribute to the achievement of the state-wide consistency of operations. While a focus on financial and delivery performance would suggest, as proposed by Panteli and Dibben (2001) a shift towards a reliance on outputs rather than input based criteria, the means to achieve this is planned through the instigation of industry best practice.

ICTs provided the platform for shifting to a networked organisation. However, the introduction and use of ICTs such as intranets and Human Resource Information Systems did not initiate the move to a network. The adoption of a project management approach together with Project 21 provided the impetus to explore the notion of virtual teams in a networked organisational structure.

New Organisational forms – division of labour

The research findings indicated that the impetus for the shift from implementing a series of ICTs to a networked organisation emerged from the adoption of the project management approach and a recognition of the inefficiencies of system inconsistencies in the numerous highly autonomous regional offices.

The project management approach together with a need to develop a way of providing consistency of operations and flexibility of functions acted as both an introductory phase, but also a continuing feature in the shift towards new, networked organisational arrangements. A project is an assignment that has to be finalised in a specific time frame and, as stated earlier, is characterised by uniqueness and therefore not integrated into established organisational structures. One senior manager commented that the project management approach was about:

...Getting them [the districts] to break out of their silos because they have district and group responsibility and they needed to think about the group as a whole, statewide.

Thus the project management approach focused attention on the need not only to break down the formalised rigidities of hierarchical structures but also to adopt an

organisation-wide perspective. In project teams the property rights are centralised in a small organisational unit that is technically able to and motivated to maximise project success (for example Picot et al. 1999). What was observed within DMR was the co-existence of these autonomous work groups alongside a traditional functional hierarchy that was necessarily changing to allow it to successfully operationalise project management. The autonomy of the regions, while providing a strong identity for localised work groups, worked against achieving synergies across the entire commercial arm. Mobility between regions was perceived as costly for the organisation in that employees needed re-training for region-specific systems and work duties. Employees needed to invest time into learning regional adaptations of existing systems and employees also perceived the regional differences as having a high personal cost when relocating.

In mid 2001, the director of RoadTek commented:

It's about getting the whole organisation to operate on project management principles. Whether you are the person who orders the stationery or builds the big project or road, we want to use project management as the way to do business.

Another element introduced simultaneously with the Project Management concept was the notion of working towards a standardised state-wide integrated system (Lewis et al. 2002). This approach was not specifically driven by the project management concept, but rather from a need to align the disparate geographical branches of the department partly to gain economies of scale and scope and also, and significantly, to enable a mobile, flexible workforce state-wide to deal with uneven workflows.

The senior management within the department wanted to achieve economies of scale by rationalising the workforces of the many different regions. This outcome was to be achieved through both systems alignment and providing consistent staff training throughout the state. A senior manager commented:

The strength of Main Roads has been the strength of the Districts. In a political sense this is good, but in a commercial environment, that independence of process comes at a cost.

One District Director stated in relation to the new projects undertaken by the department:

All our future projects will be networked projects - better outcomes regarding objectives and goals when people are focused on the project rather than where they come from. Right from the beginning of the project we need to bring all stakeholders together – There is a lot of pain in doing it but a lot of benefit.

This development can be named 'Breaking out of functional silos'. The autonomy of the regions had acted as a force for employees to adopt a relatively narrow focus on their functional and geographical area. In the need to align practices to achieve ease of mobility and flexibility across the organisation, employees looked beyond their own geographical location and lifted their perspective to an organisation-wide one.

The new division of labour focused on achieving higher levels of flexibility of the workforce, specifically staff mobility. Organisational problems were identified with the 'inability to move people around the organisation' by another District Manager.

A District Manager suggested that teams would need to be flexible and mobile:

... Will either have another large project for them or move them onto minor works. Project Management brings people in as needed.

In this way, it was argued that the project management approach dislocated managerial control of employees in their day-day work by shifting the teams between different kinds of work. It was considered to be the start of a dismantling of traditional patterns of employment relations.

Some of the benefits from adopting networked organisational arrangements were about changing the work environment through the development of sophisticated ICTs:

We've got a really interesting one where people are thinking laterally and they're looking at having the technology there, satellite technology, GPS [Global Positioning System] and you've got designers there linking that technology onto their plans, to survey it... having it all digitised then feeding it across to construction crews and they run it into a grader or something like that to do the job with it. So you've got integration from right out in the technological area right the way through. You can only get that when you've got an organisation growing together and understanding what the other areas of the organisation need.

The need for different types of training and skills development for a virtual workforce was recognised by Senior Managers:

We tried to get accredited training for our field staff [blue collar] - safety issues, culture, reward for effort and recognising additional skills as well. I saw some need for recognition for competency based skills. Broaden skill

base to make people more mobile and flexible. This worked well where people were really keen.

Another District Director stated in relation to staffing and skills development of the team based approach:

We have reduced the workforce to a level that we think is sustainable. The construction crews do not contain that many people, the maximum number is six, those six are more highly skilled...

One of the benefits of a highly mobile workforce in a networked organisation was contended to be the ability to bring in expertise when projects required specific or high level skills. One of the District Managers cited the case of the Environmental Officer who could be brought from another region into their more remote region when needed. The ability to shift specialist officers around to different projects displaces the managerial locus of control exercised at a particular workplace.

The traditional division of labour has been under threat from moves to develop a team-based approach and a state-wide operational focus. The senior managers within the department saw an overriding need to deploy teams to different project sites throughout the state of Queensland and that shift started to break down the geographical configurations of a workforce located within specific regions.

Changing Labour Management relations - Cooperation?

The geographical dispersion of the Regional Directors allows them to exercise considerable autonomy but they report directly to the Deputy Director General in

Brisbane, thereby forming an important link between the overall strategic direction of the department and its interpretation at a regional level. The directors are responsible for the achievement of strategic outcomes within their individual regions. They also are charged with the responsibility to oversee the development of a skilled workforce 'ensuring strong cross-boundary working relationships' (Main Roads 2000). The published objectives of the department suggest that crosscutting initiatives are integral to the operation of workplace at a regional level and an expected managerial goal.

There has been recognition by senior managers within the department that these new organisational forms require a new set of managerial strategies and imperatives. A Senior Manager commented that:

We generally have got to get used to the idea of being able to work in an environment where we don't always control the people we work with, they don't always report to you, we need to be able to work in these virtual teams or whatever. Because one of the things we're finding is if you want to be successful you're going to have to work in a whole lot of different ways. You need to be very fluid to meet customer needs so you're going to have to form and reform...

This manager went on to suggest that the introduction of the ICTs in Project 21 paved the way for a completely new way of managing employees:

I think that's one of the things we're starting to learn out of Project 21 now is really you've got to get a culture that has an acceptance of people being able to manage people without controlling them.

The methods of implementing the changes were acknowledged by the Director of Roadtek as requiring both top-down and bottom-up implementation processes that took into account employee attitudes and interests. He stated:

It is not just about top-down, but bottom-up. We had workshops about what they [employees] are thinking. I communicate back and let them know what I am doing about issues raised.

For one District Director, a networked organisation brings standardisation and consistency. It also was contended to deliver members of the organisation onto a 'similar wavelength' and thus becomes the vehicle for developing 'more common views of the world'. For another Senior Manager, the introduction of a networked organisation not only permitted better 'value for dollars' but also allowed a 'focus on higher level issues'.

For employees, there was recognition that there is a new way of working and an acknowledgement of the possibility of input to those arrangements. For one employee, the cooperative approach meant that, 'If you have an idea everyone listens to you in RoadTek, and your opinion is valued'. Another employee felt that there was the possibility to shift to frontier of control:

Since the relationship framework, there's more room in RoadTek to challenge things. The General Manager encourages people to challenge things.

Another employee noted the change from the previous culture as a change to greater flexibility:

Traditionally Main Roads culture is to build monolithic systems and processes that inhibit flexibility while we are trying to build things more flexibly.

The shift was not perceived specifically as a move to a networked organisation, but to new forms of organisational arrangements.

So where RoadTek is thinking about how we can solve the problem by a different management style or incorporate project management principles at all projects ...

Main Roads is just throwing resources at it.

The need for a cooperative approach to implementing networked organisational arrangements has been cited as a significant departure from traditional organisational approaches to managing employees. However, it is very early in the process of change to the new arrangements. Lynch et al. (2000: 409) argue that public sector organisations implementing a virtual team approach ‘increases the availability of talent and expertise, creates synergy and provides different perspectives’. However, a danger lies in weakening the bonds between employer and employees as this may lead to employees becoming less willing to stay with the same employer for a long time while simultaneously weakening the awareness of employers to be responsible for employees. Korac-Kakabdase et al. (1999) further warn that decentralised teams may lapse into dysfunctional behaviour through the ‘dark side’ of increased managerial control rather than achieve greater innovation and empowerment.

The potential for such increased managerial control exists in a number of elements of Project 21. In the design of integrated and standardised business systems across RoadTek also exists the possibility that such design contains significant and subversive control of the labour process. While merely a mooted possibility at this stage, the concept of an integrated technology that guides a construction project from surveying all the way through to final construction suggests, as proposed by Laurel

(1991), that in the purposeful design of virtual workforces exists the possibility to both control and be controlled.

Project 21 has also sought to shift the focus of control away from scientific management principals towards a reliance on financial delivery and performance. This shift is in keeping with the notion posited by Panteli and Dibben (2001) that these new forms of work organisation would result in traditional forms of control being untenable and that there would be a greater reliance on output measurements. While the design of ICTs may seek to reinforce industry best practice and therefore managerial prerogative, the geographical and organisational dispersion of a project team may ultimately result in outputs being the only real means of control. This suggests the possibility of a genuine shift in the nexus of control. There is at this early stage evidence that management has recognised the need to alter the traditional control cycle to cope with projects where workers on a project do not directly report to a particular organisation or management team.

RoadTek, in its adoption of a project management focus, has now sought to shift itself a further step towards networked style arrangements. At the same time it sits parallel with the broader Department of Main Roads that continues to maintain its traditional hierarchical structure and culture. This case therefore builds on Allcorn's (1997) contention that Parallel Virtual Organisations or intranets can exist alongside more traditional style organisations. Other forms of organisation, namely networks and project management style structures, can also achieve parallel existence.

In summary, it has to be stated that management is far from being obsolete but more important than ever in networked organisations. Management, however, has to take place within new organisational forms. This case suggests that management is aware of the need to manage without controlling but that managing project teams without controlling them is still some way to being achieved. Direct control, however, loses relevance in favour of controlling work results. Thus there is a clear shift in control from input to output but this occurs alongside the afore-mentioned problems associated with situations where output is hard to measure or if output needs time to be produced. With regard to achieving empowerment of the team members as one crucial success factor in the new management context, it is important that not only a top-down implementation takes place but that bottom-up implementation from within the groups and project teams is fostered. The last aspects mentioned are also relevant with regard to the fact that quite often in this case, the employees saw only a shift to new organisational forms but did not necessarily understand the network philosophy behind these. Such a situation may have ultimately a negative impact on the success of a network organisation.

Networked organisations do not work without cooperation between employees and employers. The organisational specificities do not allow for the whole range of traditional control instruments. The statements of Main Road managers in our case study underline this. A cooperation-orientated relationship has to emerge. To some extent missing contracts in this context can be substituted by trust. Trust reduces complexity and motivates the members of an organisation to take responsibilities. It further improves communication and problem solving skills in groups. A cost reduction is achieved by trust in terms of decreasing transaction costs. Cooperation

only functions if a certain amount of trust exists. In this context trust can also be established by knowing about the reputation of someone as a fair cooperation partner (Royer et al. 2003).

However, quite often it is argued that control is more important than trust leading to the implementation of control systems in many organisations, often through ICT. These in turn often cause a vicious cycle where nobody trusts or is trusted and everybody abides by rigid rules. Potentially opportunistic human behaviour leads to risks from a principal agent point of view (for example Rumelt et al. 1991) in this context. The problem of opportunistic behaviour in cooperative work teams cannot be solved by contracts as a traditional way out of the shown dilemma. Therefore other possibilities have to be identified. These are to be found in the area of trust and reputation that lead to successful cooperation. Royer et al. (2003) in this context identified differences between public and private sector professionals that suggest that cooperation has to be especially fostered in the public sector due to a lower mean level of willingness to cooperate in the public sector.

Trust-based cooperation is a crucial determinant of a successful networked organisation. Trust, however, has to be established over time. Team workers also have to accept that their relationship with management is not one completely free of control but there is a shift to new (output-oriented) forms of control. The insights into the case of Main Roads as an organisation on the way to a networked organisation suggests that a good balance between control and cooperation is difficult to achieve but necessary to successfully operationalise a networked organisation.

Conclusion

In adopting a virtual workforce model, the emphasis of management and managerial endeavour has shifted from extracting productivity from individual workers through surveillance within a particular geographical area to harnessing the effort of different teams in a project management approach. This process may involve individual workers' input and effort being split over time, place and project. The arrangement serves to fracture the traditional management-worker nexus by displacing the traditional structure and function allied to day-to-day management and thus changes the nature of managerial control of the same group of workers in a particular geographical location.

In adopting a networked organisation, this process necessitates adapting existing organisational arrangements such as the division of labour and traditional managerial practices to account for changes in the way work is scheduled and organised and the way workers are managed. It has been argued that organisations implementing virtual organisational forms create non-traditional boundaries and fewer bureaucratic structures through the formation of networks. These network arrangements may present an opportunity for a shift in the labour-management control nexus.

Findings indicate senior managers within the DMR recognise that traditional employee control mechanisms are not applicable to the new network arrangements, acknowledging the need for a change to 'managing not controlling'. While the shift to a networked organisation was in its very early stages, the approach signalled that Senior Management were seeking a more cooperative approach to labour-management relations. Employees acknowledged the emergence of new

organisational forms, but did not conceive of the new approach as a networked organisation and did not necessarily conceptualise labour-management relations as co-operative. However, the response of middle managers, traditionally the gatekeepers between senior management and employees, may be crucial in negotiating the implementation of virtual teams in the new networked organisation.

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Figure 1: Success Factors of Networked Organisations

