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Management Control in Public Private Partnership: A Comparative Case Study of Norwegian and Australian Road Projects

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ABSTRACT

Public Private Partnership (PPP) is gaining rising popularity in infrastructure development amidst financial crunches of governments and public demand for quality infrastructure. PPPs are characterized by risks associated during various phases of project life cycle and failure to handle them could lead to hazardous losses to the country. Management Control is a strategy that could tackle such risks and minimize their adverse effects. This study seeks to explain such control mechanisms used in Public Private Partnership in road agreements across two different countries, Norway and Australia. The infamous typology formulated by Malmi and Brown (2008) that regards management control system as a package is considered as the foundation framework for this research. The research design used in this study is a comparative case study. The study supports the presence of management control in the PPP model of both countries. The public partner uses a mix of management control mechanisms with varied intensity during each phase of project life cycle.

Keywords: Public Private Partnership, Management Control, PPP in Norway, PPP in Australia, MCS Package

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LIST OF ABBREVIATIONS

ASX	Australian Securities Exchange
BOO	Build - Own – Operate
BOOT	Build - Own - Operate – Transfer
BOT	Build - Operate – Transfer
CBA	Cost Benefit Analysis
CIRT	Center for Innovation in Research and Teaching
DB	Design – Build
DBB	Design - Bid – Build
DBFMO	Design, Build, Finance, Maintain and Operate
DBFO	Design, Build, Finance, and Operate
DBO	Design - Build – Operate
EFQM	European Foundation for Quality Management
EIB	European Investment Bank
IWG	Infrastructure Working Group
MCS	Management Control System
NOK	Norwegian krone
NPRA	Norwegian public roads administration
NSW	New South Wales
NTP	National Transport Plan
OECD	Organisation for Economic Co-operation and Development
OPS	Offentlig-Privat Samarbeid
OPS	Offentlig-PrivatSamarbeid

PFI	Private Finance Initiative
PPIAF	Public – Private Infrastructure Advisory Facility
PPIAF	Public - Private Infrastructure Advisory Facility
PPP	Public Private Partnership
PPPIRC	Public-Private-Partnership in Infrastructure Resource Center
PwC	PricewaterhouseCoopers
ROI	Request of Interest
ROI	Return on Investment
RTA	Roads & Traffic Authority
SOP	Standard Operating Procedures
UNDP	United Nations Development Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific

CHAPTER 1: INTRODUCTION

1.1 Background of the problem

A rising demand for quality public infrastructures amidst financial constraints of governments has accumulated widespread favor for the concept termed as Public Private Partnership. The UNDP Public- Private Partnership defines Public Private Partnership (PPP) as "a spectrum of possible relationships between local government, business, civil society organizations including non- governmental organizations and local communities, for the co-operative provision of basic services" (Olufemi et al., 2011, p.460). The services in the area of public utilities such as energy, water supply, waste treatment, communication, transportation that were once predominantly controlled by public sector is now engaging private sectors for enhanced efficiency, time saving, risk sharing, management expertise, advanced technology, reduced direct and indirect cost (OECD, 2013; Perl, 2010; UNESCAP, 2008). For governments, PPP has become a reliable alternative "as an off-budget mechanism for infrastructure development as this arrangement may not require any immediate cash spending" (UNESCAP, 2008, p. 3).

Moreover, PPP is considered to provide additional advantage over conventional project delivery models due to the 'performance-based specifications' and 'life-cycle approach' followed by it. "In PPP projects, project deliverables are specified as outputs, as opposed to inputs as for conventional procurement, thus the performance (service) requirements of the infrastructure asset are defined rather than its technical details. This allows benefits to be gained from the private sector's capability for innovation and creativity in design, construction technology, management and financing by the selection of the service provider offering the optimum life cycle cost as opposed to the lowest construction cost." (PPIAF, 2009, p. 13-14).

However, in such partnerships, the two parties involved are often assumed to have their own set of interests to fulfill. The government is concentrated towards public welfare. On the contrary, private entity is profit driven. In order for private sector not to be opportunistic and go astray from the common agreed objective, a control

mechanism becomes necessary (Appuhami, 2011). Performance objectives are achieved through proper Management Control that entails the utilizing of private sector drives while simultaneously avoiding irrelevant avenues (Slavoljub et al., 2015). In general, "Management control is the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives" (Demartini, 2014, p.30). Moreover, with proper management control at play government can administer and stimulate desired performance by leveraging expertise of private entity. Management Control System works on favor of public party by providing assistance in meeting the benchmark and addressing the issue of 'public accountability' (Appuhami, 2011, p.5-6). However, Malmi and Brown (2008) raise an issue related to limitation on understanding of other existent control aspects. They mention that "there is still limited understanding of the impact of other types of control (such as administrative or cultural) and whether/how they complement or substitute for each other in different contexts" (p. 288).

PPP mode of project delivery has been widely adopted by Norway in diversified public infrastructure development. In common language Public Private Partnership is called as "Offentlig-Privat Samarbeid (OPS)" whose inception goes back to 1998 (Alonso, 2015). For any nation, development of road infrastructures is inevitable to address the country's urban congestion crisis and enhance mobility. Thus, Norwegian Government realizes the advantages offered by PPP in building road infrastructures and has been incorporating this concept in its infrastructure development projects. In Norway, at present 3 PPP road projects, E39 Klett-Bårdshaug in Sør-Trøndelag County, E39 Lyngedal-Flekkefjord in Vest-Agder County, and E18 Grimstad-Kristiansand in Aust-Agder and Vest-Agder Counties are operational. There are 3 road projects under planning by Norwegian Public Roads Administration (Statens Vegvesen) to be delivered under PPP (NPRA, 2017).

Despite the advantages offered by PPP arrangements, if we refer to the records of projects under such partnership between public and private entities, we find that the experience of various countries with PPP is non-identical (OECD, 2013). For one or more issues related to management control PPP projects such as Hungary M1/M15

Toll Motorway Project, Thailand Don Muang Tollway, Poland A1 Toll Motorway Project, and Bulgaria Trakia Motorway Project have failed in the past (Cuttaree, 2008).

Consequently, there is a strong need for assessing the role management control can play in attainment of desired performances in PPP agreement. Moreover, with increasing adaptation of PPP model in infrastructure development in Norway it is important to analyze the control mechanism in use in Norwegian PPP model. Assessing the Norwegian pilot projects alone might not give a comprehensive outlook. Hence, through comparison an overall picture of management control in various PPPs can be achieved. For such comparison, a benchmark is to be created for which a project to be taken as reference has to prove a wider experience than Norwegian projects. The study aims to provide ongoing discussion by including the comparison that is done in light of projects considered successful worldwide. For such reason, Westlink project which is considered to have achieved perfection in PPP has been selected to be analyzed with Norwegian project in this study.

1.2 Problem Statement

The problem statement for this study is as follow: the control mechanisms used in PPP across countries.

This study will have the following research:

What are the challenges/problems with application of management control mechanisms in PPP model in the different contexts?

This question will shed light on management control mechanisms being used in the PPP road agreements in two different contexts, i.e. Norway and Australia. Australia has a successful experience with PPP in transport infrastructure with investment of around A$52 billion over the past 10 years. Among the various projects undertaken Westlink M7 is a highly appreciated project and reckoned as a ‘best practice’ PPP (Transurban, 2017). As a result of experience, Australian Government has delivered

one after another successful projects backed by openness for innovations, formalized guidelines, structured processes and learning from past mechanism. Although young in experience, Norway has been successfully operating 3 pilot road projects at present. It is in the verge of discharging 3 more road projects through PPP arrangements. In this situation, Norway can get insightful learnings from the techniques employed to gain maximum Value for Money (VfM) and assess their applicability in their own context. This will be done through the application of the framework developed by Malmi and Brown where they have introduced an approach which integrates various types of control and call it as a package (Malmi and Brown, 2008). Slavoljub et al. (2015) stresses that this idea of management control system as a package is widely being adopted in modern literature.

1.3 Purpose of the study

The study aims to get an understanding about the challenges associated with management control system in PPP infrastructure projects specific to roads. The topic is timely and relevant as Norway is planning to deliver 3 more road projects under PPP agreement. The study will reveal the various types of controls used in partnerships among public and private entities in executing and implementing successful infrastructure development project.

1.4 Structure of the study

Chapter 1 is an introductory chapter that shades light on the situational description that led me to the study being conducted. It explains the background of the problem highlighting the need for the study to be conducted in Norwegian and Australian context. Finally, the chapter provides a brief description of the report structure and its formation.

Chapter 2 is literature review where existing works related to the topic are presented. The literature review shades light on various terms, concepts, theories, ideas and perspective that has been presented in prior studies and publications. It lays the

theoretical foundation for the study conducted. Here the thesis is described in relation to previous theories.

Chapter 3 is titled Empirical Context where the Norwegian Transport Plan and Public Private Partnership in Norway is discussed.

Chapter 4 describes the methodology of the research conducted. It stresses on the data collection strategy.

Chapter 5 presents the findings. Road projects built under PPP model in Norway and Australia will be presented against the chosen framework by Malmi and Brown (2008). Along with Norway's, Australia's PPP project will be portrayed under the same framework. The chapter presents in detail the data that will be used for further analysis.

Chapter 6 is where the analysis and discussion of the empirical data obtained in chapter 5 are done. A comprehensive comparison between the PPP projects in two countries will be done to find out the differences among the management control system used in PPP model across countries. Further, it comprises of presentation of the findings obtained with a logical interpretation. The research question for the study is answered in this section.

Chapter 7 contains the conclusions and suggestions made from the study. It gives a brief list of conclusions drawn by the study and then provides necessary suggestions for the policy makers/investors on future course of corrective action.

CHAPTER 2: LITERATURE REVIEW

2.1 Management Control

Langfield-Smith (1997) reiterates definition of management control given by Anthony (1965) as “the process by which managers ensure that resources are obtained and used effectively and efficiently in the accomplishment of the organization’s objectives.” (p. 208). Anthony’s paper Planning and Control System is the inception of the idea that introduced management control as a separate entity different from strategy and operation control (Langfield-Smith, 1997). A different definition postulated from perspective of employees’ behavior given by Merchant and Van der Stede in 2007 is said to be a narrow concept where it mentions “It is people in the organization who make things happen. Management controls are necessary to guard against the possibilities that people will do something the organization does not want them to do or fail to do something they should do...If all employees could always be relied on to do what is best for the organization, there would be no need for MCS” (Malmi and Brown, 2008, p. 289).

Malmi and Brown (2008) explicate management control as a combination of “all the devices and systems managers use to ensure that the behaviors and decisions of their employees are consistent with the organization’s objectives and strategies” (p.290-291). The major idea they have formulated is that “control is about managers ensuring that the behavior of employees (or some other relevant party, such as a collaborating organization) is consistent with the organization’s objectives and strategy. It is structured around how control is exercised and, as such, it broadly maps the tools, systems and practices managers have available to formally and informally direct employee behavior.” (Malmi and Brown, 2008, p.295). In PPP, management control systems are focused towards achieving Value for Money by “minimizing risk, particularly when risk cannot be transferred.” (Appuhami, 2011, p. 130).

2.1.2 Management Control as a Package

MCS Package was developed through the analysis and synthesis of four decades of MCS research with a belief of the provision of adequately wide, still frugal approach for the purpose of empirical study of the process. The aim of the package was to encourage, as well as incite discussion and research in the area than settling with the final solution to all the conceptual problems. The MCS typology is compared with 'object of control' framework proposed by Merchant and Vander Stede for denoting its strength. The typology draws clear distinction between decision-support systems and MCS. The typology's significance is also drawn on it recognizing cybernetic control but at the same time including other forms of controls as administrative controls for the managers. The typology has an organizational structure, is clear about the difference between information system for decision-making and MCS and excludes pure decision-support systems. The typology in its strength incorporates wide forms of the controls in the MCS as package-planning, cybernetic, reward and compensation, administrative and cultural controls. Figure 1 represents the framework developed by Malmi and Brown (2008).

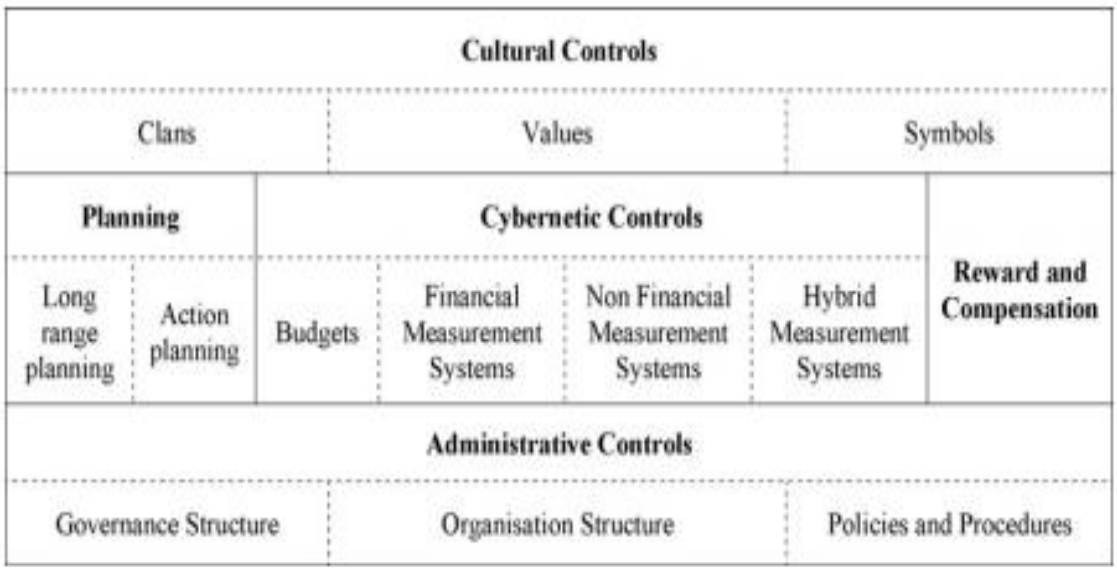

Figure 1:MCS as a package

Source: Malmi and Brown (2008)

2.1.2.1 Planning Controls

Forecasted as a form of control, planning aims to set the functional goals of the organization directing efforts and behavior. Planning also aims to meet certain standards related to the goals while clarifying the extent of expectant effort and behavior from the organization members. To see that the members' activities comply with the established result of the organization, planning serves to build a coordination through the alignment of set of goals across various functional avenues of the organization. The approaches of planning are broad and it comprises of action planning and long-range planning. Action planning refers to the goals and actions set for the immediate future, specifically 12 months or even less. It has a tactical focus. Whereas, the long-range planning refers to the goals and actions set for medium and long run. It has a more strategic focus. Planning as well as budgeting by Merchant and Van der Stede is together claimed as the control systems of financial results. Planning is said to be done with a very little inclination to finance. Strategic planning invites creation of strategic projects as well as other initiatives which yields effectiveness in directing people on tasks. Likewise, operational planning provides guidance on the things to be done by the inclusion of task lists that doesn't hint any linkage to finance and accounting (Malmi and Brown, 2008).

Planning which may serve its function in defining the behavior of the employee is treated as a separate system in the MCS of the topology. The stress on the importance of planning to either decide on future activities or to involve in building the commitment plans is important for researchers to understand.

2.1.2.2 Cybernetic Controls

The concept of control shares an expansive congruence with the cybernetic principles. The definition given by Green and Welsh (1998) is reiterated by Malmi and Brown (2008) that cybernetic principles is a "process in which a feedback loop is represented by using the standards of performance, measuring system performance, comparison of the performance to the standards as well as the feeding back information about the

unwanted variances in the system while modifying the system's comportment" (p.292). An organization could model the cybernetic system as an information system or control system on the basis of its use. If the managers happen to find some undesired difference and altered the underlain behavior or activity responsible for the difference without other's involvement as in a production process, it is referred as the information and decision-support system. Still, the process of linking behavior to goals and establishing accountability for the difference in performance takes a cybernetic system from an information system to an MCS (Malmi and Brown, 2008).

The five features of cybernetic control are the measures fostering the quantification of an underlying process, activity or system. The second features include the standards of performance and goals that is to be met. The third feature comprises of a feedback process that sees a compliance of the outcome with the set standard. The fourth feature includes the difference analysis from the result of the feedback while the fifth states the ability to alter the system's behavior or hidden activities.

The MCS research has highlighted the identification of four basic cybernetic systems in the typology: budgets, financial measures, non-financial measures and hybrids comprising of both measures.

Central and basic foundation of MCS in many organization, budget and its use are referred to be almost universal. The claim is for the 'potency of it to weave together all the disparate threads of the organization to a complete plan serving many purposes'. It emphasizes on planning of performance and ex post evaluation of actual performance via a plan.

Budgeting though has different uses, as a control mechanism, the focus lies in planning acceptable behavior as well as evaluating performance to the plans. Control's common structure lies in holding the employees responsible for certain financial measures which could be related to the budgeting process through the use of details available in the budget. The budget yet differs from the financial performance measurement system as budget is broad, comprehensive technique contrary to the

financial performance measurement serving to be narrow simple fashion in the avenue of target reach. Economic value added, return on investment serve as examples of financial performance measures.

Non- financial measures which are increasing to become the most important part of MCS in contemporary organizations is supposed to overcome the limitation in financial measures while figuring the drivers of performance. Hybrid performance measures that which comprises both the financial and non-financial measures with use in recent times with earlier approaches including systems of management by objectives. Balanced Scorecard, a complete MCS including both financial and non-financial measures have proved to be pretty dominant in the near present.

2.1.2.3 Reward and Compensation Controls

Reward and compensation systems have its focus on motivating while accelerating the performance of individuals and group within organizations. The condition becomes viable under the achievement of agreement between their goals and behavior and those of the organization. The formulated argument is based on the presence of reward and compensation leading to increasing effort compared to the absence.

Reward systems range from extrinsic to intrinsic with management accounting focusing largely on extrinsic rewards. Malmi and Brown (2008) mention a review of research literature on incentives and performance by Bonner and Sprinkle (2002) which led to the argument that monetary incentives increase performance by the concentration on efforts on task. The linkage of effort to task is to affect task and performance in three ways: effort direction - tasks focused on by the individual; effort duration, the length of time individuals commits to task; and effort intensity, the attention level devoted. Though rewards are linked to cybernetic controls, organizations provide rewards and compensation for other reasons inclusive of stimulating cultural control, through group rewards (Malmi and Brown, 2008).

2.1.2.4 Administrative Controls

Administrative control systems are the pathway for the employees of an organization regarding their behavior. It gives a way for the employee behavior through the organization of employees as individuals and groups. Administrative control systems also provide the direction to the employee behavior through the supervision of their behavior and who is obliged regarding the employee behavior. Not only limiting to this, administrative controls also provide details on how tasks or behaviors must be performed or not performed, if in case if they are not performed. According to Malmi and Brown (2008), there are three major groups of administrative controls which are – "organization design and structure", "governance structure within the firm", and "the procedures and policies" (p. 293).

Organization design can influence various forms of contacts and associations made in regards to the structural pattern followed by an organization, thus establishing the organization design as a crucial deciding and controlling factor. This can happen when the organizational structure is implemented as a type of control which comes into play through the implementation of functional specialization and the structure assists the control by lowering the changeability of behavior and instead boosting its envisioning. Even though many may take organization design only as a circumstantial variable, it is something the people at the executive levels like manager can alter as disagreement to what was levied onto them (Malmi and Brown, 2008).

The formation and required composition of any organization's board structure is defined by the governance structure. Not only limiting to the organization's core team, it also relates to several management and project groups. The control and liability of works are also defined by the governance alongside the arrangements which assures that the representatives from the various departments and task units come together for the necessary meet and coordinate their tasks and duties across and along through different organizational hierarchy levels. The governance directs the meetings held, setting targets and assign timeframe for tasks which will make the organization members perform their works accordingly. The policies and procedures

are the legislative way to define the mechanisms and behaviors within any firm. The policies and procedures comprise of approaches which have been identified as standard working procedures and practices as well as the different defining rules. Policies and procedures set a clear view of "behavioral constraints, pre-action reviews and action accountability" (Malmi and Brown, 2008, p. 294).

2.1.2.5 Cultural Controls

Organizational culture represents the principles, beliefs and social models followed in an organization by its employees which as a result lead or make impact on their understandings and behaviors. As the culture of the organization control and direct the behavior, the culture itself stands out as a control system. According to Malmi and Brown (2008), there are three aspects of cultural control namely "value-based control", "symbol-based controls" and "clan controls" (p. 294).

Value-based controls the definitive organizational interpretations that are corresponded in the formal manners and implemented in a systematic manner to establish the basic principles, vision, purpose and the directional guides for any organization. These organizational beliefs are what the senior managers and executives circulate to the other employees of the organization to get used to and work and behave accordingly. While these values their behaviors and organizational standards and definitions, they are reflected on the mission and vision of the organization which represent their beliefs and values. There are three levels of these values being represented in the organization as seen on the behaviors of the employees. The first level is when the organization pointedly recruit individuals whose values resemble with the values of the organization. The second is when the individuals adapt the values of the organization as they go on socializing in the organization. The third level is when the employees in their personal level do not personally comply to the values but they behave in the organization in parallel to the values of the organization. No matter the level of the values being represented in the individuals, they are formulated so as to direct the employee behavior (Malmi and Brown, 2008).

Symbol-based controls are the distinct visible-representation to identify the organization. Measures such as dress codes and the organization design and the workplace define the organization which in just an overview relay the identity of the organization. Designing and asking the associated employees creates a visible identification of a certain project or organization. The organizations consist of various noticeable subcultures which can be observed and these individual groups can be given name as clans. These groups are usually formed among people who have similar set of skills and values in them which help them to get along with other people. This formation of a group of people with similar skill also lead to various sub-culture in the organization. Usually these groups are formed around people who are of similar specializations and professions. These groups in other cases can form around several divisions of the organization or the teams in the organization. Malmi and Brown (2008) suggest that "Clan controls work by establishing values and beliefs through the ceremonies and rituals of the clan" (p. 295).

2.2 Public Private Partnership

Olufemi et al. reiterate the definition given by World Bank (2004) to explain PPP "as the combination of a public need with private capability and resources to create a market opportunity through which the public need is met and a profit is made." (Olufemi, Egbuta and David, 2011, p. 460). Public Private Partnership, also known as PPP or P3 model, is a law bound undertaking between private and public sector for construction and operation of public infrastructures. It is a mid-way between the conventional public procurement method and "privatized solutions" (Caselli, Carbetta and Veronica, 2015, p. 1). Levy (2011), in his book, *Public-Private Partnerships: Case Studies on Infrastructure Development*, differentiates between PPP and privatization to provide a clear view on the concept. Unlike in Privatization, the ownership of the public infrastructure remains with Public enterprise. The private sector plays an "operational role" by administering and garnering proceeds (Levy, 2011, p. 1). The traditional method for infrastructure development relied on various institutions for diverse services. However, the partnership tends to shift the financial

responsibilities and risk associated with certain aspects of the project to the private party involved (Perl, 2010, p. 3).

The partnership built between Public and Private sectors is a management strategy that leverages one another's resources, expertise and other benefits for improved productivity while striving for a common goal (Caselli et. al, 2015; Perl, 2010; Olufemi et al.,2011) "PPP combines the power, authority, social responsibility, accountability of the public sector, with the finance, technology, managerial efficiency and entrepreneurial abilities of the private sector and the informs voice, energy, drive and oversight responsibilities of Civil Society Organization including the service users." (Olufemi et al., 2011, p. 460). The term "partnership" in PPP is observed to have experience variant views. Alonso suggests that it is a partnership as the nature of the relationship demands satisfaction with variant concerns of involved parties (Alonso, 2015). On the contrary, Levy argues that "there is no partnership in PPP because there is no sharing of business activities, just a straightforward relationship between lessor and lessee" (Levy, 2011, p. 1).

Literature is evident to the wide adaptation of this concept across the developed as well as the developing countries (Alonso, 2015; Perl, 2010, Levy 2011). The results of a study conducted by Perl (2010) over various PPPs across several developed nations advocate that the gaining popularity of the concept is due to the benefits offered by this structured cooperative effort in terms of cost, completion period, risk-sharing, and quality. Private entities are characterized to have better risk allocation and managerial capabilities when compared to "risk-averse" public sector. Private enterprises are alternative sources for raising funds to overcome government's financial inadequacy (Perl, 2010; Akintoye et al., 2015). However, Levy (2011) differs with the argument for private sector to have been opted for its expertise in order to compensate for public sector's incompetency. Further, he suggests that public sectors are making vigorous attempts in pursuit of deliverance of public needs in the most cost-effective manner with minimal risk bearing. Alonso (2015) mentions in his study, *A comparative case study of PPP in road infrastructure projects: Spain and Norway*, "The growing necessity to provide a set of infrastructures (hospitals, schools,

railways, roads…) demanded by both the society and the economical agents, along with the budgetary constraints to reduce the public debt, had lead governments to seek the involvement of the private sector in the provision of these infrastructures" (Alonso, 2015, p.12).

2.2.1 PPP Models

Perl (2010) stresses on two aspects that creates differentiation among various types of PPP. They are "scope of responsibility" and "degree of risk assumed" by the private entity for a particular project (Perl, 2010, p. 3). It has been observed that various forms of PPP have evolved across the globe to best fit the purpose. The figure 1 presented in next page which is an adaptation from Public-Private-Partnership in Infrastructure Resource Center (PPPIRC)'s website by World Bank Group and Public - Private Infrastructure Advisory Facility (PPIAF, 2009), presents a simplified look at various common arrangements made between public and private entities. In the figure, it can be noticed that with increasing participation of the Private sector, the responsibilities associated with design, build, operation and maintenance and finance is bearded by private entity. On the left, Private entity holds minimal responsibility with works and service contracts and Public authority owns and operates the facility. However, according to Public - Private Infrastructure Advisory Facility (PPIAF), these two traditional ways of partnering between public and private sectors for work and service are no more to be considered within the periphery of PPP (PPIAF, 2009). As we move along right side of the figure, the responsibilities of Private sector increase. The extreme right depicts the situation when the responsibility of the Private entity is highest and it owns the title to the asset. Privatization is also considered to be out of scope of PPP (PPIAF, 2009). They are explained in brief in following sections for better understanding.

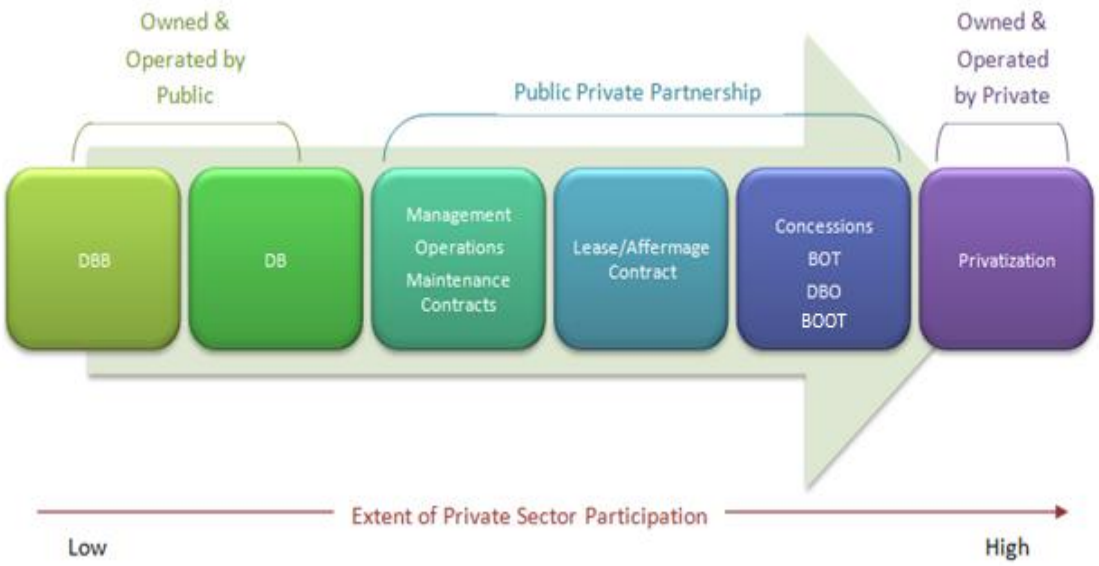

Figure 2: PPP Models with level of Participation

Before beginning with the major types of Partnership made between Public and Private Entities, it is important to understand the conventional yet once common approaches of project delivery know as Design - Bid - Build or DBB and Design - Build or DB.

2.2.1.1 Design - Bid - Build (DBB)

In this DBB approach, the public entity is the funding, operating and maintaining authority whereas the responsibilities related to design and construction are furnished by two separate private sectors. A private designing and engineering firm in collaboration with the public sector prepares the engineering plans and sets the framework of the project. It is the duty of the sponsor party i.e. the public entity to ensure the designs and the materials meet the benchmark to ensure fulfillment of the objectives. After the designing is completed bidding is executed among the private construction firms in which the lowest bidder who can supply the best quality at the lowest rate wins the contract for executing construction works. Finally, the final project delivered is operated and maintained by the Public authority for public welfare. This approach does not allow simultaneous working on design and build as it

divides the project delivery process into ‘three linear phases’ of design, bid then build (Perl, 2010; PPIAF, 2009).

2.2.1.2 Design - Build (DB)

Design-Build approach of partnership between public and private sector is a single contract made with a private sector or a group of them for deliverance of services, design and construction of a project. The private entity is fully responsible for design and construction of the project for a fixed fee. The private party participates in design and construction phases of a project who might acquire the responsibility through a negotiation or a tender. The difference in this approach lies in the criteria of selection of the designer cum builder. Unlike Design-Bid-Build, this DB approach does not rely its choice of private enterprise on the basis of cost alone. A single service provider or a group of them working under the same contract is judged through its capabilities to provide quality project deliverance under an appropriate time frame at the reasonable cost. Further, DB approach holds the private entity accountable for the architectural frameworks. The public entity is the funding, operating and maintaining authority in this arrangement as well (Perl, 2010; PPIAF, 2009).

Perl (2010) in his book *Public-private partnerships: costs, benefits and efficiencies* indicates towards a few reasons for Design-Build approach to be considered an effective approach to PPP. They are summarized as below:

1. Construction and Design are not treated separately which results in better idea on feasibility of design since its inception. The probability for requirement for changes in future is lessened.

2. The collaboration between designer, engineer and construction party since early phase allows construction to be carried out in segments simultaneously which in turn shortens the project period.

3. The project will be under scrutiny of private entities as they share the risk associated with design and construction. This allows the public sector to shift their focus towards handling other public risk factors.

4. The association between the design and construction parties allows them to utilize each other's areas of competencies and make room for enhanced technologies.

2.2.1.3 Management Contracts and Operation and Maintenance (O & M) Contracts

A management contract refers to an agreement where the private company is assigned with various types of tasks performed by the public authority for a relatively short time. On behalf of the public entities, the private firms respond to needs of daily routine maintenance by contracting such private companies (PPIAF, 2009).

The management contract encompasses contracts from technical assistance to full-scale operation and maintenance agreements. It tends to be specifically input oriented. While, operation and management agreements could be based on output model concentrated on performance. The management contract can also focus on operation management (PPIRC, 2016). Typical tasks assigned to the private sector in such scenarios are traffic counting, axle-load weighing as well as providing traffic information, traffic management including surveillance, stand-by services for accidents, traffic regulation, toll collection. The private operator is paid a fixed fee for performing the specified task and is not remunerated on the accounts of amount collected in tariffs and others (PPIAF, 2009). The private sector usually doesn't take risk of asset condition. However, where the management contracts are based in performance, the private sector may have to take on risk of asset condition and even replacement of minor components and equipment (PPIRC, 2016).

The key features of Management and 'Operation and Maintenance' contracts are that the contractor has to manage various activities generally for the term of two to five years. The longer-term operation and maintenance agreements are more common in

the essential services as water and energy. The contractor is paid a fixed fee by the public sector to cover their staff and expenses while there could also be performance-based fee and liquidated damages in case of not being able to meet the performance targets. The contractor is unwilling to collect bills on its accounts though it could pay on behalf of the utility and some collection risk in terms of performance standards. This could be useful when the condition of assets is uncertain as well as when the private sector is unwilling to accept risks. In some contracts, the private operator may be obliged to operate and maintain the assets, sometimes having to bear the cost of routine replacement of small, low valued equipment parts. For such feature, monitoring for the check of output achievement and higher establishment costs are involved. Usually, there is no transfer of employees to the contractor. The contractor has to manage over the existing utility structure which could cause problems as the staff would be looking at the public sector's authority for instructions. Application of discipline by the private operator in such circumstances could also serve to be difficult (PPIRC, 2016).

2.2.1.4 Lease / Affermage Contracts

Lease and Affermage contracts, also known as Operation and Maintenance concessions or service concessions, leverage the work efficiency of private sectors to operate and maintain a public funded road infrastructure. The private sector is leased an existing facility with responsibilities of maintenance and operations of the infrastructure for a specific period of time. The private sector who operates the road charges the road users through tolls. Under such contracts the public-sector bears investment risks and private sector is at higher operating risk as they do not get paid for their fixed service from the owners. Under lease, the leaseholder or the operator pays a fix sum of money as lease fees and collects revenue for itself. However, in affermage, the revenue generated from the user tolls is shared between private and public parties (UNESCAP, 2008; PPPIRC, 2016). “Operation and maintenance concessions enable the public sector in developing countries to transfer commercial risk to the private sector and to create incentives for the private sector to ensure efficient revenue collection and to undertake regular maintenance to increase the

reliability of facilities and postpone their renewal" (PPIAF, 2009, p. 19). The figure below, developed by the Transport Division of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) describes the Lease/ Affermage Contracts.

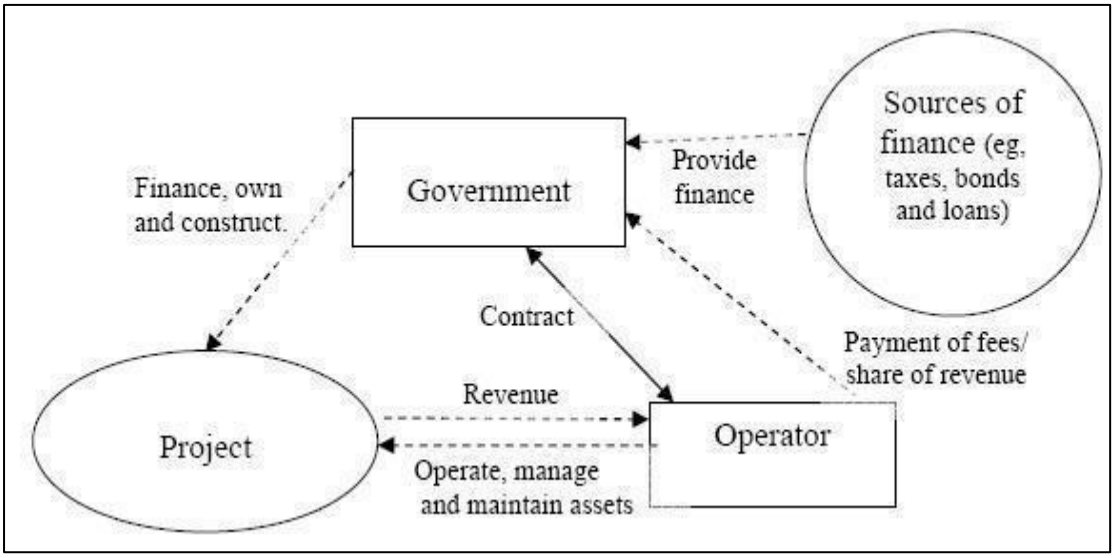

Figure 3: Lease / Affermage Contract

(Source:http://www.unescap.org/ttdw/ppp/ppp_primer/224_affermagelease.html)

2.2.1.5 Concession, BOT Contracts, BOOT and DBOs

Concession is a type of PPP in which the concessionaire, who is a private party is responsible for building and operating an infrastructure facility for a fixed period of time. The ownership is retained by the government throughout the contractual period along with those investments made by the private entity. Generally, the concessionaire makes payment to the government as concession fees. However, it may happen other way around in cases where private parties need to be compensated for their risk bearing in initial uncertain phase of the project.

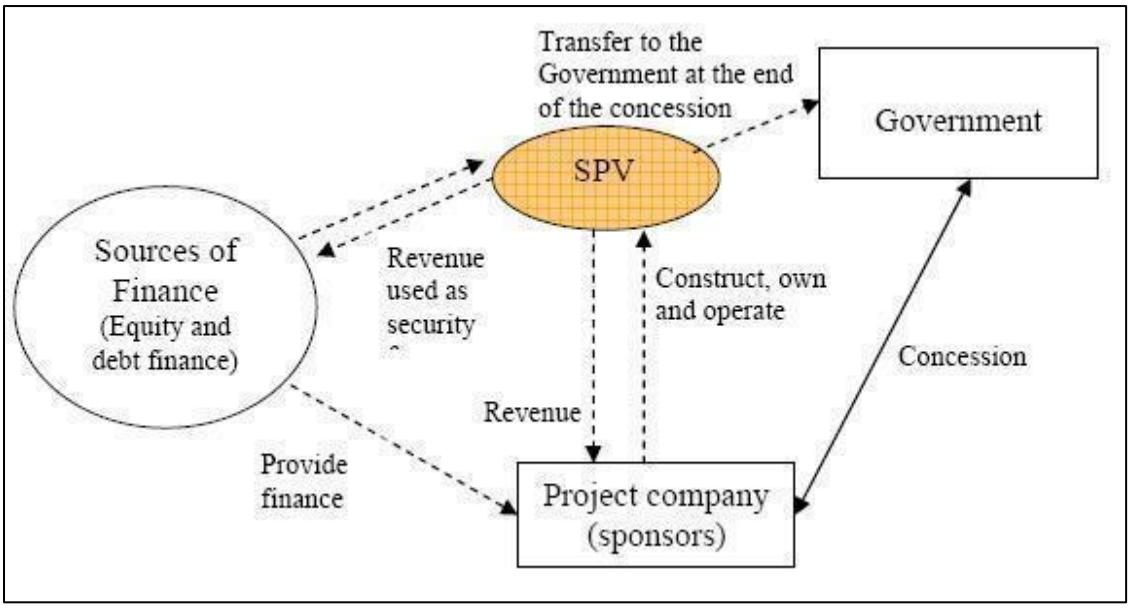

Figure 4:Concession Model

(Source:http://www.unescap.org/sites/default/files/PPP-Primer-Final-Original edited.pdf)

The figure 3 represents a general concession model. However, it is important to note that an SPV i.e. Special Purpose Vehicle is not typical to concession but to Build - Operate - Transfer (BOT) (UNESCAP, 2008, p. 23).

Build - Operate - Transfer (BOT) is a type of concession agreement where the private party invests to build the facility, operates it for a fixed period of time and then hands it back to the government authorities after operational period is over. A subsequent amount of investment risk as well as operational risk is bearded by the concessionaire which is compensated from revenue generated from operation of facility. The difference in this model of PPP lies in the arrangement for revenue collection where the operator collects certain fees form public entity rather than from the facility users (PPPIRC, 2016). PPIAF in its Toolkit for Public - Private Partnerships in Roads and Highways mentions that the essence of this type of partnership lies in the risk sharing between the parties involved over a long period of time. Further, it clarifies BOT where it mentions “In the BOT-type concession, private sector participants typically establish a project company and, after securing an exclusive license from the host

government or contracting authority (concession agreement), construct, control, operate and maintain a project for a determined length of time (concession period). The private sector participants then transfer the project company assets back to the host government after the period has elapsed." (PPIAF, 2009, p.19).

In the large set of Public Investment Projects, BOOT (Build - Own - Operate - Transfer) is a form of its subdivision. The concept of BOOT has the concept of construction and operation of projects by a private company which in most of the cases fall in the responsibility of the government sector or the public corporations. BOOT is usually observed in projects of road, bridges, water supply, electricity generation and distribution (Donaghue, 2002). Projects following the BOOT approach are usually first found out by the host government and then the government advertises or asks for proposals. The government then announces for a bid for the project. The private corporation winning the bid receives the grant of a concession which is to be utilized from all the works starting from design to maintenance. There is an agreed time period for the project which has agreed fee for the service rate structure. After the completion of the time period, the project is transferred at a very low cost or no cost to the public organization. Most of the BOOT projects are financed on a limited recourse basis, limited recourse meaning the result from the project is the major source for debt payment or equity return. The lender depends on the project assets and cash flow for repayment and debt services. The primary difference between the financing of BOOT projects and the more conventional approach is that only the project's expected cash flow is the only indicator for economic viability (Jefferis and Chen, 2004). The typical structure of BOOT project is shown below:

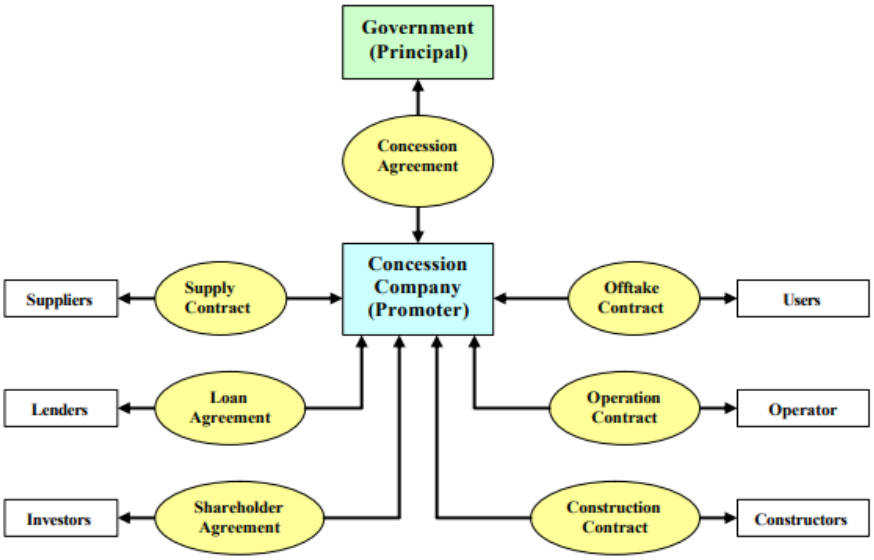

Figure 5: Typical structure of BOOT project

Source: (McCarthy and Tiong, 1991)

Design - Build - Operate (DBO) makes the private entity responsible for designing, constructing and operating the facility where the right to ownership is held by the Government. The private party designs and constructs the infrastructure for a stable fee which is received upon completion of stated stages. The public entity makes all the investments in the project so the risk bearded by the private party is nominal in this case. However, if within the contractual operating period any amendment realized at the facility led by unbefitting design or construction holds the operator accountable for making such changes. The operating party is liable to a fixed tariff for the operation of the facility from the government.

2.2.1.6 Privatization

Privatization is defined as "…transferring a public service or facility to the private sector, sometimes together with its ancillary activities, for it to be managed in accordance with market forces and within the framework of an exclusive right granted by a ministerial or parliamentary act (or sometimes a license)." (PPIAF, 2009, p. 20). Under privatization, full ownership of the infrastructure is transferred to the private sector with little or no interest of government in the facility which makes it fall

outside the premises of PPP. The private sector that designs, builds and operates the asset is likely to be more responsible in such arrangement as their revenue depend on the performance of the facility. UNESCAP stresses that such arrangement creates 'synergy effect' that ensures a better-quality project in terms of design, construction and operation (UNESCAP, 2008). The private party bears significant investment and operational risk. There are three major form of privatization, namely Build - Own - Operate (BOO), Private Finance Initiative (PFI) and Divestiture by License or Sale.

Under BOO arrangement, the private sector is held responsible for building the construction which is then owned, operated and maintained by the private entity itself. The private entity bears all operating risks associated with the facility and holds right to the profit earned during its entire life span (UNESCAP, 2008).

Private Finance Initiative is a long-term contractual agreement made by the private entity to build, own and operate the infrastructure whereby the ownership title may or may not get transferred to the public party at the termination of the contract. In, PFI the public authority abides to purchase the service of the private sector for certain fees and periodic reimbursement of investments incurred. The private entity bears no or minimum operating risk (UNESCAP, 2008).

Under divestiture, the government authority sells equity stake to private sector entity who may or may not be responsible for management (UNESCAP, 2008). Although the ownership is titled to a private entity, it requires a license to provide services which can be ended at any time if the terms of contract are breached or not to the standard (PPIRC, 2016).

2.3 Management Control in PPP

PPPs are highly characterized by risks associated with various phases of project life cycle (Mony and Aparna, 2014; Levy, 2011; Perl, 2010; Kile et al., 2014). Failure to address preventive and corrective measures to tackle risks is evident of leading to delays, cost overruns, fragmented and defective delivery, and premature contractual terminations (Mony and Aparna, 2014). Management Control is contemplated to a be

an indispensable tool for mitigation of such risks in PPP agreement (Appuhami and Perera, 2016; Mony and Aparna, 2014) and for achievement of Value for Money (VfM) (Appuhami and Perera, 2016). However, literature suggests towards insufficient study to understand its use in PPP (Appuhami and Perera, 2016;).

Appuhami and Perera (2016) recapitulate Lonsdale and Watson (2007) to explain the extensive need to use MCS in PPP to" monitor the behavior of the private partner (i.e. to ensure that the private partner engages in goal congruent behavior), and also to motivate goal-directed behavior (i.e. operates with the aim of achieving VFM objective of the partnership)" (p.409). They conducted a research in power house of Sri Lanka to assess the use of management controls by public sector in a PPP arrangement. From this study they discovered that bureaucratic control is the dominant type of control used in various stages of PPP. However, the economies of the country forced the public party to get influenced by trust factor and adjust the control system. Further, the result also shows that presence of a proper control mechanism merely does not ensure effectiveness when the public party fails to adhere to their execution. They concluded that leniency of public sector while implementing MC mechanisms is an impediment to risk transfer (Appuhami and Perera, 2016).

Mony and Aparna (2014) point towards the variance in control procedures, practiced in different types of PPP models. They attribute delays and overruns of PPP road projects to a weak management control system. The level of risk transfer varies with the types of PPP model as discussed in previous sections. Thus, the relationship between public and private sector is governed by variant control aspects in each type. For instance, PPP models such as BOOT, BOT or DBFMO bear high risks regarding construction, funding, operation and traffic. Thus, Mony and Aparna (2014) deduced from their research that such high-risk relationships are derived by 'contractual agreement'.

Malmi and Brown (2008) have raised similar concern regarding need for study of management control in variant partnership setting. They mentioned "...the package of controls which is likely to be the most effective in the different types of relationships

and settings is an important and pressing issue for the business community" (Malmi and Brown, 2008, p.297). This statement is in conjunction with the aim of this thesis. Thus, for this we considered the integrated system of management control developed by Malmi and Brown. Their framework gave a comprehensive look at management control, incorporating five control elements and treating it as a package rather than in isolation. They propose that this framework supplies the necessary tools, system and practices to understand the controls to be exercised in order to direct the behavior of the employees (or concerned party) (Malmi and Brown, 2008). Therefore, this research will examine how control is exercised in PPP in Australia and Norway to minimize risk. Both countries have adopted two different type of PPP model. Hence, the distinct characteristics of control elements will also be analyzed.

CHAPTER 3: EMPIRICAL CONTEXT

3.1 Norwegian National Transport Plan

The present inclusive and cross-sectoral strategic transport plan-National Transport Plan is based on the national long-term planning of transport infrastructure project. (Lauridsen, 2000). The National Transport Plan showcases the intention of the Government to prioritize resources within the transportation sector as well as deepen interaction between various modes of transportation. The plan addresses other important policy issues as well as provides a complete foundation to make decisions (National Transport Plan, 2017). The National Transport Plan as an instrument arrays priority regarding construction, maintenance and operation of state infrastructure within and between all modes of transport, purchase of transport services and different types of investment (Norwegian Ministry of Transport and Communication, 2004). In Norway, the plan submitted to the Parliament in the form of a white paper, is produced every four years. It sets forth the Government's transport policy goals and strategies for the next twelve years. The conceptual roots of the plan dates back to 1960s with significant changes over the period of time. The notion of planning system and its expansive change in terms of dimensions have been presented under the titles of three generations (Lauridsen, 2000).

1. **First Generation National Planning System**

The planning focus in Norway during 1960s was distinctly on road infrastructure. There was an enormous demand in road infrastructure due to increase in car ownership. The first Norwegian Road Plan denotes a national planning system of the first generation. It was based on the work of a committee appointed by the government in the late 1960's. The committee developed the first computer based Norwegian method for cost benefit analysis as well as investigated huge investment projects on the national road network. For each project, cost and benefits were measured. Then, the committee suggested a long-term development programme along with comprehensive financial framework for investments in national roads for the time. The programme included the projects with the highest rank as measured by

CBA. The Ministry presented the plan to the Parliament on the recommendations of the planning committee. Though the politicians accepted the main features of the plan, they had different views of the programme's project priorities. The planning system was accepted as a rolling system with four years intervals. Importantly, the planning system served as a basis for long-term road planning in Norway until the late 1990s in many ways. However, the political process had presented that prioritizing projects with the CBA model was not the definite solution to the planning problem. For this, a search was on for better methods of project prioritization (Lauridsen, 2000).

2. Second Generation National Planning System

The second-generation national planning system of the early 1970s due to mode by mode approach was undoubtedly based on road sector. However, the planning concept was becoming more complex with regards to the socio-economic effectiveness of the first generation. Environmental concerns and road safety which came initially as important aspects couldn't be integrated into CBA methods easily. Regional development and urban transport planning served as an issue for transport planners. Thus, planning concept changed to become more problem and objective focused. The Second Norwegian Road Plan could serve as an early example. The planning concept developed by the new committee had methods applicable for urban roads not seen as isolated planning objects. The concept had its focus on problem identification, definition of objectives which aimed to solve the identified problems and also looked on alternate ways of solving them. The planning concept formed for the Second Transportation Plan was slowly improved through 1980s with the publish of first Norwegian handbook for impact assessment in 1988. The division of labor between politicians and government ministries in one hand, and subordinated national agencies and enterprises on the other hand, led to issues during 1980s. The Norwegian government appointed committee that led suggestions on the introduction of new objective-oriented management principles. The new public-sector management principles implied the politicians to define objectives and decide strategy at the end of the process while the national agencies carried out activities on the boundary of objectives set and strategy defined. The principles were developed and

operationalized for the Norwegian Roads Administration, further by another committee. The modified principles by the committees led to shifting the focus from project-oriented approach to a strategy-oriented approach (Lauridsen, 2000).

3. Third Generation National Planning System

The third-generation national planning system is the ongoing planning concept in Norway. The planning based on objective-oriented model has the entire transport modes as well as national transport agencies part of the joint planning process. The planners prioritize measures across sectors and use alternative strategies to show the scope of decision-making. The politicians earlier to that decide on a strategy for the development of the sector. The strategy would then serve as a framework for the enactment of the measures regulated by the national transport agencies (Lauridsen, 2000).

Moreover, the prioritization process for roads commences with the municipalities and counties putting forward the local project proposals. The process continues with the project being assessed in the regional and central offices of the Norwegian Public Roads Administration. Then, it moves on through political adjustments of the Ministry of Transportation and Communication to the parliament. Submitted to the Parliament in the form of white paper every four years, National Transport Plan is a twelve-year investment plan (planning period extended from ten to twelve). It outlines the Government's goals and strategies for all modes of transport in a long-term perspective (Sager, 2016).

As NTP is a rolling plan that is revised every fourth year, changes in the plan have been discussed in the titles of different years.

3.1.1 National Transport Plan 2002-2011

In 1998, the four agencies responsible for air, sea, rail and road by the Ministry of Transport and Communications and the Ministry of Fisheries and Coastal Affairs were implied to prepare a joint proposal for the first long-term national transport plan

called, The National Transport Plan 2002-2011. The planning process had the agencies form four alternative strategies-environment strategy, a transport safety strategy, a regional development strategy and a strategy for efficient traffic flow, including the policy measures available to them. With the four alternative strategies, recommended strategies were to be prepared by the agencies (Lauridsen, 2000).

3.1.2 National Transport Plan 2006-2015

The transport agencies in June 2003 presented their joint input to a National Transport Plan 2006–2015. The foundation for priorities and policy shaping of the National Transport Plan 2006–2015 was built with collaboration of the Ministry of Fisheries and the Ministry of Transport and Communications, the three state transport agencies as well as Avinor AS, the county authorities and the main urban areas of Oslo, Kristiansand, Stavanger, Bergen, Trondheim and Tromsø (Norwegian Ministry of Transport and Communication, 2004).

2006-2015 term of the plan saw the Government adopting the financial framework of NOK 192.5 billion for the total plan. It covered expenditure chapters for the Norwegian National Rail Administration, the Norwegian Public Roads Administration and the Norwegian National Coastal Administration. State purchases of passenger train services were also included. Increase of NOK 420 million in comparison to the average allocation for 2002-2004 has been noted approximately (Norwegian Ministry of Transport and Communication, 2004).

The following four main goals for transport policy were agreed on by the government as mentioned in the report by Norwegian Ministry of Transport and Communication (2004).

1. High safety with less fatalities and serious injuries on the roads and other modes of transportation.

2. Attention to environmental sound transport concerns by reducing dependence of owning cars and increasing use of public transport.

3. Improved traffic flow in and between regions for the development of feasible districts, growth-oriented housing and labor markets while meeting the transport requirements of business and industry.

4. Building highly efficient transport system by increasing element of competition and bringing out the best possible transport for the total investments.

Three projects in the road sector were being tried out in the Public Private Partnership model. The Ministry of Transport and Communications has welcomed PPP only for the motive to achieve efficient profit through transfer of risk and cut down of the cost of project. The E18 Grimstad – Kristiansand project was confirmed as the third PPP pilot project through the Parliamentary approval of the National Transport Plan 2006 – 2015 (Norwegian Public Roads Administration, n.d.).

3.1.3 National Transport Plan 2010–2019

The Government presented the National Transport Plan 2010–2019, in spring 2009 with most of the content accepted by the Norwegian parliament. The plan intended to foster the transportation infrastructure over the next ten years in Norway. The plan focused on making every day easier, society more comprehensive and universally accessible by strengthening the competitiveness of Norwegian commerce and industry through sustainable development (Norwegian Ministry of Transport and Communication, 2009).

Adopting the following objectives for the National Transport Plan, the government aims to provide an effective, accessible, safe and environmental friendly transport system that fulfills the society's transport requirements and fosters regional development (Norwegian Ministry of Transport and Communication, 2009).

1. The improvement in traffic flow and reduction in time of travel is emphasized to support the competitiveness of the industry and contribute to maintain the settlement pattern. During the period, services and reliability in the transport

system is believed to be improved. The time of travel in and between is aimed to be reduced. During the rush hour delays for industry and public transport in the four largest conurbations is to be reduced. Improved infrastructure for pedestrians and cyclists in the period. The cost of distance between regions is to be reduced between regions within the period.

2. The Vision Zero aims in the transport policy to be based on a vision of zero accidents leading to fatalities or dangerous injuries. By 2020, the total number of persons killed or seriously injured in road accidents is to be reduced by one-third at least.

3. The transport policy focuses to limit greenhouse gas emissions and its impacts on the transport sector. It aims to help achieve national targets as well as Norway's international commitment to environment protection. Help achieve the climate target in the sector such that the greenhouse gas emissions are reduced by 2.5-4.0 million tons of carbon dioxide equivalents of the expected emission in 2020. Reduce NOx emissions in the sector. Assist to achieve national targets for local air and noise pollution. Avoid disrupting the important natural areas while safeguarding such ecological relations. Reducing the encroachment of vital national heritage sites, cultural surroundings, landscape and farmland. Avoiding the oil and other dangerous chemicals discharge at sea.

4. The public transport system is to be universally designed in the period. The National Transport Plan 2010–2019 indicated the great raise for building a fully integrated transport infrastructure in modern times. The total economic budget for State investments in national roads, railways and the maritime infrastructure for 2010–2019 was approximately NOK 128 billion. Inclusion of the estimated revenues of NOK 60 billion from tolls served to the total budget in the area of NOK 187 billion. With the major investment projects, the Government’s priority of investments was also in securing roads and railways against ice and rockslides. Large amounts in the main corridors to and from East

Norway, as well as the maritime infrastructure was also invested (Norwegian Ministry of Transport and Communication, 2009).

3.1.4 National Transport Plan 2014- 2023

The National Transport Plan 2014–2023 under the current planning system serves as the fourth plan. The input from ministries, agencies, county authorities, urban municipalities, business, industry and organizations leads to the preparation of the white paper supported by a widespread inclusive process (Norwegian Ministry of Transport and Communication, 2013).

The governmental transport agencies along with Avinor have served as major contributors for the preparation of the National Transport Plan. In February 2012, the transport agencies and Avinor presented their joint input for the National Transport Plan 2014–2023. The draft plan was submitted to the county authorities and major urban municipalities for comment. Other authorities, transport users, organizations representing urban transport, environmental protection, transport security remarked on the proposed plan. The work on the white paper had particular emphasis on the proposals placed from county authorities and major cities (Norwegian Ministry of Transport and Communication, 2013). To increase the competitiveness of business and industry as well as to contribute to retain main characteristics of the settlement pattern, the government aims to better traffic flow while reducing distance cost. The estimation of large road and rail projects reducing transport costs by nearly NOK 223 billion is made. An estimated NOK 47 billion is aimed to be saved in road transport costs. The road and rail investments reducing the commercial transport costs for business by nearly over NOK 78 billion are estimated (Norwegian Ministry of Transport and Communication, 2013).

Furthermore, the planned investments made are assessed by Norwegian Ministry of Transport and Communication (2013) to result the following:

1. Railway routes from Oslo to Skien, Lillehammer and Halden, and on the Trondheim – Steinkjer route achieving the travel time advances of 15 to 30 minutes. Travel time on the E6/E136 Oslo – Ålesund and E6 Bodø – Tromsø routes reduced by around 30 minutes. Significant travel time improvements on The E39 Stavanger – Bergen, E6 Tromsø – Alta and E6 Oslo – Trondheim routes to achieve.

2. For traffic 1280 km of national roads to be opened. New four-lane roads with median barriers replacing the two-lane roads while 400 km two- and three-lane national roads being equipped with a median barrier. 370 km of national roads widened increasing the standard. During the plan period, a total of 750 km of walking and cycling paths is to be built along the national road network of which 240 km is to be in cities and towns.

3. The Government has adopted a vision of zero fatalities or serious injuries, Vision Zero, as the basis of its transport safety goal. The goal during the plan period is to halve the number of serious injuries and fatalities in road traffic. In aviation, shipping and rail transport, the goal is to maintain and strengthen the high level of safety during the plan period.

4. The Vision Zero implemented by the government serves as the basis for the transport goal of zero fatalities or serious injuries. The goal in the term aims to halve the number of such occurrences in road traffic. Maintenance as well as strengthening of high accounts of safety in the plan period is the goal in aviation, shipping and rail transport.

5. The government should prioritize civil protection measures that help to guarantee a high level of traffic flow as well as reliability in modes as road, rail, air or sea.

6. The plan period has the Government emphasize on the transport sector reducing greenhouse gas emissions as well as air and noise pollution. Conservation of biodiversity and farmland also falls in priority.

7. One of the government's goals also is for the transport system to be universally designed such that everyone can use it. The universal design plan is to bring over 900 bus stops on the national road network and more than 100 public transport centers. Major upgrades and measures additionally are planned to increase accessibility and formulate the design at the existing 40-80 railway stations (Norwegian Ministry of Transport and Communication, 2013).

3.1.5 National Transport Plan 2018-2029

The Norwegian transport sector in the form of new National Transport Plan 2018-2029 is under the course of all-encompassing reforms at a general level and to various levels within the road railway, coastal and aviation areas, mutually denoted as the reform in transport. The aim of the reform lies to increase the socio-economic effectiveness in the field, within the finance limits foregrounded by the budgetary rule (Gulsvik, 2016).

The plan was presented to the public and submitted to the Storting in April 2017. The 2018-2019 plan is the fifth plan under the current planning system. The planning period this time has been extended from ten to twelve years providing viewpoints towards 2050 (Norwegian Ministry of Transport and Communication, 2017).

The plan serves to set historical level of investment into Norwegian Transport Infrastructure with NOK 1000 billion in the period of 12 years ahead to 2029. Ambitious green goals for transportation have also been specified in the plan (Lindblom, 2017). The reforms in the Norwegian transport sector addresses the private companies with new possibilities. Nye Veier AS, the new state-owned road construction company keeps NOK 130 billion budget for road construction within the next 20 years. The government wants numerous of these projects implemented by the way of public private partnerships (Gulsvik, 2016). The Norwegian Government under the "50/50" scheme promises 24 bn to partly finance a number of regional transportation infrastructure projects that possibly sees private finance as part of their delivery and capital model (Lindblom, 2017).

The NTP's lift in investments is primarily to modernize the Norwegian transportation system and to prepare the country for the demand of the future. The annual average increase compared to the 2017 budget has been noted as 37% with the Norwegian state providing approx. NOK 993 bn. Including the average NOK 131 bn. shares of toll revenues, the total budget is brought to NOK 1064 bn (Lindblom, 2017).

Solving challenges of the present while aiming to build the future of Norwegian Transport sector, NTP serves to include high-speed rail and high-speed rail connections to Europe in its investment. The NTP also provides for a massive road intervention and new building programme. Investments for the rail sector have been most important since the commission of the Oslo-Bergen railroad. Importantly, the target has been to increase rail service in and between the largest cities, with key aim in the Inter-City area in Eastern Norway and also around Bergen, Trondheim and Stavanger. Major investments in infrastructure boosting rail freight have been prioritized. Reducing travel time and distance between areas through ferry replacement projects as well as the other huge road interventions among which the planned interventions on the E30 have been the particularly significant projects The NTP expects about 43 major road and rail projects with the individual cost level in excess of NOK 3 bn. (Lindblom, 2017).

While additional concrete project for PPP has not been termed by the NTP additional to the accepted Rv3/Rv25 and the planned Rv555 and E10/Rv85 projects, the plan states that further projects triggering added value shall be measured for PPP as a delivery model. To assist major public transport projects and green goals in the four largest cities in Norway, partial state financing in the region of NOK 24 bn. is under the NTP is considered. Private finance could serve as part of the capital model and delivery of some of the projects. Some of these projects include Fornebubanen in Oslo (light rail), New metro-tunnel in Oslo, Bybanen (light rail) (to Fyllingsdalen) in Bergen, "Superbuss" stage 1 in Trondheim, and "The Bus-road" in Jæren (Lindblom, 2017).

3.2 PPP in Norway

The very first experience of Public-Private Partnership in Norway was in the transportation sector dating back to 1998. Measures were taken to come up with pilot projects for the transportation system. It was in 2001 that three pilot projects were introduced in the transportation sector as “Offentlig-PrivatSamarbeid” (OPS) which directly translates to Public-Private Cooperation. The three projects were aimed to analyze them from various parameters such as their performance, reliability, efficiency so as to implement the PPP strategy in other areas as well if their outcome was of satisfactory level (Alonso, 2015). According to the Norwegian Public Road Administration, the three road transport pilot projects approved by Storting in 2001 were as follows:

1. E39 Klett- Bårdshaug

2. E39 Lyngdal-Flekkefjord

3. E18 Grimstad-Kristiansand

All of these three projects have been completed in between 2004-2009. The contract value of all of these projects is in the range of 1.3 to 3.4 billion NOK. These projects have been sold to pension and infrastructure funds by the initial owners upon completion. The outcome from all of these projects is good and the investors also seemed to have grown well with the expected outcomes (Schjødt, 2015).

CHAPTER 4: RESEARCH METHODOLOGY

The purpose of this study is to determine the nature of management control system used in various PPPs across countries. Existing literature points towards one of the major challenges is with addressing the complex elements present in a MCS package (Malmi and Brown, 2008). Hence, the "comprehensive but parsimonious typology of MCS as a package" suggested by Malmi and Brown (2008) for conducting empirical work is used in the study as the conceptual framework for research (p. 288).

This chapter introduces the research design and procedures utilized to accomplish the purpose of this study. The data collection strategy to explain the types of data used, their sources and reasons for choosing them, the validity and reliability of these data collected and the method for processing data are described in this chapter.

4.1 Sampling

EFQM, a European Foundation working towards promotion on 'good practices' for 'sustainable excellence' in business, highlight the importance of comparing the way of doing things in their publication, *Benchmarking Guidelines*. For this they advocate the importance of benchmarking which is defined as "A systematic comparison of approaches with other relevant organizations that gains insights that will help the organization to take action to improve its performance" (EFQM, 2014, p. 3). The analysis approach that we have considered for this study is based on comparison. In Norway there are only 3 PPP road projects delivered till date. Hence, they are considered as samples to study the management control in Norwegian PPP context. On the other hand, we need a project that "represent the level of performance to which others must aspire if they are to be seen as offering outstanding levels of performance" (EFQM, 2014, p. 3). In order to match this criterion of fostering exchange of information and learning from what are called as 'best practices', our next sample needs to be the one that demonstrates higher and successful history with PPP management. Literature suggest that Australia is believed to be proficient in PPP delivering superiority and sophistication in innovation, farsightedness, risk assessment, funding model, compensation and incentivization mode, whole project

life cycle approach, competitive process and institutional arrangements (Akintoye et al., 2015; Liu et al., 2016; Regan et al., 2011; Transurban, 2017). In 2008 PricewaterhouseCoopers (Pwc), contracted by the Department of Infrastructure and Transport, generated a report of six projects which were considered to have applied 'best practices' in infrastructure planning and delivery by Infrastructure Working Group(IWG). Sydney's Westlink (M7 Motorway) was one among the six projects recognized for its exemplary project management practices (PricewaterhouseCoopers, 2008). Thus, it was considered to be an ideal case to be considered for this study.

In addition, this project was constructed and opened for service during the same time frame as that of Norway's pilot PPP projects. This also assures the possibility of benchmarking analysis on a nearly same scale.

4.2 Research Design

The research design for this study is qualitative research design. "Qualitative methods are chosen when the goal of the research problem is to examine, understand and describe a phenomenon. These methods are a common choice in social science research problems and are often used to study ideas, beliefs, human behaviors and other research questions that do not involve studying the relationship between variables." (CIRT, 2012).

The particular approach used for this is case study design. "A case study is an in-depth study of a particular situation rather than a sweeping statistical survey" (Shuttleworth, n.d., para. 20). Bell (2005) proposes that "the case study approach can be particularly appropriate for individual researchers because it provides an opportunity for one aspect of a problem to be studied in some depth" (p. 10). Shuttleworth further suggests that a researcher doing a case study plays a role of an observer rather than one who is experimenting. Organizing Academic Research Papers (n.d.) highlights the suitability of this research design when it is required to get an understanding of an issue via contextual analyses and investigating the application of established theories in a real-life situation.

The aim of the thesis is to examine the distinctive features of management control system exercised in PPP models in two different scenarios of two countries. On the basis of above propositions, I find case study research design best fits the purpose. A theory by Malmi and Brown (2008) that is found to be a widely accepted framework will be used for understanding management control system as a package. Case summaries of the Norwegian PPP pilot projects and Australian road project will be tested in light of this framework.

4.3 Sources of Data

Among the available types of primary and secondary data, we will use only the latter option. Secondary data form the basic constituent for this study. In a case study research design, it is acceptable to use and depend on variety of sources to achieve the answers to the research questions (Organizing Academic Research Papers, n.d.).

This study relied upon publicly available documentation for the information presented about the various cases. In an attempt to gather sources, Nord University e-library database has proved to be a boon which allowed access to wide alternative of database. Literature relevant to the key topic areas such as ‘Management Control’, ‘Public Private Partnership’, ‘MCS Package’, ‘PPP in Norway’, ‘PPP in Australia’ were entered into the search engine ‘Oria’ of Nord University Library that produced the most relevant results.

Norway and Australia, both had published information memorandums and summary of contracts for the infrastructure projects for public information which was the major source for gathering authentic information on project specifications. Australian Department of Infrastructure and Regional Development published a National PPP Policy Framework that provided detail understanding on PPP procedure of Australia. They also conducted various reviews and assessment reports on infrastructures that supplied sufficient information on managerial practices required for analysis. Road and Traffic Authority of New South Wales (NSW) also had made investigations and assessments on the particular project taken as sample. Similarly, Norwegian Public Roads Administration has publications regarding the policy framework, conference

proceedings, governing documents, and assessment reports. Norway had a provision to publish public documents in Norwegian as well as in English which did not let language barrier be an impediment to this study. In addition, published works and literature available on PPP procurement process of these two countries constitute as valuable inputs to this research. Management Control was also found to be a widely researched topic. Available literature on this topic allowed development of a viable framework for this thesis. Thus, public documents were sufficed to the need of information for this study.

4.4 Validity and Reliability

Garvin and Bosso (2008) mentions in his work that for a research based on cases, construct validity and reliability are of utter importance. He describes construct validity as "establishing correct operational measures for the concept under study" and reliability as "demonstrating that the operations of a study are repeatable" (p. 166).

Construct validity in this study will be established through diverse documents of evidence such as legislations, governing document submitted as White Paper to the parliament at the interval of 4 years, information memorandums published by Norwegian Public Road Administration (Statens Vegvesen), request for proposals, concession agreements, and various periodic articles and related literature.

Garvin and Bosso (2008) argue that in a research which is "grounded or case-based", reliability can be attained by "applying a consistent study protocol throughout" (p.166). Related to reliability Yin (2012) mentions that the reliability of research can be obtained through scrupulous presentation of data collection and analysis. Following these two explanation, reliability of this research is obtained by following these two mechanisms.

4.5 Analysis

Shuttleworth (n.d.) argues that when the research design adopted in the study is case study design, the analysis is opinion based rather than statistics. “The usual idea is to try and collate your data into a manageable form and construct a narrative around it.” (para. 20)

Following this idea in this study we will use various elements presented as sub-categories in the Malmi and Brown (2008) framework as our basis. The original framework is used as a tool for identifying management control used in each case. Case summaries are used to do the analysis.

The original table with five major elements and their subcategories is used as our template. Information relating to those sub categorical topics are identified from each road project, treated as individual cases, and are plotted in different templates. From the cases we will identify the similarities and differences between the management controls systems used in the selected two countries for their PPP implementation.

CHAPTER 5: FINDINGS

5.1 Case Study of Pilot Projects of Norway

Norway started its journey with PPP through 3 Pilot road projects. In all 3 pilot projects the 4 major stages were involved where the Private entity was responsible for Design and Construction followed by Operation and maintenance of the facility for a certain period of time. The figure 6 below gives an overview of the Project Model.

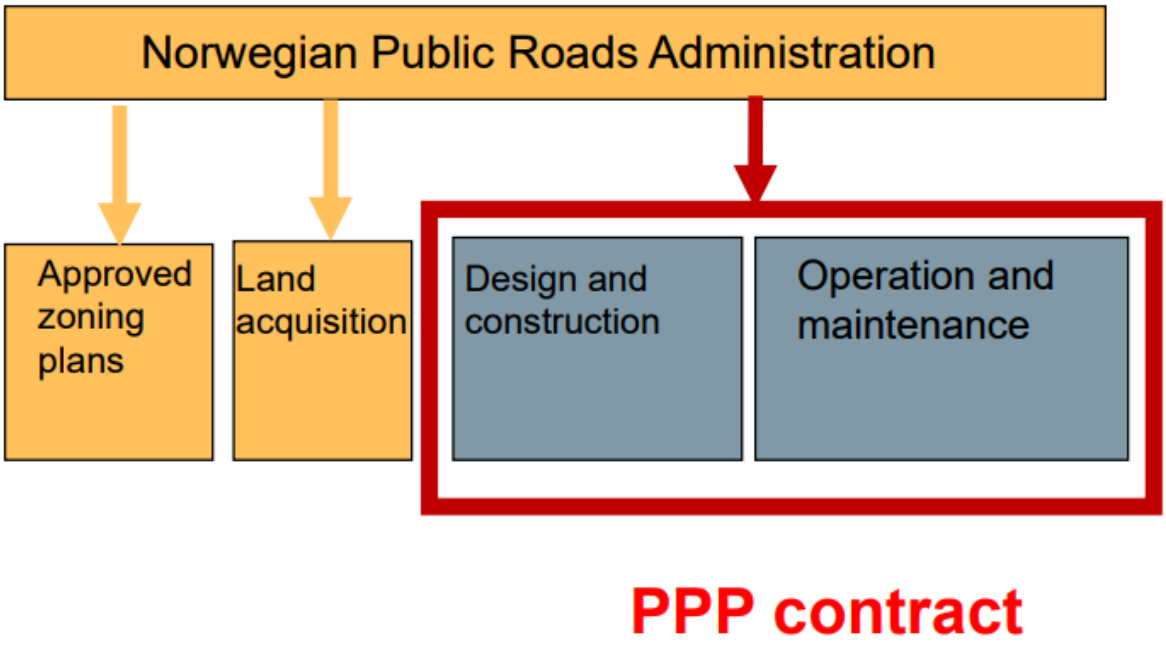

Figure 6: Stages involved and responsibility bearing in Norwegian PPP model

Source: https://seb.no/siteassets/infrastrukturseminar/statens-vegvesen.pdf

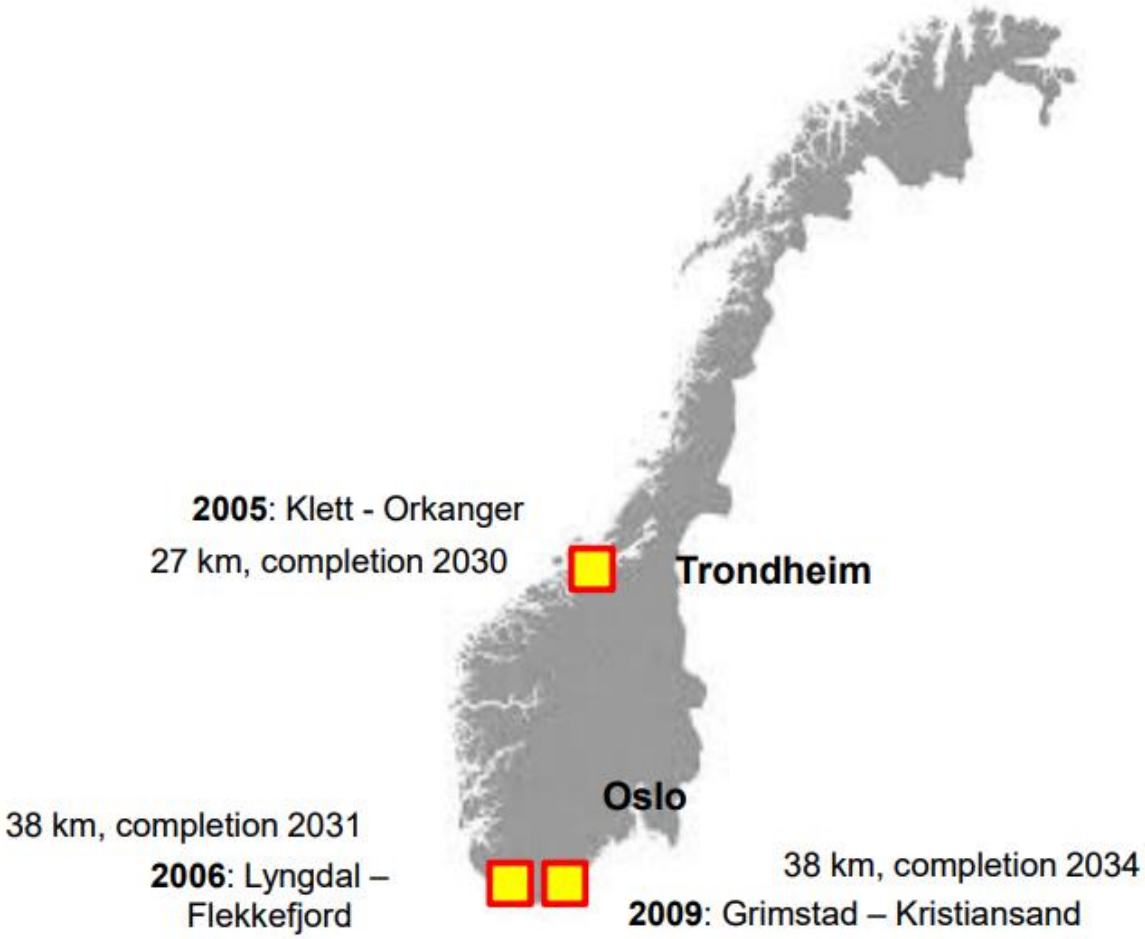

Figure 7: Location of PPP Road Projects on country map

Source: https://seb.no/siteassets/infrastrukturseminar/statens-vegvesen.pdf

1. E39 Klett- Bårdshaug

This project stands as the first PPP in Norway. A costal highway which was constructed to replace an old and dangerous road is the largest road contract awarded in the country. The road project is approximately 22 km southwest of Trondheim, Norway. The project is in the communities between Klett and Bardshaug (Skanska, n.d.).

The project had construction schedule of 28-months but the project was opened two months early than the tight 28-months schedule. The contract has a tenure of 27 years

which comprises of two years of development and then 25 working years of road maintenance (Skanska, n.d.).

Before the construction of this road transport, the route along the coast was considered a dangerous one but after the project being opened in 2005, transportation through along the coast through this road has been significantly safer. As per the police statistics, the number of accidents has reduced by 66%. The overall work carried out in E39 constitutes of 22 km of new road, repaired road of 5 km, 10 km of tunnels and 12 bridges. The longest bridge in the project is of 240 meters. Not only the project has resulted to safer transport but it also has made travelling shorter and also has brought families and businesses to this area which has resulted in economic benefits as well (Skanska, n.d.).

2. E39 Lyngdal-Flekkefjord

This project is the second project out of the total three state road projects in Norway to be undertaken on the PPP model. The project is in Vest-Agdercounty. The initial budget assumption was 1.0 – 1.2 NOK billion for the construction element of the contract, the section E 39 Handeland – Feda. Development of this section has also been included in the so-called “Lister Package”, which consists of a total of nine road projects to be constructed in the municipalities of Lyngdal, Farsund, Kviesdal and Hægebostad (NPRA, 2002).

The two-fold purpose to improve the section Lyngdal – Flekkefjord of E 39 by constructing a new road between Handeland and Feda are as follows:

1. Assist in development of the coastal trunk road Kristiansand – Bergen – Trondheim (the transportation corridor Nordic Link)

2. Help to establish healthy residential area and robust labor market in the Lister Region

The project yields a quicker road connection for trunk traffic and better accessibility for local traffic in the area as the section will be 15 km shorter. Alongside, the assists in the transportation, the project also is helping to make the residential environment better along the existing road. Regarding the design of the project, one of the main objectives is to safeguard the residential environment and biological diversity along the road. The area around where E 39 goes through has the area with the most density of elk population in the entire country. Along with it, a majority of the section also has scattered settlements in typically agricultural areas. The main reason for this is to have a frame with greenery around the road (NPRA, 2002).

3. E18 Grimstad-Kristiansand

Opened by His Majesty King Harald, E18 Grimstad-Kristiansand on August 26, 2009, this road project is one of the Norway's largest road projects. One of the pilot road projects in Norway, E18 Grimstad-Kristiansand was completed after only three-year period of construction time. This road project is part of the E 18 highway connecting Oslo to Kristiansand. The road passes through six counties which has a population count of 1.7 million inhabitants. Along with being one of the main connections in the Nordic link, this road project is important strategically as being a competitive transport corridor between the southern parts of Norway and the European continent. The project is also included in the TEN-T (NPRA, 2005).

The road has been built in a hilly landscape where the soil is of poor agricultural quality. A number of tunnels and bridges have been constructed in this project to give major focus on the protection of the landscape. The road has a speed limit of 100 km/hr. the road has a total width of 20 meters on both the sides. This road project is classified as Highway Class A. This PPP project is of 38.8 km which links Grimstad in the east and Timnes in the west is a four-lane dual carriageway. The road before this PPP project built in the 1950s was of very low standards and the road had two lanes in each direction. This road reduced the distance by 3 km approximately which also shortened the travelling by 10 minutes. The project has high standards set for aesthetic and environmental concerns along with the conservation of the biological

diversity found along the road and also safeguard the residential environment (NPRA, 2005; Odeck, 2014).

The total budget spent in the design, build, finance and operation of the project is NOK 2,800 million which in 2005 was awarded to the consortium Agder OPS Vegselskap. The road project has a concession period of 25 years of operation which can be extended for another five years resulting into thirty years. E18 Grimstad-Kristiansand is one of the roads having typical high volume in the context of Norway. The average annual daily traffic depending on the different road segments is in the range of 10,000 to 30,000 vehicles per day. This road is one of the most important roads for the supply chain link. This road project also serves as a hub for the local road networks (Odeck, 2014).

5.2 Case Study of Westlink M7 of Australia

Westlink M7, the 40 km motorway linking the M2, M4 and M5 through a semi-circle orbital that passes through city areas and semi-urban areas of the outer western suburbs of Sydney (RTA, 2003). Roads and Maritime Services, previously known as Roads and Traffic Authority of NSW had been given the responsibility of project management for this motorway (SMEC, n.d.).

M7 comprises of 4-lane dual carriage freeway of length 40 km which has been built to motorway standards. M7 motorway is under concession until 2037 (RTA, 2003). The westlink M7 motorway has removed the largest void in the orbital road network of motorways around Sydney. The estimated budget of the project is $1.5 billion. The westlink M7 motorway runs in between the M5/Hume Highway at Prestons and the M2 at West Baulkham Hills. The M7 motorway is the first distance-based toll road in Sydney. The motorway opened to traffic in December 2005 (Transurban, 2017).

The project also has the first ever motorway-motorway interchange in Australia and the total count of major interchanges is 17. The motorway in total has 175 structures which includes 98 overpasses and underpasses for the pedestrians, cyclists and

motorists for local access. M7 also has significant length of pedestrians and cycle paths which is almost 60 km (Transurban, 2017; RTA, 2003). The M7 motorway has results in faster travel times in between key western Sydney suburbs.

The M7 motorway provides better transport option between the western Sydney suburbs like Liverpool, Fairfield, Blacktown and Baulkham Hills communities. The M7 lets the travelers bypass 48 sets of traffic lights during the travel from Baulkham Hills to Prestons. The M7 motorway is each owned 50% by Transurban and Western Sydney Road Group (Transurban, 2017).

M7 motorway facilitates in safer and more efficient road transport for the travelling passengers and carriages. The M7 motorway also scales up the employment opportunities for the residents of Western Sydney as they are linked to the present and future industrial and residential areas (Transurban, 2017).

M7 motorway doesn't have any cash toll booths as it is an electronically-tolled road. The payment for Westlink M7 toll scan be done through Transurban Linkt accounts and passes. For the travelers to pay for their travel, they can open a Tag account, a Tagless account or buy a Sydney Pass (Transurban, 2017; RTA, 2003).

The motorway M7 has history of 50-year plus of planning. M7 travels through a compelling amount of greenfield land which was undertaken for the residential and industrial development planning. M7 motorway has ignited the growth in the western Sydney as it has established itself as a major link within and outside Sydney for the carriage and the travelling passengers. M7 motorway has a major help in the uplifting of commercial development in Western Sydney. M7 also is an excellent example of integrating land use and transport (RTA, 2003).

Out of the total estimated budget of $1.54 billion, $360 million was funded by the Australian Government and the rest by the private sector. One of the key feature of this motorway is the implementation of the cashless distance based tolling system which has a pre-defined upper limit on the toll paid for a single trip. The design of the

M7 motorway is a benchmark for other similar projects as it consists of a median plentiful wide to construct and additional lane in both direction for buses or general traffic in future (RTA, 2003).

In the year of 2001, Westlink M7 was released in the form of BOOT scheme to the market (The Audit Office of New South Wales, 2011). $360 million provided by the Australian Government was significantly used in the works of land acquisition in the understanding of the road's future function as part of the National Highway Network. In October of 2002, Westlink M7 was selected with a concession period till February 2037. The construction of the project was started in July 2003 after the conditions precedent were fulfilled by February 2003 (RTA, 2003).

5.3 Profile Comparison of Norwegian PPP and Australian PPP

The table below provides an overview of the four PPP projects that were studied for this report. The table gives the major highlights of the project and provides a brief introduction of all the project.

Table 1: Profile comparison of Norwegian PPP and Australian PPP

Project Name	M7	E39 Klett-Bårdshaug	E39 Lyngdal-Flekkefjord	E18 Grimstad-Kristiansand
Value	$1.5 billion	1.3 billion NOK	1.0 – 1.2 NOK billion	NOK 2,800 million
Status	Operational	Operational	Operational	Operational
Procurement Method	BOOT	BOT	BOT	BOT
Private sector partner	WestLink consortium	Skanska Group	Orkdalsvegen AS	Agder OPS Vegselskap

Road	Urban and suburban areas	Coastal highway	Built in hilly and natural landscape	built in a hilly landscape where the soil is of poor agricultural quality
Delivery Date	December 2005	2005	2005	August 26, 2009
Main Features	Cashless distance based fully electronic tolling	Norway's first PPP, delivered two months early and the country's largest road contract awarded till date	Development of the transportation corridor in Nordic Link, establish healthy residential area and robust labor market in the Lister Region	A competitive transport corridor between the southern parts of Norway and the European continent
Concession Grant	34 years (till 2037)	25 years	28 years (until 2030)	25 years

5.4 Management Control in Norwegian PPP Model

All 3 Pilot Projects carried out in Norway are based on the same PPP framework. Hence, the necessity to study them individually is not present. The basic PPP framework is used for the data presentation.

5.4.1 Compensation and Reward

Financed by PPP Company on a single payment stream, the pilot road project was on private company's balance sheet under equity and debt financial model. The private sector received annual unitary payment for the services by the public sector. The

payment depended on the performance set by the Directorate of Public Roads on accounts of availability, performance, safety and traffic levels.

The financial plan comprised of a model showing income and expenses log for each year in the contract periods with requirements for insurance. The model prepared by the tenderer was reviewed by the independent third party before the contract was signed. The model that covered 80-90% of the payment comprised that no payments were to be made before the opening and availability of road. 10-20% of the payment was made for operational standard of the road that were linked to the output specification of road delivery, friction, visibility of signposts, air quality in tunnel, winter maintenance. These payments were post-paid every month. Safety bonus linked to the number of serious accidents as well as compensation for unexpected traffic volumes were post-paid yearly. The early payments for parts of the building costs were made in the first three years. The payment in the operation period had the probability for the PPP company to receive higher compensation in the initial years of operation as of the availability of funding from the Parliament. Also, there was the opportunity to receive higher payments through the utilization of toll revenue collected on the commissioned road. This served as incentives to the PPP company in the remaining period of operation. Thus, the compensation and reward principle in the PPP road projects were reflected in the financial model which comprised of the appropriate deliverance of incentives by meeting to provide a public high-quality road with high safety standards, provision of value for money, achievement of the optimum risk transfer between the public and private sector as well as provision of incentives to the private company for the entire length of operation period. The private company also required developing a mechanism that befitted the efficient promotion of a procurement route which is easy to monitor and operate in the length of the concession period. (Brisbane City council, n.d.; Helmersen and Pedersen, 2014; Kile et al., 2014, NPRA, 2001).

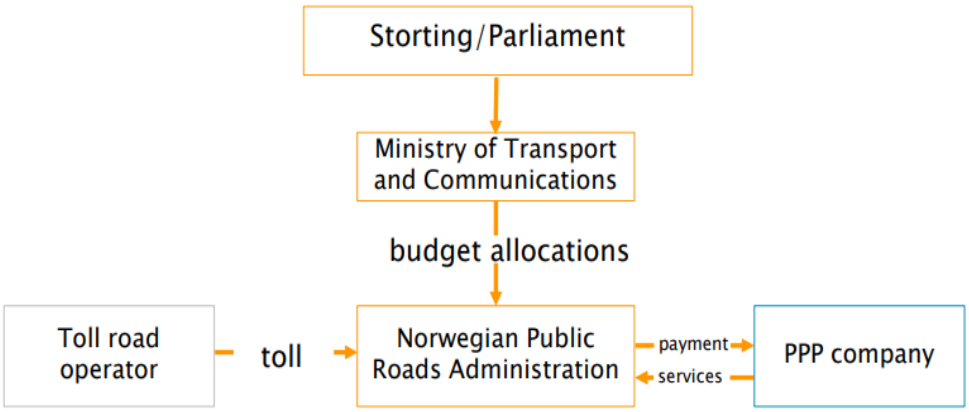

Figure 8: Payment Procedure to PPP Company

Source: https://seb.no/siteassets/infrastrukturseminar/statens-vegvesen.pdf

5.4.2 Administrative Control

The Norwegian parliament in the proposition of the first National Transport Plan on 15 February 2001 decided to include three road projects implemented as pilot projects in the Public Partnership Model with the resolutions made by the Minister of Transport. As the administrative control element comprises of organization design and structure, presence of government authorities in the project as well as the procedures and policies, the PPP pilot projects had the Directorate of Public Roads as the State representative becoming the contractual party for the PPP contract. Norwegian Roads Administration as the procuring entity handled the planning process of the development plans based on the Planning and Building Act while being responsible for the land acquisition and other project preparatory requirements. The procuring entity had third party involvement of financial and legal advisers who assisted them in the procurement process and signing of contract.

A private company then on the rounds of open and healthy negotiated procedure, qualified among bidders and undertook the entire responsibility for the delivering the project on a DBFO (Design, Build, Finance, and Operate) contract with the support of shareholders and creditors. The contract had the outlines of the rights and duties of the

PPP company for project implementation along with the rights and duties of the NPRA. The contract tended to cover the project financing, design, construction, operation and maintenance as well as additional cost of project management, administration and insurance by the company until it was handed over to the State. The contract illustrated the use of construction company by the bidded PPP company with a section of the responsibility transferred to the construction companies in different contract. The operation and maintenance of the roads further subcontracted to companies for the period of 20-25 years altogether determines the entire organizational structure, presence of authorities as well as formulation of policy and procedures as means of administrative control in the PPP pilot projects. (PricewaterhouseCoopers, 2011; Helmersen and Pedersen, 2014; NPRA, 2001; EIB,2004).

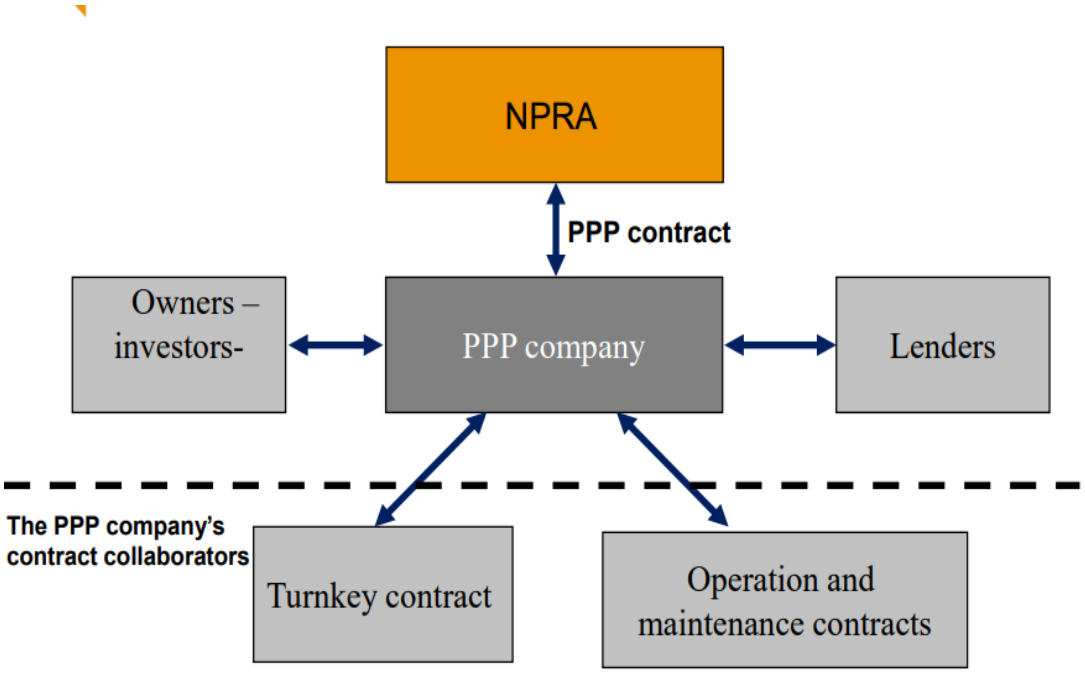

Figure 9: Structure of Norwegian PPP

Source: https://seb.no/siteassets/infrastrukturseminar/statens-vegvesen.pdf

5.4.3 Planning Control

Due to the challenges of rise in costs of maintenance of existing roads and construction of new ones, the Norwegian parliament proposed the public-private partnership model in the National Transport Plan 2001-2011. Thereafter, three pilot PPP road projects were selected to measure the effectiveness and efficiency of PPP in contrast to the traditional method. The test of effectiveness served as the part of the long-range planning outcome. The projects had Norwegian Roads Administration build development plans and property acquisition for the project. The plans had the stress on the significant goals of 'good accessibility with a high level of traffic safety for a network with the objective to unite the country, without causing unnecessary damage to the environment.' A long-term contract delegate construction responsibility and an operation period of 20-25 years. It transfers tasks, responsibilities and risks to the private sector associated with financing, construction and delivery of services. Preliminary schedule for the procurement process served as the foreseen target for the achievement of immediate goals as project announcement, deadline for submission of prequalification application, selection of candidates, submission of tenders, selection of preferred bidder through negotiation and signing of contract. While time frame set for the selected PPP Company which is binding in nature served to meet the long term and short-term target of construction, operation and maintenance with the presence of immediate and long-term payment models. The action planning of the immediate future had a tactical focus as a planning control element in the PPP projects while the long-range planning served as a strategic planning control element (FHWA, 2004; Helmersen and Pedersen, 2014; Kile et al. 2014).

5.4.4 Cybernetic Control

With a defined lease period and the set contract value, the PPP projects had a specified binding time frame for the road commission and the extended period of 20-25 years for the operation and maintenance with pre-determined sets of performance standards. The government was responsible for the income payment made for availability, meeting the operational standard, for traffic load above the forecast and

for road safety above comparable road stretches. As with the toll financing aspect in the Norwegian projects, the income for the government paid for the PPP company for operation and maintenance. The financial plan of the project modeled by the PPP company also needed an approval with the loans, lender, payment time and interest rates. With the budget defined in the contract for meeting the finance, design, construction, operation and maintenance as well as additional costs of project management, administration and insurance, the main focus lay in facilitating the demand of building the road at the lowest possible costs while maintaining the quality standards. The payment mechanism for the project worked as an element of cybernetic control with the PPP Company being given incentives. The presence of elements of bonus and deduction in the payment mechanism served to outline the meeting of the NPRA's overall objectives of the project. The central aspect of the the payment mechanism was the insurance of effective execution of the road project, risk optimization between the public and private sector, construction of a road of high quality and safety with a best possible operation of the road throughout the operation period. Furthermore, the evaluation element as set forth by Malmi and Brown as means of cybernetic control is showcased by the PPP company being qualified on the basis of the evaluation criteria of being the most economically advantageous tender with the measurements on the basis of quality, price, technical value, aesthetic and functional characteristics, running costs, profitability, customer service, technical assistance and time of delivery. The Ministry of Transport further presented the overall evaluation of the experiences of PPP after the procurement process to test out its experiences (Alonso, 2015; NPRA, 2001; Olsen et al., 2011; NPRA, 2005).

5.4.5 Cultural Control

As of the geographical challenges of the longest fjords, steepest creeks on both sides of difficult mountains, settlement on these areas as well as remote places, islands far out in the ocean along the coastline serves to demand infrastructure bonding on all the remote parts, Norway has widespread county. The nation with its big cities profuse challenges in the infrastructure with many people moving to the biggest cities. The construction of the PPP projects hence had to make it easier for the counties to use it

as a model for public transport projects. Key challenges involved in being able to hold institutional competence for an adequate procurement unit for the PPP projects. The cultural control also lay in the potency to develop a road infrastructure that could match the government's ambitions as well as the NPRA and the society itself. The main aspect of the cultural control elements lies in the statement as proclaimed by the NPRA, “The project must ensure that the project get the deliveries that are agreed upon in the contract, within the time frame, with the correct quality and at the right price. Quality also includes the consideration of the internal and external environment. It is important to us that the projects create the project in a manner that encourage the most cost-effective solutions in the market the project are approaching.” (Gulsvik, n.d.; Helmersen and Pedersen, 2014; Olsen et al., 2011)

5.5 Management Control in Australian PPP Model

5.5.1 Planning Control

The planning for M7 Westlink had a robust long-term conceptualization. The planning went on for several decades and became broader with metro strategies. The project demonstrated a need with significant sections of route identified and corridors resumed as part of County of Cumberland Plan in the 1950s. A major breakthrough in the planning occurred with the publication of Roads 2000 which proposed the orbital route for the first time through Western Sydney. The project was identified in various national NSW and NSW and RTA strategies including Sydney Area Transportation Study (1974), National Highway Program (1974) and Action for Transport 2010 (1998). The project’s inclusion in the NSW Government’s Action for Transport 2010 plan gave priority and momentum to the long-term project which helped to deliver the commercial deal. With seven years more of route development, environmental assessment and consultation, numerous alterations to the proposed route and design of the project were made. These were announced by the NSW Minister of transport in November 2001. Then, the planning approval in compliance of route development, environmental assessment and consultation standards was sought from the NSW

Minister of planning in 2001 and was granted a year later in 2002 (PricewaterhouseCoopers, 2008).

Moreover, the long period of gestation with strategic focus integrated action planning for the necessary alterations, with a tactical focus. The procurement strategy brought upon a BOOT PPP between the NSW Government and the private sector service providers. The winning consortium, Westlink Motorway comprised of Transurban, Macquarie Infrastructure Group, Leighton Holdings were responsible for the financing, design, construction, operation and maintenance of a 40 km long, four-lane, dual carriageway motorway between the M5 motorway and the M2 motorway as part of Sydney orbital freeway and motorway circuit. Likewise, construction of pedestrian and cyclist facilities and development and delivery of electronic tolling system also fell under the responsibility. To meet the social, environmental and economic benefit standards, the private sector under the project deed accepted the majority of the risks associated with the project which included: construction costs; traffic volumes or forecasted revenues below expectations; traffic management during construction; tax; and further risks of works or operational and maintenance activities being disrupted by the lawful actions of other Government authorities. The RTA administered the project deed to ensure the consortium delivered the M7 according to the agreed scope and approval conditions. Thus, the activities of groups and individuals were controlled to meet the goals while aligning to the functional areas of the consortium (RTA, 2003; PricewaterhouseCoopers, 2008; The Warren Centre, n.d.).

5.5.2 Cybernetic Control

The private company, Westlink Motorway was awarded the contract for design and construction. The contract cost was approximately $1.54 billion. But it was estimated that with the inclusion of connecting roadworks and the entire project finance, the budget would range to the cost of $2.23 billion. The project was to be funded with a mix of equity, constructors and investors via the ASX and debt, through the banks. The Commonwealth Government provided $356 million for the project with the rest of costs to be met by the private consortium. The $360 million the government

provided was for land acquisition in recognition of the road's future function (The Warren Centre, n.d.).

The procurement process of the project followed the Working with Government guidelines. The guidelines provided the framework for a competitive evaluation process of the proposals handed by the bidders. The focus was on ensuring the value of money against a public-sector comparator. The value of comparison of each proposal was expressed to the terms of the present value to the RTA. A non-price assessment was in inclusion while the evaluation of the tenders was carried out. Suggestively. the members of the winning consortium were made aware of the uncertainties and were asked to be prepared for the short-term risks as of the expectation of strong returns in later years. The expectation of the 33 percent (2008-209) of gross regional product growing through the project laid the economic importance of western region of Sydney. With the evaluation of the submission, the Westlink Motorway was selected in October 2002 with a concession period until February 2037. Westlink satisfied the conditions present and the construction began in July 2003 (PricewaterhouseCoopers, 2008).

The project's development, environmental assessment and planning approval phases was coordinated by the RTA. During the phases of implementation, the RTA administered the project deed for making the agreed scope and approval conditions comply with the consortium's deliverance. The review panel comprised of State and Commonwealth Government representatives who were informed on the progress and activities which generated a sense of ownership. The responsibility of the consortium was to ensure that it was to be able to deliver the project, to specification. This had to be done by ensuring that the consortium has access to appropriate finances and arrangements for the construction and maintenance of the motorway as well as the tolling system. For the changes with delays or cost increases as result of requests made by the RTA, the costs were to be incurred by the RTA. Likewise, if the changes bring savings, the savings were to be shared equally by the consortium and the RTA (GHD, 2011; PricewaterhouseCoopers, 2008; The Warren Centre, n.d.).

5.5.3 Compensation and Reward

The project was released as a BOOT scheme to the market. The construction cost funded as a mix of equity and debt allowed the delivery of the project in momentum when no public finance was available. Later in recognition of the important role the motorway had in the National Highway network and the delivery of freight, the Commonwealth Government supplemented a contribution of $360. The key characteristic of the M7 road was the use of cashless distance tolling with a upper limit on the toll for a single trip. So, despite the fact that early year traffic forecasts proved to be over-optimistic, the revenue shortfall wasn't bad as the traffic shortfall as of the higher than expected proportion of short trips. Westlink Motorway Ltd is responsible for operations while Transurban (50%) and Western Sydney Road Group (50%) serve as the concession holders with a concession to 2037 (GHD, 2011; PricewaterhouseCoopers, 2008; The Warren Centre, n.d.).

The project was launched eight months ahead of schedule and the electronic tolling system was launched 10 months ahead of time. This resulted in the operators to open the motorway early and receive toll receipts. The electronic tolling system which was delivered ahead of time was operation two months before the completion of the road. Majority of the risk was held by the consortium but many benefits would also be received if the project was a success. For instance, the operators in the early completion of the M7 would be entitled to several months of traditional toll revenue. Furthermore, the benefit would also result from higher than project traffic usage for the consortium. The provision for sharing the benefit is only applicable if the toll and administration fee revenue is more than 5% of the forecast made six years or more after completion. Meeting the objectives of employment and economic growth, M7 has proved to accelerate development in Western Sydney. It has contributed to but also benefited from the land usage along the motorway corridor and prioritized North-West and South-West Growth areas (GHD, 2011; PricewaterhouseCoopers, 2008; The Warren Centre, n.d.).

5.5.4 Cultural Control

The project benefits as a contribution to mobility, freight transit and new employment in Western Sydney. Safer and more efficient road transport for both passenger vehicles and freight, better access to employment opportunities through provision of links between existing and future residential areas, stronger economic growth with further investment in the area through potential savings in transport costs, reduction in heavy vehicles using local roads, better air quality and less noise in residential areas as well as faster travel times between suburbs of Western Sydney have been identified as a number of benefits to the community. For that, the project was required to prepare independent Environmental Impact Audit Report for the assessment of the actual impact to the predictions made for planning approval. The report was to be prepared after a year and two years of operation. The third report was scheduled after seven years of operation. Such need to review the environmental impacts was presented as a commitment to transparency and monitoring. Also, before the beginning of construction, five Community Liaison Groups were established to ensure that the community members in proximity to construction were informed properly of the planned construction in the neighborhood and to help for the mitigation of any impacts. In total 120 Community Liaison Group meetings were conducted for improving the project with positive feedback coming from the residents (RTA 2003; PricewaterhouseCoopers, 2008).

For the tolling aspect, Transurban-as the tolling and customer management operator conducted a research and community consultation process to develop a business plan for the electronic tolling system that was friendly to the needs of regular and casual road users. Medium as letterbox-drops, public information meetings, community information booths and the website were used to communicate about the route and its benefits. Likewise, when the toll structure was released, local media helped to inform the public of the interactive toll calculator. Thus, the M7 project and its management included its community engagement contributing as a good corporate citizen (Transurban, 2017; RTA, 2003).

5.5.5 Administrative Control

The project M7 is governed by the Western Sydney Orbital Project Deed. The deed was signed by the private concessionaire and RTA on February 2003. Related project documents as well as the project deeds led the outline of the roles and responsibilities of the private concessionaire and the public party. Within the roles and responsibilities, the expectation related to standards for the delivery of the project as well the calculation of tolls was also presented. The private sector had two separate companies, namely Westlink Motorway Limited and Co Pty Limited WSO Co Pty Limited entering the deed. The private company then included different subcontractors with Westlink Motorway Limited working on operation, maintenance and repairs while Transurban Infrastructure Developments looking after tolls and customer management (RTA 2003; PricewaterhouseCoopers, 2008).

The organizational structure of the project primarily had RTA for the overseeing of project's development, environmental assessment and planning approval. At the times of project implementation, RTA supervised the project's specification and standard measuring its compliance with the margins set out in the project deed. The private concessionaire followed the instructions set in the deed while managing necessary finances for project. Westlink Motorway won as a potential bidder and had further subcontracts with Abigroup and Leighton Contractors for construction, Transurban for tolling and customer management operator, and Macquarie Infrastructure Group for investment. For the project, all the companies served as equity investors (RTA, 2003).

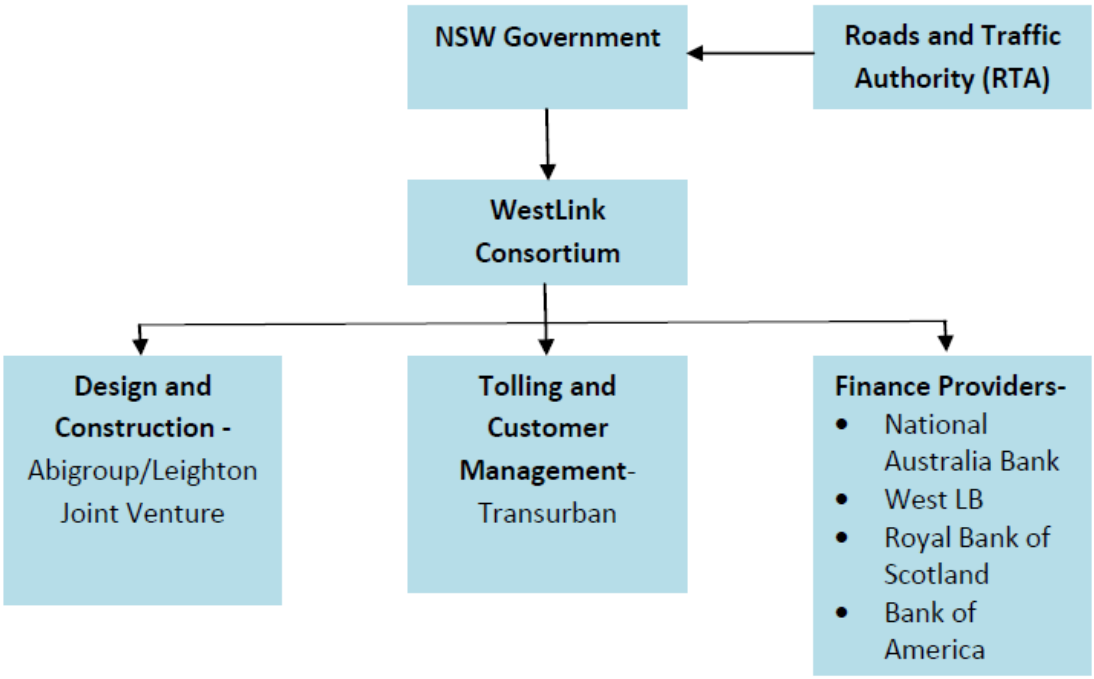

Figure 10: Structure of PPP Model for Westlink M7

The policies and procedures had 'Working with Government: Guidelines for Privately Financed Projects' as the first guideline on the effective procurement and risk allocation practices. The procurement took a structure process and the Request of Interest (ROI) had registrations invited from the private sectors in July 2001. The request for proposal had three bidders submitting a fully developed proposal. The comparative value of each response was evaluated against a public-sector comparator. The evaluation was governed by an experienced evaluation panel supported by legal and financial advisors. The successful proponent was selected in October 2002, 11 months after the issue of the request for proposal-probably, the best practice (RTA 2003; PricewaterhouseCoopers, 2008).

CHAPTER 6: ANALYSIS AND DISCUSSION

In this chapter, the findings presented in previous chapter, are discussed and analyzed based on the theoretical framework presented in chapter 2.

6.1 Reward and compensation

When we analyze the compensation control, the case of Australia presents that the private sector is given the right to collect tolls from the M7 Motorway as its mode of compensation. Transurban is the equity partner responsible for toll and customer management.

This form of compensation places high risk related to traffic volume and management on the private sector. However, in this particular case, toll compensation has led to positive outcomes. Several innovations have been observed in the tolling system in M7 motorway. It is the first fully electronic distance-based toll road in the entire country. Distance-based tolling is the major source of revenue for the private entities via the road tolls. Hence, the active engaging of community awareness and promotion of distance-based tolling was prioritized by the upper echelon of the Transurban members. It also initiated an extensive research and community consultation process to develop a business model for the electronic tolling system that would be representative of the journey made by regular and casual road users. This form of commitment is a considerable impact of compensation mechanism adopted for management control. In addition, it is noteworthy that the tolling system was operational 10 months ahead of the scheduled date which entitled the operators to additional revenue from toll operations. It is plausible that adoption of a compensation mechanism that lets the performance of the entity decide on its revenue, fosters innovation to minimize negative effects arising from the external environment.

When it comes to compensation control in Norway, the mode of compensation had the private sector to receive annual unitary payment for the services by the public sector. The payments were based on the performance standards set by the Directorate of Public Roads on accounts of availability, performance, safety and traffic levels.

While, the large share of funding came from the company's balance sheet under equity and debt financial model. The income for operation and maintenance was paid by the government to the private company from toll finance. If the private sector did not deliver the project on time, it would not be paid as it will not be able to generate revenue until the road becomes available for tolling.

The compensation mechanism applied in Norwegian PPP model tends to have minimal control over private party as there is surety of financial lease capital payment despite their inability to meet maintenance and operational specification. Kile et al. (2014) has questioned this compensation mechanism where only minimal percentage of payment stream is associated with maintenance and operation. Whereas, financial lease capital stream comprises of 80% of compensation made to private party. The toll revenue was actually an income for the government which was collected by the government and then paid to the PPP company for the operation and maintenance aspects. In that way, the payments made by the government through the toll served as revenue for the PPP company. This system of compensation has loose control over private party as consistent payment is paid by the government irrespective of the earning from toll or performance of the infrastructure. Helmersen and Pedersen (2014) differ to this idea and support this compensation mechanism considering it to be a reason for success of PPP in Norway.

When the reward control is analyzed in Australian PPP it is found that private sectors were pledged for incentives for innovation and early completion of the project. On the other hand, the public party, NSW Roads and Traffic Authority (RTA) were provisioned to be benefited from revenue that exceeded traffic forecasts for which value is set at any excess on 105% of forecast revenue.

A total of A$69 million of incentives was paid out which means the reward mechanism indeed had a visible effect on the performance of the private entity. This management control mechanism of reward not only encouraged innovation but efficient project delivery as well. Furthermore, this led to less capitalized interest on the project debt than forecasted. Its reflection could be noticed in Return on

Investment (ROI) since the owners were able to refinance the project with a more attractive financing package. Thus, it will be logical to accept that reward mechanism adopted by the Australian PPP strived the private party to achieve the planned outcome in a superior manner.

When it comes to reward control in Norwegian PPP, the payment would be linked to the output specification for the road. If the predefined standards would not be met, the private company would be penalized in terms of payment by making the road unavailable.

If the specifications for the standards of the road in terms of aesthetic and environment needs were not met as defined in the contract between the private and public parties, the consequences would have the private company suffering loss. The frequent evaluation made by the public party laid a framework for private company to follow the agreed contractual terms and conditions. Fear for penalty helped the public-sector hold control over private party of delivery of facility as per the output specification. However, the public party should consider incentivization of private sector in such a way the private entity will be able to accommodate possibilities of change that may occur in the due course of project life and help stay focused on the objective. Provisions of positive rewards for extraordinary performance of PPP company will motivate Private party to aim higher than just simply meeting the minimal standard.

Malmi and Brown (2008) have put forward an argument that presence of visible reward and compensation have a direct relationship with effort invested towards direction of goal in their paper "*Management control systems as a package - Opportunities, challenges and research directions".* In the Australian context, early delivery of both infrastructure and tolling system, dedicated attempts of the private entity to promote usage of the toll roads, and receipt of such high amount of incentive all direct towards satisfaction of this claim made my Malmi and Brown. This result is in conflict with the observation made by Javed et al. (2013) that states "...payment mechanism do not incentivize (in monetary terms) contractors for better performance

above contract requirement" (p.23). Thus, reward and compensation mechanism applied by Australian PPP in M7 Motorway had a significantly positive effect on the project. Norway, on the contrast, depicts a different story. The negative reward system that penalizes private entity for non-compliance with the pre-set standards has been successful till date in controlling the performance of the private entity.

6.2 Planning

When we analyze the action plan control, the case of Australia presents that in early phase, RTA placed its focus on development of project, environmental assessment and planning approval. The expected engineering, management and legal specifications of the planned design consisted in the bid. The private sector involved itself in comprehensive market research to generate knowledge on its prospects and build pricing strategies that best serve their needs. A toll-free period was also offered to entice its use. Planning on traffic models were also developed and tested by the private entity on its own.

The design for M4 intersection was proposed by private sector which was preferred over previous design planned by the public sector. A well-designed action plan with involvement of all concerned parties have fostered innovation in M7 project. The tactical goal of private sector to assess the market prior to introducing payment model turned out to be fruitful. Their awareness on their varied user groups and rising confusions regarding newly launched electronic toll system had made them set a goal to educate the public about its benefits. This in turn, made them able to design a pricing strategy that well suited the usage patterns. The pricing model was accepted and appreciated by the users. Thus, action planning during various phases of M7 has not only helped it succeed over present issues but also saved the company from facing problems in the long run.

When it comes to action plan in Norway, the action plan had the Norwegian Roads Administration build development plans as well as property acquisition for the project. Preliminary schedule was set for the procurement process in order to meet the target of achieving the immediate goals as project announcement, deadline for

submission of prequalification application, selection of candidates, submission of tenderers, selection of preferred bidder through negotiation and signing of contract. Majority of plans made by the PPP company such as finances for loans, lender, payment time and interest rates needed approval by the public party.

The action plans in the Norwegian scenario are highly dominated by the public sector. They either lay the plans themselves or demand their inspection and prior approval. The action plan as per technical solutions for the project could have been better suited and feasible had greater flexibility been given to the PPP company. The public company could have opted out from the norms or solutions that fell out of its standards.

When the long-range planning control in Australia is analyzed, it is found that the inception of the concept of a north-south freeway-standard link in Western Sydney goes back to 1960s. However, in 1998 when the Action for Transport 2010 was published by the NSW Government, construction of M7 was ensured. The goal was to link sections of the National Highway to the north and south of Sydney and to provide a high quality orbital road linking major employment and residential areas. In October 2002, Westlink was awarded with the partnership in which the private entity was held responsible for design, build, finance, own and operate till February 2037. NSW Government will own the infrastructure once the period is over. Decisions regarding procurement of road as toll concession was also decided. Any surplus revenue was agreed to be invested in access roads (RTA, 2003).

Four decades of planning can be assessed in both positive and negative way. Negative, because such a planning seems to be irrational and needless. On the contrary, it could be perceived to be positive because the idea regarding the need of roadway got well rooted among the public and industrialists. This eased up its execution. Action for Transport 2010 plan expressed the determination of the Government to deliver the project by specified date and its funding. Moreover, reinvestment of surplus funds helped to improve utilization. The long-range strategic

planning engaged all concerned stakeholders with clear set of goals for each party to attain resulted in delivery of a successful project.

When it comes to long-range planning control in Norwegian PPP, the very first conceptualization of Public-Private Partnership in Norway was in the transportation sector dating back to 1998. With the challenges of rise in costs of maintenance of existing roads and construction of new ones, finally the Norwegian parliament proposed the public-private partnership model in the National Transport Plan 2001-2011. Three pilot PPP road projects were selected to measure the effectiveness and efficiency of PPP in contrast to the traditional method. The test of effectiveness as of the project delivery by the PPP company served as the part of the long-range planning outcome. The private sector was responsible for funding the capital costs. The government was not required to fund the capital costs which eased affordability constraints in the early years. The public party would make the contribution in the shape of annual service payments over the operating life.

There was the need of the government approving all the project plans, drawings and solutions for the project prior to the commencement of construction. The bureaucratic and cumbersome system for adding and handling of objections led to expansion of planning time. The excessive planning impacted the total cost. Likewise, the needs of the people as well as the economic, political and environmental situations could change by the time the construction actualized thus bringing a contrast to the effective plan implementation.

According to Malmi and Brown (2008), planning charts future course of action that shapes the effort and behavior of the people. The private and public entities in Australia have simultaneously demonstrated meritorious plans that facilitated both short and long-term goals. Both groups were in complete agreement and concordance during all phases of the initiative that allowed for smooth employment of ideas. Due to this mutual understanding in determining immediate and long-term goals from public and private entities the goals of the project were successfully met. This concept is supported by the premise presented by previous studies that unambiguously defined

goals promote innovation and are critical to the success of PPP projects (Liu et al., 2016; Javed et al., 2013). Furthermore, the findings of Javed et al. (2013) on nature of planning and its effect is justified by the outcomes exhibited in M7 Motorway. He mentions "...if specifications are too perspective, they would not allow innovation and appropriate risk transfer to the party best able to manage life cycle risks, so specifying outputs rather than inputs would add to the flexibility of practitioners using the documents, including facilities managers" (p.23). In Norwegian context too, this statement holds validity. The rigid mechanism for public planning in all stages of PPP have somewhat had adverse effect on innovative capabilities and appropriate transfer of risk.

6.3 Cultural Controls

When we analyze the values control, the case of Australia presents that the M7 management kept people at the heart of everything they did. They exhibited their concern towards the community and consulted with them in each phase of project delivery. Prior to the start of construction, Community Liaison Groups were formed to create awareness to citizens residing in close proximity to the project area. Vital information regarding the plans were consulted with key persons that encouraged ideas to alleviate negative effects in the community. They adopted this receptive practice in their work culture and conducted 120 meetings throughout various phases to make the project better. They established relationships with community as their core value and were able to validate themselves to be a good corporate citizen.

The concern for welfare of society resulted in delivery of project with minimal negative impacts on the local residents. The continual attempt of the private companies to accumulate feedback from the public regarding their plans created a positive image of the company in the minds of public and also received appreciations from the Government.

When it comes to values control in Norway, the values that public party aimed the private entity to adopt laid in their project transport policy goal. A transportation system with increased safety on the road, environmentally sound transport, improved

traffic flow, and efficient transport system were the core belief public part entrusted with the private part.

Malmi and Brown (2008) propose that “mission statements, vision statements, credos and statements of purpose, are examples of belief systems which convey values”. The explicit intention of the Norwegian government acted as a value control mechanism in Norwegian PPP.

Malmi and Brown (2008) consider culture to be a control system “when it is used to regulate behavior” (p.294). Here the commitment of private party in Australia towards societal welfare convey a value system they share. This can be depicted in their activities that actively engages community in major decision makings and for gathering feedback on the plans. In Norway, the vision of that the Government had for transport sector directed the behavior of the private sector. Mony and Aparna (2014) support this control mechanism in their work by highlighting the importance of cultural control which can be achieved through a concern exhibited towards social causes and societal wellbeing. This helps develop a relationship with the stakeholders thus minimizing risk in goal divergence. However, clan and symbols are not clearly defined in both PPP models.

6.4 Administrative Controls

When we analyze the governance control, the case of Australia presents that the M7 project is governed by the “Western Sydney Orbital Project Deed” signed between the private concessionaire and RTA on 13 February 2003. Governance of the project is made official through this project deed and associated project documents that comprises of the contractual roles and responsibilities of both parties, public and private, for the entire project life. The deed encompasses the standard to be met for the delivery of project and service along with the calculation of tolls. The private sector entered the deed with RTA by forming two separate companies named Westlink Motorway Limited and WSO Co Pty Limited (‘the Project Company’). Subcontractors were further appointed for specific purposes. Westlink (Services) Pty

Ltd. was responsible for operation, maintenance and repairs. Transurban Infrastructure Developments looked after tolling and customer management.

A well-structured formalized deed established clear set of obligations for each party involved. The entities were well aware of their specific duties and the deed set guidelines regarding benchmarks to be achieved. Inclusion of operating terms and responsibilities for the entire project life is another strong aspect of the governance mechanism followed by this PPP model. This ensures that all the functions are aligned to achieve the common objective. The governance mechanism followed in this project depicts a clear picture of formal lines of authority and the accountable entity for every task. This proposition is supported by previous studies which advocate that competent and comprehensive contracts are vital elements of control throughout the project life (Appuhami and Perera, 2016; Langfield-Smith and Smith, 2003).

When it comes to governance control in Norway, the project was to be delivered on a Design, Build, Finance, and Operate contract. The contract had the outlines of the rights and duties of the PPP company for project implementation along with the rights and duties of the NPRA. The contract tended to cover the project financing, design, construction, operation and maintenance as well as additional cost of project management, administration and insurance by the company until it was handed over to the State. NPRA had formed two committees, one with road owners and the other with users, of professionals for assistance in decision making regarding environmental and socio-economic issues.

The contract had the PPP company agreeing to deliver the project within the time frame, in correct quality and at the right price. The consortium had the emphasis on creating the project in a manner that brought about most cost-effective solutions in the market it was approaching. The contract though was based on Norwegian contract standards, it being different from traditional construction and maintenance contracts had its content and terms subjected to negotiations. The winning consortium has to undertake significant part of risk related to planning, construction, delays, operations and maintenance, in addition to the financing of the Project. This transfer of risk

could result to increase in funding costs with respect to return on equity and greater interest costs. However, the responsibility of also allows the PPP company to have high degree of flexibility in choosing to meet the obligations defined in the contract. However, the PPP company has but little or no influence on certain types of risk as unexpected changes in legislation. Such risks correspond to public sector which could lead in additional payments to the PPP company. Further Malmi and Brown (2008) define governance also as "the systems which are in place to ensure that representatives of the various functions and organizational units meet to coordinate their activities both vertically and horizontally". This practice is visible in the Norwegian road PPP model where various concerned groups had been meeting and discussing issues that ensured monitoring and manifested accountability.

When we analyze the organization structure control in Australian PPP, the case present that during the inception, RTA was the one to oversee project's development, environmental assessment and planning approval. During implementation, RTA played the role of the checking authority who ensured the project was being delivered according to the agreed specification and standard as mentioned in the deed. On the other hand, the private entity had to comply with the instructions set in the deed and manage necessary finances for the completion of the roadway and tolling system. Westlink Motorway was awarded the partnership. It further joined hands with Abigroup and Leighton Contractors for construction, Transurban for tolling and customer management operator, and Macquarie Infrastructure Group for investment. All of them were included as equity investors.

Inclusion of a tolling company as an equity investor is the peculiarity of the structure formed in this partnership. This gives the tolling company a sense of ownership which helps in exceling performance and active participation in making the operations efficient and goal oriented. Functional specialization is attributable to clear segregation of tasks to specific parties at each level.

When it comes to organizational structure control in Norway, from the public sector, the Storting serves as the authority for allocation of funds and making of strategic

decisions that lead to concern of development of state highway network. The acts of the Storting is implemented by the Minister of Transportation. The responsibility of the Minister lies in the development, operation and maintenance of the state highway network. Vegdirektoratet serves as the central authority for the state highways, who represents the government in the procurement process. It also serves as the contractual party on the behalf of the government in the PPP contract. A local authority for the state highway network in the region develops the overall plans for the project. It is also responsible for expropriation of land and other project preparation. Several municipalities in the region contribute as local authorities governing the Plan and Building Act in the Project. A qualified private company responsible for the design, build, finance, and operation becomes the PPP project customer. The private company further enters into separate sub-contracts for construction, operations or maintenance phase. The Nordic Investment Bank (NIB) has served as one of the financers in all three projects, and in the two last ones, the European Investment Bank (EIB) has also come in as a financer.

The organization of all the parties is made clear in the PPP structure of Norway. Every involved individual and groups are made clear of their responsibilities and contractual duties. This clear depiction of structure eases the performance as everybody knows what they are ought to do and who they are accountable to. Thus, organization structure as a control has played a positive role in disposal of unambiguous roles of each party. This helps eliminate confusions a cultivate healthy relationships among the involved parties.

When we analyze the policies and procedures control, the case of Australia presents that “Working with Government: Guidelines for Privately Financed Projects” was the first substantial guidelines on most effective procurement and risk allocation practices for development of economic and social infrastructure through Public Private Partnership. The procurement process for M7 was done in a structured process based on this particular guideline. Request for Registration of Interest (ROI) followed by a request for proposal was made that led to three entries. The proposals were evaluated against the estimated budget if public sector was to spend named as ‘public sector

comparator'. The evaluation criteria were not limited to cost but non-financial aspects were also included related to project structure, design and construction, traffic and safety management plans, preliminary project management plans, environmental management, quality maintenance and repair and operations. The evaluation judged by a panel of intellectuals resulted to selection of the bidder who provided best value for money (RTA, 2003).

The detail structured process exercised in selection of the private party ensured transparency and certainty in the selection procedure. The enforcement of the guidelines has suggested the genuine dedication of public entity towards selection of the best private partner. In addition, completion of this thorough process in 11 months can be considered as another achievement. The framework provided by the guidelines ensured there was competitive and rational evaluation of bidders who would be compared against non-financial as well as public sector comparator ensuring value for money. This unveils that presence of a strong policy and procedures can result to not just attainment of goals but foster efficiency.

When it comes to rules and procedure control in Norway, Norwegian PPP is regulated by general public procurement as it does not have differentiated regulations. The procurement process under negotiated procedure was based on rounds of open and healthy competition. The selection of the preferred bidder was made on the accounts of economically advantageous tender. The construction requirement is guided by various handbook on road standards published by NPRA.
The procurement process is dependent on price and the final decision for selecting the winning bidder is also measured by this means. The absence of formalized guidelines for detailing processes and practices to be carried out while procuring in Norwegian PPP showcases feeble bureaucratic control of public party.

Malmi and Brown (2008) presented a proposition that "Administrative control systems direct employee behavior through the organizing of individuals and groups, the monitoring of behavior and who you make employees accountable to for their behavior, and the process of specifying how tasks or behaviors are to be performed or

not performed." (p. 293). The administrative control exercised in M7 project seems to satisfy the needs mentioned by Malmi and Brown for management control. This indeed depicts the significant role administrative controls has played as a control mechanism for directing, administering and entrusting liability for all involved parties. There is a visible line of reporting between various levels and parties involved that warrants undeviated path to success (Liu et al., 2016). However, in Norwegian context, administrative control isn't found to be dominant as it ought to be. The road projects being the first attempt of Norway in practicing PPP could be attributable to this cause. The mention of the claim of Abernethy and Chua (1996) by Malmi and Brown (2008) that representatives of various functions and organizational units meet to coordinate activities both vertically and horizontally is evident in the three pilot project of Norway as how the private and public-sector work in the parameters set by the contract in DBFO model.

6.5 Cybernetic Controls

When we analyze the budget control, the case of Australia presents that the Westlink M7 Motorway was delivered on budget. The initial estimation was A$2.23 of which A$1.54 billion was for design and construction and A$690 million for connecting road works and financing. Of the total amount required, A$356 was financed by Commonwealth Government and rest of the requirement was fulfilled by private funding.

The allocation of fund required was explicit. No evidence of continuous cost monitoring was found in the documentations for the project. This points towards less focus on cost objectives which is common to this type of PPP model. Mony and Aparna (2014) mention that weak management control leads to cost overruns thus, questioning the effectiveness of management control. However, the completion of project within budget here can be deduced to be due to presence of a sound management control mechanism.

When it comes to budget control in Norway, the project was delivered on time and in par with the estimated budget though there were considerable challenges during the

construction phase. There was the delivering entity suffering considerable cost overruns. But this did not affect the final cost for the procuring entity.

A continuous cost monitoring seems to be needed in order to avoid such circumstances. The budgetary control in the procurement phase could provide more market confidence in the project, making it attractive to bidders and potential financiers. Thus, modest level of cost control can be expected to be prevalent in Norwegian PPP.

When we analyze the non-financial control, the case of Australia presents that the Project Deed signed between the involved parties specifies the obligatory level of service for the entire duration of ownership and operation phase of the project. The private party has to ensure uninterruptible operation of the roadway with the only exceptions being repairs and emergency response. The motorway has to satisfy the maintenance standards at all times. The periodic audit report of environmental impact to be submitted has to be in par with the conditions of the Minister for Planning approval 2002 is another assessment criteria. A Review Panel that constituted of representatives from State and Commonwealth governments was formed to measure their congruence of activities with the expected goal. Thus, this mechanism of monitoring behavior and evaluating performance with the aim to encourage goal directed behavior has assisted in controlling the private entity as suggested by Appuhami and Perera (2016).

Non-financial measurement system in M7 motorway project is not exclusively defined. Nonetheless, the project deed specifies the project specifications, expected service outcome, its availability and safety level clearly. The private entity is allowed a high level of autonomy with minimal involvement of Government. The requirement to maintain a consistent condition of the roadway through proper maintenance and repair is attributable to the level of qualitative construction delivered. The maintenance isn't limited to rectification of problems that occur but treated as a continuous process. The assessment of environmental impacts depicts a commitment of transparency and monitoring. The formation of the Review Panel helped the

concerned parties to remain informed on the progress and activities and treat the case with priority.

When it comes to non-financial control in Norway, it comprises of the evaluatory elements of a certain PPP company being qualified by the public party on the criteria of being the most economically advantageous tender. The measurements were on the basis of quality, price, technical value, aesthetic and functional characteristics, running costs, profitability, customer service, technical assistance and time of delivery. The Private company is obliged to prepare monthly reports on areas involving availability and incidents. In addition, annual examination of the facility is conducted by NPRA representative followed by a major evaluation every 5 year.

The performance standards serve as a measure of availability to the travelling public and would in return reward the private contractor with the need of little maintenance. Standards of the road conditions which fall below the ideal will deem to be non-available thus having the PPP company carefully consider its decisions in construction. The PPP company was obligated to implement a set of specified quality routines which included handling health, environmental and safety measures. The State was given the right to supervise the quality of the service provided by the PPP company. The PPP company was to provide all the information needed by the state to check whether all the requirements in the contract was satisfied. If there were any negative results, there would be a deduction in payments. Thus, non-financial control exercised in PPP model of Norway is noteworthy and have created remarkable impacts in terms of quality of the roads delivered.

In cybernetic control mechanism, Malmi and Brown (2008) claim that there is a process in which a feedback loop is represented by using standards of performance, measuring system performance, comparing that performance to standards, feeding back information about unwanted variances in the systems, and modifying the system's comportment. Such feedback loop states its presence in the annual meetings between the PPP company and the NPRA where the desires for change were discussed and negotiated. The cybernetic control mechanisms applied in M7

motorway is seen to follow a proactive rather than a reactive approach. A result-oriented outlook on management control structure can be observed in this PPP project. As Malmi and Brown (2008) mentions that cybernetic as a control mechanism is the one that links "behavior to target" and creates accountability for any deviation from the target. From the case scenario of M7 project, it can be inferred that the project supports their argument. However, in Norway standards of performance were measured and compared to performance standards, feeding back information about unwanted variances and modifying the system's comportment to meet the ideals. The finding of Javed et al. (2013) which specifies that an unwavering monitoring throughout the project life cycle is principal to success of PPPs is coherent to the dominant presence of cybernetic control in Westlink M7 Project and Norwegian PPP Pilot projects.

Therefore, management control mechanism exercised in Australian PPP M7 Motorway is convincing to be proactive in nature. Australia places its focus on detecting probable problems in advance rather than resolving them when they arise. The flexibility manifested by the public party in determining inputs has nurtured innovation. In addition, this has made the private party adjust according to the responses demanded by the changes in external environment. Presence of a set of obligations and expected outcome to be achieved in substitute for rigid Standard Operating Procedures (SOP) has also encouraged the private party to discover effective ways to construct, finance and operate the project on its own. The compensation and reward mechanism applied can be perceived to have been constructive as it has resulted in early delivery and operation of infrastructures accompanied by novelty in tolling system. The planning involved in every phase of the project has not only provided a clear vision on the intended purpose but anticipated the issues that could have arouse in near future and has been able to address them beforehand. The project management adopted community responsibility as shared value whose influence is evident in their actions. A formally structured set of guidelines and the deed agreement has outcasted the confusions regarding obligations and fortified transparency from all parties involved. This has limited the probability of deviations from the desired goal and supplied a prototype for the roles

and responsibilities. The cybernetics control is found to be inclined towards subjective criteria. Even though a fixed budget was predetermined, efforts to check their compliance are not evident. However, the non-financial measures are prominent with frequent reporting and a defined inspecting body. This has not only generated interest and provoked attachment the project but also incited organizational learning in the scenario of high uncertainty for private parties.

Reward as a control mechanism not only monitors and ensure goal congruence but could play a greater role of encouraging higher performance as well. Involvement of all concerned parties during short term planning as well as long term strategic planning rather than imposition of predefined plans and approval practices could save time and generate innovative ideas and better understanding of all aspects. As Mony and Aparna (2014) have mentioned that culture have "catalytic effect" on goal attainment, in both cases, the envisioned aim and societal betterment has had its effect on the actions and behavior of private party apart from the business perspective alone. Administrative control elements which needs to have a dominant presence. However, it should not be designed such that it restricts and confine the expertise, resources and capabilities of the private entity. Cybernetic control is important regardless of the PPP model as it ensures check and correct mechanism throughout every phase and is capable of eliminating probable deviations.

CHAPTER 7: CONCLUSION

The thesis partakes an important role in making an addition to the effort of understanding the differences in management control system in PPP infrastructure projects specific to roads. With Norway planning to deliver three more road projects under PPP agreements makes the topic to the timely and relevant. Various types of controls used in partnerships among public and private entities in executing and implementing successful infrastructure development project has been discussed with comparative analysis of the three Norwegian road projects with the M7 Motorway of Australia. The problem statement of the thesis focused on the challenges with the application of management control mechanisms in the PPP model. This was brought about by comparison of different contextual challenges of the PPP projects in Norway and Australia. One of the finding was suggestive that same type of control cannot be considered to be effective when the private party has roles in varying degree in the execution of project.

The finding that the appropriate way to design a management control system was by identifying risk areas first and then designing appropriate controls to address them was evident through the research process. Primarily, the learning about cybernetics control being found to be inclined towards subjective criteria was also gathered. Cybernetic control in both the PPP models were not well defined except for a few criteria for measuring performance. A set of well-defined parameters for assessment and use of modern hybrid measurement system were absent challenging the proper evaluation mechanism of the projects. In terms of budget, even though a fixed budget was predetermined efforts to check their compliance were not evident in the project. In Norway, the building cost was financed with loans and the interests on these loans made the project more expensive. Compensation control on the delivery of the entity under consideration lays out a fact that though this measure of control is important to ensure the quickness in the project delivery, government could still have used its good credit rating to provide private loans, with interest as low as possible; thus, directly affecting on making the project less expensive. With respect to financial measures of control, the need for Norway to consider using PPP for financial reasons as well than

just gaining efficiency and value for money was generated. After figuring that the financial measures to assess the performance of the private entity was not found in records, a conclusion was also generated. It was that some form of financial aspect for judgement could be introduced as another control mechanism over private entity. In Norwegian project, the delivering entity suffered considerable cost overruns. Even though this did not affect the final cost for the procuring entity, a continuous cost monitoring seems to be needed in order to avoid such circumstances. The budgetary control in the procurement phase could provide more market confidence in the project, making it attractive to bidders and potential financiers.

All in all, the compensation mechanism applied in Norwegian PPP model had minimal control over private party as there was surety of financial lease capital payment despite the inability to meet maintenance and operational specification. The negative reward system that penalized private entity for non-compliance with the pre-set standards showed its success till date in controlling the performance of the private entity. There was the probability of the compensation mechanism in Norway to make the private party passive as consistent payment was made throughout contract period with no added benefits. The negative reward system would be able to make them perform as per the requirement but would not motivate them to go beyond the desired standards. This issue in the compensation and reward control was a limiting factor in Norwegian PPP. In Australian project, the contrast was seen with reward and compensation mechanism applied by Australian PPP in M7 Motorway having a significantly positive effect on the project. Furthermore, the action plans in the Norwegian scenario had high dominance of the public sector. They either lay the plans themselves or demand their inspection and prior approval. The finding is noted that the action plan as per technical solutions for the project could have been better suited and feasible had greater flexibility been given to the PPP company, as the public company could have opted out from the norms or solutions that fell out of its standards. The challenge of the rigid mechanism for public planning in all stages of PPP having adverse effect on innovative capabilities and appropriate transfer of risk has been gathered. Planning process in both countries is unnecessarily long and lethargic demanding ample time and effort of public and private party. Lengthy

planning duration and long channels for their validation was a problem noticed in PPP models of both countries. This problem made it difficult to address the changes that could happen in the external environment in due course of planning. Addressing the administrative control exercised in M7 project, there seemed to be satisfaction in the needs mentioned by Malmi and Brown for management control. However, in Norwegian context, administrative control wasn't found to be dominant as it ought to be. It was deduced that the road projects being the first attempt of Norway in practicing PPP could be attributable to this cause. To achieve maximum benefit from PPP model, Norwegian PPP model had to be more lenient in governance during design phase to promote innovation. The Norwegian public entity had reserved most of the risk to itself than leveraging the benefit of risk transfer offered by PPP. Developing a control mechanism that links high risk with appealing incentives for private party might let the Norwegian PPP to make the most out of this kind of partnership. In addition, clan and symbols, the measure of cultural controls was found to not be clearly defined in both the PPP models.

Limitations

This study is exclusively based on data made available to public by Government of Norway and Australia. As the parameters for assessment were not well-defined distinguishing of some of the control mechanisms were based on subjective views. The availability of the performance reports of the ongoing project could have contributed to wider understanding during analysis.

Scope for future studies

With the limitation observed and the ideas experienced from the learning and its practical implication, the need of a deeper study is evident. Abundant samples and interviews with key persons to have information which has not been recorded in documents meant for public could give insightful knowledge. The need of identifying control that could have been being led by private sector rather than by public sector for achieving the goals set by public party could be helpful. A development of a

framework to link every management control mechanism with the result to know how each element influences the behavior in a PPP setting would contribute to the process. Suggestively, the study has only incorporated two PPP models whereas there are various. So, future studies could recommend applications on MCs on various partnership settings and their effect.

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