

# PORTFOLIO OF CONTROL MODES IN PROJECT TEAMS: A HONG KONG CASE STUDY

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The management of projects through various planning and control tools has been described essentially as rebureaucratization which increases control over individuals, teams and organisations through ideologies of efficiency and performativity and, thus, aspire a new form of “iron cage” of project rationality. Yet, it has also been argued that certain characteristics of the project setting makes it an ideal environment for the empowerment of individuals and teams. The manifestations of control in project teams are examined through a case study of a Hong Kong public housing development project. Control in this context is viewed broadly as encompassing all devices and systems employed to ensure that acts, behaviours and decisions of individuals, teams and organisations are consistent with meeting organisational or project goals, objectives and strategies. The data was collected through documentary analysis, passive observations and semi-structured face-to-face interviews, and analysed using descriptive methods. The findings indicate that all stakeholders implement a portfolio of control modes comprising both formal (i.e. behaviour-based and outcome-based) and informal (i.e. clan and self) control mechanisms which are not necessarily incompatible. A portfolio of control modes appears necessary because formal modes of control are static in nature and can become redundant in dealing fully with the evolving nature of the project environment in which plans, targets and procedures are often not immutable but fluid and changeable. Controllers design new control mechanisms to help in implementing the formal controls already in place or invoke informal control modes which are more responsive to changing project conditions and particularly appropriate when uncertainty is high, knowledge of the transformation process is imperfect and outputs are immeasurable. The control of projects is therefore not only a function of what formal control mechanisms stakeholders put in place, but what informal control mechanisms those being controlled also put in place to augment the inadequacies of formal control.

Keywords: empowerment, formal control, Hong Kong, informal control, portfolio of control.

## INTRODUCTION

A key impediment to the achievement of the intended positive results from empowerment initiatives is management’s reluctance to give up control (c.f. Mills and Ungson, 2003, Argyris, 1998). As Mills and Ungson (2003) point out, empowerment represents a moral hazard dilemma for managers who grapple to reconcile the potential inherent loss of control with the fundamental organisational need for goal congruence. Critics of the project management function have also argued that the management of projects through various planning and control tools is essentially rebureaucratization (Hodgson, 2004) which increases control over individuals, teams

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and organisations through ideologies of efficiency and performativity (Fournier and Grey, 2000). This is perceived as aspiring a new form of “iron cage” of project rationality (Cicmil and Hodgson, 2006).

Consequently, control is often viewed as incommensurate with empowerment which emphasises the expansion of employee autonomy and responsibility through the removal of control-oriented management approaches to create a work environment that permits employees to apply their full potential in the performance of tasks. However, recent empirical developments in the organisational and management literature actually depict empowerment as a form of control. In particular, empowerment is shown to manifest as self-control (c.f. Kirsch, 1996, Kirsch, 1997) which is not necessarily incompatible with other forms of control as some have surmised. This study therefore set out to explore the manifestation of control in project teams, by examining the extent to which a portfolio of control modes exists and how such control is exercised. In the sections that follow, a framework of control modes is advanced that incorporates empowerment as self-control. The research design is subsequently outlined and the findings from the analysis of manifestations of control in project teams presented and discussed.

## BACKGROUND LITERATURE

### Development of a control framework

The organisation and management literature views control as encompassing all the devices and systems employed to ensure that the behaviour and decisions of organisational constituents are consistent with the organisation’s goals, objectives and strategies (Merchant and Stede, 2007, Flamholtz *et al.*, 1985). A prominent organising framework for the mechanisms (i.e. devices and systems) through which organisational control is exercised is Ouchi’s (1979) three control modes model, comprising *market control*, *bureaucratic control* and *clan control*. In the market control mode, premium is placed on the ability to precisely measure and reward individual contributors to a task as the means of control. Bureaucratic control relies on surveillance and close evaluation, built on the comparison of outcomes or behaviours with predetermined ones. Clan control relies on informal socialisation, such as shared values, beliefs and norms, to eliminate goal incongruence.

Kirsch (1996) extended Ouchi’s (1979) framework arguing that control theory is incomplete when applied to complex and non-routine tasks, as it fails to account for ‘knowledge of task’ as a key determinant of the type of control. Consequently, Kirsch (1996) dismissed market control as an inappropriate control mode in complex tasks contexts and proposed instead *self-control*, an appropriate mode of control when knowledge of task is high. This view resonates with the notion that construction is knowledge intensive and a professional based industry, a characteristic which makes the project setting a suitable climate for self-control or empowerment (c.f. Greasley *et al.*, 2005, Walker, 2002). Kirsch (1996) describes self-control as the scenario where one sets targets in relation to the needs of the organisation, monitors behaviours and when necessary changes them in accordance with self-set targets. Kirsch (1996) further divided bureaucratic control into *outcome-* and *behaviour-based* modes. Outcome- and behaviour-based controls are viewed as formal controls which attempt to *restrict* behaviours or outcomes while clan and self-control depict informal control modes which attempt to *induce* a value or belief change (Flamholtz *et al.*, 1985).

Table 1 summarises the key characteristics of the four modes of control discussed so far, an adaptation from Nieminen and Lehtonen (2008) and provides an organising framework for studying control in the project context. Control in this context is viewed as encompassing all the *devices and systems employed to ensure that behaviours and decisions in project management teams are consistent with the organisation or project goals, objectives and strategies* (c.f. Merchant and Stede, 2007, Flamholtz *et al.*, 1985, Nieminen and Lehtonen, 2008). Control viewed in this manner, can be examined from the inter-organisation and the intra-organisation levels within the project context. Interpolating an agency theory perspective (c.f. Eisenhardt, 1985), attempts by the principal (i.e. client) to control the agent (i.e. contractors and consultants) is particularly pervasive. This principal-agent relationship at the inter-organisational level often translates at the intra-organisation level between top managers and the individuals and teams they deploy at the project-level.

Table 10: Conceptual Framework of Control Modes and Control Mechanisms

	Outcome-based	Behaviour-based	Clan/normative	Self-control
<i>Focus of control</i>	Outcomes; results	Behaviour; actions	Values, beliefs	Self-regulation
<i>Basis of control</i>	Rules, surveillance	Rules, surveillance	Shared values, shared norms	Self-monitoring
<i>Source of control</i>	Organisation or External Parties	Organisation or External Parties	Group members, associations	Individuals, groups
<i>Ideal conditions for use</i>	Task outcomes are known and measureable; explicit link exists between extrinsic rewards and producing outcomes	Knowledge of the transformation process; behaviour observable; explicit link between rewards and behaviours	Imperfect knowledge of the transformation process; immeasurable outputs; behaviour observable; rewards linked to values	Imperfect knowledge of transformation process, immeasurable outputs, low behaviour observability
<i>Examples of control mechanisms</i>	Performance standards, targets, etc.	Codes of conduct, contracts, handbooks, etc.	Mission statement, core values, peer pressure, culture.	Autonomy, decision-making power, intrinsic motivation, etc.

Source: Adapted from Nieminen and Lehtonen (2008).

## RESEARCH DESIGN

### Design of the Study and Data Collection

This study has an interpretive and exploratory focus as it seeks to examine *how* control manifests. Such a focus favours the use of a qualitative research design and the case study approach was particularly appropriate as it encompasses the holistic, in-depth study of a phenomenon using a variety of data sources and procedures (Yin, 2003). Case studies are most useful when the boundaries between phenomenon and context are not clearly evident as in the examination of the manifestations of control in this case. While one project was studied the units of analysis were the embedded project management teams within the project.

Three data collection techniques were employed; documentary data analysis, observations and interviews. Documentary analysis was used to gain a deeper understanding of the project and to identify critical and project specific issues with control implications. Passive observations were undertaken at project meetings and site visits to capture authority, responsibility and control related issues in an emergent and emic manner. Indeed, Mangham (1986) asserts that the use of managerial

language can reveal a number of aspects of power and control in ways which are rarely made explicit in other forms within organisations. The interviews which were semi-structured and face-to-face, elicited information about manifestations (incidents) of control (covering the range of control modes as discussed and presented in Table 1). Recognising that control is purposive or goal directed (c.f. Kirsch, 1997), a key component of the interviews was identifying the goals of key stakeholders and eliciting information on control mechanisms linked to the achievement of such goals. The Critical Incident Technique (c.f. Flanagan, 1954) was used to encourage respondents to recall control episodes on the project and to describe them in as much detail as possible. A total of 13 interviews were conducted with team members, selected on the basis of their critical roles as either controllers or controlees; 7 in Contra-Beta team (e.g. project manager, site agent, quantity surveyor, quality control manager, etc.) and 6 in Dual-Beta (e.g. project architect, resident engineer, project clerk of works, etc.). By employing three different data sources, convergence of information was achieved in triangulation.

## **Background of Project and Teams**

### *Background of Project Beta*

The project is Phase 4 (of six phases) of a public-rental housing programme involving the construction of three 41-storey blocks, estimated to provide a total of about 2,369 units of rental apartments. The value of the works is estimated at about HK\$434 million and is contracted out for an initial period of 36 months. The works are procured broadly under a traditional design-bid-build approach. Special conditions of contract cater for six work packages contracted under a Modified Guaranteed Maximum Price (MGMP) arrangement which collectively make-up about 31% of the contract sum. The study began slightly more than a year after the project started and lasted 15 months. There are two primary teams in the project; the client's team (i.e. Dual-Beta) and the contractor's team (i.e. Contra-Beta).

### *Dual-Beta Team*

The client is a statutory body that develops and implements the government's public housing programme. As a departure from previous practice, the development and procurement sub-division which mainly undertakes R and D related roles was chosen to implement the project, instead of one of the traditional project sub-divisions. The functional heads within the matrix design of the client's organisation nominated members to form the core project management team. The team played a dual role as both consultant and client, responding to design issues and making the approval often reserved for the client's team in a traditional project set-up.

### *Contra-Beta Team*

The contractor is part of a diversified conglomerate engaged in property development and construction. Their choice as contractor was an assertion of their role as one of the leading contractors in the public housing market with a reputation of excellence and quality in housing delivery.

## **Data Analysis Strategy**

Woolsey's (1986) three-step guide for analysing critical incident data was followed. The first step was descriptive in nature, where all the information about a potential control mechanism was collated from the transcripts of interviews and the notes from the documentary analysis and passive observations. The identification of potential control mechanisms was facilitated by drawing on Kirsch's (1997) criteria that control

mechanisms are devices or systems that *identify/specify* or *evaluate* acceptable behaviours or outcomes of a controlee (i.e. individual, team or organisation).

In a second step, a descriptive label was applied to the detailed descriptions of the potential control mechanisms. The final step was the classification of the identified control mechanisms into the control modes framework outlined in Table 1. The classification was on the basis of their nature, initiator, documentation status and evaluator as depicted in Table 2 in accordance with the work of Kirsch (1997) and Jaworski (1988). For example, if a mechanism specified or identified behaviours for the controlee (i.e. agent e.g. individual, team or organisation) to engage in and was initiated by the controlee's management or an external entity (i.e. principal) and formally documented, then such a mechanism was classified as a behaviour-based.

Table 11: Classification Criteria of Control Mechanisms

<i>Nature</i>	<i>Initiator</i>	<i>Documentation</i>	<i>Evaluator</i>	<i>Classified Mode</i>
Behaviour	Principal	Formally documented	Principal	<b>Behaviour-based</b>
Outcome	Principal	Formally documented	Principal	<b>Outcome-based</b>
Behaviour or Outcome	Clan	Not formally documented	Clan	<b>Clan-based</b>
Behaviour or Outcome	Agent	Not formally documented	Agent or Principal ( <b>BUT</b> Agent's initiative)	<b>Self-control</b>

Source: Adapted from Kirsch (1997).

## FINDINGS

### Control Dynamics in Dual-Beta

There were manifestations of all four modes of control in the Dual-Beta team. Due to space constraints, only excerpts of the matrix of the identified control mechanisms are presented in Table 3. The full matrix is reported in Tuuli (2009). The full lists of control mechanisms are, however, depicted in Tables 4 and 5. Behaviour-based controls are exercised through the structuring of systems and processes for effective monitoring or surveillance. The *contract* is used as the overall governance framework for relationships and responsibilities among the parties. This is supplemented with a structured *dispute resolution system* to mitigate disputes at source. *Meetings, reporting* and *standard operating procedures* are then used to monitor behaviours and actions as well as to achieve conformance.

Outcome-based control manifests in the form of *annual performance appraisals*, where the performance of each team member is evaluated against pre-specified performance standards. The *specifications* provide the standard for the quality of materials and level of workmanship expected. A *project budget* also provides a means of controlling expenditure on the project. Clan control mechanisms are also dominant in Dual-Beta team and include *non-contractual partnering, public pressure* and *rule following culture*, which are exercised mainly through socialisation processes that reinforce a sense of shared norms, values and goals. Self-control mechanisms also manifests as proactive acts in response to changes in project circumstances. For example, *design development workshops* are instituted by the project architect in response to lengthy delays in design approvals, while *revision of specifications* is a measure to minimise spill over delays from changes in construction sequence.

### Control Dynamics in Contra-Beta

All four modes of control also manifested in Contra-Beta. Behaviour-based control mechanisms are shaped around the structuring of systems and processes, so as to

effectively monitor enacted behaviours (e.g. *safety audits, wage protection schemes, etc.*). Several outcome-based controls are employed mainly to maintain standards (e.g. *specifications, Independent Checking Unit (ICU), etc.*), meet desired performance targets (e.g. *mop-up, cost plan, etc.*) and for quality assurance (e.g. *preferential tendering, defects liability period, etc.*).

Several clan control mechanisms are also in place, shaped around socialisation processes (e.g. *partnering, corporate mission, etc.*) and peer/public influence (e.g. *peer recognition, public pressure, etc.*). Similarly, self-control mechanisms are shaped around two themes; proactive attitude in reaction to different or changing project circumstances (e.g. *sequencing of construction works, MGMP packages, etc.*) and the contractor’s strong desire to be an industry leader (e.g. *Corporate Social Responsibility (CSR) programme, etc.*).

Table 12: Excerpts of Control Modes and Control Mechanisms in Dual-& Contra-Beta Teams

Mode	Mechanisms	Description	Controller	Controllee	Level
<i>Behaviour-based</i>	Dispute Resolution System	Dispute Resolution Advisor, adjudication committee and arbitration.	Project Team	Dual/Contra	Inter-organisation
	Open Book Accounting	Covers GMP packages and gives the client full access to all costs information.	Client	Contra	Inter-organisation
<i>Outcome-based</i>	Mock-up-Sample Wing	All works in one floor are completed using pre-approved quality of materials and standard of workmanship as standard.	Client	Contra	Inter-organisation
	Project Budget	The project has a budget with a contingency sum.	Head office	Dual/Contra	Intra-organisation
<i>Clan-based</i>	Non-contractual Partnering Arrangement	A commitment to partnership to resolve problems jointly is enshrined in a charter.	Project team	Dual/Contra	Inter-organisation
<i>Self-control</i>	Design Development Workshops	Used in an ad hoc basis to discuss contractor’s proposed designs and sequence of construction prior to submission to ICU.	Project Architect	Dual/Contra	Inter-organisation
	Six Day Cycle	The contractor’s target is to complete the build works of each floor in six days.	Contra	Contra	Intra-organisation

## Cross-Team Analysis and Comparison of Control Mechanisms

### Behaviour-based Control Mechanisms

Table 4 (i.e. left section) summarises the behaviour-based control mechanisms identified across the two teams. *Monthly progress meeting, monthly progress reports, dispute resolution system* and *contract* are control mechanisms exercised in both teams. This is not surprising as contracts provide the primary framework for shaping the relationships and responsibilities of individuals and teams in projects while meetings, reports and dispute resolution provide an environment to continually re-enact such relationships and roles. Most of the behaviour-based control mechanisms are team specific; and almost predominantly specific to the Contra-Beta team. These specific control mechanisms appear to be in response to peculiar project and team circumstances (e.g. MGMP, project complexity, etc.).

## Outcome-based Control Mechanisms

The comparison of the outcome-based controls across the two teams is also shown in Table 4 (i.e. right section). As in behaviour-based control, the contractor's team experiences far more outcome-based control than the client/consultant team. In both teams *annual performance appraisal* and *project budget* are used as controls mechanisms. Team specific controls are exercised only in Contra-Beta team and are attributable mainly to the MGMP arrangement.

Table 13: Cross-Team Comparison of Behaviour- and Outcome-based Control Mechanism

Behaviour-based Control	Dual	Contra	Outcome-based Control	Dual	Contra
Monthly Progress/Site Meeting	√	√	Annual Performance Appraisal	√	√
Contract	√	√	Retention		√
Project Administration Handbook	√		General and Particular Specifications		√
Monthly Progress Report	√	√	Project Budget	√	√
Site Supervision Team		√	Priced Bills of Quantities		√
Interim Valuation and Payment		√	Sectional Completion		√
Project Programme of Works		√	Defects Liability Period		√
Report on Contractor's Performance		√	Target Accident Rate Per 1000 Workers		√
Insurance Strategies		√	Pay for safety		√
Safety Audit		√	LAD Clause		√
Monthly Management Meeting		√	Promotion and Recognition		√
Management System		√	Cost Management System		√
Weekly Reports to Head Office		√	Variations on Non-GMP Works		√
Safe Behaviour Awards		√	Mock-up-Sample Wing		√
Dispute Resolution System	√	√	Independent Checking Unit		√
Wage Protection Scheme		√	Modified GMP		√
Final Account Settlement		√	Preferential Tendering		√
Selection of Subcontractors-GMP works		√	Design Development Workshops	√ <sup>a</sup>	√
Open Book Accounting		√	Bulk Purchasing		√
Gain Share Arrangement		√	Performance Assessment		√
Handbooks and Manuals		√	Scoring System (PASS)		√
Selection of Subcontractors-Non-GMP works		√			

Notes: <sup>a</sup>In Dual-Beta, this manifest as self-control mechanism, thus, this is only for comparative purposes.

### Clan Control Mechanisms

The clan control mechanisms that manifests across the two teams are depicted in Table 5 (i.e. left section). As in behaviour- and outcome-based controls above, clan controls are dominant in the contractor's team. *Non-contractual partnering*, *public pressure* and *team spirit* are exercised as control mechanisms in both teams and are directly linked to peculiar project and team circumstances. Team spirit for example, is in response to a commitment to achieve *win-win* outcomes for all parties. Public pressure also arises from the publicity the project has received due to the innovative arrangements and its experimental status.

### Self-Control Mechanisms

Table 5 (i.e. right section) depicts the identified self-control mechanisms. All the mechanisms are team specific and in Contra-Beta, these are a direct result of the built in flexibility in the procurement arrangement (i.e. MGMP). This ensured the contractor's involvement in the design process and made it possible for the contractor to also try out some of her initiatives (e.g. CSR and R andD initiatives). Although rooted in a government department, the Dual-Beta team members are very proactive. This is attributable to the division of the client's organisation the team originates and

the fact that the team plays a dual role as client and designer. As the R andD section, the Development and Procurement Sub-division has been in the forefront of the client’s innovative initiatives. A culture of proactivity has therefore been built into the way things are done which spurs a strong desire to succeed. Self-control therefore requires cultivation and appears to flourish in an environment that is supportive.

Table 14: Cross-Team Comparison of Clan-based and Self-control Mechanisms

Clan-based	Dual	Contra	Self-control	Dual	Contra
Non-contractual Partnering Arrangement	√	√	Alternative Construction Methods/Work Sequence		√
Mutual Objectives/ Partnering Charter	√	√	Design Development Workshops	√	√ <sup>a</sup>
Informal Events		√	Revision of Specification	√	
Selection of Project Team Members	√		Involvement in Design of Works		√
Peer Recognition and Awards		√	CSR Programme		√
Public Pressure	√	√	MGMP Packages Design		√
Rule Following Culture	√		Six Day Cycle		√
Team Spirit	√	√	Safety Initiatives in Plant Operations		√
Mission Statement		√			
Certification and Memberships		√			
Leadership		√			
Training		√			
Safety Culture		√			

Notes: <sup>a</sup>In Contra-Beta, this manifest as outcome-based control, thus, this is only for comparative purposes.

## DISCUSSION

### Portfolio of Control in Project Teams

The manifestations of control in project teams were investigated by drawing on recent developments in management and organisational control theory. The findings confirm that a portfolio of control modes is implemented in project teams which include a combination of formal (i.e. behaviour- and outcome-based) and informal (i.e. clan and self-control) modes of control. The finding of a portfolio of control modes in this study is consistent with the extant case study findings (c.f. Badenfelt, 2007, Kirsch, 1997, Langfield-Smith, 2008, Nieminen and Lehtonen, 2008).

A portfolio of control modes appears necessary in projects because formal modes of control are static in nature, as they tend to be built into the contract or agreements at the beginning of the projects and are often difficult or impossible to amend thereafter. However, formal control can prove inadequate in dealing fully with the evolving nature of the project environment in which plans, targets and procedures are often not immutable but fluid and changeable. As a result, formal controls can be redundant when controllers are inexperienced or lack project-related knowledge. For example, the inexperience of the ICU in gabion wall design and construction led to considerable delay in granting approval to the contractor’s proposed design. Consequently, the Project Architect implemented design development workshops for discussion of contractor’s proposed designs and sequence of construction prior to submission to the ICU. As the process provided the client’s prior approval of the contractor’s proposals, the ICU had confidence in endorsing them. This incident illustrates two response modes often employed to address inadequacies in formal control modes. Controllers either design new formal control mechanisms or implement other control mechanisms to help in implementing the formal controls already in place. Alternatively, controllers invoke informal control modes which are more responsive to changing project

conditions (see Table 1). Clearly, there appear not to be an exclusive use of formal or informal controls in project teams, but a complementary application of both.

In accord with Nieminen and Lehtonen (2008), the analysis also indicates that the basic control mode in project teams is formal control. Yet, amidst the high level of formal control, clan controls and self-control also manifests, as formal control mechanisms alone often come up short in effectively controlling projects to achieve targets and goals. The control of projects is therefore not only a function of what formal control mechanisms stakeholders put in place, but what informal control mechanisms those being controlled also put in place to augment the inadequacies of formal control. But how self-control thrives in the midst of so many behaviour-, outcome-based and clan controls, however, is not easily explained. A plausible explanation is that project participants view formal control mechanisms as a *necessary evil*. As Adler and Borys (1996) argue, bureaucracy is not always coercive but can also be enabling. Thus, Nieminen and Lehtonen (2008) recently found that some bureaucratic control mechanisms such as goal setting and project plans are seen by project managers to be so self-evident that they are no longer perceived as control mechanisms but a fundamental part of the natural work environment.

The findings also show that more control mechanisms are exercised in the contractor team. Being the agent (c.f. Eisenhardt, 1985), the contractor is typically a target of formal and clan controls from a myriad of sources. Incidentally, more self-control mechanisms also manifested in the contractor's team, supporting Nieminen and Lehtonen recent conclusion that "a high level of control in one mode does not require the level of other modes to be low" (2008, p. 71). Indeed, as in this study, they found that the level of self-control can be high even in circumstances where there are high levels of formal control modes, especially where there is coherence and no obvious conflict among the different control modes.

## CONCLUSION

Recent empirical developments in organisational and management literature provide a coherent theory of control that fully accounts for the manifestations of control in project teams in a Hong Kong case study. A portfolio of control modes is exercised in project teams which combine formal and informal control mechanisms. While formal controls remain the basic form of control, they are often inadequate in dealing fully with the evolving nature of the project environment as they can become static or redundant. Informal control modes appear to provide a means of augmenting these inadequacies in a complementary manner. In accord with recent empirical work on control in project and programme teams (e.g. Badenfelt, 2007, Langfield-Smith, 2008, Nieminen and Lehtonen, 2008), this study provides preliminary validation to a four modes of control framework that offers greater insight into the manifestations of control in project teams and the mechanisms employed in the exercise of different modes of control. Future studies may therefore focus on exploring the drivers and consequences of the different modes of control as well as the strategies required in implementing a portfolio of control modes in project teams.

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