

Supporting improvement and learning using incentives: some lessons from Australian Manufacturers

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Abstract

Manufacturing businesses are under continual pressure to improve their performance and to ensure that their employees learn in such a way that the firm benefits in the long term. However not all employees are committed to improvement and change programs and many employees see learning as accredited training that gives them a portable credential. In such an environment it is important that there is a culture that supports learning and change and there are incentive systems in place to ensure long term commitment from employees. This paper examines a sample of Australian firm's surveyed in 2003 concerning their improvement and learning activities and reports on the use of incentives in supporting a learning environment.

Introduction

Global competition and changing technological configurations have changed and will continue to change the nature and content of work. This is especially true in developed economies such as Australia where, in an effort to make industry more internationally competitive, the government has removed or is in the process of removing artificial barriers to trade. Sustainable competitive advantage is no longer based on technology, machinery, or the abundance of natural resources. Many business leaders have recognised that people are our most important resource and the source of our competitive advantage (Smith, Oczkowski, Noble, & Macklin 2003). Over the last ten years companies, particularly in the manufacturing sector, have undergone downsizing, restructuring and reorganisation. As a result most firms have fewer but multi skilled employees with the flexibility and adaptability to respond to ongoing changes associated with a highly competitive marketplace. To meet these challenges it can be argued that many organisations are attempting to transform themselves into learning organisations that can operate in high performance work systems (Hyland, Mellor, Sloan, and O'Mara 1999).

Myburgh (2000) argues that whatever else an organization may do, it must generate, acquire, process, and use information. Many organisational activities require or depend on satisfactory information flows. Such activities include: monitoring of the organization's performance; assessing the possibility of breakdowns; creation and communication of instructions; advice and policies; exchange of experience and knowledge; scanning the business environment; and the making of major and minor decisions. Information must be appropriately managed so that the organisation can understand and progress toward goals; inform the decision-making processes; and communicate to groups inside and outside of the organisation. In many organisations groups of employees often based within professional silos of engineers, accountants, scientists or technicians jealously guard their own knowledge and information and fail to share it with others in the organisation. To maximise the organisation's benefits from the information and knowledge its members hold or can acquire, collaboration across

professional boundaries is required of individuals. As Amidon (1998) asserts, the creation of knowledge takes place in communities of practice, where individuals with different backgrounds collaborate and share information. However organisations that wish to create an environment that allows for knowledge sharing may have to identify intervention strategies that encourage this sharing (Swan, Scarborough and Robertson 2002). Many organisations have used incentives and rewards to encourage positive activities such as knowledge sharing or team work.

Rewards and incentives provide positive feedback to employees who actively support a knowledge creation trajectory and take part in programs where standard routines are challenged, and where new routines can be turned into superior action. The socialisation process at work is often evident in the way knowledge is shared. All employees can be encouraged to appreciate the self-reinforcing nature of knowledge-creating activities this is one of the main benefits identified from team work. Leonard-Barton (1992) contends that organisational competencies, without organisational learning, are similar to paradigms that have internal inconsistencies that make evolutionary change or adaptation nearly impossible. So organisations need to develop the organizational competencies that enable them to effectively manage their knowledge, but do it in a way that rewards and encourages organizational learning. If learning is to be encouraged and sharing is seen as part of everyday work there needs to be an incentive that makes learning and sharing knowledge worthwhile. Many organisations use formalised rewards and recognition to encourage positive activities such as sharing knowledge and learning.

Incentives and Rewards

Incentive systems are designed with the purpose of bringing about or influencing the behaviours of the recipients by way of a reward or recognition. The reward, be it either monetary or non-monetary recognition such as status and power, career or personal development opportunities, awards or public recognition, is designed to motivate employees to exhibit desired behaviours, ideally to a predetermined standard (Bartol and Srivastava 2002). In effect, the incentive system itself is a contract between the employer and employee which regulates the level of reward based on the output of the employee. These rewards and incentives need to take into account organisational capabilities (Minkler 1993) organisational strategy (Agarwal 1998; Davies 2000) the current business environment and stage of business development (Matsumura, Kijima, Nakano, & Takahashi 2003).

Creative incentive systems are important because they represent the outcome of an employee's effort (Ledford, Lawler, and Mohrman, 1995) which suggests that some level of motivation is required. A substantial body of research into the motivational aspect of incentive based reward systems suggest that extrinsic rewards conflict with intrinsic motivation which is said to be an individuals desire to perform a task for its own sake and not the contingent reward, normally money (Pierce, Cameron, Banko, and So 2003). Extrinsic rewards are considered more appropriate to jobs with repetitive tasks (Osterloh and Frey 2000) or where simple applications of technical knowledge form the majority of the work performed (Bartol and Srivastava 2002). The essential argument is that extrinsic rewards hamper intrinsic motivation which is needed as part of enhancing individual creativity (Bartol and Srivastava 2002), needed to develop new ideas essential to the innovation process (Bessant 2003). Bartol and Srivastava (2002) argue sharing of the knowledge generated through individual creativity increases the need for intrinsic motivation. Therefore intrinsic motivation is important to the jobs involving acquiring, sharing and transferring knowledge.

Bartol and Srivastava (2002) propose four mechanisms by which individuals share knowledge throughout an organisation and by which incentive systems could be structured so that employees are rewarded for their participation in the sharing process. The four mechanisms are: contribution of knowledge to organisational databases; sharing knowledge through formal social interactions within teams or across different work units or divisions; sharing knowledge through informal interactions with other organisational members; and finally, sharing knowledge within communities of practice recognised as groups or forums focus around a specific topic of interest. By contributing ideas and information employees are participating in the knowledge sharing process. An example of such a program is an employee suggestion scheme where the value of the knowledge is easily measured and evaluated (Arthur and Aiman-Smith 2001). The employee is likely to continue to contribute knowledge if the value of the reward is contingent upon the employee's perceived value of knowledge. Therefore the perceived value of the knowledge to the organization and the employee is important, as is the perceived fairness of process in setting the value of the reward (Masterson, Lewis, Goldman, and Taylor 2000). If the employee perceives the value of the reward is inequitable then the employee has the right to take that knowledge to an employer willing to pay the price. Brown and Duguid (2001) refer to this as preventing knowledge leakage.

Sharing knowledge through formal interactions is the second mechanism. This process can happen within or across teams, departments or new business acquisitions. The type of reward is dependent upon it being levelled at the individual, a team or across the organization. At the individual the manager could evaluate the individual's knowledge sharing behaviour throughout formal meetings. Such an evaluation could be part of a formal performance management system and the rewards could be via merit pay or bonuses and eventually promotion.

Developing teams has been a strategy used by many organisations as part of structural changes in dealing with environmental changes. The establishment of team based structures has seen the introductions of team based rewards (TBRs) and is designed to foster a more cooperative work environment and are seen as being more successful than rewarding individuals within teams which has a propensity to reducing cooperation between team members. Rewards are given on the performance of the whole team and shared among the team (Kirkman and Shapiro 2000). Recent research into the receptivity of TBRs found that employees with: higher level of education and tenure; having a higher level of understanding of the cultural aspects collectivism; and are comfortable with the levels of procedural fairness, are more accepting of TBRs and are more inclined to show a preference to teams and a commitment to the success of the team based on equality-based and not equity based rewards. Such an approach would appear to also limit the possibility of the free-ride effect (Osterloh and Frey 2000).

For organisations with operations or teams across countries or business sites, rewards systems are better based on a whole of organisation system that rewards the overall performance of the business. It could be argued that such an incentive increases the likelihood and willingness for knowledge sharing not only within the team but across the whole organisation as a whole. Profit sharing, gainsharing plans (Arthur and Aiman-Smith 2001) and employee stock options (Bartol and Srivastava 2002) are incentives practices used under this organisational structure and knowledge sharing is encouraged through feelings of shared ownership and a commitment to sharing even more complex knowledge (Bartol and Srivastava 2002).

In seeking to reward groups it may be necessary to consider 'Communities of Practice' (Bartol and Srivastava 2002), these communities owe loyalty to group members rather than a specific organisation. Communities of Practice are seen as playing an essential role in promoting learning and innovation practices within organisations. According to Swan et al. (2002) a 'defining feature of communities of practice (as opposed to say, project teams) is that they are seen to emerge spontaneously from the (largely informal) networking among groups of individuals who have similar work-related activities and interests' (p. 478). Knowledge sharing in these communities is seen as intrinsically motivating through the experience of promoting feeling of competence and personal knowledge. Such communities may be members of similar professions working within an organisation. Whilst seen as a positive to the sharing of knowledge, such sharing could only occur within that community and not transferred to larger organisational community and as such reduce the opportunity for cross-organisational learning (Schein 1996).

The management of knowledge includes knowledge generation, capture, exploitation, and dissemination. Brown and Duguid (1998), when referring to the generation of organisational knowledge, indicate that in all organisations the cultivation of knowledge; often an implicit, unreflecting cultivation; is essential for the developing of core competencies to maintain the organization and resist its collapse. Managing and cultivating knowledge is a method of building, changing, displaying, and evidencing organisational competence. In the right environment and circumstances, a nurturing process may lead to new knowledge that employees can share with others for the benefit of the organisation. One of the challenges for management is to create the right environment that value's and recognizes those employees who are willing and able to share their knowledge freely. If the right environment is to be created then it is essential that there exists both a supportive leadership that makes available the time and resources for learning and improvement activities and support from managerial staff. Management needs to demonstrate its support by face to face communication and regular shopfloor visits. The move to a learning environment that seeks to improve all aspects of an operation needs to be supported by an incentive system and successful learning and improvements need to be promoted through rewards and recognition.

The proposition of incentive systems influencing an individual to share individual knowledge with another individual group or organisation is reliant other factors other than motivation. The role of risk and trust also influence the process (Molm et.al. 2000). These authors found that reciprocal forms of exchange where individuals provide some kind of benefit to each other without knowing what would be offered or would occur in return (intrinsic motivation), provided a more meaningful basis for the development of trust than in situations where negotiated exchanges incorporated binding agreements. Negotiated agreements give assurance of an agreed outcome, but they do not build trust (Molm et.al. 2000). Molm et al. (2002) also found that such trusting relationships are developed through ongoing social relationships which are developed over time and are conducive to long term outcomes, whilst negotiated outcomes are conducive to short term objectives and many involve exploitation. Organisations seeking to encourage learning and change through people centred change initiatives such as continuous improvement need incentives designed to meet the long term sustainability of the firm. This often involves a process that encapsulates building a learning and knowledge sharing climate and culture (Ahmed 1998).

Continuous improvement

CI has been defined as 'an organisation-wide process of focused and sustained incremental innovation' (Bessant and Caffyn, 1997). This implies a systematic approach to improvement in which staff throughout the organisation is engaged in an on-going effort to implement changes which, though often small-scale, cumulatively will impact on the goals and objectives of the business. For some researchers (Hill and Wilkinson, 1995), CI is one of the fundamental principles underlying TQM, while others argue that despite the close relationship between TQM and CI the latter should be considered a management strategy in its own right "with or without the context of TQM" (Berger, 1996, p. 18). In fact, companies have arrived at CI through a variety of entry points (Gallagher et al., 1997). Bessant and Caffyn (1997) propose a behavioural model in which continuous improvement is described in terms of a set of generic behaviours that appear to be essential for long-term success with CI. The set includes behavioural routines that reinforce both individual and organisational learning. Individual learning occurs when employees as an individual or a team develop solutions to problems that they have identified. Organisational learning occurs when the solutions and the processes to solve problems are embedded in the organisation. While paradigms for change such as CI and TQM have been successfully implemented in many organisations, Glenny (1994) proposes it has not been all plain sailing because in some organisations TQM has encountered a solid wall of provocation by proactive workers who rebel against the implementation of TQM.

Until recently much of the emphasis in CI by practitioners and researchers alike has been on the operational aspects of organizations, be it industrial or commercial/services (Adler, 1993; Bessant et al., 1993; Linderg and Berger, 1997). This is hardly surprising given its origins lie in manufacturing production (Robinson, 1991; Schroeder and Robinson, 1991). However, as competitive pressures continue to intensify and organisations adopt a more holistic approach, attention has turned to other areas of the business. Many factors, including shorter product life cycles, time-based competition and demands for increased product design quality, have heightened the need for firms to improve performance across all areas of a business. However, several studies of quality management practices within R&D have supported the suitability of many of the techniques and concepts of quality improvement for the other areas of a business (Fisher et al., 1995; May and Pearson, 1993; Miller, 1995). Others (Debackere et al., 1997; Taylor and Pearson, 1994) have stressed the need for implementation strategies to take account of the particular context.

CI has many attractions, one of the most important being a potential low cost approach. However, Bessant and Caffyn (1997) note that despite the attractions, the technique can often fail. Successful CI requires long term organisational commitment to a course of action and the development of a consistent set of shared values or beliefs. The key to the success of continuous improvement is an ongoing process of plan (planning improvements) – do (implementing improvements) – check (whether expected performance have been achieved) – act (standardise the new practice). Among the major potential benefits of continuous improvement are: increased business performance (in terms of reduced waste, set-up time, stock, handling, breakdowns, and lead time) and 'people performance' in the form of improved development, empowerment, participation, involvement and quality of work life of employees, all of which address contemporary societal needs. The problem with continuous improvement is that the concept, which at first sight appears to be very simple and attractive, is often difficult to design, implement and develop successfully. However mature continuous improvement

requires ‘learning to learn’, or learning to improve ever more efficiently and effectively and to tackle ever-more complex improvement problems and challenges both within and across organisational elements of supply chains (Gieskes, Hyland and Magnusson 2002). If learning and continuous improvement is to have a long term effect then there needs to be an incentive system in place that rewards the activities associated with CI. These rewards should be linked to strategic directions and supported by management activities. The findings from a survey of an Australian sample of firms are considered in the remainder of this paper.

Methodology

The survey being reported is a sub-set of an international investigation of CI in Europe and Australia. The Australian sample consisted of 89 organizations located on the eastern seaboard. Each firm was mailed a survey and a letter explaining the purpose of the study.

The responses were examined by ‘small’ (<150, n = 32) and ‘large’ (150 – 3000, n = 42) organizations. The balance of organizations either did not indicate employee numbers or employed in excess of the criteria for large organizations.

Data analyses examined differences in the importance and usage of management support strategies (see Table 1) and incentive systems (see table 2) by organizational size. Levene’s test of homogeneity suggested ANOVA was suitable to examine mean differences and Pearson product-moment correlations were used to examine the relationship between management practices and incentive systems. Importance was assessed on a five point scale (1 = important, 5 = unimportant) and usage was also assessed on a five point scale (1 = very frequently, 5 = rarely).

Results

In general, large organizations rated indicators of management support strategies as being more important but there were no significant mean differences for the scale. Large and small organizations indicated the most important support strategy to be ‘support form managerial staff’. Larger organizations made more use of the management support indicators but there were no overall mean differences. Again there was agreement between organizations that ‘face-to-face communication’ was most frequently used. The means for the importance and use of management support strategies can be found in table 1. There were no significant correlations for the importance and usage of management support activities by organizational size.

Table 1: Mean importance and use of management support strategies by organizational size

Management support strategies	Importance		Use	
	Small	Large	Small	Large
Support from managerial staff	1.29	1.34	2.27	2.21
Incentive systems	3.00	2.91	3.79	3.56
Supportive leadership	1.47	1.57	2.48	2.14
Work in teams/work groups	1.97	1.80	2.56	2.37
Face-to-face communication	1.59	1.57	2.15	2.07
Regular shop floor visits by management	1.79	1.55	2.32	2.37
Management Support Strategy Scale	2.14	1.99	2.84	2.63

There were no significant mean differences for the incentive strategies scale by company size, but the results suggested larger organizations considered incentives to be more important. Large organizations rated each item as being more important. At the item level, large organizations considered 'job development instead of a monetary reward' to be significantly more important but for both organizational types this was the most common incentive strategy.

The results also suggested the use of incentive strategies was not widespread in both large and small organizations, and there were no significant mean differences for the incentive strategy scale. At the item level, both organizational types rated 'job development instead of a monetary reward' to be the most frequently used incentive strategy followed by rewarding individuals via salary. Larger companies were significantly more likely to 'reward the entire team'. These results can be found in table 2. Small but significant correlations were obtained for small (0.42, $p=0.02$) and large (0.39, $p=0.001$) organisations between the importance and use of incentive strategies.

Table 2: Mean importance and use of incentive strategies by organizational size

Incentive strategies	Importance		Use	
	Small	Large	Small	Large
Suggestions are evaluated and rewarded	2.76	2.48	4.00	3.73
Improvement results are rewarded directly through one off bonuses	3.27	3.07	4.24	3.89
Improvement results are rewarded indirectly through individual salaries	2.82	2.82	3.30	3.43
Improvement results are not rewarded monetarily, but through development of individual jobs, careers etc.	2.70	2.14	3.21	2.98
Improvement results are rewarded to entire teams	2.88	2.41	4.06	3.43
Incentive Strategies Scale	2.88	2.58	3.76	3.49

* Bold numbers reflect significant difference at $p < 0.05$

Correlations were computed for the 'use' of the management support scale and the various incentive strategies. Two significant correlations were obtained in small organisations compared to all five items being significantly associated in large organizations. This suggested that larger organizations make use of a larger variety of incentive strategies to support management initiatives in CI. The correlations can be found in table 3.

Table 3: Correlation between management support scale use and incentive strategies

Incentive strategies	Small	Large
Suggestions are evaluated and rewarded	0.61**	0.41**
Improvement results are rewarded directly through one off bonuses	0.41*	0.59**
Improvement results are rewarded indirectly through individual salaries	0.09	0.56**
Improvement results are not rewarded monetarily, but through development of individual jobs, careers etc.	0.18	0.45**
Improvement results are rewarded to entire teams	0.34	0.46**

* significant difference at $p < 0.05$

** significant difference at $p < 0.01$

Discussion and Conclusion

All of the respondents in the survey were in management positions, mainly in operations or quality management positions. So it is not surprising that they have reported the use of and importance of management support strategies as high. None the less it is worth noting that the most important strategies, support from managerial staff and supportive leadership, are used slightly more in larger firms, but, smaller firms rate them as slightly more important. This reflects the manufacturing environment where many managers still see regular shop floor visits by management and face-to-face communication as extremely important. In this sample respondents have rated all personal interaction activities as important, in part this may reflect a lack of trust or a willingness on the part of management to allow workers greater autonomy, however, on the surface it appears to be a genuine attempt at providing a supportive environment where management is engaged with the workforce on the factory floor. All of the firms in this study have been involved in continuous improvements activities for a significant period of time, and all firms rated the use and importance of incentives as low, although larger firms are more likely to use them than smaller firms. In many manufacturing firms the movement away from the bonus system or piece work payments has resulted in managers seeing financial incentives or rewards in particular as a retrograde step and as such they have avoided financial incentives. It may be the case that in early stages of CI incentives are needed but in the more mature stages no incentives are required. However it is more likely that management is avoiding a formal system of rewards and incentives.

The importance and use of incentives strategies in relations to teams and team work suggests an interesting situation is occurring. Much has been made of the importance of teams and the role of teams in transferring knowledge and skills, yet neither large nor small firms rated team based reward strategies as important. There was a significant difference between large and small firms suggesting that large firms are significantly more likely to reward teams as part of an incentive strategy. Similarly the use of team based rewards appears to be almost non-existent, and the only incentive rating lower was rewards involving one off bonuses. It is pleasing to note that the most commonly used incentive was not through cash bonuses but through the development of individual jobs or careers, indicating that management has recognised employee development benefits both the organisation and the employee. Also if firms are trying to encourage learning, participation in employee development activities enhances learning and is seen as a valuable investment for the business. The high correlation between management support activities and incentives clearly indicate that incentives alone are insufficient to motivate employees to be involved in learning and change activities. In this sample of manufacturing firms it has been reported that managers see supporting their shop floor employees as extremely important and this support needs to be demonstrated by interpersonal activities such as regular shop floor visits and face to face communication. In some instances incentives have been used but incentives that support career and employee development are more important than monetary rewards. As this sample is limited to Australian firms further analysis needs to be done to ascertain if this is a trend across other developed economies.

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