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# Project Control Mechanisms in Non-Project Based Organizations in Asia

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## **ABSTRACT**

Projects play a key role in implementing strategy. Organizations of all kinds implement projects. As the importance of the projects grow, their monitoring and controlling becomes crucial for strategy achievement. However, non-project based organizations lack distinctive project management approaches, their projects are controlled and monitored by the inherent control system of the functional organization. Several studies highlighted the variance in organizational control mechanisms. However, there is a dearth of these studies done in the context of project. One recent study done by Nieminen and Lehtonen (2008) however, done in a program context and focusing on organizational change revealed three organizational control mechanisms and 23 control tools being used in four case programs. Building on studies outlining the need for a contingency between project type and project management approach, this study focuses on understanding how the control mechanisms vary across different types of projects executed by non-project based organizations employing the project classification developed by Turner and Cochrane (1993).

A qualitative study employing semi-structured interviews was conducted with nine project managers of seven companies from China and Nepal. The study revealed the dominance of distinct organizational control mechanisms contingent on type of project, even though there was presence of all types of organizational control mechanisms in the sampled projects. Furthermore, the application of the control tools within a control mechanism varied across projects of similar type. Results are important for organizations with little project orientation in order to align their control mechanisms to the types of projects they have.

## INTRODUCTION

Organizations operate within and are influenced by their respective environment (Aguilar, 1967). Rapidly changing environments bring about different challenges for organizations to maintain their position. Scholars have argued for various factors to help organizations to maintain their competitiveness in the long run, this includes leadership skills, pace of innovations, entrepreneurial spirit, intrapreneurial setup and others (Rogers, 1983; Yukl, 1989; Pinchot and Pellman, 1999). In this context the temporary organization that is a project was considered as vehicle to bring about a change as demanded under the changing environmental context (Carter, 1986; Thomas, 1990; Kerzner, 1995; Atkinson, 1999; Bryde, 2003; Hillson, 2003; Vidal & Marle, 2008; Turner & Müller, 2003; Lundin & Söderholm, 1995). Turner (1999) highlights the need for projects as way for effectively handling these challenging situations. His notion of projects as building blocks for the design and execution of strategies is similar to the views raised by Reiss (1998), Hauc & Kovac (2000), Kloppenborg and Opfer (2002), Gardiner (2005), Jugdev and Müller (2005), Turner and Müller (2003) and Soderlund (2005). In this regard, Kerzner (1995) views projects as a powerful means to implement an organization's capability to enhance their quality, as well as to enrich value of what is delivered to customers.

Within this paper project has been defined in accordance with Turner and Müller (2003, p. 7):

*A project is a temporary organization to which resources are assigned to undertake a unique, novel and transient endeavor managing the inherent uncertainty and need for integration in order to deliver beneficial objectives of change.*

With projects focusing on change, it can be inferred the importance of projects for organizations to sustainably maintain their strategic position. In fact, many organizations do implement projects. The Project Management Institute (PMI®) refers in their Guide to the Project Management Body of Knowledge (PMI, 2004, p. 27) to the project-based organization as either being driven by implementing

projects for its revenue generation, or having adopted management by projects whereby the management system in place complements the project management process.

Müller (2009) showed that organizations with focus on operational processes require different governance and control structures than project-based organizations. Differences were especially found in the critical aspect of project controlling. Project-based organizations apply dedicated controlling techniques, devised from project governance structures and project management methodologies (Müller, 2009). However, non-project-based organizations can be assumed to lack project related governance, and their controlling functions are governed by the organizational control mechanism in the absence of a standard project management process. Further, even as these types of organizations do projects of various types, the function of the control mechanism varies according to the project context as indicated in several studies (Payne and Turner, 1999; Shenhar, 2001; Müller and Turner, 2007; Müller, 2009; Crawford *et al*, 2006).

The aim of the present study is to identify whether specific types of projects, executed in non project-based organizations, require specific control mechanisms in order to be controlled and monitored effectively. This leads to our research question:

*How do organizational control mechanisms vary across different types of projects in non-project-based organizations?*

The unit of analysis is the organizational control mechanism. Assuming that project management varies across cultures (Müller and Turner, 2005, 2007; Müller *et al*, 2009) the focus of this study is on China and Nepal, as these countries are perceived to be of lesser project orientation than for example North America or Europe (Pant *et al*, 1996; Chen and Partington, 2004). For that a series of case studies was conducted, covering nine different projects.

The following section reviews the literature, followed by the research propositions. After that the methodology is briefly explained, which is followed by the analysis and discussion of our findings. The

final part of this study includes the conclusions, managerial and theoretical implications as identified while conducting this study.

## **LITERATURE REVIEW**

Our literature review was based on the following categories:

- Non-project based organization and its distinction from project based organization
- Organizational control and its related control mechanisms
- Project control tools
- Project classification

These categories will be reviewed in the following.

### ***Non-Project Based Organization***

Hobday (2000) confirms the above listed view of PMI (2004) in terms of project-based organizations, whereby he highlights the role of projects as a business function carried out in a functional or matrix form of organization. Bredin (2008) while conducting her research on Human Resource Management in project-based organizations identified the following basic features:

- Projects evolve as the core activities for organizations
- Project work is regarded as routine rather than exception
- Temporary projects are embedded in the organizational framework

Duncan (1996, p.17) categorized non-project based organizations rarely having effective management systems designed to support the project's requirement, while in project-based organizations, projects are the revenue driver of the organization. Kerzner (2003) also has similar opinion, however he distinguishes

organization as project driven and non-project driven, where in non-project driven organization few projects are implemented where there is significant dependency on third party for project management expertise. There is also the perception that because projects in non-project based organizations are driven by their operational hierarchy and the personnel involved have lower project management skills, managing projects becomes difficult and often gets delayed (Duncan, 1996; Kerzner, 2003; Stankevičienė *et al*, 2007).

Non-project-based organizations do not predominantly or entirely base their business on projects. Work routines in these organizations are often stable and not necessarily tailored for each unit of output. Routines are established and refined over a longer period of time. Structures in these organizations are often aligned to traditional line-functions, such as marketing, R&D, manufacturing etc. and projects are rarely “cutting” across these boundaries (Bresnen, Goussevskaia & Swan, 2004). Turner and Keegan (2001) trace the success of this type of organization back to orthodox economic thinking which sees an organization as a production function which is organized along a single model or structure in the sense of Fayol (1949). This structure allows then, among others, for efficient policy setting, creation of governance mechanisms, and of control of operations. The functional (non-project) form of organization performs this function efficiently due to the repetitive nature of their production outcome. Contrarily, Turner and Müller (2003) showed project-based organizations use temporary organizations (i.e. projects) as their production function, which act as:

- *Agency for change*: Projects are the vehicle to bring about change in an organization. The project manager acts as a CEO of this temporary organization.
- *Agency for resource utilization*: Resources are assigned to projects on a temporary basis. This results in productive use of resources and they contribute to their line organization’s objectives, for example those objectives for resource utilization.

*An agency for managing risk:* The project form of organization is perceived as the best way of minimizing the risk in executing unique, transient and novel endeavors. The perspective of the project as an agency for managing risk has the least potential for conflict.

This identifies projects as one of the driving forces for change in and through project-based organizations. However, projects in non-project based organizations can hardly be a driving force, as they are embedded in the operations of the organization. With the operational processes not being in accord with the project management processes, the project management practices in non-project based organizations should be different from those in project-based organizations. Keeping this point in mind, reviewing the organizational control mechanisms originating from the traditional management perspective has been opted to understand the controlling and monitoring of projects in non-project based organizations.

### ***Overview of Organizational Control Mechanisms***

Research on control mechanisms has its roots in the non-project-based organizations. Kirsch (1996) indicates that organizational control is exercised through control mechanisms, which have been generally recognized as critical for organizations to achieve their objectives. However, Ouchi's (1977, 1978, 1979, & 1980) contribution to the study dominates the field, where he focuses on control through market, bureaucracy (including behavior and output) and clan. Others, like Bandura (1977), Mills, (1983), Ashford & Tsui (1991), and Kirsch (1996) identified self-control as a further controlling mechanism. The following section deals with all these aspects of organizational control mechanisms.

### ***Organizational Control Mechanisms as Market, Bureaucratic, Clan and Self-Control***

Ouchi's (1979) view has dominated organizational control mechanism theory with the three fundamentally different mechanisms namely – market control, bureaucratic control and clan control.

Market control emphasizes the use of external market mechanisms such as price competition and relative market share to establish standards used in the control system to precisely measure and reward individual

contributions (Ouchi, 1979). As a pure model, a market is a very efficient mechanism of control in which prices convey all the information necessary for efficient decision-making (Ouchi, 1977). Market control also allows competition between actors, which itself works as a control measure.

Bureaucratic control focuses on organizational authority and relies on a mixture of close evaluation with a socialized acceptance of common objectives, rules, regulations procedures and policies (Ouchi, 1979). Actually, it was Weber (1947), who first forwarded a theory of bureaucratic control or bureaucratic structure. Conforming closely to the bureaucratic model described by Weber (1947), Ouchi (1979) addressed the notion that bureaucratic control is based on close personal surveillance and direction of subordinates by superiors prescribed by quantitative and qualitative rules, where the rule acts as an arbitrary standard for making comparisons. Thus, bureaucratic control is to control either the behavior of people or the outcome of the work (Nieminen and Lehtonen, 2008). Ouchi (1978) further suggested that behavior control diminishes when compared to output control due to the differences in transmission of control within an organization. Nonetheless, the choice of control strategy requires knowledge of the process of transforming input to output and the ability to measure these outputs. Perfect knowledge of the transformation process would suit behavior control, while outcome control is applied when desired results are measurable.

Clan control relies upon a relatively complete socialization process of regulated behavior through shared values, norms, traditions, rituals and beliefs of the organizational culture. This effectively eliminates the goal incongruence between individuals in an organization (Ouchi, 1978). Ouchi (1980) describes a clan as any group of individuals who have common goals and who are dependent on each other. Compared with bureaucratic control, clan control is implemented under imperfect knowledge of the transformation process and outcomes are difficult to measure and evaluate.

Self-management has been claimed as an internal control mechanism by a growing number of scholars (Bandura, 1977; Schelling, 1978; Luthans & Davis, 1979; Mills, 1983; Erez & Kanfer, 1983; Manz &

Sims, 1987; Ashford & Tsui, 1991). Under self-management mechanisms, individual cognitive maps are changed and organized to comply with the values and beliefs of organizations, contingent behaviors adjusted individuals to their organizations' goals (Leifer and Mills, 1996),

Kirsch (1996) modified Ouchi's original framework to retain behavior and outcome control, which stem from bureaucratic control, while she dismissed market control and included self-control. She suggested that organizational control includes formal and informal control in the form of bureaucratic, clan and self-control.

#### *Application of Organizational Control Mechanisms in the context of programs*

Nieminen and Lehtonen (2008) produced a new framework of control mechanisms, which addresses project/program settings and is based on the work of Ouchi (1979) and Kirsch (1996). It is presented through three control mechanisms: bureaucratic control, clan control and self-control. They investigated several case programs with a significant information system component aiming for organizational change. They listed 23 control tools and categorized them into different control mechanisms to identify the relationships between the potential tools and different control mechanisms, and considered their applicability in the change program context as shown in *Table 1*.

#### *The relationship between control mechanisms*

Ouchi (1979) illustrated that the different mechanisms themselves overlap in organizations and could occur in various combinations. Nieminen and Lehtonen (2008) showed the complementary role of these mechanisms instead of their substituting role. Leifer and Mills (1996) emphasized the integration between the different controls and suggested that the control mechanisms are neither dependent nor separated. This indicates a variance in the effect control mechanisms have in non-project-based compared to project-based settings.

<b>Control mode</b>			
	<b>Bureaucratic control</b>	<b>Clan control</b>	<b>Self-control</b>
Control mechanisms	<i>I Boundary mechanisms</i> - Rules, directives - Codes of conduct - Operation limits - Operating directives	<i>I Beliefs mechanisms</i> - Mission statement - Vision - Core values	<i>I Autonomy, three levels</i> - Decision power on daily matters of the project - Decision power on working methods of the project - Decision power on project goals
	<i>II Diagnostic mechanisms</i> - Project plans - Budgets, monitoring on spending - Human resource allocation - Schedules - Goal setting - Performance measurement - Incentives, bonuses, pay by results - Reporting - Formal meetings - Personal surveillance - Surveillance through other informants	<i>II Interactive mechanisms</i> - Project manager selection - Training - Discussions - Informal events - Team control - Goal oriented working culture	

Source: Nieminen and Lehtonen (1996, p.68)

**Table 1:** Organisation control mechanisms and tools

### ***Project Control Tools***

Organizational control mechanisms are exercised in aid of various control tools (Nieminen and Lehtonen, 2008). Here tools are considered as important, for instance, in organizations focusing on employing bureaucratic control, the actions or output of people working in the hierarchy is controlled and monitored by someone higher up in the hierarchy. However, to execute the control function, tools such as rules, guidelines, budget, meetings and others are necessary to see how the concerned people work or perform their tasks. In this regard, the application of the 23 control tools in different types of projects has been assessed, using the framework suggested by Nieminen and Lehtonen (2008). Furthermore, there has been an attempt to explore other tools such as those indicated by Kerzner (1995), Turner *et al*, (1996), Meredith and Mantel (2000), White and Fortune (2002), PMI (2004), Thamhain (2004), APM (2006), Besner and Hobbs (2006 and 2008), Rezones *et al*, (2006). Based on the assessment, the intent here is to understand the application of the broader organizational control mechanisms across different types of projects.

### *Classification of Projects*

Several studies address the issue of typologies of projects (Wheelwright and Clark, 1992; Turner and Cochrane, 1993; Shenhar and Dvir, 1996; Dvir *et al*, 1998; Youker, 2002). Some authors have focused on facets of the project management discipline in lieu of various types of projects (Payne and Turner, 1999; Shenhar, 2001; Müller and Turner, 2007; Crawford *et al*, 2006). These studies strongly suggest to customize the management approach according to project types, which fosters the need for understanding these types of projects before applying a standard approach in managing and controlling them.

Examples include Wheelwright and Clark (1992), who presented the types of projects from a development perspective, outlining the need to select the right project under the aggregate project plan in lieu of business strategy and the capacity constraints. Shenhar and Dvir (1996) classified engineering projects based on the dimension of technological uncertainty and system scope. Their study revealed the fact that different managerial styles evolved with the variation on the technological uncertainty of the projects. Dvir *et al* (1998) covered defense projects and identified six different classifications of projects based on the scope, output and software/hardware mix. Youker (2002) defined nine types of projects which were differentiated in terms of degree of uncertainty and risk, level of sophistication of workers, level of detail in plans, degree of new technology and degree of time pressure. However, for the given study, the popular project classification developed by Turner and Cochrane (1993) also known as Goal vs. Method Matrix has been considered mainly due to its conceptual fit into the context of operations oriented organizations, thus non project-based organizations.

### *Goal vs. Method Matrix*

Turner and Cochrane (1993) introduced the “Goals-and-Methods matrix”, also known as “Goal versus Method matrix” and presented four types of projects based on the clarity of goals and methods as depicted in *Figure 1*.

<b>Methods Well Defined</b>	No	<b>Type 2 Project</b> Product Development	<b>Type 4 Project</b> Research & Organizational Change
	Yes	<b>Type 1 Project</b> Engineering	<b>Type 3 Project</b> Application Software Development
		Yes	No
		<b>Goals Well Defined</b>	

Source: Turner and Cochrane (1993, p.95)

**Figure 1:** Goal vs. method matrix

This classification is more exhaustive as it not only includes a broader scope of projects. It is applicable for all kinds of organizations. This aspect would not only cater for those organizations where they have clear methods of doing projects but also in non-project based organizations, where roll-out projects may not be clearly defined.

Based on the literature review and particularly focusing on the study of Nieminen and Lehtonen (2008) the question arises how control mechanisms would be exercised in different project contexts. With various organizational control mechanisms identified in our literature review as operating together and reinforcing each other, the need arises to clarify how these mechanisms function in various project contexts, particularly in non-project based organizations. On these grounds the following propositions are drawn:

- P1: The application of the organizational control mechanisms vary according to the types of projects in non-project based organizations

- P2: In similar types of projects, the application of the organizational control mechanisms remains the same in non-project based organizations

## **METHODOLOGY**

A Direct Realist perspective has been taken towards understanding the phenomenon under study. Therefore different ‘realities’ in terms of different control mechanisms in different organizations are expected. As the main consideration was to understand the applied control mechanisms in different context, the context and phenomenon (i.e. the control mechanisms) has been assessed in different companies by use of case studies, following Yin (2003). Through semi-structured interviews qualitative data on the interviewees’ perceptions and descriptions of the context and control mechanisms in their organization were collected. This was complemented by secondary data in form of documents on the organizational strategy, structure, control system, the specific project execution processes, project control tools, and the assessment criteria for project execution. This approach allowed understanding the context as well as the type and level of control implemented within the governance structures of each of the participating organizations.

The associated process consisted of five stages, namely selecting the case, conducting the study, analyzing the case study evidence, developing the conclusion and reviewing the data collection protocol (Remenyi *et al*, 2005).

Due to the exploratory nature of the research question the major interest focused around gathering the opinions and experience of project managers or other relevant persons with a similar scope of oversight. Considering these issues, semi-structured interviews with project managers or other persons in-charge-of-the-project were considered appropriate. Based on the literature review three groups of questions were formulated for the semi-structured interviews. They are shown in Table 2.

Set	Type of questions	Source/Basis
1	Scope, objective, budget, time line of the projects	
2	Organizations controlling mechanisms over projects	Nieminen and Lehtonen (2008)
3	To assess the perceived success of the projects	Müller (2003)

**Table 1:** Nature and sources of questions

The semi-structured interviews were carried out by use of telephone, e-mail and face to face interview. Interviews done through telephone and e-mail were held in sequential phases, with each consecutive phase building on the data of the prior phase through refining and deepening the level analysis. In the initial phase, the questions listed in Table 2 were asked. These were emailed to the interviewees before the interview. In the later phases (second and third), the interviews focused on the tools under bureaucratic control mechanisms as defined by Nieminen and Lehtonen (2008) as well as other tools under clan control mechanisms and self-control mechanisms. Further, all interviewees were asked about the dominating controlling measures which are exercised during their projects.

Even though the focus of the present study centered on understanding organizational control mechanisms exercised by non-project based organizations in different types of project, aspects of project success were also gathered from the interviewee to assess the outcome of the projects. As the literature review suggested that projects conducted by non-project organizations tend to get delayed and experience difficulties while managing them (Duncan, 1996; Kerzner, 2003; Stankevičienė *et al*, 2007), the positive outcome of the project would only add relevance specific to the identified control mechanism exercised.

In the first round of interviews with the Chinese companies, telephone interviews were held with five interviewees. Based on their feedback and analysis, a second round of telephone interviews was held with all interviewees who were interviewed in the first round. The final round of telephone interviews was only conducted with four interviewees, partly the same people from the earlier rounds in order to clarify

any pending issue. Time availability on part of the interviewee and requirement to further clarify the contextual issues was the major reasons to conduct the interview in such manner.

The first round of interviews lasted between 45 and 60 minutes, while the second and third rounds lasted between 10 and 15 minutes.

Communication with Nepalese companies was initially done through email and later by telephone. In total, four project managers had responded to the mail. To clarify issues and confirm their understanding gathered through email, telephone interviews were conducted with all four project managers, which took 15 to 30 minutes. Apart from the four telephone interviews, there was one face-to-face interview conducted with a person in charge of a Nepalese company, which lasted approximately 90 minutes.

Sampling was done using a mix of convenience and theoretical sampling. Personal networks were used to build initial contacts with the organizations, whereby the aim was to have a variety in industry, company and project size and other parameters in order to collect sample data with a wider coverage, following Glaser & Strauss (1967).

Seven organizations from China and Nepal were addressed. These are shown in Table 3:

<b>Company</b>	<b>Description</b>
<b>A</b>	A state-owned <u>fuel</u> -producing corporation in China. It is leading integrated international energy company with businesses in oil and gas and covering upstream and downstream operations, oilfield services, engineering and construction, petroleum material and equipment manufacturing and supply, capital management, finance and insurance services, and new energy operations.
<b>B</b>	A Hong Kong based listed high-tech private enterprise mainly dealing in IT manufacture and auto manufacture. B has several production bases in China and many branch offices around the globe. The total amount of employees now is over 130 thousand.
<b>C</b>	A Chinese offshore company, founded in 1982. It is one of the largest state-owned oil giants in China, as well as the largest offshore oil and gas producer. Headquartered in Beijing its' total staff is 51,000
<b>D</b>	D is the first clutch supplier company in China to be listed on the stock market. The company has four subsidiaries and is the largest domestic clutch manufacture with the most extensive products range.
<b>E</b>	This is a joint collaboration between a Danish multinational company and a leading Nepalese Business House. With a market share of more than 80%, the company is the market leader in its segment of the beverage sector
<b>F</b>	This is a commercial bank with its head office in Birgunj, Nepal. F focuses on IT related projects, the functional head leads the project, while the composition of the team varies. The project team may include external vendors (specialist) and other cross-functional member (depending on the scope of project) apart of members from the IT department.
<b>G</b>	G is a leading insurance company in Nepal. The management in coordination with the project manager monitors projects in G. Projects and budget for the projects are sanctioned together. The finance team is responsible for preparing the annual business plan, which is discussed with the management team before getting approval from the board.

**Table 2:** Description of Companies

Table 4 shows the projects investigated in the firms listed above, and links company with projects, goals, geography, and project attributes.

Case	Project	Objective	Duration	Company	Country
C1	Oil shipping container construction	Transfer, process and store oil produced from a platform and offloaded onto waiting tankers	30 months	A	China
C2	Mold design for keyboard and shell	To cater the demand of client- a mobile phone company	8 months	B	China
C3	Well-logging software development	To improve the working process	3 months	C	China
C4	ERP system implementation	To optimize business processes	11 months	D	China
N1	Launch of newsletter	To create a forum to strengthen internal communication & network	5 months	E	Nepal
N2	Development of integrated software	To make the business process efficient	12 months	G	Nepal
N3	Internet banking	Provide internet banking solutions	3 months	F	Nepal
N4	Plant upgrade	To reduce the manual work	3 months	E	Nepal
N5	Organizational Change	Restructuring of organization to meet the changed business environment	36 months	E	Nepal

**Table 3:** Cases assessed

Tables 3 and 4 show that nine projects are from seven companies located in China and Nepal. The selected projects ranged from massive engineering projects such as making of an oil-shipping container (C1) to launching a corporate newsletter (N1). Apart from C2, which was done to suffice the need of the client, all other projects were generated through the internal requirements. Three projects, namely N1, N4 and N5 were from the same organization – E. Overall, the Chinese organizations were larger in terms of employees and of scope of operation when compared with the Nepalese organizations.

Of special concern were validity and reliability of the study, the suggestions of Yin (2003) were considered.

### ***Construct Validity***

Multiple sources of evidence, whereby key informants were asked to review the draft case study reports (Yin, 2003). Sources of evidence were based on the official documents (budget, report, and other organizational documents) and interviews (semi structured interview conducted with the main person in charge of the project and other key stakeholders). The summary of findings from prior phases was re-capped during the telephone interviews. This allowed the informants to agree or disagree with the researchers' understanding. This also allowed clarifying issues where the informants were not clear in the first place.

### ***Internal Validity***

Pattern matching approach (Saunders *et al*, 2007) was used to assess for evidence of the Nieminen and Lehtonen (2008) organizational control mechanisms and the 23 associated tools. Because many prior studies identified the need to match the management approach with the project type (Payne and Turner, 1999; Shenhar, 2001; Müller and Turner, 2007; Crawford *et al*, 2006), attempt was made to identify whether the control mechanisms varied according to the project types.

### ***External Validity***

Replication logic through multiple case studies was used. The selections of various projects from various organizations was done to identify the similar result patterns for generalization on theoretical grounds, or contrasting results to widen the scope of the theory developed through the cases (Yin, 2003).

## ***Reliability***

Documents, scripts of interviews, and case study reports were stored and held in a database for later retrieval, thereby fulfilling the needs for reliability as outlined by Yin (2003).

Analysis was done by using template analysis as described by Saunders et al (2007), whereby expected patterns were initially identified through the literature review, sought after in the text, and are modified as the understanding of the empirically devised patterns grew. This continued until theoretical saturation for particular patterns was achieved. For instance, the sampled projects were grouped into four types as per the Goals vs. Methods matrix. For each group the organizational control mechanisms were assessed using the Nieminen and Lehtonen (2008) classification as a starting point. Finally, possible patterns of control mechanisms were identified by project type.

## **ANALYSIS**

In this section, first of all, the identified project types are highlighted as defined by Turner and Cochrane (1993) followed by the assessment of the 23 control tools under the framework as presented by Nieminen and Lehtonen (2008) along with other possible tools as assessed in the sampled cases. Based on the assessment of the control tools and project types, a possible link between organizational control mechanisms and project types, based on the collected evidence is drawn.

### ***Project Types***

The assessed projects are classified based on the dimension of goal (*goals are either well defined or ill defined*) and method (*methods are either well defined or ill defined*) into four types. Projects C1 and N4 were identified as *Type I* projects, Figure 2. C1 involved the process of designing, constructing and testing of a floating production storage and offloading (FPSO) tank, while N4 mainly dealt with

upgrading a bucket elevator to the existing husk boiler. Even though C1 was more complex than N4 both had clear processes, outlining the steps needed to realize the goals of the projects.

C2, N1 and N3 were *Type II* projects, where the team was relatively clear on the goals of the project as compared to the process. All the three projects were a new venture for the project teams. As a result the methods were not clearly defined for them. C2 evolved around building a mold for housing and keypad of Nokia 2660. On the other hand, N1 was related to launching of a corporate newsletter while N3 involved developing a new consumer product – Internet Banking.

C3 and N2 were identified as *Type III* projects, where the teams were clear on the methods but not so on the goals of the project. In C3 the exact requirement of the well-logging software were not clearly spelt out to the team. N2, mainly a software development project, had an issue with specification of requirements amongst client, sponsor and supplier.

C4 and N5 were *Type IV* projects where both the goals and methods were relatively unclear for the project team. C4 was an ERP implementation project, while N5 was an organizational change project affecting the overall business operation of the organization.

*Figure 2* summarizes the sampled projects rolled out by various organizations across China and Nepal.

<b>Methods Well Defined</b>	No	<b>Type II</b>  C2, N1 and N3	<b>Type IV</b>  C4 and N5
	Yes	<b>Type I</b>  C1 and N4	<b>Type III</b>  C3 and N2
		Yes	No
		<b>Goals Well Defined</b>	

**Figure 2:** Summary of sampled projects under goal vs. method matrix

### *Organizational Control Mechanisms and Tools*

The analysis of organizational control mechanisms in non-project based organizations was approached from the perspective drawn by Nieminen and Lehtonen (2008) under the dimension of three controlling mechanisms namely – bureaucratic, clan and self. With tools acting as an apparatus under any given mechanism, the tools as described in the framework of Nieminen and Lehtonen (2008) were first assessed to check the applicability in the sampled projects before exploring other tools exercised as well as assessing the existence of the overall organization control mechanisms in lieu of the types of projects. The broader control mechanism namely – bureaucratic, behavioral, self and clan control were assessed based on the feedback acquired during the interview process from the respective project managers.

### *Control Tools*

The 23 tools mentioned under the framework of Nieminen and Lehtonen (2008) did exist in the sampled projects. However, the application of these tools varied across organizations and projects. For instance, in

some projects (N1 and N4) only a few tools from the framework were applied. However, there were other cases where most of the tools were employed (C1, C4 and N5).

In some cases, the tools reflected different mechanisms from the one suggested under the framework. For instance, under the study of Nieminen and Lehtonen (2008) selection of project managers was part of the clan control but in some of the cases, when top management was more involved, bureaucratic mechanisms became evident. The overall status of the tools has been summarized under *Table 5*.

		Cases									
Control Mechanisms and Tools		C1	C2	C3	C4	N1	N2	N3	N4	N5	
Bureaucratic	Rules, directives, codes of conduct	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Operational limits	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Project Plans	✓	✓	✓	✓	✗	✓	✓	✓	✓	
	Budgets	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Human resource allocation	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Schedules	✓	✓	✓	✓	✗	✗	✓	✓	✓	
	Goal setting	✓	✓	✓	✓	✓	✓	✗	✗	✓	
	Performance measurement	✓	✓	✗	✓	✗	✓	✓	✗	✓	
	Incentives, bonuses	✓	✓	✓	✗	✗	✓	✗	✗	✓	
	Reporting	✓	✓	✓	✓	✗	✓	✗	✗	✓	
	Formal meeting	✓	✓	✓	✓	✓	✓	✗	✗	✓	
	Personal surveillance	✓	✓	✓	✓	✗	✓	✓	✓	✓	
	Surveillance through others	✓	✓	✓	✓	✗	✓	✗	✓	✗	
Clan	Mission statement, vision, values	✗	✗	✗	✓	✗	✓	✓	✗	✓	
	Project manager/team selection	✓	✓	✓	✓	✗	✗	✓	✗	✓	
	Training	✓	✓	✗	✓	✗	✗	✓	✗	✓	
	Discussions	✓	✓	✗	✓	✓	✓	✓	✓	✓	
	Informal events	✓	✓	✗	✓	✗	✗	✓	✗	✓	
	Team control	✗	✗	✗	✓	✗	✗	✗	✗	✗	
	Goal oriented working culture	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Self	Decision power on daily matters	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Decision power on working methods	✓	✓	✗	✓	✓	✓	✓	✓	✓	
	Decision power on project goals	✓	✓	✓	✓	✓	✗	✓	✓	✗	
Legends: ✓ - Tools found   ✗ - Tools not found											

**Table 5:** Overview of organizational control mechanisms and tools identified

While assessing the organizational control mechanisms exercised across the sampled projects, other tools were also found. For instance sharing of best practices amongst groups of companies was evident in case of N1 and N5, while in N3 third party review was conducted. In C2, the project team concentrated on client relationship management, while decentralized decision power was exercised in case of C3. Top management support was one key tool for C4 while informal group work was critical in N5.

### ***Organizational Control Mechanisms and Project Types***

In case of *Type I* projects (C1 and N4), the clear goals of the projects along with the well-defined methods for executing these projects were instrumental for the concerned teams to focus on the outcome of the projects resulting in bureaucratic control mechanism as the dominating mechanism. In each case the controller, that is, the project manager in case of C1 and the project team in case of N4, had relatively clear information on the project's goal and the execution plan. They were able to assess the progress of their project in terms of output.

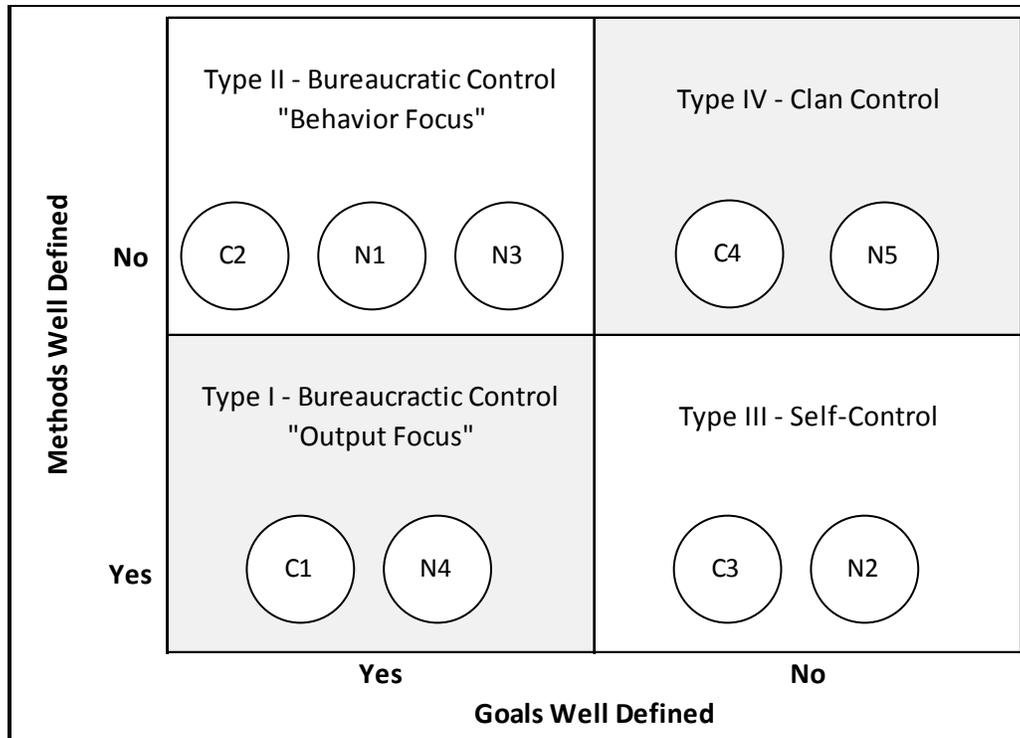
For *Type II* projects (C2, N1 and N3), the respective projects had relatively clear goals and less clear methods for execution. As a result, the concerned project controllers were focused on evaluating the behavioral side of the project members through feedback, meeting and discussion rather evaluating the output of the project. In fact, the lack of a clear method implied that the controllers were relatively unsure on the exact progress of the project as compared in *Type I* projects. As a result, rather than measuring specific output such as cost or consumption of materials or hours spent, they were more concerned with conducting follow-up meetings or discussions with the project team to assess the progress of the projects.

In the case of *Type III* projects (C3 and N2), the incongruity of goals hampered progress. In both cases management had clearly spelt out the rules and directions, thus creating a boundary of operational limits. The project teams had the freedom to maneuver within these operational limits. This situation was instrumental in allowing the project teams to exercise more self-control to proceed, despite the lack of

clarity in the goal of the projects. In fact, as the project teams were relatively clear on the methods of executing the project, the freedom given to the teams to exercise self-control was rational in the given context of the projects.

*Type IV* projects (C4 and N5), lacked the clarity in terms of both goals and methods. As a result, the project teams were neither able to totally rest on their self-control measures nor the bureaucratic measures. For instance, in the case of C4, the project team implementing ERP had the goal to coordinate all the resources, information, and activities to optimize business processes, which were not clearly spelt out. Further, as the team also had to customize the various modules of the ERP packages according to the business need, the vague goal did not help the team in formulating a clear-cut method. As evident from the case, the bureaucratic measures applied during the initial months of the project were not effective until the project team worked as a change agent to change the mindset of the overall staff through clan control. Similarly, while managing key resources, the person in charge of project N5 was dependent on other team members and other key resources. This was due to the idiosyncrasies of the situation and a lack of knowledge on how to bring about the desired change. Thus in such projects, project teams are expected to work as a group (clan control) in lieu of sharing the vision rather than working in silos, applying the self-control measures or just depending on the bureaucratic mechanisms.

Based on the project classification defined by Turner and Cochrane (1993), the presented framework as depicted in *Figure 3* indicates a contingency of organizational control mechanisms and different types of projects. For instance, when the goals and methods of the projects are clear, organization tend to rely on bureaucratic control with a focus on the output of activities, but if the methods are unclear, the bureaucratic control focuses on the behavioral side. However, when the methods of doing the project are clear, self-control amongst the project teams are practiced but, when things become unclear in terms of project goals and methods, clan-control becomes instrumental.



**Figure 4:** Framework of organizational control mechanisms and project types

The findings of the study as presented in *Figure 3* are in line with the studies done on project management and organizational control mechanisms. For instance, the dominance of organizational control mechanisms differed by project types, which is similar to the notion that organizations need to tailor the various management procedure to handle different types of projects (Payne and Turner, 1999; Müller and Turner, 2007). Further, the application of the different organizational control mechanisms in accordance with the types of projects are similar to the study done by Ouchi (1979), whereby he suggested application of a particular control mechanism (*market, bureaucratic and clan*) is based on the ability to measure output and the knowledge of the transformation process.

However, it is important to note that the dominant organizational control mechanism in a particular project type does not imply the absence of other organizational control mechanisms. All the organizational control mechanisms were identified but at varying degrees. Further, as indicated by Ouchi

(1979) the exercise of other organizational control mechanisms is practical as there could be a possibility of control slippage should the organization only exercise one type of control mechanism.

### *Cultural Differences*

While analyzing the organizational control mechanisms and observing the process of how concerned Nepalese project managers handled respective projects, it was clear that the majority of them were more oriented towards fulfilling their goals, staying within the operational limits and following the rules as directed from higher level. The inherent structure of the organizations and the competitiveness of the industry were also instrumental in shaping the actions of project managers. For instance, at F, considering the competitive nature of the industry as well as the structure of the organization, the concerned project managers' actions were more proactive compared with G, where the entrepreneurial setup was limiting such actions.

The Chinese firms were relatively larger and had more detailed levels of control measures evident through rules and policies. This resulted in a situation where the concerned project managers were oriented following such rules and regulations. Given the extensive operations of the Chinese firms and the relatively longer history of its operations, such following of the rules and regulations were more oriented towards creating a unique organizational culture.

Overall, it is noticeable that in both cultural contexts, the project team followed the rules and directions imposed from a higher level without showing much objection. However, as the Chinese firms had relatively longer operational history as compared with the Nepalese firms, such organizational culture were deeply embedded in the system.

## CONCLUSION

This study addressed how organizational control mechanisms are exercised across various types of projects in non-project-based organizations. The framework of Nieminen and Lehtonen (2008) was used and assessed how the various tools functioned under different organizational control mechanisms in nine different projects grouped into four types. In order to carry forward our study the following propositions are explained in context to the findings revealed from our study:

P1 was supported, because various types of projects revealed varying degrees of organizational control mechanisms.

P2 was partially supported, because apart from the dominating control mechanism, the projects revealed all controlling mechanisms with varying degrees of intensity.

### *Managerial Implications*

The following managerial implications are suggested:

- As most of the non-project based organizations select project teams from a functional unit, it is critical for the concerned management to select resources who can demonstrate particular skill sets as demanded by particular types of projects.
- Management should be aware of providing training to improve the skill sets required to handle specific types of projects. For instance, teambuilding exercises would be more suitable in *Type IV* projects, while technical skill sets are crucial for *Type I* projects.
- While the performance of the projects is linked to the reward system, as identified in some cases, factors encouraging specific control mechanisms should also be exercised. For instance, in *Type III* projects, the reward system should encourage activities leading to take on self-control rather than solely the output of the work.

- The management of the organization should also facilitate variety of organizational control mechanisms as per the different project types. For instance, in case of *Type III* and *Type IV* projects, management should allow more flexibility in delegating authority or providing support for self-control or clan control to have a bigger say in such project types. While, in *Type I* projects, management can concentrate on effective outcome from the project.

### ***Theoretical Implications***

Based on our study on variations of organizational control mechanisms across different types of projects, four dominant organizational control mechanisms were identified in four different types of projects as defined by Turner and Cochrane (1993). Further, the application of organizational control mechanisms varied even within the same organization (in case of N1, N4 and N5). It indicates that exercise of organizational control mechanisms varies by project type.

Overall, the attempt to create a linkage between the organizational control mechanisms and projects types should contribute to further explore and develop on the suggested theoretical framework as depicted in *Figure 3*.

The strengths of the study lies in its use of established theoretical frameworks to analyze the data collected. This is balanced by a relatively small sample size, which constitutes a limitation of the study. Generalizations from the results should be done carefully.

Even taking different projects from different countries (China and Nepal), the study was still able to draw similar patterns within the given project types regardless of the projects' origin and cultural context. Therefore it can be concluded that while exercising various organizational control mechanisms practitioners should consider the importance of differentiation of project types.

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