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FACTORS HINDERING THE PERFORMANCE OF CONSTRUCTION PROJECT MANAGERS

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ABSTRACT

It has been said that the effective performance of the Project Manager (PM) is the single most critical factor affecting successful project outcomes. Little is known, however, of the nature and extent of the hindrances to PM effectiveness in the Construction Industry (CI). This paper reports on the results of a worldwide survey of PMs concerning these issues and shows that they have the potential to be more effective and more productive in their working. Associated with this is a need to be more aware of progress and developments in the CI generally, more aware of progress and developments in their own organisation, more delegation of contract administration tasks and more general administrative support. Also highlighted is the lengthy working hours of PMs.

Keywords: Effectiveness, productivity, hindrances, project management, survey.

INTRODUCTION

The construction industry (CI) makes a significant contribution to the economy of many countries (eg., Banik, 2001). In the USA in 2000, for example, the CI

employed some 6.7 million people with an expenditure of \$650 billion dollars - representing approximately 10% of the 1999 Gross Domestic Product (Banik, 2001). The traditions, idiosyncrasies and output of this industry have, however, also earned it a less than favourable reputation (eg., Love *et al*, 2002). Various improvements have been suggested, and many recommend the need for a competent, single point manager to overview the project (eg., Bandow & Summer, 2001; Gobeli & Larson, 1987; Woodward, 1997). In fact, the effective performance of the Project Manager (PM) is said to be the single most critical factor affecting successful project outcomes (Hartman, 2000; Bandow & Summer, 2001).

For PMs to perform effectively, it is said that they need to: be nurtured and encouraged (Pinto & Slevin, 1989); be generalists rather than specialists (Pinto and Kharbanda, 1995); work within a system that encourages creativity and innovation (Webb 2000); do “the right thing at the right moment” (Ramo, 2002); and avoid ineffective traditional ways and bad practices (McKenna 1998).

The relative extent to which these, and any other, factors actually affect project management efficiency is not known. The research described in this paper aimed to shed some light on this by a survey of PMs employed by a major international fast food chain. This provided results that are both narrow, in the sense that they only apply to the PMs employed in that specific organisation, and broad, as the PMs involved in the survey are based in several countries and therefore allow some claim to generality in the international community.

LITERATURE REVIEW

PMs must be able operate effectively on a day to day basis to ensure positive impacts on the overall quality of their projects (Bleout, 1998; Pinto & Kharbanda, 1995). For this to happen, PMs need to be nurtured and encouraged (Pinto & Slevin, 1989). To stop or hinder the performance of the PM “will only stop or hinder the performance of the team chemistry and project results” (Nicolini, 2002).

To be most efficiently used, it is said that PMs need to be ‘generalists’ rather than ‘specialists’ (Pinto and Kharbanda, 1995). They must “deal with the day-to-day demands of their position while still maintaining a sense of strategic vision for the project” (Pinto and Kharbanda, 1995). However, the traditional CI culture underestimates the actual time and costs spent in resolving technical issues (Love *et al.*, 2002). This, together with the tendency of modern organisations to be geared for short-term requirements (Pfeffer and Veiga, 1999), can lead to the use of PMs as ‘fire fighters’ (Pinto and Kharbanda, 1995). Often, improving the PM’s future abilities and long-term performance are just not considered (Adel-Razek, 1997).

Work environments that support and encourage creativity and innovation have been associated with increased productivity in general (Veninga, 2000) and in the CI (Love, 1999) and are likely to be of importance in influencing PM efficiency (Cleland, 1999). This is expected to involve cross-functional interaction between groups and people to achieve synergy, with organisations that encourage constructive conflict, risk taking and tolerance of failure being the most likely to inspire innovation

and creativity (Jassawalla and Sashittal, 1999). A more bureaucratic approach to management, on the other hand, “tends to stifle innovation” (Winch, 2000). What is needed, it is suggested, is a trade-off between tightly defined systems - that ensure the efficient delivery of products, but also freedom within such systems to encourage creativity and innovation, with the ability to respond quickly to changing needs (Webb, 2000)

Long working hours also likely to be a major source of inefficiency for PMs – these being increasingly endemic generally worldwide (Sparks *et al*, 2001; Cameron, 2002; Freeman, 2002; Cooper, 1999; Worrall and Cooper, 1999) and a major cause of productivity loss in the CI in general (Kaming *et al*, 1998; Horner and Talhouni, 1995). The growth in information technology, globalisation, organisational restructuring, changes in work contracts and work time scheduling are typically blamed (eg., Sparks *et al*, 2001) together with job insecurity (Sparks, 2002). The effects of working long hours include industrial and social problems (Cooper, 1999); family breakdown (Cooper, 1998); physical and psychological health problems in general (Sparks *et al*, 2001; Cooper, 1999); and reduced alertness and concentration (Leonard *et al*, 1998). There is some protective legislation (ISR, 1995) and, according to Kodz (1998), employers are now starting to recognise the problem although in practice, as Strebler (1999) points out ‘it is unrealistic of employers to tell staff to stop working long hours while still piling on the work’.

The critical consequences of time on the effectiveness of PMs has been acknowledged by several leading researchers, such as Drucker, Taylor and Deming and Thoms and Pinto (1999), indicating that effective PMs must “act intelligently and wisely on

concrete and opportune occasions” (cited in Ramo, 2002). Ramo’s (2002) research has shown the critical effects of “doing things right”, according to the book and the clock as well as “doing the right things at the right moments”. He further noted that managers also have to seize new opportunities, in ‘windows of opportunity’ that exist for a finite period. Similarly, Love *et al*’s (2002) research highlights the need for a system for assertive and preventative strategies that continuously assess and evaluate project performance based on improving management responses.

Project management especially has a large influence on project productivity, quality and rework (Cooper, 1993 & 1994). Rework, in particular, is estimated to be greater than 10% of the total project cost (Josephson, 2002, Love *et al*, 2002; Woodward, 1997). Regardless of what ‘dynamic’ is the original cause, resources need to be diverted to resolve it, as well as money and time expended - often detrimental to other parts of the project (Love *et al*, 2002).

Finally, inefficiency in the CI has been attributed on many occasions to its ineffective traditional ways and bad practices (eg., Egan, 1998; Latham, 1994). As McKenna (1998) observes “Some argue that productivity can be achieved/increased by working harder, faster or longer. In the real world, productivity cannot be achieved by only speed and harder work, without adopting best practices”. “True productivity (and profit) gains come from identifying and implementing the most efficient work process to satisfy the client’s needs” CIB report (1996).

THE SURVEY

Questionnaire design and administration

The research aimed to establish the extent of hindrances on the performance and utilisation of PMs. A questionnaire survey, using electronic access to similar worldwide PMs, was used to obtain representative and confidential responses concerning what is happening in this respect, compared to what they consider should be happening. Most responses were provided on a bipolar Likert scale.

Questions 1-3 obtained opinions concerning 'Innovation and Creativity', with question 3 seeking opinions on the frequency PMs are able to convert their creativity into application. The critical issue here was to understand if a work environment exists that regularly encourages and allows innovation and creativity. This is considered essential for company and individual growth and development (Love, 1999; Edum-Fotwe, 2000).

Questions 4 and 5 focused on contract and administrative support. Contract support involves tasks and activities such as project cost control, procurement, programming etc specific to a project. Administrative support involves activities such as filing, typing, faxing as well as managing the project documentation such as drawings, correspondence etc. These activities may be better performed by someone with more technical expertise.

Questions 6 and 7 focused on the hours typically worked by a PM. Categories of responses were offered to indicate, average, long and excessively long working hours. Question 8 records the PM's opinions of their utilisation.

Question 9 and 10 comprised simple and straight forward questions that ask the PM - with all the constraints around him, is he able to complete tasks to his own 'satisfaction' and 'on time'.

Questions 11 and 12, considered how a PM regularly spends his time away from the critical activities of managing his projects, with particular emphasis on 'Rework'.

Question 13, sought opinions on the impact of company 'standards and procedures' on the quality of CI projects, while question 14 reviewed their effectiveness by examining how, under pressure, such systems can or must be compromised.

Finally, questions 15 and 16 were open-ended questions allowing the respondents to elaborate specifically on their companies 'standards and procedures' and also generally on the questionnaire.

Access was obtained from an international organisation that actively employs 'Construction PMs' (CPMs) to produce construction projects of high operational and statutory standard. The CPMs from this organisation have a background from the CI and are generally of a high competency and depth of experience. Projects controlled by these managers are generally repetitive in nature, with individual project values ranging from as small as \$1000AUD to \$3million AUD. The PMs handle anywhere

up to 15 to 25 projects simultaneously at varying stages. The use of Information Technology systems are commonplace, enabling the questionnaires to be dispatched electronically, via e-mail.

Following piloting, the questionnaire was issued nationally to the Australian CPMs in September 2002, producing a 100% response. At the same time, following permission obtained from the company's World Development Director, questionnaires were adjusted for international issue and dispatched to contacts provided in the USA, UK, Japan, Hong Kong and Taiwan. An overall response rate of 41%, i.e. - 58 responses from 141 issued, were finally received at the end of October 2002, from the countries concerned.

Analysis of data

The results for each question are summarised in Table 1, the key issues of which are reviewed separately below.

Question 1. - Innovation and Creativity I

This question relates to the respondents' awareness of progress and developments in the CI generally in terms of (1) what their awareness *is* currently and (2) what they thought it *ought to be*. The overall results (Table 1), show that on average the respondents are 'reasonably aware', i.e. - along the five point response scale at 3.1,

equates to 62%, ($3.1 \times 20\% = 62\%$). However, 84% of these same respondents consider they should be 'highly aware', which equates to the average response of 4.2 along the five point response scale. This represents a significant difference of $84\% - 62\% = 22$ percentage points.

It is interesting to observe that even though 85% of the Australian respondents also consider they should be 'highly aware', 55% are currently only 'neutral' on average. This represents a 'gap' of 31% (rounded), which is marginally higher than the 22% overall gap. Table 1 shows that 52% of the Contractor CPMs (CCPMs) are currently aware, but consider they need be 72% aware, representing a 'gap' of 20%.

Question 2 – Innovation and Creativity II

This question similarly inquired of the respondents' current and desired awareness, but specifically concerning current progress and development within their own organisation. The trends are very similar to Question 1. Many (52%) of respondents' awareness level is 'neutral', whereas most (79%) consider they should be 'very aware' - a gap of 27%. In terms of the nationality of respondents, however, many (68%) of the CCPMs have a somewhat higher current awareness while most (84%) consider it should be a 'high' - a gap of 16%.

Question 3 – Innovation and Creativity III

The respondents' opinions in this question were focused on how often they 'do' or are 'able to', proactively identify innovative and creative opportunities. This was contrasted with how often they consider they 'should' or 'be able to' do this. The trends are very consistent, with the 'gap' being somewhat smaller than before. Overall, many (62%) respondents claim to regularly identify innovative and creative opportunities, while only slightly more (67%) consider they should regularly identify such opportunities. As these results closely border the 'monthly' and 'weekly' scales, a more appropriate description would possibly be 'bi-weekly'. As Table 1 indicates, the respondents in general are closely doing what they 'should be' doing, i.e. - identifying innovative and creative opportunities on a bi-weekly basis.

Question 4 – Productivity (Contract Administration Support)

The respondents were asked how often they can delegate contract administration tasks while still keeping full control of their project workload. Again, the trend of results was remarkably consistent between the respondent subgroups, but with a wider spread of results concerning their current ability to delegate. There was however, more agreement on how often contract administration tasks should be delegated. On average, respondents are able to delegate only around half (58%) of the time, while they consider this should be most (77%) of the time – a difference of 18% (rounded). Of these, the CCPM subgroup had a slightly higher profile (72% and 84%).

Question 5 – Productivity (General Admin Support)

Similarly, respondents were asked about the level of administrative support provided for their project tasks and activities. The trend again was similar to the contract administration support in question 4. However, the required support of this form was notably higher and thus the gap was greater. The respondents generally receive some (57%) support but consider they should receive much more (82%) – an under provision of 25%. Similarly to question 4, this also represents an opportunity cost to the CPM, although the exact amount in hours cannot be calculated with certainty. The gaps as indicated in Table 1 are slightly smaller for the Australian and CCPM respondents respectively (15% and 20%); not because of the expectation levels, but because of a slightly higher level initially.

Question 6 – Working Hours I

33% of respondents typically work 47 to 53 hours, 40% between 54 to 60 hours, with 17% typically working over 60 hours per week, i.e. - over 12 hours per working day. The average is 3.7 - (74%), along the five point scale - representing 54 to 60 hours per week, which interpolates as over 58 hours per week or over 11.5 hours per working day. These typical working hours are similar for the Australian CPMs (57 hours per week) and CCPMs (59 hours per week). Interestingly, nearly all (96%) respondents consider a typical working week should not be over 54 hours – indicating that, on average, they consider a typical working week should be approximately 42.5 hours, i.e. 8.5 hours per working day.

This question revealed one of the largest gaps when comparing the average worked hours to the average that respondents thought should be worked, with respondents actually working an average of 26% (or 15 hours per week) more than they thought they should.

Question 7 – Working Hours II

The respondents were questioned further as to how they consider their working hours compare with hours worked in general in the CI. Their responses were very consistent with working hours being considered to be ‘average’ by many (43%) of the total CPMs, with slightly less (38%) considering them to be, ‘slightly above average’. The total responses represented an average of 67%, which in real terms means the CPM’s consider their working hours to be slightly higher (7%) than the CI average. These results were almost identical for the Australian (62%) and CCPMs (64%).

When questioned as to how long they thought their hours should be, in comparison with the CI in general, the gap revealed this to be only a small amount (4%) above the average – which is consistent with the figure (7%) above. Therefore, even though regular CI hours are considered to be very high, the CPMs nevertheless thought they should be working only slightly more than the industry average.

Question 8 – Full Potential and Utilisation

Question 8 concerned the candid, direct and yet simple question - ‘do they consider their experience and abilities to be fully and efficiently utilised’. The responses were spread evenly across the available four response choices. Even though only 2% ‘strongly disagreed’, 28% ‘disagreed’ and 33% were ‘neutral’ - the negative response accounts for a total of 63%. However, 24% ‘agreed’, but only 14% ‘strongly agreed’, which accounts for a positive response of only 38% - just over one third. Yet again, the average response was very similar across all the respondent subgroups.

The answers to the accompanying question - ‘do the CPMs consider their experience and abilities *have the potential* to be more fully and efficiently utilised’ indicated a significant (17%) gap between what is being experienced and what is thought desirable.

Question 9 – Productivity (Tasks to Satisfaction)

This question simply asked the CPMs how often in a typical week, ‘do they’ and ‘should they’, complete tasks to their own satisfaction. Overwhelmingly (91%), the respondents acknowledged that they should ‘always’ complete tasks to their own satisfaction. Even though still very high, they considered they were completing tasks to their satisfaction, ‘less than always’, at 76% on average – a difference of 16% - rounded to the nearest decimal place. This difference was slightly higher for the Australian CPM’s (22%) and CCPM’s (24%).

Question 10 – Productivity (Tasks on Time)

Another simple and yet critical question was asked of the CPMs – namely ‘how often are tasks completed on time in a typical week?’. Again, as highlighted in question 9, an overwhelming (93%) agreement, confirmed that tasks should be completed on time. However, they considered they were only doing so on average, 76% of the time – a gap of 17%. It is interesting to note that the Australian CPM difference was high (22%) with the CCPM lower (12%).

Question 11 – Productivity (Rework)

The survey results for question 11 saw the most significant differences between the Australian and Contractor CPM’s. Again, an important area within the CI, the PMs were asked how much of their time is typically spent carrying out ‘rework’. From the detailed results and spread of responses, the total CPM’s and Australian CPM’s consider they spend between 2 to 5 hours per week on rework. However, the Contractor CPM’s spend toward 8 hours per week with rework. Even though all CPM’s spend more time carrying out ‘rework’ than they thought they should, there was a difference of opinion as to what amount is acceptable – with a range of nil per week (31% of respondents), up to 2 hrs (55%), and 2 to 5 hrs per week (10%). The gap between what does happen and what they consider should happen therefore varies between the total CPM’s (21%), Australian (29%) and Contractor CPMs (40%).

Converting these percentages into actual hours suggests the unnecessary rework hours per week for the total CPM's, Australian and Contractor CPM's to be 1.75, 2.5 and 3.2 hours respectively.

Question 12 – Productivity (Tasks Not Central)

The CPMs were asked how they typically spend their working time on tasks and activities, 'not central' to their project workload. The results from the total and Australian CPM's were slightly different to those of the Contractor CPM's, yet the 'gaps' were all remarkably similar (24%). On average therefore, as extrapolated from the survey response categories, 13% of a CPM's time is spent on activities 'not central' to their project workload. Yet it was considered that less (5%) of a CPM's time should be spent on such activities - a difference of 8% or 4.5 hours per 58-hour week.

Question 13 – Company Standards and Procedures

The CPMs were asked if their companies' standards and procedures improve the quality of their construction projects above those of the CI in general. The results were spread almost evenly across the three positive response categories namely, 'no effect', 'improves a little' and 'improves a lot'. The total CPM's and Australian CPMs rated the influence of their companies' standards and procedures highly (78% and 74%) with the Contractor CPM being very high (98%). When the same CPM's

responded to the second part of the question i.e. – ‘should’ their companies’ standards and procedures improve the quality of their projects, the responses were consistently high again. Both the total CPM’s and Australian CPMs were high (87% and 85%), with Contractor CPM’s being lower (80%). Therefore, the gaps for the total CPM’s and Australian CPM’s were small. However, the gap for the Contractor CPM’s was minus 8%, which possibly suggests that these CPM’s consider their company standards and procedures affect the quality of their projects more than they consider they should. It was interesting to note in both parts of this question that, almost unanimously, no respondents considered their companies standards and procedures adversely affected the quality of their projects against those of the CI.

Question 14 – Productivity (Short Cuts)

This question revealed the largest difference of opinions between the responses of the total, Australian and Contractor CPMs. The CPMs were asked how often ‘shortcuts’ around procedures and/or standards are necessary to keep up with their project workloads. The gaps between the total, Australian and Contractor CPM’s were 16%, 35% and 8%, respectively. However, there was far more agreement as to what ‘should’ happen. The question was unable to clarify specifically what kind of ‘shortcuts’ were being taken. However, there is a risk – represented by the gaps above, of CPM’s taking unnecessary shortcuts to complete their tasks and activities.

Question 15 – Comments towards ‘Company Standards and Procedures

Opportunity was given at the end of the questionnaire for open comments on ‘why’ or ‘in what way’, the company procedures and standards improve construction quality above those of the industry. Many (65%) respondents provided comments to this question. These varied, with a mixture of positive and negative views on their companies’ standards and procedures.

Overwhelmingly, the respondents acknowledged that systems and procedures are necessary to streamline repetitive tasks and activities to increase speed and accuracy. Their companies’ standards and procedures were complimented as providing an improvement on quality, time and safety standards above those of the general CI. Their own company was able to focus more specifically on the specific needs and establish defined minimum standards. That the systems and procedures give critical advantages when designed and implemented well is especially important to this high profile company and has been fully capitalised, for example, with modular construction techniques.

However, it was acknowledged that systems and procedures, especially when implemented badly, can restrict motivation, enthusiasm, innovation and creativity. Some PMs suggested that their own company’s systems were too restrictive and did not improve the quality of their projects. Bureaucracy is seen to often have a restrictive effect on projects that need fast moving and decisive Project Management.

Question 16 – General Comments

Some (41%) respondents gave further comments that again provided a mixture of positive and negative feedback. It was acknowledged that their company does use its strength to promote good working relations with contractors, consultants and suppliers. This provides good working relationships, or ‘partnerships’, which often encourage innovation and creativity towards long-term supplies and services. One example was given in which, because of an evolving relationship, a web cast video cam was installed to monitor the progress of the construction project to save travel time for project update meetings.

However, several respondents highlighted a number of hindrances too. Often, staff cuts and workload increases inhibits the ability and motivation to do quality work in a timely way. This can create a withdrawal that prevents productive communication as well as creativity and innovation. High workloads hinder the ability of the PMs to actively learn and thus ‘no time to save time’. For example there is often no time to learn more about the Company’s and Industry’s latest progress and developments, which significantly hinders innovation and creativity on a major and significant scale.

An organisation not primarily from the CI can show a lack of understanding of its CPM. In this case, the CPM potential is often underutilised and much time is wasted on ineffective tasks and activities. It was also commented that PMs should be adequately supported to project-manage effectively and thus manage the project team and projects to a higher standard.

CONCLUSIONS

It has been said that the effective performance of the PM is the single most critical factor affecting successful project outcomes (Hartman, 2000; Bandow, 2001). Insofar as the respondents of this survey are concerned, it is clear that CPMs have the potential to be more effective in their working and more successful in the completion of projects, with a potential to be 17 to 22% more effective and 16 to 17% more productive in their working. Associated with this is a need for 20% more aware of progress and developments in the CI generally, 27% more aware of progress and developments in their own organisation, 18% more delegation of contract administration tasks, 25% more general administrative support. Future studies, it is suggested, should be aimed at rectifying this situation, perhaps through the examination of the impact of alternative working practices, organisational structures or management approaches. More efficient use of PMs in the longer term should provoke future cost savings and benefits from active creativity and innovation. This in turn should help project and industry stakeholders to take a stronger involvement, leading to the project and industries improved growth and development.

A concomitant issue is the length of PMs' working hours, which by many standards is currently very high. It is more than likely that any reduction in these current levels will help PM's balance of life and careers. It is also likely that more attention towards the sociological issues involved should also help instil more interest and motivation within the PM's team, which often inspires improvement in people and project outcomes.

To break the inefficiencies of short term planning; allowing simple and small investments now, should have positive and compounding effects on all future, short-terms. With these improvements it may be possible to instil a new culture of genuine care and attention to get ‘things right first time’, to ensure the right quality projects are produced on time at the most cost effective price, promote cost efficiencies, avoidance of rework and care for quality. This should help improve the attitude of industry towards the environment, and subsequently less waste and more efficient use of resources, together with an improved health and safety of its workforce and users.

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Table 1: What ‘currently happens’ vs what ‘should happen’)

Question	Literature Review and Research Area.	Respondent Group	Currently happens (%)	Should happen (%)	Response choices along the five point scale
1 (1a)	Innovation & Creativity	Total	62	84	Not aware to Highly Aware
		Australian	55	85	
		Contractor	52	72	
2 (2a)	Innovation & Creativity	Total	52	79	Not aware to Highly Aware
		Australian	55	78	
		Contractor	68	84	
3 (3a)	Innovation & Creativity	Total	62	67	Not at all, to on a Daily Basis
		Australian	55	64	
		Contractor	64	56	
4 (4a)	Productivity. (Contract Admin Support)	Total	58	77	Never to Always
		Australian	60	78	
		Contractor	72	84	
5 (5a)	Productivity. (General Admin Support)	Total	57	82	Never to Always
		Australian	67	82	
		Contractor	68	88	
6 (6a)	Working Hours	Total	73	47	Less than 40hrs per week to Above 60hrs per week.
		Australian	71	49	
		Contractor	76	44	
7 (7a)	Working Hours	Total	67	62	Way below average to Highly Above Average
		Australian	62	64	
		Contractor	64	60	
8 (8a)	Full Potential & Utilisation.	Total	64	81	Strongly disagree to Strongly agree
		Australian	62	84	
		Contractor	60	80	
9 (9a)	Productivity. (Tasks to Satisfaction)	Total	76	91	Never to Always
		Australian	69	91	
		Contractor	72	96	
10 (10a)	Productivity. (Tasks on Time)	Total	76	93	Never to Always
		Australian	71	93	
		Contractor	72	84	
11 (11a)	Productivity. (Rework)	Total	57	36	None to Over 8 hours per week
		Australian	58	29	
		Contractor	76	36	
12 (12a)	Productivity. (Tasks Not Central)	Total	66	42	Never to Always
		Australian	65	40	
		Contractor	60	36	
13 (13a)	Innovation & Creativity + Productivity. (Company Standards & Procedures)	Total	78	87	Worsens a lot to Improves a lot
		Australian	75	85	
		Contractor	88	80	
14 (14a)	Productivity. (Short Cuts)	Total	57	42	Never to Always
		Australian	69	35	
		Contractor	48	40	