

THE 21ST CENTURY WORKPLACE: HOW PERSONAL TECHNOLOGIES CAN MAKE A DIFFERENCE

K Simpson and M Byrski

ABSTRACT

The concept of “workplace” has a fixed image as a bricks and mortar home for the production of goods and/or services, though this image is threatened by growth in 21st century globalisation and personal workplace technologies (PWT). This paper examines the impacts of PWT on the nature of work in a medium size New Zealand organisation. A mix of in-depth interviews with management and on-line survey of staff concludes that significant benefits in operating effectiveness can be threatened by a perceived shift in culture, away from McGregor’s Theory Y and towards his much less desirable Theory X. In order to combat this move, we advocate a stronger focus on interpersonal issues for organisations planning the introduction of new workplace technologies.

Key Words

Communication, job and work design, organisational culture, work performance.

INTRODUCTION

For many of us who began our working lives in the small to medium enterprises (SME) of the mid-to-late 20th century, the concept of “workplace” has a relatively fixed and conventional mental imagery that has changed little since the 1920s and 1930s: in essence, a workplace is a bricks and mortar establishment that houses the production of goods and/or services for subsequent delivery to a locally resident population that comes to that establishment during limited opening hours. One of the principal characteristics of this scenario is a supply-side bias to the business model, substantially reliant on a labour force that agrees to work onsite rather than offsite, and a customer group that accepts they must travel to meet the product/service rather than expect the reverse to apply.

So, how well has this conventional personification of workplace survived as the external components of environment continue to change at an extraordinarily rapid rate? As

About the authors

Ken Simpson (ksimpson@unitec.ac.nz) is the programme leader for postgraduate studies in business management topics at Unitec Institute of Technology in Auckland, New Zealand. His current research interests centre around the significant gap that exists between the version of management theory and practice that is taught in conventional business schools, and the version that is most urgently required in the practitioner workplace.

Marta Byrski (marta.byrski@idiomsoftware.com) is the Client Support Manager at IDIOM Ltd., a New Zealand supplier of decision automation tools and solutions to customers world-wide. The case study described in this paper was carried out as part of her Master’s degree thesis, and she has since built on this foundation to provide transparent and effective service to both staff and clients.

globalisation takes an ever greater hold on our collective psyche, as innovative technologies continue to threaten the traditional status of labour as a primary factor of production, and as barriers and boundaries to single market trading disappear before our eyes, can we still continue to view the concept of workplace in the same manner as we have traditionally done? Or is it now time to go back to basics, and to ask foundation level questions like “why do we need a building, and why do staff have to come to work in it; why are our primary sales efforts targeted at customers who live close by; why do those customers have to come to our building during severely restricted hours of access?”

One key contributor to any radical adjustment to what “workplace” means for the people who work there is the increasingly common practice of what we have referred to in this paper as personal workplace technologies (PWT), those technologies that are deployed via individual staff member resourcing - smart cellphones, GPS in vehicles, remote access to ICT - and a parallel stream of staff supervision techniques, such as CCTV, keystroke monitoring, and smart swipe cards. When PWT is introduced into an organisation, the enhanced impact of automated operations becomes highly influential in determining the character of “what it is like to work here”, and each staff member’s ultimate evaluation of that character is consequently less reliant on interpersonal interaction. It is the effect of newly introduced PWT on the character of the employment relationship that forms the focus of this paper.

We begin with a brief review of personal workplace technologies and their documented impact on business models, business management, business processes, and business cultures, concluding that these technologies are frequently introduced for the most legitimate of reasons; but almost as frequently result in a whole series of both intended and unanticipated consequences. In order to test this basic assumption, the paper describes the intended and realised experiences of a medium sized firm in New Zealand that sought to revise the character of its workplace through the introduction of a comprehensive programme of automated resourcing.

PERSONAL WORKPLACE TECHNOLOGIES

The use of technology to assist with workplace operations first became evident in the early 20th century, in the form of what the National Workrights Institute (n.d) described as the measurement of hand and eye movements and the monitoring of breaks an employee took during the day. Weckert (2005) states that this practice reflected an alteration to the way in which employees carried out their work, as a result of the introduction of new tools and technologies that enabled the workload to be completed in a more effective and efficient manner. As Carroll (2007) suggests, the widespread automation that has taken place within the workplace since that time has been successful in both enhancing workplace performance and adding considerable sophistication to the monitoring and tracking of employee behaviour.

From a workplace performance perspective, personal workplace technologies have become well established in many organisations, with the increased capability and reduced costs of those technologies allowing the improved maintenance of productivity, reduced misuse of company property and resources, and protection of sensitive information held within the organisation (Dorval 2004). Schulman (2001) adds that employers tend to assume that the introduction of PWT will significantly enhance the quality of workplace behaviour, and are therefore increasingly using these technologies to aid them in maintaining productivity

standards. However, improved productivity has sometimes come at a cost, for intent to improve staff capability has often been interpreted by staff as a ploy to expand the control function through increased monitoring of staff behaviour.

Johnston & Cheng (2002) suggest that the monitoring of staff activity has existed for as long as employment has been available, but it is fair to say that the potential for cost-effective monitoring has been greatly enhanced through the development of technologies designed to “collect, store, analyse, and report the actions or performance of workers” (Alge 2001, p. 797). Since these technologies first became available during the 1980s, their use has rapidly expanded, and the most commonly adopted technologies now include computer and internet monitoring (e.g. web filtering software or web site sniffers), telephone monitoring, closed circuit television/video surveillance, and radio frequency identification devices including smart cards and global positioning system tracking (Introna 2000).

Personal workplace technologies used for monitoring purposes are becoming highly prevalent across an increasing number of industries, and it does appear that these technologies are often introduced into an organisation without any prior research into the need for such a tool and the consequent development of a set of policies and regulations (Johnston & Cheng 2002). In effect, as Holman, Chissick & Totterdell (2002) argue, technologies aimed at improving individual staff performance are very often deployed as an imposed managerial initiative and without any real attempt to justify their introduction to staff. As a result, concerns can and do arise around perceived changes in the procedures and the culture of the organisation – employees are often perfectly happy with any introduction of smarter working methods, but are much less accepting of being closely watched over whilst they work (Bowal 2006).

Indeed, Naughton (1999) states that employees tend to feel provoked and defensive if the employer incessantly holds them under their watchful eye, especially if the monitoring technology is highly intrusive (such as keyboard logging and taking snapshots of the employee’s computer desktop). In those cases, Johnston & Cheng (2002) stipulate that the employer should be wary of declining employee morale, as this type of workforce ailment ultimately affects the bottom line of the organisation. They add that, although the employer’s focal incentive may have been to boost staff productivity through the use of electronic technology, the influence of a threatened corporate culture may in fact generate the opposite effect.

The preceding discussion would seem to indicate that the introduction of electronic workplace monitoring is often undertaken for largely positive reasons, frequently related to productivity enhancement, but tends to result in unforeseen damage to workplace relationships. In short, as Carroll (2007) asserts, the introduction of electronic monitoring technology may generate improvements in efficiency and effectiveness within the workplace, but at the cost of a deteriorating organisational culture. A consequent reduction in job satisfaction then leads to absenteeism and higher turnover rates, and these outcomes can seriously undermine the attempted productivity gains that were the original intention of the employer (Mishra & Crampton 1998).

It is this apparent contradiction, between what was intended and what has resulted, that forms the topic of interest for the current paper. In order to investigate the potential for such a contradiction to emerge in a newly automated workplace, the remainder of the paper describes the conduct of a case study analysis within an organisation that has recently introduced a significant degree of PWT to its workplace operations.

“RURAL SERVICES LIMITED”

The identification of a suitable case study environment for the conduct of this research was based on the specific demands of the project, including a need to work within a hierarchical organisation with a wide range of job functions and departments, and a consequently varied range of perspectives on the implications of PWT. In addition, the presence of established departmentalisation, a formalised management structure, and a comparatively large number of employees was necessary to ensure a fair and balanced approach that would assist the research to make a useful contribution to the literature. The case study organisation eventually chosen was a provider of multiple consumer services which we have called ‘Rural Services Limited’ (not the organisation’s real name).

Rural Services Limited is located within a local government area that holds a population of an estimated 26,800 people spread across seven small townships on a land mass of 2,300 km². The actual town where Rural Services Limited is headquartered has a population of approximately 7,500 people, though Rural Services Limited has three other service centres/branch offices located throughout the district. There is a need for a number of mobile service provision agents due to the travel distances involved, and many organisational staff are currently working from home. These characteristics suggest that a range of personal workplace technologies may be of potential advantage.

The organisation employs approximately 200 staff members across a spread of fairly conventional departments, including human resources, information technology, customer services, and accounting, all of which were included for the purposes of this study. It has in relatively recent times resolved to introduce a range of PWT resources into the workplace, rationalising this action with a resolve to empower remote workplace participation in preference to major physical expansion of a somewhat overcrowded home office building. In short, the organisation was deemed ideal for the purposes of case study investigation.

DATA COLLECTION

The research method for this employed a hybrid approach that sought data from both the qualitative and quantitative data collection paradigms (Collis & Hussey 2003), due to a belief that there is no single methodology that is inherently superior to the other (Kaplan & Duchon 1988).

The qualitative approach was represented by a series of interviews with senior management at the headquarters of Rural Services Limited. The company has a relatively simple and well established management structure, which readily lent itself to the identification of a panel of three key individuals who might collectively be seen as an appropriate ‘employer’ group for the purposes of this part of the process – the chief operating officer, the human resources manager, and the information technology manager. All three interviews were conducted and audio recorded in April, 2009, and each interview took approximately 35-50 minutes. Though the three interviews evolved in a slightly different manner, each was guided by the same three key questions: why did Rural Services choose to introduce PWT, what technologies were currently being used, and what were the primary advantages and disadvantages that had emerged.

Where possible the interview followed the flow and logic of the subsequent staff survey, in order for the researcher to be able to ascertain the differences in perspective between the employer and the employee groups. That survey had been constructed to include a series of specific closed questions relating to the current use of PWT at Rural Services, and the expression of current employee attitudes to these technologies. These questions were split into four sections, where the first section contained questions purely concerned with demographics (e.g. age and gender) and the remaining sections were initially designed to address the same three questions that had been asked of management.

After minor adjustments had been made following a formal pilot testing process, the revised survey was made available to all 201 staff at the firm via the company intranet system. Employees were given a choice of completing the 34-question survey either online or via a paper based method, though completion was entirely voluntary, and no incentives to complete were offered. The survey was open to staff for two weeks, and an email reminder was sent after the end of the first week for those employees who had not yet seen the link posted on the intranet. From a possible 201 respondents, a total of 100 usable responses was received, a 49.76% response rate that is similar to what has traditionally been received in other electronic surveys (Kaplowitz, Hadlock & Levine 2004).

RESULTS AND DISCUSSION

According to the three managers interviewed, a wide variety of PWT had been implemented within Rural Services Limited, and the reasons given for this introduction were very much in line with principles uncovered during the literature review for this paper. In order to summarise and simplify the responses received, both at interview and via the staff survey, tables 1-4 below outline the comparative answers received to the broad questions identified earlier, with each table then amplified via a brief discussion of the most salient issues.

Table 1: Reasons for PWT Introduction

Managerial responses via interview	Proportion of survey respondents who identified each reason	Commentary
Increased staff productivity	Increased staff productivity (89%)	Some significant differences of opinion are evident. In summary, management associate PWT with improved performance; staff associate PWT with increased control.
Evidential assistance in any instance of legal dispute	Evidential assistance in any instance of legal dispute (57%)	
Efficient and effective job performance	Externally focused security (56%)	
Better internal communication	Internally focused security (48%)	
Aid to staff recruitment	Monitor and track where we are (39%)	
Better personal safety for staff	Better personal safety for staff (35%)	
More flexibility in HRM	Aids to staff performance review (33%)	
	Keep tabs on what we are doing (22%)	
	Identify areas for improvement (16%)	
	Recognising areas of excellence (8%)	

There was a quite significant difference of opinion, between management and employees, in relation to the main reasons for introducing PWT into the workplace. Although both parties clearly agree that the key focus of these technologies was to increase organisational productivity, staff also recognise that management may have had other motives. These additional reasons should be of some concern to management at Rural Services, for

comments such as “monitor and track where we are” and “keep tabs on what we are doing” are indicative of a less than ideal level of staff trust in firm management.

In this context, both employer and employee groups believed that productivity improvements had indeed resulted as a consequence of PWT, with managers believing that they themselves had become more efficient as a result of reduced volumes of paperwork that had to be carried whilst switching between work time at the office and work time at home. From an employee perspective, there was a consensus agreement that productivity enhancement had been achieved, business was being conducted more quickly, better service was being provided to customers, and internal information flow had been enhanced. However, this apparently robust agreement was challenged by some unusual responses to the questions related to specific technologies that had been introduced.

Table 2: Types of Technology Introduced

Managerial responses via interview	Proportion of survey respondents who identified each technology	Commentary
Full internet access (all staff)	Full internet access (100%)	Though most staff were aware of the PWT used, there were some anomalies. The EPIRBs may have been misinterpreted as an otherwise non-existent GPS system, but it was interesting to see the identification of ID cards and CCTV, neither of which is used by the firm.
Company-wide intranet	Company-wide intranet (100%)	
Electronic messaging (email)	Electronic messaging (97%)	
Voice mail and DDI	Voice mail and DDI (93%)	
Personal Digital Assistants (PDAs)	Personal Digital Assistants (PDAs)	
Cellphones	Cellphones(81%)	
Emergency position indicating beacons (EPIRBs)	GPS in vehicles (17%)	
	ID Cards (18%)	
	CCTV 7%	

Though it did seem reasonable to suppose that there might be a variation in perceptions between managers and employees in terms of the different types of PWT that are in place at Rural Services, it was surprising to note that the direction of difference was employee-positive. In other words, rather than employees not being aware of existing technologies in their workplace, there seemed to be a pattern of employees claiming knowledge of technologies that did not actually exist.

For example, though management interviews suggest that there is no use of ID/swipe cards in this workplace, fully 18% of staff believed that these technologies exist, and 8% of staff stated that they personally use them! Similarly, closed circuit television is not used at Rural Services, but 7% of employees asserted that this technology was present, and 17 % of employees claimed to use company vehicles that contained global positioning systems (GPS) - this is also a technology that has not yet been implemented.

It is of course possible that these discrepancies in perception may be due to a lack of specificity in the questions presented. For instance, a technology such as ID/swipe cards could be viewed either as a card that provides access to authorised areas via electronic means, or as a simple staff identification to be shown on demand for security reasons. In responding to this question, management may have been referring to a smart access card while staff were talking about the need to carry a simple photo ID with no monitoring capability.

Again though, it is also possible that the perceived existence of electronic devices such as these may reflect an underlying suspicion of managerial motives, and a subsequent move

towards what Douglas McGregor (1960) famously referred to as a Theory X culture. This interpretation was supported by comments made during the management interviews, in that staff were seen as somewhat reluctant to discuss any concerns they may have with their managers, preferring to converse informally amongst themselves. In contrast, the survey results revealed that 86% of employees are confident in raising their concerns about PWT with their manager, and that any potentially damaging issues can be attended to before they escalate into declining morale, absenteeism, or eventual staff turnover. There is an apparent anomaly here that is investigated further in the following sections.

Table 3: Primary Benefits of PWT

Managerial responses via interview	Proportion of survey respondents who identified each benefit	Commentary
Better productivity More effectively performed job duties. Much improved internal communication. Enhanced atmosphere of trust within the organisation. Improved staff morale due to an increase in productivity without an accompanying increase in stress. Stronger staff loyalty and improved retention statistics. Improved staff safety. Major shift from a conservative management culture to one that is flexible and participatory.	Better productivity (81%) More effectively performed job duties (76%). Better and more effective working relationships (43%). Enhanced atmosphere of trust within the organisation (24%). Improved health and wellbeing (24%) Improved individual morale (17%) and staff morale (17%). Stronger staff loyalty (15%).	There is quite a significant level of agreement here, especially in terms of improvements in productivity and enhanced internal culture. Staff do not see that management style has changed, but they do see symptoms that would suggest that is the case.

Previous literature referred to earlier in the paper suggests the existence of a relatively predictable range of issues that can generate either benefits or costs to the organisation as a result of PWT introduction. In short, any particular aspect of workplace character is capable of attracting both positive and negative comments, based on individual beliefs, personal perceptions and placement within the organisation in terms of management or staff roles, and this phenomenon was indeed evident in the comments that have been summarised in Tables 3 and 4.

The chief benefit arising from the PWT currently implemented at Rural Services is a widely agreed increase in productivity, efficiency, and job effectiveness, with all three managers noting that this had occurred to their satisfaction, and 80% of staff agreeing to these positive impacts. This is a very positive sign as not only had management hoped for a noticeable increase in productivity, but this ambition was understood by staff as the main reason for the introduction of PWT in the first place.

However, closer examination of Tables 3 and 4 reveal that this aspect of performance also held some negative connotations. For example, six survey respondents argued that PWT had actually reduced their overall efficiency and effectiveness, citing a belief that they had not been provided with enough time or training to learn a particular technology. From management's side of the fence, pockets of productivity decline were indeed acknowledged,

though this was felt to be primarily because of staff resistance to change which led to higher maintenance costs – particularly in cases where both the new technology and a legacy system were kept running alongside each other during a transition phase.

Table 4: Primary Costs of PWT

Managerial responses via interview	Proportion of survey respondents who identified each cost	Commentary
<p>Selective implementation of technologies create a have vs have-nots element to the firm culture.</p> <p>Resistance to change if the process of PWT introduction is not appropriately managed.</p> <p>More complex workload scheduling required to cope with working from home.</p> <p>Off-site staff more difficult to contact than when working onsite.</p> <p>More intensive IT means higher maintenance costs.</p> <p>Increased freeloading amongst staff.</p>	<p>Better productivity means harder work for no more reward (35%).</p> <p>Reduced level of trust between employer and staff (33%)</p> <p>Disruptions to day-to-day routine (32%)</p> <p>Falling individual morale (28%)</p> <p>Deteriorating working relationships (26%)</p> <p>Falling workplace morale (19%)</p> <p>Poorer health and wellbeing (15%)</p> <p>Reducing levels of loyalty (12%).</p>	<p>Interesting issue here is the major disparity between the negatives seen by management and the negatives seen by staff. In addition, many of the aspects identified by staff as a benefit are also identified here as a cost. This suggested an element of polarization in staff attitudes, a division between PWT lovers and PWT haters.</p>

It seemed to us that this may have been a case of “someone else’s fault”, with staff blaming management for a perceived lack of technology training, and management blaming staff for unfairly resisting the technology, and for not discussing any relevant concerns with management. Again returning to McGregor’s (1960) philosophy, this seems to indicate a further shift away from a Theory Y atmosphere of trust and inclusiveness and towards a Theory X environment in which there has been an incomplete meeting of both managerial and staff attitudes and behaviours – the level of internal trust in the workplace was judged to have improved by 24% of the survey respondents (Table 3), but to have declined by 33% of respondents (Table 4), and a similarly dichotomous pattern of response was observed for both staff health and wellbeing and for workplace morale.

As a final exemplar of the conflicting nature of those results, staff perceptions of the parallel issues of working relationship quality and of subsequent loyalty to the organisation were also quite sharply divided. Here, although 43% had experienced improved working relationships and 15% felt more loyal as a result, this was quite strongly challenged by the 26% who felt relationship quality had declined and the 12% who felt less loyal. This level of disagreement was clearly reflected in a summary question included in the staff survey, to which 58% of respondents indicated that PWT has had a positive impact on workplace culture, 24% indicated there had been a negative impact, and the remaining 18% managed to see elements of both positive and negative impact in this regard. Could it be then that the introduction of PWT might have had a polarising effect, as individual staff saw their visualisation of “workplace” moving either closer to McGregor’s negative, instructional, and essentially distrustful Theory X, or closer to that author’s positive, collaborative, and trust-based Theory Y?

Overall, we observed what we felt was a genuine management commitment to building a more rewarding and participative pattern of working, though this was conceded (by

management) to be something of a work in progress. Though there is a clear intent to move the organisation from a Theory X to a Theory Y model, there are still a number of outstanding issues that are acknowledged as requiring attention. At present, management believes that their staff are generally happier as a result of the introduction of PWT, though it is conceded that a minority may be in some way disgruntled or unhappy; and, from a staff perspective, organisational climate and culture is seen as improved but with a significant minority opinion to the contrary. This apparent polarisation of attitudes may arguably be interpreted as a cause and effect continuation of how these staff felt prior to the new technologies – those who were already content with the workplace may have felt that morale had improved, whilst those who were already unhappy may have experienced an opposite reaction.

CONCLUSIONS

The main reasons underpinning Rural Services Limited's decision to implement PWT were associated with a felt need to increase productivity, job effectiveness and efficiency, as well as to maintain compliance with legislative obligations. Both management and staff were largely in agreement over these reasons, though their opinions did tend to diverge in subsequent discussion. This divergence was especially apparent where employees believed certain technologies were introduced in order to monitor their activities and behaviour.

In reality, Rural Services does indeed employ PWT with the potential to monitor employees, and their catalogue includes a high penetration of personal computers, the Internet and Intranet, as well as electronic mail. Swipe cards and closed circuit television have yet to be introduced, though management is planning to implement further technologies in future, both for safety purposes and to increase productivity. These technologies may include global positioning systems for employees working in the field, as well as wireless 'hot spots' within the organisation's headquarters.

However, there did seem to quite a divergence of opinion in terms of the "what" and the "why" of PWT, with staff being generally appreciative of the impact of these technologies on day-to-day operations while maintaining a degree of scepticism in terms of the underlying motives for its introduction. In instances where this scepticism translated into expressed discontent, this appeared to be usually due to a perceived lack of training in the use of a particular technology, or to a lack of interaction between management and impacted staff at the time of technology introduction. Though management appears to understand these issues, there is a need for continuous improvement in these areas in order to develop and refine processes to minimise the negative impacts and harness the positive.

In this regard, there was a further difference of opinion related to the quality of interpersonal climate and organisation culture, despite management's insistence that this had improved overall. Though management believe that they have a clear view of staff attitudes through regular survey processes, and that relevant staff are deliberately included in the decision-making process, employees tend to disagree. Overall, there was a low-level acknowledgment that an improvement in morale had occurred, but this was accompanied by a variable verdict on the level of trust between management and staff – particularly where an increased access to shared information is believed to be accompanied by a parallel increase in monitoring and restrictions.

This again resonates with McGregor's ideas, in which there is a Theory X implication that, if management feels that staff are change resistant, then so shall they be. However, if management were to consciously adopt a Theory Y perspective, it might then have been possible to foresee a resistance to change and to respond accordingly. A Theory Y perspective also implies that management would have been both willing and capable, when implementing the necessary changes, to get the best possible benefits out of PWT, on the basis that this approach presents a positive message to staff and thus reduces or even eliminates resistance to change. Many contentious issues could have been largely resolved with a greater degree of internal co-operation, as a lack of this feature will inevitably hinder staff from seeing the impact of proposed changes and how to derive maximum benefit from them.

We believe that Rural Services Limited has been significantly impacted by the adoption of PWT, in terms of an attempted change in the organisational culture from a conservative leadership style and working environment to one that is more flexible, trusting and rewarding. This change can be represented as an intended shift from a previous Theory X management style that is authoritarian in approach and requiring coercion or monitoring in order to ensure productivity, to a Theory Y management style based on participation and transparency. It did however appear in this case that Theory Y philosophies were being introduced by Theory X methods, and that this inherent conflict had generated considerable doubt in the minds of staff in relation to what was intended and what would ultimately result.

This then may have been the principal lesson to learn from this introduction. Whilst PWT is fundamentally indicative of an all but inevitable shift from 20th century management to 21st century technology, it is even more necessary than before to heed the interpersonal elements of the change management process. As Rural Services Limited, and others like it, continues with a deliberate shift from one management style to the other, closer observation of this process is needed to appease the fears of employees who see PWT as a threat rather than as an opportunity. Only then will the 20th century workforce realise that those 21st century technologies are there to make their individual jobs easier, not more difficult.

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