

PROJECT PARTNERING ARRANGEMENT FOR DELIVERY OF A TIGHT-SCHEDULED PROJECT

Chris Hill and John Rodgers

School of Environment and Development, Sheffield Hallam University. SI IWB, UK

The paper reports a case study of a construction management company dealing with a major national retail organisation for repetitive contracts for supermarkets on a partnering arrangement. In particular, the paper examines the issue of a handover date, and the subsequent increase in productivity leading up to that date.

Most supermarket contracts are of considerable complexity and involve many different subcontractors and activities in parallel throughout the contract period. In this case study, the construction management company and the client arrange a pre handover assessment meeting at the site, normally eight weeks before completion. At this meeting, a joint assessment is made for both parties to achieve the target, and the final handover date is agreed. For the client, this agreement allows arrangements to be made for stocking, funding, staffing and so on. The impact of this agreement on site is also considerable. From the case study it is clear that an overall acceleration takes place, with the construction management company and all the subcontractors involved 'gearing up' to meet the date. This represents a considerable increase in the resources allocated to the project, and a very intensive period of activity, which leads up to the handover date itself.

The paper discusses the theoretical position of productivity and resources balanced throughout the contract period, and compares this to the experience as reported for this specific case.

Keywords: handover, partnering, productivity, resources, schedule.

INTRODUCTION

The complexity of the vast majority of medium to large sized contracts has been widely reported elsewhere (for example Kwakye 1997, Flanagan and Norman 1993, McGeorge and Palmer 1997). There is a general agreement about the nature of most contracts of this size: multiple activities are carried out by considerable number of package- and sub- contractors working in parallel, with numerous 'knock-on' effects of delays or disruptions to any particular activity.

This complexity is reflected in the management of the project, and the computer based project management software utilized. The complexity is also noticeable on the site, with the numerous activities commencing, continuing and completing within the same time period. The role of the construction management company is to ensure effective control, coordination and management of this process in terms of cost, safety, quality, progress and time, to the benefit of the client.

However, from a theoretical perspective, there is the assumption (explicit or implicit) that the *pace* of the activities and resources allocated to them is determined more by reaction to problems and possible subsequent delays than by the agreement of handover date. The issue of pace or productivity is central to this case study. Many authors have previously examined this issue, and there exist many positions on how this may be measured (e.g. Hillebrandt 1984, Harris et al 1985). However these

attempt to provide overall figures for productivity trends for the whole construction industry. It is difficult to use these as valid comparators to the case study as reported in this paper, which reports evidence of productivity on an individual site. Accepting this, it is still necessary to indicate the relationship between the productivity on the site and the role of the construction manager:

“...irrespective of the situation, the construction manager must consciously drive resources to higher productivity and profit in a very competitive business environment.” (Olomolaiye, et al, 1998 p1)

Most texts put forward the relationship between resources and productivity (Canter 1993, Olomolaiye et al 1998). This relationship is given by the simple observation that an increase in the amount of resources committed to any activity will result in an increase of productivity for that activity. There are stated problems over the possibilities of overcrowding, and the inability to predict a direct proportional relationship. However, there is again the assumption that such action to increase the productivity of an activity is taken in isolation as a response to a delay or disruption.

The established texts (Cooke and Williams 1998, Calvert RE 1995, Oxley and Poskitt 1996, Newcombe Langford and Fellows 1990) concerning resources and productivity all assume a ‘model’ of a contract period across which all activities are spread in an even manner, with resources and costs leveled in a similar fashion. Resource leveling is often included as a topic which would form a goal for project management within these texts. This ideal model would also propose that some allowance was made in the form of ‘float’ such that any delays or disruptions will not impact upon the final completion and handover.

The idealised model of the project programme is rarely described *in toto*, rather, aspects of this model are alluded to by these authors (as noted above) in order to explain relevant factors. To provide a useful comparison for the case study as reported, it is necessary to form a picture of the idealised model proposed by these authors. This model would be characterized by:

Total project duration determined by a calculation through the critical path (or other similar means) of the composite activities.

Activity durations individually determined by the quantity of the activity divided by the optimum resources for that activity at some given standard of productivity.

The detail with which this calculation is carried out may vary with the stage of planning, the nature of the project and the policies of the contractors involved.

Productivity values maintained by estimating/ planning departments.

Feedback from site to compare with planned productivity rates.

Most authors would advocate that a period of ‘float’ be allowed at the end of an activity, to allow for unforeseen problems

Hence, productivity rates are maintained by contractors and management companies, for different activities from which activity durations for any given quantifiable activity may be calculated. This calculation in turn forms the determinant of the total project duration, the most important projected figure, along with the project value.

Partnering

The relationship between the client and the construction management company on this project, as well as many other concurrent and subsequent projects, is partnering. This

is an important factor, both in the consideration of the main significant findings of this research, and as a reflection upon the use of partnering arrangements.

“Typically this is described as a long term contractual commitment between two or more organisations based on a spirit of trust and co-operation. the idea is to allow each participant to make the most of his resources and continually improve performance (McGeorge and Palmer 1997 p191)”

A particular feature of this arrangement, in view of the case study to be reported, is that the two parties act to one another's mutual benefit. Therefore, major decisions over such issues as the agreement of the handover date must be seen in the light of the partnering arrangement. Both parties must reach agreement, and the agreement must not be to the detriment of either party.

METHODOLOGY

This case study is presented to demonstrate the experience of one specific construction management company involved in one specific case. The collection of empirical data included interviews conducted on the site, together with extensive and contemporaneous reporting of site progress throughout the project duration. The interviews of participants included the Project Manager, several package managers together with representatives of some of the subcontractors. The interviews took place over two full days, and were tape recorded. This allowed cross referencing and internal validation of the material concerning this case. There are several pieces of data available to support the reported change of pace in the project. These include records of the manpower utilised both by the sub- and package- contractors, and by the construction management company itself. Other data including rates of cashflow on the site corroborates the increase in activity, but is of a commercially sensitive nature.

The collection and presentation of the case study involved the authors both in compiling the information, and continuously reflecting upon the theoretical propositions available from the textbooks. This reflection lies at the heart of the conclusions formed from this research. In this role, it may be assumed that one of the authors' day to day relationship with the case - as a central participant on the site - could provide a valuable insight into the project.

CASE STUDY

The context of the case study is provided in outline:

The construction management company and the client are national operations with considerable regular experience of this type of project.

The construction management company and the client have worked together on many previous projects of this nature.

The construction management company and the client have formed partnering arrangements on many previous contracts. The partnering arrangement is reported as being a 'true' partnership, in that to the knowledge of the authors, there is no formal contractual document of the arrangement between the client and the construction management company.

The majority of the package contractors and subcontractors have considerable experience of this type of project.

The majority of the package contractors and subcontractors have considerable experience of both the construction management company and the client. Many are nominated directly by the client.

The scope of the work for the construction management company includes all the fitting out work to the store, including commissioning of services. The store, when handed to the client is ready for stocking and trading.

The contract is valued at £12 million (plus fees) and the contract period is for 36 weeks.

In the early stages of the contract, the construction management company developed an extensive and comprehensive computerised cost management and reconciliation package which detailed every activity on the project through to completion. This IT system formed the basis of the progress management of the project.

Approximately eight weeks before the original target date for the completion of the contract, the client and the construction management company met on the site and all the progress to date, and future projections of work were considered. It should be remembered that both have considerable experience of this type of work, and that the project is carried out under a partnering agreement. At this meeting, careful consideration was given by all the parties to the feasibility of meeting the target date. Once the agreement was made, both parties can work towards a mutually fixed date for the store to open. For the client, this decision is obviously influenced by the need for the shop to commence trading as soon as possible, but without any problems associated with partially completed buildings, or unfinished services provision. The client also made provision for stocking the store, employing staff, and advertising the store opening, normally a publicity event. Any subsequent delay to the date would result in unacceptable commercial impact.

The finding from the case study which is of greatest significance for this paper is the empirical report that the agreement of the handover date signaled a change in the pace of all the activities on the site. This change in pace, this acceleration, was noticeable in terms of the amount of resources, including manpower, the amount of expenditure, and the extension of working hours on the site. The extent of the increase of pace varied from one subcontractor to another, however the overall output of the site was judged to have increased in the order of 30%. This was certainly the case for the Construction Management company (RGCM) who experienced an increase in managerial and supervisory manpower of this order.

The construction management company, as the key figure in this project provided extra manpower in terms of package managers, cost managers, site managers and other supervisory staff. The package contractors and subcontractors provided extra productive workers and plant as required. This had the effect of increasing both the number and the value of claims and valuations processed by the construction management company.

The construction management company were able to utilise the computerised cost management package which had been set in train in the earlier, quieter stage of the contract. The extra manpower drafted in by construction management company were able to 'pick up' the project and cost management system immediately. Likewise, the site supervision benefited from extra manpower wherein the existing (full project

duration) managers were able to delegate sections of their work to the new personnel according to a preconceived plan without any detriment to the progress.

Several specific issues may be gleaned from this evidence:

The construction management company were aware of, and indeed expected the demand for an increase in pace.

The package and sub- contractors were also aware of, and expecting the demand for an increase in pace.

The construction management company and all the package- and sub- contractors were able to increase the pace to meet the demand.

The change in productivity was not confined to one activity or in response to a delay or disruption. The acceleration of pace was applied to all the activities subsequent to the handover meeting.

As this case is reported in the context of a partnering arrangement, it is fair to say that the agreement of the handover date was taken with both parties fully aware of what had to be done in order to achieve the date, and fully aware of the consequences of not meeting that date.

The evidence that all parties to the project, all the package- and sub- contractors, complied with the requirements for an increase in pace was quite unequivocal. It was reported that any contractors who failed to meet the requirements would not be invited to tender for future work. This was almost certainly the case for the construction management company. So, not only did all the package and sub- contractors comply with the requirements for an increase in productivity, and not only was the construction management company prepared for this in terms of managerial and supervisory roles, but there was a general expectation that this action was inevitable. All the parties complied without question to the need for extra resources and extra effort. That they did so on such short notice demonstrates that all parties were fully aware of the consequences of the all important handover agreement meeting.

Considering the distribution of responsibility and power relationships in the case, (after Loosemore 1999) it is interesting to note the risk allocation and risk sharing between the parties. Rather than use the power invested in the larger organisations to 'off-load' responsibility onto 'weaker parties', all the parties were prepared to embrace the responsibility together. This is in contrast to the case as reported by Loosemore (1999) in which there was considerable reluctance to accept responsibility for delays and disruptions. The increase in pace as reported in this case, would be considered as a major disruption to all the parties, given the impact as reported by all participants.

It must be noted that the increase in productivity on the site was due more to an increased commitment of resources, in manpower, plant, working hours, materials and so on, than due to any recognisable change in the productivity of the existing workforce. Simply stated, more workers were involved in more activities with the consequence that the durations of those activities were reduced from the original projections. The increased resources ensured that the agreed handover was met.

CONCLUSIONS

Once again it must be stressed that this case study can only be claimed to indicate the practice of one specific construction management company involved in one specific project. However, the context of the case, as presented above suggests that this

practice is not uncommon. Furthermore, the empirical evidence, as collected, suggests that all the parties were both willing and able to comply with the actions as demanded, and that they had previous experience of this kind. The comparison between this case and the theoretical perspective of the productivity on site is interesting, and poses a number of issues:

The relationship between the construction management company and the client was such that decisions of this nature could be made, apparently to the mutual benefit of both parties.

The accepted theoretical model of project management is not that followed in this case

The notion of productivity for any activity is variable rather than fixed - albeit with a variation in the resources dedicated to that activity.

It is also fair to say from the authors perspective that the practice of acceleration on site towards the completion of the project was not only at variance with the theoretical model, but would seem to be counter-intuitive. Towards the completion of the project the activities include technologically complex ones such as installation and commissioning of air handling, sprinklers, security provision, cash handling, freezer compartments, together with visually prominent activities such as floor finishes, suspended ceilings, wall finishes and so on. From an intuitive perspective, it would seem rational to allow a greater degree of float to these areas than perhaps to earlier activities. However, the empirical evidence from the site suggests that the practice of the project runs counter to this, and that activities later in the project are carried out at a productive rate which is faster than the earlier activities.

The discrepancy between the received theoretical model and the practice on site formed the basic reflection for the authors. Text books provide theoretical models for explanatory and educational purposes. These models are based upon accounts of or observations of experience of site practice. The theoretical models are generalized *intentionally* for the purposes of providing a model which is generally applicable. The account gained from the case study is not undertaken to provide generalized constructs. However the case study methodology does allow a far more detailed examination of the case itself. In practice the site operations are faced with the daily realities of the technical, economic and resource variability, together with the vagaries of the relationship with the client.

We would suggest that similar investigations are conducted with other construction management companies, with other clients and other projects, to determine how widespread this practice is. This could only be conducted for clients with similar levels of experience of projects, and possibly only carried out in a partnering arrangement.

We would further suggest that similar studies in which the validity of other accepted models of theoretical explanation are considered against the empirical evidence of practice in industry.

REFERENCES

- Calvert R E (1995) Introduction to Building Management. Newnes
- Canter M.R. (1993) Resource Management for Construction. Basingstoke, Macmillan
- Cooke B and Williams P (1998) Construction Planning, Programming and Control
Basingstoke: Macmillan

- Flanagan, R and Norman, G. (1993) Risk Management and Construction. London, Routledge
- Kwakye AA (1997) Construction Project Management in Practice. London, Sage
- Loosemore M. (1999) Responsibility, Power and Construction Conflict. Construction Management and Economics, **17**: 699-709.
- McGeorge D and Palmer A (1997) Construction Management- New Directions. Oxford. Blackwell
- Newcombe R, Langford D and Fellows R (1990) Construction Management 1 .London, Batsford
- Olomolaiye P., Jayawardane A. and Harris F. (1998) Construction Productivity Management. CIOB, Longman
- Oxley R and Poskitt J (1996) Management Techniques Applied to the Construction Industry. Oxford, Blackwell