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Publication details

Postprint of: Xerri, M, Nelson, S & Brunetto, Y in 2015, 'Importance of workplace relationships and attitudes toward organizational change in engineering asset-management organizations', *Journal of Management in Engineering*, vol. 31, no. 5, pp. 641-655.
Published version available from:
http://doi.org/10.1061/(ASCE)ME.1943-5479.0000306

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The importance of workplace relationships and attitudes toward organizational change in physical asset management organizations

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Abstract

Effective asset management is an important factor that can affect public wellbeing by reducing accidents and break-downs in public utilities. To be effective, asset managers, engineers and technicians must be open to the continuous change involved in adopting best practice in the industry. The paper examined the impact of workplace relationships (POS and LMX) on attitudes toward organizational change, affective commitment and psychological well-being for Australian asset managers, engineers and technicians working in physical asset management. Social exchange theory provided the theoretical framework and a self-report survey was administered to examine 255 asset managers, asset management engineers, and asset management maintenance employees. The major findings from a structural equation model indicate that perceived organizational support was positively correlated with an employee's attitude toward organizational change, and supervisor-subordinate relationships and perceived organizational support were positively correlated with an employee's emotional attachment to the organization. Perceived organizational support, attitude toward organizational change, and affective commitment were positively correlated with employee psychological well-being. The implication of the findings is that Australian engineering asset management employees' well-being and attitude toward organizational change is influenced more by their relationship with the organisation, compared to the relationship with their supervisor. This research provides support for management seeking to enhance employee attitudes toward organizational change and employee outcomes in physical asset management organizations.

Keywords: physical asset management, workplace relationships, attitude toward organizational change, affective commitment, psychological well-being

The importance of workplace relationships and attitudes toward organizational change in physical asset management organizations

It is no secret that organizations undertaking engineering (physical) asset management, like all other contemporary organizations, need to be constantly poised for organizational change. Effective asset management is able to positively affect public well-being by reducing accidents and breakdowns in public infrastructure, including power, water and other public utilities. Part of being effective is having asset managers, engineers and technicians who are open to change and to adopting best practice as it continuously develops in the industry. We argue that high quality workplace relationships enable more effective employees in respect of organisational change and adoption of best practice. While the idea of organizational change seems straight-forward, the reality is that the majority of organizational change initiatives fail or are not sustained (Beer & Nohria 2000). While there are several schools of thought when it comes to the failure of change initiatives, there is strong support for the view that employee resistance to change is a primary contributor (Elias 2009; Peccei, Giangreco, & Sebastiano 2011). For example, a positive attitude toward change is likely to see an employee actively engaged in the change process, and assisting in the realisation of the goals associated with the change initiative. A negative attitude is likely to see increasing resistance to change.

At this point, it is important to establish exactly what engineering asset management organizations comprise. Engineering asset management can be broken down into engineered (e.g. inventories, equipment, land and buildings) and infrastructure (e.g. roads, bridges, tunnels, drainage systems, water and sewer systems, dams and lighting systems) assets (Cagle 2003). Environmental issues and safety issues/accidents have been linked to some practices of engineering asset management (Tsang 1995). Because safety related system failures are often

caused by human error (Pyy 2001), a number of studies have focused on the human factors in asset management safety practices (Zuashkiani, Rahmandad, & Jardine 2011) and specifically in terms of preventing or minimizing human errors (Isobe, Shibuya & Tabata 1999; Reason & Hobbs 2003).

Due to the increased importance and profile of engineering asset management, it has become apparent that improved organizational change processes will be beneficial in avoiding the disasters and costs associated with the maximisation of engineering asset longevity. Given that the implementation of change in organisations requires the support of appropriate organisational culture, there has been some attempt to understand culture issues in asset management organisations (Murphy 2010; Oedewald & Reiman 2003: Reiman & Oedewald 2006). Asset management culture has now been identified as a significant organisational factor for improving organizational performance (Cooksey, Jeong & Chae 2011), including change management. A study conducted with Australian asset management organisations (Brunetto, Xerri & Nelson 2013) identified three distinct organizational culture profiles with competing value sets (managers, engineers and maintenance/technical staff) and highlighted the need for effective two-way communication process at all levels to minimise the barriers during processes of organizational changes. There is also empirical research that has examined, at a macro-level, the change process in the context of engineering and construction industries (Singh & Shoura 1999; Wilson Jr, Songer, & Diekmann 1995) and both studies developed models for the overall organisational change process.

Organizational change is a concept that has received the attention of academics and practitioners alike over the past five decades. While there is an abundance of literature examining organizational change, this is often undertaken at a macro-level (Elias 2009). A

review of the extant literature revealed that only a few studies have examined the organisational change/individual impact nexus in the context of engineering asset management organizations. A study conducted with Australian engineering asset organisations regarding the implementation of data quality systems (Lin, Gao, Koronios & Chanana 2007) suggests that system implementations in those organisations failed to achieve their objectives because human issues were neglected. For example, Lin and colleagues (2007, p. 123) state that: 'It appears through the interviews that the organisations continue to see the operators and technicians as skilled hands, rather than also having brains and being very sophisticated sensors'. In addition, empirical evidence, based on qualitative data, suggest that maintenance employees in asset management organisations are rarely consulted for their experience and opinions (Cooke 2002; Odewald & Reiman 2003). It is suggested in the literature that engineers lack effective communication and management skills for an open and frank discussion, especially with non-engineer staff (Premeaux et al. 1994; Riemer 2002). The current literature pertaining to engineering asset management has concentrated on developing an understanding of technical issues (e.g. condition monitoring). However, there is a paucity of empirical knowledge about the human factors in engineering asset management (Amadi-Echendu et al. 2007; Zuashkiani et al. 2011), apart from the studies focusing on human failure and organizational culture, as mentioned above.

We propose that a positive climate for organizational change relating to individual employees would include, amongst other things, quality workplace social relationships (Madsen, Miller, & John 2005) that are reflected by adequate amounts of Perceived Organizational Support (POS) and supervisor support (LMX - Leader-Member Exchange) for employees. If employees perceive that they are well supported, it is likely that they will contribute positively

toward organizational change (Eby, Adams, Russell, & Gaby 2000) and will improve their perception of well-being (Burke & Greenglass 2001; Brunetto, Farr-Wharton & Shacklock, 2011). According to the notion of reciprocity associated with social exchange theory (SET) (Gouldner 1960), employees would then be more likely to feel obligated to return the benefits they have received from their supervisors and the organization. This obligation may be reflected by the employee being more committed to the organization and organisational change initiatives and thus to the goals of the organization. Specifically, this paper examines the impact of workplace relationships (POS and LMX) on attitudes toward organizational change, affective commitment and psychological well-being for Australian asset managers, engineers and technicians working in physical asset management.

Background

Social exchange theory

"Social exchange" in the workplace includes employees interacting over a period of time and developing obligations for the benefits they provide one another (Ekeh 1974). Gouldner's (1960) theory about the "norm of reciprocity" is therefore considered to provide valuable insight into the social exchange relationship. Reciprocity refers to an interpersonal or psychological exchange process. In an organizational context, this may involve a supervisor assisting and supporting their subordinate, and the subordinate feeling a sense of obligation to return (or reciprocate) the supervisor's positive behaviour (Blau 1964). The outcome derived from the actions associated with this exchange can benefit both the individuals involved in the exchange and the organization that employs the individuals (Cropanzano & Mitchell 2005). Specifically, based on the behavior of a supervisor, an employee may feel obligated to put in extra effort at work and go

beyond their expected roles and duties. Such behavior would be expected to start a chain reaction of obligation, reciprocity and benefits. The chain reaction benefits the supervisor because they will be recognised for motivating employees to go beyond their expected roles and duties (this may be realised in the form of increased productivity, efficiency and/ or safety in the workplace); benefits the employee because they will most likely be rewarded, in some way, for their extra effort; and benefits the organization in the form of increased employee output and perhaps, commitment to job and the organisation.

Using the SET framework, we argue that within the context of EAM (Engineering Asset Management) organisations, employees develop a perception of organisational support when senior management develops, communicates, implements and evaluates their strategic goals by setting realistic targets that have been adequately resourced, using employees that are adequately trained and supported to achieve those targets. Employees receive subtle non-verbal messages that they are supported, respected, valued and rewarded for achieving realistic targets, including embracing new changes and consequently perceive positive organisational support. Similarly, using the SET framework, we argue that when supervisors are performance-managed by senior management to communicate, adequately resource, value and reward employees who change work practices as per the change strategy, employees perceive high levels of satisfaction with their supervisors, and as a consequence are more likely to embrace change.

Alternatively, using the SET framework, we predict poor change outcomes are associated with inconsistency between strategic goals, resourcing, employee training, performance evaluation and rewards because the non-verbal messages given to employees is that they are not valued or respected. When employees are inadequately informed, resourced and appraised to undertake new tasks or processes, the results are predictably poor, often providing a “shock” to

senior management. The next section examines the SET concepts used to capture the role of management in effecting change in EAM organisations.

Perceived organizational support

Employees perceive that the organization has an optimistic or pessimistic orientation towards them because of the human characteristics employees associate with organizations (Shanock & Eisenberger 2006). The human characteristics associated with organizations can be attributed to the organization's power over employees, as well as the policies and procedures that are developed to prescribe behavior and to control employees. An employee's relationship with their organization has been measured by examining the employee's perception of organisational support (e.g. Eisenberger, Cummings, Armeli, & Lynch 1997; Laschinger, Purdy, Cho, & Almost 2006; Wong, Wong, & Ngo 2012). POS refers to an employee's perception about how much the organization values their contributions in the workplace and is concerned with their overall well-being (Eisenberger, Huntington, Hutchison, & Sowa 1986). If an employee perceives their organization to be supportive, the employee is more likely to reciprocate by being committed to the organization and their work (Liu 2009).

SET literature suggests that an employee will only be committed to their supervisor and to the organization if they perceive the organization and their supervisor are supportive of their actions and behavior (Shore & Wayne 1993). As such, the supportive role that the supervisor and the organization undertake can be considered as a benefit that comes from the reciprocal relationship they enter into with their employees (Babin & Boles 1996). Consequently, if employees' perceive there is an inequality in their workplace exchanges, they are less likely to develop reciprocal workplace social exchange relationships (Gruening 2001; Wagner 2007). The same basic premise of reciprocity can be applied to the theory of POS and in this study, if

engineering asset management employees perceive that their supervisor or employing organization do not support and value their work, they will be less inclined to have a positive attitude toward organizational change and less inclined to strive towards contributing to organizational goals. While there is a vast body of literature on POS (Rhoades & Eisenberger 2002), a review of the literature revealed no previous research that has examined the impact of POS on employee attitude toward organizational change, affective organizational commitment, and well-being in an engineering asset management context.

Supervisor-subordinate relationship

SET literature implies that an exchange relationship exists between an employee and their employing organization as a result of the employment contract (Cropanzano & Mitchell 2005). Konovsky and Pugh (1994) suggest that the supervisor is an agent of the organization. Because a supervisor has an exchange relationship with employees and can influence the relationship an employee has with the organization, supervisors are considered to be the pillar that supports the social exchange framework. For example, the relationship that an employee has with the supervisor, if built upon mutual trust and fairness, is suggested to impact positively on the obligations and liberties developed between an employee and their supervisor, as well as their employing organization (Wayne, Shore, & Liden 1997). As such, the supervisor assumes a central position when considering a mechanism for facilitating workplace social exchange and developing an environment that fosters commitment and employee well-being. From a review of the literature no studies were located that have examined LMX in the context of engineering asset management, with the exception of Brunetto, Xerri and Nelson (*in press*) who found that LMX positively influences asset maintenance organisational culture.

Attitude toward organizational change

It is suggested that employees who have a substantially optimistic attitude toward change are more likely to behave in a manner that is associated with a focused, persistent effort that supports and facilitates the change initiative (Elias 2009). In contrast, when employees have a substantially pessimistic attitude toward change, this is likely to result in a culture that resists, obstructs, prevents and/or attempts to sabotage the change initiative. Chawla and Kelloway (2004) propose that a failed change initiative can detrimentally impact on the overall performance of the organization, as well as the organization's ability to gain a competitive advantage in the market.

Dallavalle (1991) suggests that when effectively responded to and managed, resistance to change can be used to the advantage of the change initiative. That is, when employees communicate their resistance to change and their reasons for that resistance, management are then aware of the issues and can work at resolving the problems before they thwart the change initiative. For example, Demski (1993) proposes that in the context of engineers, a lack of understanding about the management of their organisations may result in engineers not understanding the need for change and this is likely to result in them resisting the change. This is a likely situation considering that engineers are professional employees who are often highly skilled in engineering, but often have far less understanding about organisational management. Therefore, as Dallavalle (1991) prescribes, when management identifies such resistance, it can provide an indication that their engineers need to be better informed about the purpose, nature and management of change initiatives. There is likely to be a similar situation for maintenance staff (Oedewald & Reimar 2003), which can also constitute a barrier to the implementation of change initiatives.

However, it is clear from the literature that employee attitudes toward change are not binary. A multitude of different attitudes to change have been proposed and examined. Bouckenooghe (2010) reviews the concepts that have been referred to as relating to employee attitudes toward change (readiness for change, resistance to change, commitment to change, openness to change, coping with change, acceptance of change, adjustment to change, and cynicism about organizational change) to determine whether the concepts overlap or if they represent core factors in examining and determining employee attitudes toward organizational change. While such research is vital, in this study we have used the concept 'attitude toward organizational change' to measure the overall quality of an employee's attitude toward organizational change, and thus are not concerned with specific attitudes toward a particular change.

From a review of the literature, no empirical studies were identified that have examined specifically the relationship between an employee's POS or LMX and their attitude toward organizational change in an engineering asset management context. This is surprising, considering that organizational change clearly requires organizational support, and the supervisor is usually an important actor within organizational change initiatives (Devos, Buelens, & Bouckenooghe 2007). However, a study by Eby et al. (2000) in a non-engineering asset management setting found that POS was positively and significantly related to an employee's readiness for change. Using SET, we propose that, if employees perceive that the organization values their contributions and cares about their well-being, and they have a good relationship with their supervisors, the employee is more likely to feel obligated to the organisation and thus has a positive attitude toward organizational change. That is, employees are more likely to

embrace the changes when they perceive that what is desired by the organization is identified as being in their own interests.

Affective commitment

An employee's commitment to the organization is a concept that has received considerable attention from researchers and practitioners alike. Allen and Meyer (1990) propose that organizational commitment is a multi-dimensional concept that represents an employee's impression of and relationship with their organization. One dimension of organizational commitment proposed by Allen and Meyer is affective commitment, which refers to the emotional bond or attachment an employee has with their organization (Allen & Meyer 1990).

To date, there has been a plethora of studies that have examined the antecedents of an employee's affective commitment. Rhoades et al. (2001) suggest that POS is positively related to chronological changes in affective commitment, signifying that POS is a predictor of affective commitment. Meyer and Smith (2002) found that organizational support and procedural justice correlated significantly with affective commitment. LMX is also considered to be a determinant of an employee's affective commitment (Maertz, Griffeth, Campbell, & Allen 2007; Vandenberghe, Bentein, & Stinglhamber 2004), and this can be attributed to the fact that supervisors and managers take on the role of organizational representatives. For example, if an employee perceives that their supervisor is supporting them in their role, this should contribute to improving an employee's emotional attachment to the organization (Rhoades & Eisenberger 2002). Employees' attitude toward organizational change has also been found to be a predictor of their affective commitment (Elias 2009). Although there is a vast body of literature that has examined employees' affective commitment to their employing organization, no studies have

examined the impact of POS, LMX and affective commitment on employee attitudes towards organisational change in the field of engineering asset management.

Perception of well-being

Well-being related to an employee's work is referred to as the employee's perception of overall experience and functioning in the workplace, which includes the overall perception of the job and the organization (Grant, Christianson, & Price 2007). There is no shortage of research that has examined employee well-being (Brunetto, Farr-Wharton, & Shacklock 2012), albeit no such research exists in the context of engineering asset management organisations. Well-being is generally considered to be a multi-faceted construct. For example, Grant et al. (2007) suggest that psychological well-being refers to the subjective experiences of individuals in the workplace, physical well-being is a reflection of measures and experiences related to body health, and social well-being is associated with the quality of relationships. Another conceptualisation is by Keyes, Shmotki and Ryff (2002) who argue that the wellbeing construct either refers to subjective (capturing the balance between positive and negative cognitive impacts) or psychological (capturing employees' mental state related to satisfaction in the job) well-being. In this study, we aim to examine engineering asset management employees' perception of well-being and thus we will focus on psychological well-being.

In relation to the path from LMX to well-being, there appears to be less empirical research that has established the relationship. However, in a study of nursing management, Brunetto, Farr-Wharton and Shacklock (2011) found that LMX was indirectly related to employees' perception of well-being through teamwork and patient role ambiguity. There is also some research that has examined the relationship between factors such as LMX and general job

satisfaction, as outlined by a meta-analysis developed by Dulebohn, Bommer, Liden, Brouer and Ferris (2012). Empirical evidence suggests that LMX is an antecedent of well-being (Brunetto et al. 2013; Cropanzano & Mitchell 2005; Hodson 2004; Thomas & Lankau 2009).

There is, however, further reason to believe that a direct relationship between LMX and well-being exists that can be derived from the foundations of SET. For example, it is to be expected that the development of positive LMX and a strong reciprocal relationship will have a positive impact on an employee's well-being. Emerson (1976, p. 359), however, points out that a consequent sense of obligation, which he characterises as an organisational resource, 'will continue to flow only if there is a valued return contingent upon it'. This provides support for the view of Henderson and colleagues (2009) about the nature of reciprocity.

It is believed that a poorly managed organizational change process can have a detrimental effect on employee well-being (Callan, Terry, & Schweitzer 1994). There is also empirical evidence that, when planning for the organizational change precedes the initiative, that one outcome is more positive employee well-being (Korsgaard, Sapienza, & Schweiger 2002). The two studies strongly suggest that organizational change can have negative and positive connotations for employee well-being and that the outcome depends on planning for and management of the initiative. While the link between organizational change and employee well-being has been established there is no empirical research located that has examined whether there is any connection between an employee's attitude toward change and their psychological well-being in an engineering asset management context.

A review of the literature identified a number of studies that conclude that perceived organizational support (POS) influences well-being and that an employee's affective

commitment is a predictor of their well-being (Harris & Cameron Meyer, Stanley, Herscovitch & Topolnytsky (2002).

Hypotheses

At this point, it seems logical to hypothesise that an attitude toward change may have some real influence on employee well-being and we can use SET to underpin this view. As previously discussed, reciprocity can be developed from the relationship an employee has with their supervisor and the organization (Cropanzano & Mitchell 2005). The development of a reciprocal relationship will, more often than not, leave the employee feeling indebted to the supervisor and organization, and thus makes them more likely to reciprocate with a positive attitude toward change. Furthermore, if employees have a positive attitude toward change and are affectively committed to the organization, they are returning their obligations and it would be expected that this would continue to further develop a quality relationship between employee, supervisor and the organization. The development of the quality relationship built on mutual trust and reciprocity should have a positive impact on the employee's psychological well-being.

Based on a review of the current body of knowledge and the notions of SET, the following relationships are hypothesised:

Hypothesis 1: Perception of organizational support in engineering asset management organizations will be positively correlated with an employee's affective attitude toward organizational change.

Hypothesis 2: Engineering asset management employees' perception of the supervisor-subordinate relationship will be positively correlated with their affective attitude toward organizational change.

Hypothesis 3: Perception of organizational support in engineering asset management organizations will be positively correlated to affective commitment to the organization.

Hypothesis 4: Affective attitude toward organizational change in engineering asset management organizations will be positively correlated to affective commitment to the organization.

Hypothesis 5: Engineering asset management employees' perception of the supervisor-subordinate relationship will be positively correlated with affective commitment to the organization.

Hypothesis 6: Perception of organizational support in engineering asset management organizations will be positively correlated with employees' perception of their well-being.

Hypothesis 7: Affective attitude toward organizational change in engineering asset management organizations will be positively correlated to employees' perception of their well-being.

Hypothesis 8: Engineering asset management employees' perception of the supervisor-subordinate relationship will be positively correlated with the perception of their well-being.

Hypothesis 9: Engineering asset management employees' affective commitment to the organization will be positively correlated with their perception of their well-being.

Method

Sample characteristics

An online survey was developed using the survey monkey tool and 1012 self-report questionnaires were distributed to asset managers, asset management engineers, and asset maintenance employees Australia wide over a period of two weeks. 255 useable surveys were received (26 per cent response rate). The sample comprised of 188 (73.7 per cent) male and 67 (26.3 per cent) females. 164 (64.3 per cent) were asset managers, 45 (17.6 per cent) were asset management engineers and 46 were asset maintenance employees (18 per cent) (see figure 1). 37 (14.5 per cent) were located in Queensland, 86 (33.7 per cent) in New South Wales, 87 (34.1 per cent) in Victoria, 16 (6.3 per cent) in South Australia, 18 (7.1 per cent) in Western Australia, 3 (1.2 per cent) in the Australian Capital Territory, and 8 (3.1 per cent) in Tasmania (see figure 2).

Insert Figure 1 about here

Insert Figure 2 about here

Measures

We used previously validated scales to operationalise the constructs in the path model. These were measured on a six-point Likert-type scale, ranging from '1'=strongly disagree to '6'=strongly agree. The quality of the supervisor-subordinate relationship was measured using the LMX scale, which is a seven-item uni-dimensional scale (LMX-7) developed by Graen and

Uhl-Bien (1995) (composite reliability coefficient of 0.90). An example of a statement is, 'I am certain to what extent my supervisor will go to back me up in my decision-making'. POS was measured using a scale developed by Eisenberger et al. (1997), which had a composite reliability of 0.87. Sample item included 'My organization cares about my opinion'. Well-being was measured using a four-item scale by (Brunetto et al. 2011) including, 'Most days I feel a sense of accomplishment in what I do at work', this scale had a composite reliability of 0.87. Affective Commitment was measured using six-items from the scale developed by Allen and Meyer (1990); we measured employees' commitment to their organization. One item was, 'I feel a strong sense of belonging to this hospital' and the composite reliability was 0.88. To measure affective attitude toward change, we used the 18-item attitude toward change scale developed by Dunham (1989). An example item was 'Change usually benefits the organization' and the composite reliability was 0.89.

Data analysis

Structural equation modelling (SEM) using AMOS 20.0 was conducted to examine the hypothesised model. SEM is used in this study over conventional regression modelling because it allows for each hypothesis to be tested simultaneously, which means that the consistency of the model in relation to the data can also be assessed (Byrne 2010). Anderson and Gerbing's (1988) two-step approach is applied, in which a measurement and structural model are assessed. Specifically, the first step includes a confirmatory factor analysis (CFA) where absolute and incremental fit indices [normed chi-square (χ^2/df), comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square of approximation (RMSEA), and the standardised root mean square residual (SRMR)] are used to assess model-fit. The normed chi-square ideally should fall between 1 and 3, the CFI and TLI should be $\geq .90$ for an adequate fit or $\geq .95$ for a superior fit

(Byrne 2010), RMSEA below .08 for an adequate fit and below .05 for a good fit (Browne & Cudeck 1993), and the SRMR is favourable when below .10 (Kline 2011).

Maximum-likelihood estimation technique is used, which requires that the data be normally distributed. To ensure normality five cases were removed from the sample, reducing the sample size from 260 to 255. Following the removal of the cases, there was graphical and statistical support that the data is univariate normal, with skewness ranging from −1.90 to 1.12 and kurtosis ranging from −1.03 to 1.82.

Insert Figure 3 about here

Results

Confirmatory Factor Analysis

The initial results suggest a poor fit of the measurement model ($\chi^2/df = 3.58$, p _ 0.001, CFI = 0.798, TLI = 0.779, RMSEA = 0.101). The squared multiple correlations (SMC) indicated that several observed items did not adequately predict their respective latent variable. Four items were removed from the model; 2-items from the POS scale (SMC = .052 and .005), 1-item from the LMX scale (SMC = .033), and 1-item from the affective commitment scale (SMC = .070). Each item was removed separately, however, only model-fit following the removal of all items is reported to mitigate manuscript size. All items were removed because they had SMCs lower than 0.1. As well, all items were negatively worded, which appeared to cause some issues, even though the items were reverse coded. Following the removal of the four observed items, the model-fit improved and provided reasonable fit to the data ($\chi^2/df = 2.26$, p _ 0.001, RMSEA =

0.070, CFI = 0.924 and TLI = 0.914). The model-fit indices provided statistical support to further test the hypothesised model.

In model 2, common method variance was controlled for following the procedure prescribed by (Podsakoff, MacKenzie, Lee, & Podsakoff 2003). To explain the process, all observed variables were loaded onto a hypothetical common method latent factor, as well as their respective latent variable. Model 2 fit the data well (χ^2/df = 2.96, p _ 0.001, RMSEA = 0.062, GFI = 0.849, CFI = 0.922 and TLI = 0.908) and the parameter estimates for all hypothesized relationships found in model 1 were significant in model 2, suggesting common method variance is of no major concern in this study.

To establish the distinctiveness of the hypothesised model (model 3), two alternative models were also tested. As depicted in Table 1, the hypothesised model provided a reasonable fit that was superior to model 4 and 5 (χ^2/df = 2.22, p _ 0.001, RMSEA = 0.069, CFI = 0.923 and TLI = 0.913).

Insert Table 1 about here

Descriptive statistics and correlations

The means, standard deviations, Cronbach's alphas and inter-correlations for all variables included in the hypothesised model.

Insert Table 2 about here

Testing the hypotheses

The results provide support for the acceptance and rejection of a number of hypotheses. There is support for hypothesis 1, 3, and 6; with POS having a positive and significant influence on an employee's attitude toward organizational change (β = .576**), an employee's affective commitment (β = .371***), and their perception of well-being (β = .482***). There is support for hypothesis 5, with LMX having a positive and significant correlation with an employee's affective commitment (β = .327***). There was also support for hypothesis 7 and 9, with an employee's attitude toward organizational change (β = .325***) and affective commitment (.589***) being positively and significantly correlated with their perception of well-being. The results also provide support for the rejection of hypothesis 2 (β = .108), hypothesis 4 (β = -.016), and hypothesis 8 (β = 0.26).

Discussion

This paper explored several key issues, including whether workplace relationships assist employees to be more change ready – a requirement essential for assets to be managed effectively. Specifically, the paper examined the impact of workplace relationships (POS and LMX) on attitudes toward organizational change, affective commitment and psychological well-being for Australian asset managers, engineers and technicians working in engineering asset management. From this study, three main contributions can be identified. First, the findings demonstrated a significant relationship between POS and attitude toward organizational change, affective organizational commitment and psychological well-being. This finding supports the claim that, if employees perceive that they have adequate organizational (and supervisor) support towards change initiatives, this enhances their perceptions of well-being and their level of

affective organizational commitment (Burke and Greenglass 2001, Meyer and Smith 2000). This is an important finding, given the limited research on the influence of organizational change factors on employees' attitudes and behaviors in relation to engineering asset management organizations.

Second, the findings of the present study demonstrated a significant relationship between LMX and affective organizational commitment. However, the findings also showed that LMX did not have a significant impact on attitudes towards organizational change and psychological well-being. This finding is very important as it indicates that employees' resistance to change, which is acknowledged to be a primary contributor to the failure of change, may be due to a breakdown of LMX, perhaps in terms of the levels of trust and respect in which supervisors are held by their staff. Where trust and respect are damaged or absent in the workplace, morale inevitably suffers, with consequent deleterious impacts on attitudes to change and also on employee well-being. As such, the second contribution highlights the sensitive nature of reciprocity, which must be addressed if positive attitudes toward organisational change initiatives are to be engendered among asset management employees at both supervisory and technical levels.

The implication of the findings is that Australian engineering asset management employees' well-being and attitude toward organizational change is influenced more by their relationship with the organisation, compared to the relationship with their supervisor. Even though the supervisor is perceived as an agent of the organization (Konovsky and Pugh 1994), employees in this study seem to like working for the company in the industry doing the work that they are trained to do, but they do not perceive their supervisors as a source of support for their well-being or a factor affecting their decision to embrace organisational changes.

Looking at this from the supervisors' point of view, these findings may indicate that the supervisors see themselves more as 'victims of change' than as 'leaders of change'. Consistent with the change literature, engineer asset managers and supervisors may perceive that change is planned by senior management and that this are as disempowered as their staff in terms of communication and change processes. The latter insight seems to be well-supported by the results, which demonstrate that while subordinates in the industry have a good/significant level of commitment to the company for which they work (and the work that they do), they may not be well informed about organisational change (eg continuous improvement for best practice) and experience poor levels of supervisor support for their well-being. Moreover, many EAM leaders may not have the in-depth understanding of their organisational culture (and the three sub-cultures) to deliver positive results as Ulrich et al. (2009) suggest.

This second contribution then, is about understanding, at an evidential level, the weaknesses of engineering asset management organisations in successfully conducting change programs, such as continuous improvement for best practice, which are central to their survival and future prospering.

Third, the findings suggest that the relationship between attitude toward change and affective organizational commitment was not statistically significant. Moreover, the supervisor-employee relationship (LMX) did not significantly influence employees' attitude toward organizational change, which may reflect weak supervisor support in relation to organizational change. This result certainly indicates that employees may not be receiving enough or the correct type of communication/information about change, and thus may consider change to be unimportant or threatening but as not influencing their emotional attachment to the organisation.

Using the SET framework, the findings from this paper suggest a less than ideal change environment in EAMs in Australia. In particular, there is not a statistically significant link between the role of the supervisor-subordinate relationship and employees' attitude towards change and their perception of wellbeing. The findings suggest a poor SET environment – perhaps evident by a mis-match between the expected target outcomes, adequate information and/or resourcing to achieve those targets as well as performance rewards. Employees are likely to perceive this lack of information as a lack of commitment to the proposed change by the supervisor, and as a consequence, are themselves less likely to embrace the changes.

The findings and contributions discussed are important, particularly for organizations managing engineered assets, because of past environmental and safety disasters that have occurred as a result of poor engineering asset management (Brunetto & Xerri 2011). More specifically, while there is no doubt that positive employee attitudes towards change will contribute to the successful implementation of any change initiative (Elias, 2009), this study adds a clear focus on supervisor-employee relationships to the current understanding about developing an more general environment inclusive of enhanced relationships, commitment and well-being that will contribute positively to the success of organizational change.

Limitations and future direction

This study contains several limitations and also highlights a number of areas for future research. First, asset managers, engineers and technical employees were examined using a cross-sectional approach, which limits the ability to hypothesise and test causal relationships. Therefore, further research is required to be able to generalise these results to the engineering asset management profession. This study includes three groups of employees working within a

engineering asset management context; however, the three groups were combined to provide an overall representation of employee perceptions working in engineering asset management organizations. As such, one aim for further research could be to collect a larger sample from asset managers, engineers and technical employees in order to conduct a test of invariance or a hierarchical linear model. Further research should include all groups of employees working in engineering asset management organizations, in order to provide a more robust examination of the human dimensions of organizational change and to further refine the findings of the present study Another key issue that could be addressed is the ethical climate of the organisation as it is clear that where an employee lacks trust in their supervisor because of unethical behaviour, or lacks respect because of failures of morality on the part of the supervisor, it is unlikely that the supervisor-employee relationship will support employee commitment and engender positive attitudes toward organisational change.

Implications for asset managers

The implications of this study for asset management organisations are quite clear. Asset managers are required to continually change what they do and how they do it in order to build and maintain best practice. This may be defined in engineering terms, financial terms, asset safety, security and longevity terms, all of which require changed practices and processes. Change initiatives fail more than they succeed and employee resistance to change is considered to be a major contributing factor to this failure (Elias 2009). The implementation of asset management change initiatives is often undertaken by technicians, supervisors and middle-level managers. Hence, an employee's attitude toward organisational change, along with their needs, aspirations, morale, job satisfaction, and work relationships will often be crucial to the success of

organisational change. However, as mentioned in the introduction, engineers need better people management skills, especially communication skills; and technical maintenance employees require higher levels of participation and opportunities for contribution. More to the point, the key to organisational change is that the change agent (often the manager responsible for the change) must first establish a positive working relationship with the employees implementing, or who are associated with, the change initiative (Madsen et al. 2005). The development of such workplace relationships has been found to contribute to employees' reciprocal commitment to their manager and to the organisational change initiative (Parish, Cadwallader, & Busch 2008), and this commitment can be realised in the form of a more positive attitude toward organisational change and thus, less resistance to any particular initiative. Therefore, asset management organisations should focus on, amongst other things, fostering leader-employee relations (LMX) and organisation-employee relations (POS).

The findings indicate that significantly more attention must be devoted to establishing sound and healthy LMX, or supervisor-subordinate working relationships. The requirement here will be for well-designed learning processes for new and present supervisors, especially in basic communication skills such as conducting meetings, giving and seeking feedback and conducting dialogue with their superiors as well as their subordinates. Team leadership skills are grown not bestowed by virtue of position and significant ongoing investment must be made in team leadership development at every level of the organisation over significant periods of time.

Another implication that can be drawn from this research is that an employee's attitude toward organisational change is related to their emotional attachment to the organisation and their perceptions of well-being. This provides important information for management undertaking the implementation of organisational change initiatives, particularly about the value

of workplace relationships. Managers should also focus on other factors that are known to influence employee attitudes toward organisational change, especially if they are to maintain employee commitment to the organisation and well-being. For example, specified training could be used to develop employee effectiveness and understanding in relation to change, which may assist them with contributing to and transitioning during the change. Such training should result in an employee who has the skills required to be productive in the new organisational state and thus should have a positive influence on their attitude toward the organisational change.

Another way to develop knowledge, a feeling of certainty regarding the organisational change initiative, and in doing so reduce resistance to change, is to focus on team building. Team building will help employees to develop interpersonal relations and to work together with their supervisor, not to mention that such team building may be useful for fostering relationships between management and employees. The interpersonal relations can then be used as a vehicle for transferring information, knowledge and resources (Levin & Cross 2004). Such transfer can help employees to develop together, but may also help to eliminate some of the uncertainty often associated with organisational change. Less ambiguity should improve an employee's attitude toward organisational change. This is a critical role for the team leader, who needs to be trained and supported in the function, especially in communication skills, as noted above.

Finally, managers at all levels must be inducted into the processes of change management, especially in terms of continuous improvement and maintenance of best practice and those understandings need to be periodically refreshed at every level of the organisation.

Conclusion

This study has contributed to the understanding of how a number of change-critical parameters relate to one another, including workplace relationships (POS & LMX), employee attitudes toward organisational change, affective commitment, and employee perceptions of well-being. The key notions of SET provided a useful framework for understanding how workplace relationships influence, amongst other things, employees' attitudes toward organisational change in organisations undertaking engineering asset management. The results of the survey indicate that while perceived organisational support (POS) has a positive correlation with, and therefore supports affective commitment, attitudes to change and employee well-being, the results of supervisor-subordinate (LMX) may indicate a serious problem with attitudes to change and employee well-being. In fact, LMX was not statistically significantly correlated with employee well-being nor with employee attitudes toward organizational change.

These results may well reflect an industry culture that fails to engage employees, particularly at the supervisor level, in particular change initiatives and indeed, in the processes of continuous change that are integral to maintaining best practice. Many supervisors may have been promoted 'off the tools' and may have not received effective training in key supervisory skills such as team leadership and communication skills; e.g. conducting meetings, giving feedback, listening and responding etc. The result is that subordinates do not look to their supervisors for the 'exchange' that should make LMX such a critical organisational process to support change, the adoption and maintenance of workplace standards and behaviours and the personal well-being of staff.

Empirical knowledge about employee attitudes toward organisational change is vital for engineering asset management organisations if they are to understand employee perceptions

about organisational change and how perceptions may be positively or negatively influencing the success of vital change initiatives, such as continuous improvement of best practice asset management. Hence, this study contributes new knowledge about a number of antecedents and outcomes of employees' attitude toward organisational change. This body of knowledge, which is still developing, needs to be refined and extended in order to provide appropriate and robust strategies for employee involvement in and contribution to successful organizational change. This specifically applies to the ongoing development of engineering asset management best practice and the contribution of all employees to this significant endeavour.

Acknowledgements

This paper was developed within the CRC for Infrastructure and Engineering Asset Management, established and supported under the Australian Government's Cooperative Research Centres Programme.

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Table 1. Results of model-fit

	χ^2 / df	CFI	TLI	RMSEA
Measurement model	2.26	.924	.914	.070
Model 1: Hypothesised model	2.13	.927	.917	.067
Model 2: Adds common method variance factor to model 1	2.20	.931	.915	.069
Model 3: Removed LMX from model 1	2.93	.876	.862	.087
Model 4: Removed POS from model 1	3.09	.866	.851	.091

Table 2. Means, standard deviations, reliability and bivariate correlations

	Mean (Standard deviation)	1	2	3	4	5
1. LMX	4.36 (.80)	(0.89)				
2. POS	4.21 (.70)	.627**	(0.73)			
3. Well-being	4.44 (.81)	.656**	.659**	(0.78)		
4. Affective commitment	4.07 (.97)	.459**	.589**	.454**	(0.83)	
5. Affective attitude toward change	4.35 (.74)	.535**	.446**	.551**	.439**	(0.73)

**. Correlation is significant at the 0.01 level (2-tailed).