An Investigation into Project Management Challenges in the Irish Public Transport Sector

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Abstract

Public transport is one of the most critical services for Ireland. It enables people to seek employment, increases health and well-being, it supports trade and provides opportunities for growth that otherwise would not be realised. As a country it is something that can be taken for granted, but if taken away would be detrimental. The National Development Plan recently outlined that €8.6bn has been allocated to environmentally sustainable public transport systems for Ireland. The need to continually provide advancements in this area is important, whether that be for improved connectivity, sustainability, or other reasons. Delivering the types of large projects that the state is currently undertaking like Bus Connects, Metrolink and Dart Plus can be challenging. Complicated projects of this nature have been known to fail worldwide.

Using a qualitative research methodology, this study focuses on project management challenges that can occur in large state funded projects and provides some recommendations on how these can be avoided. The findings show that the role of the project manager, risk management and governance are the salient areas. Other areas like "Complexity, ambition and size" and "Deliverability" emerged as challenges from the primary data. The study also compared some of the nuances between the public and private sector to determine if one is better suited than the other, in delivering large-scale projects. The public sector was found to be better equipped, because of the governance structures already in place and the stakeholder connections previously established. "Public ownership of public funds" was also cited as important.

The recommendations include, introducing a centralised project management office, transitioning from risk management to risk leadership, providing specific training on project management practises in the public sector and a review of the public procurement process with a view to simplifying.

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Contents

Chapter 1 – Introduction

1.1 Introduction

The purpose of this research dissertation is to review the main project management challenges in the Irish public sector and specifically those encountered in transport related projects. To date, a great deal of the existing research is focussed across the public sector, not explicitly in transport, and not in the context of Ireland. Therefore, this research has an objective to contribute to existing literature by considering project management challenges in an Irish context. The transport modes covered by this study are bus, rail, and tram.

This study is beneficial to transport agencies in Ireland that are delivering complex projects within the guidelines of the Public Spending Code (PSC), Capital Works Management Framework (CWMF), Circular No. 13/2014 entitled "Management of and Accountability for Grants from Exchequer Funds", and the Common Appraisal Framework for Transport Projects and Programmes Department of Transport, (NTA, 2020).

1.2 Background

In light of the scale of the projects recently published in the 'Draft Transport Strategy for the Greater Dublin Area 2022-2042' by the National Transport Authority (NTA), this feels like an opportune time to conduct this research. The estimated cost of implementing the strategy is in the order of €25 billion (NTA, 2022).

The NTA, established in 2009, is a statutory non-commercial body which operates under the aegis of the Department of Transport. One of its primary functions is to implement a transport strategy for the Greater Dublin Area and other regional cities (NTA, 2022).). The most recent NTA strategy report addresses some of the key challenges in delivering the strategic objectives. Subjects like climate change, recovery from the COVID-19 pandemic, dealing with legacy planning decisions, are among the areas outlined (NTA, 2022).). What is not addressed however, is the project management delivery challenges in implementing a portfolio of this size. When one considers historical and empirical evidence across both Ireland and the globe, this has proven to be an important factor in the successful outcomes of public sector projects.

1.3 Justification for the Research

Transport is an integral part of society. The demand for public transport services is closely linked to economic activity (Kwak, Liu, Patanakul and Zwikael, 2014). When economic growth is experienced, employment increases which effects travel due to economic (work-related) activity (NTA, 2020). The National Development Plan outlined that €8.6bn has been allocated to environmentally sustainable public transport systems for Ireland (Gov.ie, 2018).

The implementation of transport megaprojects is necessary for economic growth and development, yet they are prone to failure and come with high risks (Luke, Savage, Jenkins, and Fransman, 2017). The performance record on these types of projects can be dismal (Denicol, Davies and Krystallis, 2020). Fiedler, Kostka, Anzinger and Schuster (2016) suggested that some of the causes of the failures are due to, poor project management, insufficient planning, ineffective governance, optimism bias and insufficient risk management. The author of this study works within the project management and transport industry and has first-hand experience in delivering large-scale transport projects.

A high number of transport infrastructure projects fail to meet the original business justification (De Jong, Annema and Van Wee, 2013). Cost and schedule overruns are commonplace and project benefits are often not met (Papaioannou and Peleka, 2006; Cooke-Davies, 2002). A study of 258 transport projects across five continents, highlighted how cost overruns are the rule rather than the exception (Flyvbjerg, Skamris Holm and Buhl, 2004). The average overruns were rail 45%, fixed-links 34% - (e.g., bridges and tunnels), and roads 20% (Flyvbjerg at al., 2004). Research highlights that public sector bodies struggle globally when trying to deliver large scale projects (Winch and Cha, 2020; Blixt and Kirytopoulos, 2017; Holgeid and Thompson, 2013). Furthermore, their failure not only results in an unsuccessful delivery, but can threaten the political parties that have sponsored the projects (McConnell, 2010).

In Ireland, the government initiated an independent review of the new Irish Children's Hospital after project costs and timelines started to spiral significantly. The original budget for the project was €790m in 2013, and by 2019, it had increased to €1.73bn (PWC, 2019). Furthermore, the original completion date which was August 2022 is

now December 2023 (PWC, 2019). An article in the Irish Examiner highlighted that a submission by BAM (Construction Company) to the Irish Public Accounts Committee, forecasted the second half of 2024 as the opening date (Brennan and McConnell, 2022). While not stated, this delay is also likely to increase costs.

The findings of the independent review while stark, had a hint of familiarity about them as many of the challenges appear ubiquitous across the globe.

The following are some of the key issues identified within the PWC report (PWC, 2019).

- The project control environment was deemed insufficient, and an overhaul was recommended to increase its maturity level. Issues with reporting, risk management, change management and insufficient project systems were highlighted.
- There was no project assurance strategy or external review process to challenge and scrutinise the progress.
- The cost control measures were insufficient. The reporting of cost trends was fragmented and prone to error.
- The project governance was inadequate. The National Paediatric Hospital Development Board (NPHDB) placed too much trust on the National Paediatric Hospital Executive (NPHE) and the design team.
- The process for risk management was ineffective. There was a lack of detail and scrutiny of risks. More comprehensive mitigation plans were required.

The literature highlights that the implementation of public sector and transportation projects is fraught with complexity. The inability of organisations to deal with this complexity can make it challenging to deliver the expected value. Traditionally, project success was measured heavily on the three strands of the “triple constraint” (Atkinson, 1999): cost, time, and scope. There has been general agreement that it goes much further than this (Morrison and Brown, 2004). Areas like customer and business satisfaction are important factors (Thomas and Fernandez, 2008).

1.4 Research Question and Objectives

The primary research question and objectives of the dissertation are to identify the main project management challenges that can occur when delivering transport related projects in the Irish public sector. To investigate whether the public sector projects are negatively impacted by the problems identified. Furthermore, recommendations will be provided on how to alleviate some of these challenges.

1.4.1 Research Question

The primary research question addresses the following:

"*What are the main project management challenges for transport related projects in the Irish public sector and what type of organisational changes would help drive more successful outcomes?*"

1.4.2 Research Objectives

To effectively answer the research question, the author seeks to break it down into the following objectives to gain a greater understanding of the different aspects that contribute to this area:

Research Objective 1

- To investigate the common project management challenges in transport projects within the public sector, with a particular focus on Ireland.

Research Objective 2

- To ascertain whether the governance processes within the Irish transport public sector supports or hinders project delivery.

Research Objective 3

- To determine if there is a uniqueness to public sector projects that makes them more difficult to be successful than projects in the private sector.

Research Objective 4

- To determine whether the project manager's experience and ability has an impact on project outcomes.

Research Objective 5

- To provide recommendations that could help alleviate the issues and contribute to improved operational effectiveness in the Irish public sector transport industry.

1.5 Research Approach

A qualitative research approach was determined to be the most effective method for this study. Qualitative methods are beneficial for studies that are collecting data in a non-probability manner. This approach provided the researcher with the freedom to gather data by interacting with the participants. The research was conducted using an online survey which was sent to 60 participants from three large Irish transport organisations, out of which there was 42 respondents. In addition, semi-structured interviews were conducted with 4 senior level employees who are working on large-scale Irish public transport projects. The study is supplemented by secondary research and a literature review.

From the research several recommendations are provided. The recommendations highlight some organisational changes that will help achieve successful outcomes in the delivery of large projects for the state.

1.6 Study roadmap

This study is organised into six chapters:

- Chapter 1: Introduction - provides the background to the research, the justification, the main research questions, and an outline of the structure of the project.
- Chapter 2: Literature Review - is an overview of published works on project management challenges in the public sector and transport. Also reviewed, is the nuances of project delivery in the public sector when compared to the private sector.
- Chapter 3: Research Methodology - outlines the research methodological concepts used in this study, the ethical considerations, and limitations to the study.
- Chapter 4: Results – presents the results from the interviews and surveys.
- Chapter 5: Discussion – draws together the insights gathered from the literature review in Chapter Two and the findings presented in Chapter Four. Practical implications and limitations are outlined.
- Chapter 6: Conclusion – brings the key points of the study together and makes recommendations for further research.

Chapter 2 – Literature Review

2.1 Introduction to Literature Review

This chapter reviews the current body of theoretical and empirical research in the field of project management challenges with a particular focus on transport projects in the public sector. Kumar and Unnithan (2020) discuss the importance of synthesising prior studies by analysing the different components to progress a knowledge area to the next level. Because no one governs the ever-evolving work of scholars, knowledge in a particular subject area is accumulated over time in a piecemeal fashion (Hulland and Houston, 2020). Khalid, Abdullah, and Kumar (2012) outline two key objectives for doing a literature review.

1. Obtain an awareness of the topic and to link the academic points of view with the theories.
2. Establish a basis for doing the research and to provide a clear rationale on its usefulness.

The literature review comprises of several sections, beginning with a review of project management challenges. Subjects including the impacts of the project manager, governance and risk are the primary focus. Next, a case study on the introduction of a major transport project in Dubai was reviewed. This case reflects a project that encountered challenges in the delivery stage and highlights some of the key lessons learnt. Lastly, some of the differences between delivering projects in the public and private sectors are discussed.

2.2 Project management challenges

2.2.1 Project Managers judgement, abilities & experience

2.2.1.1 Introduction

The role of the project manager is multi-faceted and more difficult than managing project processes, the intricate nature of relationships is a complex area that project managers must navigate to succeed, (Nauman, Bhatti, Imam & Khan, 2021; Peled, 2000; Sydow, 2022). Project managers require a mix of effective soft skills, cognitive aptitude, and technical know-how, alongside the ability to read a situation and to apply the correct behaviour (Baroudi and Pant, 2008).

A recent study which reviewed the impact of a project manager's experience on the successful outcome of projects, determined that the level of experience was a critical component, (Salvador, Alba, Madiedo, Tenhiälä, & Bendoly, 2021). The study involved reviewing the same set of variables over time from 9,765 enterprise resource planning systems. The findings show that for a project that is less complex, a project manager of lesser experience can satisfactorily complete the project. As the complexity of a project increases, time to completion increases and a more experienced project manager is more likely to obtain a successful outcome.

McManus and Wood-Harper (2007) felt that project management was often chaotic, and that very few organisations, have put in place the appropriate education, training, infrastructure, support, or management disciplines to help projects succeed. Research by the same authors, in a study of 42 projects, found that project management issues accounted for 65% of project failures, with technical issues the remaining 35% (McManus and Wood-Harper, 2003). Factors including poor project leadership, weak communication, ineffective stakeholder management, poor risk management and inadequate management supports contributed to the failures.

Literature on project management rarely caters for the uniqueness of government projects and as a result, project managers in the public sector, struggle to relate to the principles and processes outlined in the study literature (Van der Waldt, 2011). The abilities and experience of the project manager has repeatedly emerged as a factor that has contributed to project failures within the public sector (Blixt et al., 2017; Patanakul, Kwak, Zwikael & Liu, 2016). Bjeirmi & Munns (1996) on the other hand felt that while a good project manager can contribute to a project's success, they are unlikely to prevent a projects failure. Much of the more up-to-date research suggests that a project manager plays a key role in preventing project failures.

A study funded by the EU Operational Programmes, surveyed 132 project managers and team members, and found that the competence of the project manager was the topmost critical success factor, (Alexandrova and Ivanova, 2012).

2.2.1.2 Emotional intelligence

While many studies have highlighted that a project manager's role is vital to a project's success, many have failed to acknowledge the impact of emotional intelligence (EI) (Avolio and Yammarino, 2013; Maqbool, Sudong, Manzoor, & Rashid, 2017). EI is a

valuable collection of leadership skills that encompasses the ability to manage one's emotions and the emotions of others, while maintaining self-awareness (Gola and Martin, 2020). EI was a relatively unknown leadership skill until the 1990's when it was suggested as a key necessity for great leaders. Goleman (1998) emphasised how a high degree of EI is a trait that all great leaders process. He holds the view that if a manager lacks this essential characteristic, no amount of training or analytical skills will make up for the shortcoming. He does proffer, that EI is not an inborn talent but something that can be learned (Goleman, 2014). This sentiment was not shared by all, some commentators have felt that EI is ambiguous and an invalid concept, and that there is no relationship between intelligence and emotions (Locke, 2005).

The sections that follow will provide examples on where a project manager's behaviour has impacted project outcomes and some measures that have been implemented to address this.

2.2.1.3 Project Managers judgement (Korean context)

A project manager's over optimism and delusion of success was found to have a detrimental impact on the success of mega-transport projects (Han, Yun, Kim, Kwak, Park, & Lee, 2009). Lovallo and Kahneman (2003) supported this view, advising of the dangers of organisations and project champions being too optimistic and suppressing pessimistic views.

This was a key finding from a 2004 project in Korea where a high-speed rail system was introduced (Han et al., 2009). The project had multiple challenges during the planning and execution phases which led to significant delays and cost overruns. The lack of realism and deficient project management skills from both the project manager and project owners on costs and timelines were cited as key contributing factors in the project's failure. The study recommended that project managers should consider the political and social impacts for a more rounded view, and not only focus on the traditional costs, schedule, and quality metrics (Han et al., 2009).

2.2.1.4 Project Manager's abilities (Irish context)

In Ireland, the Luas Light Rail was in development between 2000 and 2004, (O'Donoghue, 2011). The project was blighted by cost and schedule overruns. At the outset the costs were projected as €285 million, however the actual cost was €778

million (Palcic, 2021). The schedule was expected to complete in 2001, but it ran until 2004 (McGee, 2019).

A "lessons learned" study by the Railway Procurement Agency (RPA), found issues in the project management domain. A need for better communication, more effective project management practises, the development of a more realistic programme plan, improved stakeholder management and more focus on the statutory approvals process were reported as key learnings (O' Donoghue, 2011).

2.2.1.5 Lack of formal project management training (United States experience)

Further experience in the United States highlighted that government employees were often not trained to manage projects and as a result projects were commonly failing (Fanning, 2014). Fanning (2014) determined that the primary reason the majority of project managers did not use Microsoft Project and instead used Microsoft Excel was lack of training. Most projects were managed using home grown standards and procedures rather than global accredited standards (Fanning, 2014).

One government organisation decided to adapt the Project Management Institute's Body of Knowledge (PMBoK) standards to align with the government's project policies (Fanning, 2014). A scalable process for managing projects was developed and training relating to this process was provided. One of the actions implemented involved classifying the projects, so that the level of effort applied in the governance area, was comparable to the project's costs. Next, the selection of a project manager was performed by reviewing candidates based on the level of training they had achieved through this new programme. These actions led to positive project outcomes in the government offices in which they were applied. The outcome of the study recommended that this approach would be beneficial across all US government agencies, (Fanning, 2014).

2.2.1.6 Project Manager's experience & abilities (Australian example)

In the 1980's the public sector globally had started to change their approach in the way public services should be managed, moving away from a more conventional stewardship role to one based on performance like the private sector (Halligan, 1997). This movement became known as New Public Management (NPM). As a follow-on from NPM, the Australian Public Service conducted a study to analyse why Australian public sector projects tended to fail and found that the lack of project management

experience was a key issue (Blixt et al., 2017). To help alleviate this, the Australian Public Service Commission (APSC) incorporated project management into its competency model for public sector leaders (APSC, 2014a), see Figure 1, (APSC, 2021). The "Delivers" aspect of the model was updated to include a project management aspect. This competency model is a whole person assessment that recognises the importance of interpersonal relationships, teamwork, good communication and a willingness to adapt and learn, as well as the traditional technical skills (Skorková, 2016).

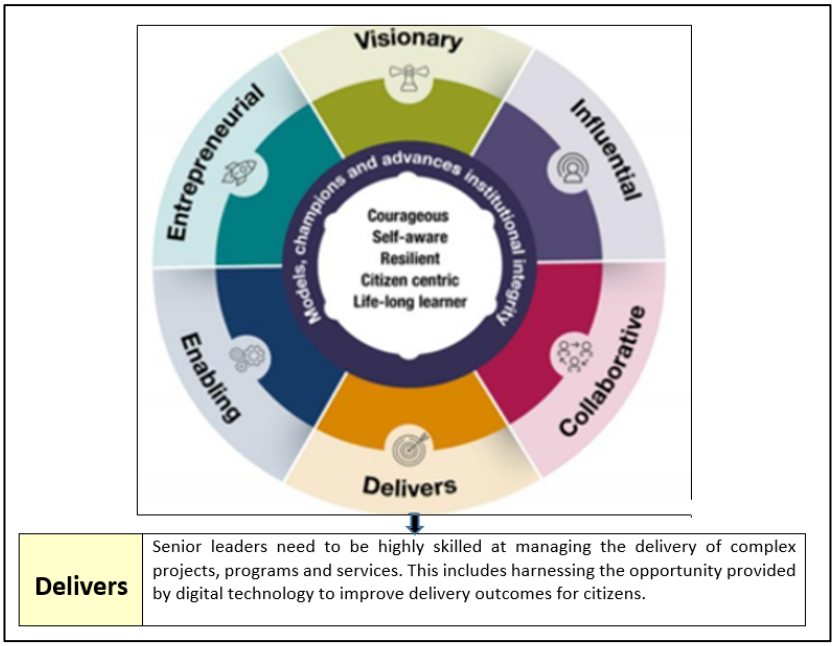

Figure 1 - APSC, 2021

The Australian government also supported the development of a nationally recognized qualification in project management practices to further improve the skills of the staff working within the project environment (APSC, 2014b). Lastly, they encouraged project managers from the private sector into roles within the public sector (Blixt et al., 2017). Interestingly, Boyne (2002) felt that career project managers transitioning to the public sector could be disadvantaged, as their understanding of the complexities of managing projects in a public sector environment could be limited.

2.2.1.7 Conclusion

It is clear from the literature that the skills and experience of the project manager does have an impact on the success of projects. Organisations can benefit by ensuring that project managers have received formal training in project management practises, and tailoring training specific to the public sector can be particularly beneficial.

2.2.2 Inadequate risk management

2.2.2.1 Introduction

Risk management is an area that can have a significant influence on project outcomes and as such has been extensively explored in project management literature (Aladağ and Işik, 2018; Williams, 2017; Yazdani, Abdi, Kumar, Keshavarz-Ghorabaee and Chan, 2019). The upfront preparation and analysis of potential threats and opportunities has become increasingly important for major projects (Williams and Samset, 2012).

2.2.2.2 Inadequate risk management

Traditionally in projects, risk management followed a one-size-fits-all model when managing quantifiable risks, but this was often deficient (Kutsch, Browning & Hall, 2014). Scholars have since contributed by providing further insights into the subjective nature of risk management in projects, (Chapman, 2019; Xia, Zou, Griffin, Wang, & Zhong, 2018). Megaprojects, like those in transport are inherently risky due to their integrated, lengthy, and complex nature (Flyvbjerg, 2017; Gillett & Tennent, 2017). The price of project failures is costly and estimated to cost over €100bn on an annual basis in the European Union (McManus & Wood-Harper, 2008). The exercise of identifying risks in the planning stages of transportation projects is key in the proactive management of potential problems (Yucelgazi and Yitmen, 2019). Risk management can often feel unnatural as it involves the opposite of a "can do" attitude that leadership teams try to create (Qazi, Daghfous & Khan, 2021).

Understanding the human ramifications of risks is important (Williams, 2017). An individual's risk attitude may represent a preference to an uncertain situation (Qazi, et al., 2021). Often it can be the response of the project team who are under pressure to react fast, that can create a disruptive response, by unnecessarily over-reacting to certain risks (Williams, 2017). Project managers in the public sector can find it challenging to manage risk due to the large number of stakeholders and interdependencies involved. The fear of being judged in the public domain and the high accountability associated with that, has contributed to a risk adverse culture (Blixt et al., 2017).

Improper management of risks was a key factor for two troubled projects in the UK, namely, Crossrail and Thameslink/Great Northern services, (DfT, 2019).

The Crossrail project was a jointly sponsored venture between the Department of Transport (DoT) and Transport for London (TfL) and estimated to cost £15.9bn. It involved building a new railway line through central London (Crossrail, 2022). This mega-project is being introduced on a phased basis, with eleven phases in total, the first of which went live in 2015 and will run until 2023 (Crossrail, 2022). During phase three, the project announced unexpected delays and budget increases (Crossrail, 2022). The primary issues cited were based on system integration challenges, in addition to delays in the station construction, all further heightened by the lack of an appropriate risk contingency plan (DfT, 2019).

The Thameslink Programme, estimated to cost £7bn, is a 10-year programme to build a railway that runs a direct unbroken link between the north and south of the UK, through central London (Thameslink, 2020). In May 2018, there was a project to introduce substantial time-tabling changes. An issue arose when an inadequate amount of time was assigned to route training for the drivers which resulted in many cancellations and inefficient working patterns at the time of launch. One of the key triggers was the decision to reduce the scale of the planned journeys late in the project schedule. This required an extensive amount of work to adjust and re-plan the timetables. The revised timetable didn't allow for the appropriate amount of time for operational readiness activities to take place pre-project launch such as training (DfT, 2019).

Both projects failed due to the lack of investment in preparing contingency plans for the most significant risks (DfT, 2019). Proactive risk management is acknowledged as a demanding discipline, but necessary if an organisation wants to avoid weak decision-making (DfT, 2019).

2.2.2.3 Measures to address ineffective risk management

Effective risk management is key on projects as it allows the project team to identify the project's strengths, weaknesses, opportunities, and threats (SWOT), (Duggan, 2019). SWOT is a tool that helps organisations grow in their strategic thinking. It gives employees an opportunity to start thinking where the risk areas lie within the project and operating environment, (Hitt, Black and Porter, 2014).

In Ireland, the government have published a centralised guidance document on the management of risks which is to be incorporated by each government sector (Gov.ie,

2021). This document serves to provide an integrated and holistic approach to risk management. It provides a framework that enables government departments to respond more appropriately to strategic, operational, financial, compliance and other risks that pose a threat to departmental objectives (DPER, 2016). The Irish government also published the "National Risk Assessment 2021/2022" which provides an overview of the most significant strategic risks affecting the country (Gov.ie, 2021). Irish Taoiseach, Micheál Martin (2021) recently spoke of the transient nature of risks and the importance for Ireland to ensure that the country's public systems are resilient. This is particularly prevalent when taking into consideration the level of global events that have impacted Ireland over the last years (Gov.ie, 2021).

The Project Approval Guidelines (PAG), published by the NTA, underlines the importance of having a peer review panel for larger more complex projects (NTA, 2020). Research has found that organisations lacking an independent verification function have a greater chance of experiencing failures in large public sector projects (Kutz and Rhodes, 2006; Patanakul, 2014).

2.2.2.4 Conclusion

It is clear from the literature that risk management is an important activity that enables an organisation to identify and control threats and opportunities. To help ensure project success, the project manager must ensure that all potential risks are identified, and mitigation plans are put in place to actively manage.

2.2.3 Governance controls

2.2.3.1 Introduction

Governance for projects is multi-level and includes governance of the parent organisation (corporate governance), contractors and suppliers, and that of the project itself (Turner and Müller, 2017). Project governance provides accountability and fosters clarity and consistency in decision-making in a project (Townsend, 2014). It is one of the most critical elements to get right if a project is to succeed (Hsu, 2021). By having a robust governance framework in place, governments can ensure enhanced accountability, efficiency, and legitimacy in project delivery (Brunet and Aubry, 2016).

Project governance has evolved based on the principles of corporate governance. Project governance involves having clear roles and responsibilities and a transparent

decision-making path, which is critical for project manager's when dealing with deviations in scope, cost, time, or quality (Alie, 2015).

Burgan & Burgan (2014) address the uniqueness of projects and how one size of governance does not fit all. Some projects are straightforward and predictable, others can be highly risky and complex, because of this each project requires a varied governance approach (Burgan et al., 2014). Many commentators believe governance should be flexible, depending on whether it is required at regional, national or at global level (Abbott and Snidal, 2001; Klakegg, Williams, Magnussen, & Glasspool, 2008). Mitchell (2018) supports the view for a flexible approach, as many local government managers tend to use the same strategy on all projects, and as a result failure is commonplace.

2.2.3.2 Ineffective governance

Ineffective governance can put an organisation at risk of pecuniary and regulatory problems, or commercial failure (Kelly, 2010). Hsu (2021) describes the following as the common results of poor governance on projects.

- Schedule delays and cost overruns.
- Ineffective communications and a non-collaborative project environment.
- Unmanaged risks resulting in increased exposure to threats.
- Lack of stakeholder engagement and low trust.
- Uninformed decision-making.

In Ireland, reports on the National Paediatric Hospital cited poor governance as a clear contributor to the cost and schedule overruns. The NPHDB as part of its governance role, did not provide an adequate level of challenge or scepticism, which in turn enabled the issues to grow in intensity (PWC, 2019). This resulted in an environment that allowed the project to progress too rapidly (PWC, 2019). Although the governance structures above the NPHDB were intricate, delays in the design process and the slow estimation of work packages resulted in critical information becoming available too late (PWC, 2019). As a result, the role of the governance body became a reactive function with little influence (PWC, 2019).

Ineffective corporate governance and leadership was also said to be the primary cause of failure for the Metronet project (PWC, 2010). In 2003, the UK Government entered

three, thirty-year contracts with private sector contractors in a Public Private Partnership (PPP) to upgrade London's underground rail system (PWC, 2010). By 2007, two of the three contractors had gone into administration when they could no longer meet the project commitments, (House of Commons Committee of Public Accounts, 2010). A report by the National Audit Office into the Metronet failure cited "poor corporate governance and leadership" issues as key contributors (Hoscik, 2009). It was found that the London Underground had "limited ability" to manage the contract and had to request information from the PPP Arbiter whenever it required data on cost, performance, and project status (Hoscik, 2009). This put into question the governance setup within the London Underground for managing this type of arrangement.

To alleviate these issues on major projects, the UK government setup the Major Projects Authority (MPA) in 2012 (Winch et al., 2020). Its mandate is to provide greater governance and to annually assess the confidence in the government's ability to deliver the UK's Governments Portfolio of Major Projects (Winch et al., 2020). Unfortunately, the objective was not met, and research has shown that performance has remained below expectations (King and Crewe, 2014; IPA, 2017).

Table 1 highlights the number of transport projects underway and provides an outline of the project costs in 2012 and 2013, after the MPA was established (MPA, 2014).

Department	Number of major projects 2012	Number of major projects 2013	Whole life cost (£m) excluding exempt data September 2013
Department for Transport	17	12	83,808

Table 1

The confidence in delivery for this batch of projects was categorised as "Green, Amber, Red". Almost half of all the projects continued to remain in the amber, amber/red and red categories (Figure 2), (MPA, 2014).

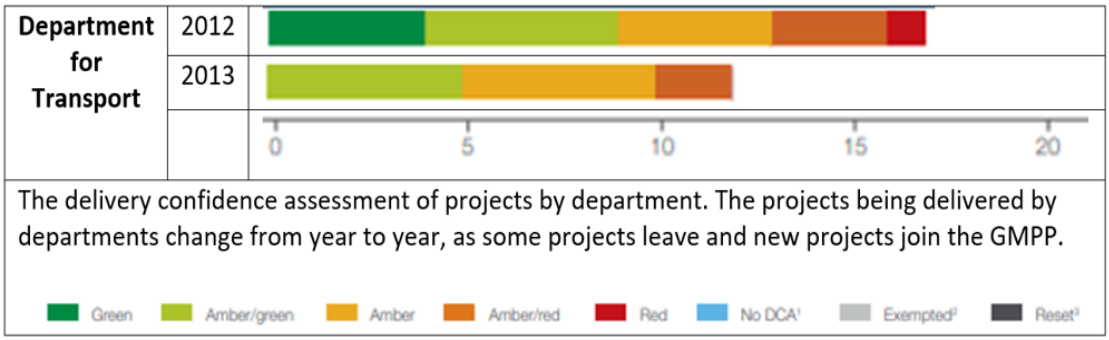

Figure 2

The definition of these categories is: (MPA, 2014).

- Amber - project appears feasible but has significant issues and management attention is required.
- Amber/Red - successful delivery is now in doubt. Major risks or issues are apparent in several key areas and urgent attention is required.
- Red - project delivery appears unachievable. Project has major issues in areas such as, project definition, budget, quality, and schedule and/or benefits delivery.

The same type of information for 2021 is reflected in Table 2 below (IPA, 2021). The only change is that transport projects are now provided in a summarized view under the category "Infrastructure and Construction", (IPA, 2021):

Department	Number of major projects 2021	Whole life cost (£m) including non-government costs
Department for Transport	24	£115.5bn

Table 2

The report continues to highlight that many the projects remain outside of the 'green' status which means that management attention and escalations continue to be required, (Figure 3), (IPA, 2021).

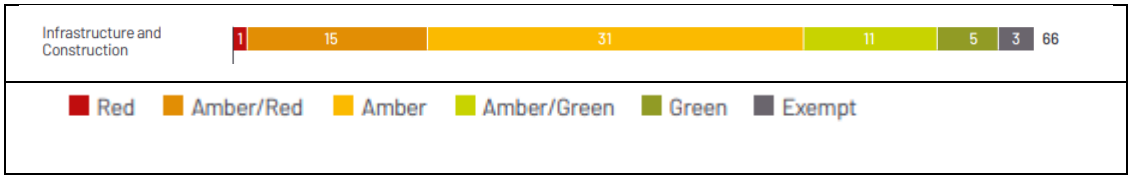

Figure 3

2.2.3.3 *Effective governance*

Effective governance in a projectized type organisation has been cited as a secret weapon for success (Kelly, 2010). Hsu (2021) highlights the following benefits.

- Clear accountability on projects.
- Efficient management of project scope.
- Effective risk and issue management.
- More streamlined approach to project processes, decision-making and communication.

In Ireland, a new Government framework, called "Our Public Service 2020", was launched by the Public Service Reform team at the Department of Public Expenditure and Reform (DPER), (OPS, 2021). The framework is intended to support those working within the public domain and to provide a new approach to governance, service delivery and people management. The objective is to provide greater transparency, more accountable decision-making, and improved service delivery (OPS, 2021).

In the NTA, all projects must follow the NTA's Project Approval Guidelines (PAG) for project delivery (TII, 2021). This framework provides a governance process for the management of sustainable transport projects. As approving authority, the NTA has ultimate responsibility for the projects and the appropriation of funds. The sponsoring agency has responsibility for evaluating, planning, and managing the projects within the framework and reports to the approving authority for authorisation to proceed to the next gate (NTA, 2020).

Because of the significant funding required, there are key gateway and approval points that need to be adhered to throughout the project lifecycle, (Figure 4).

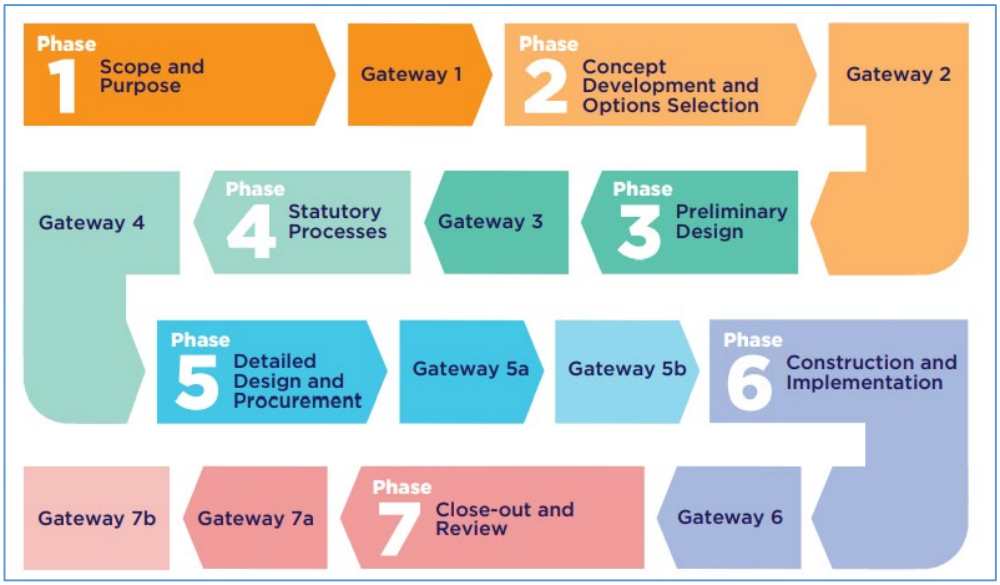

Figure 4 – source - NTA, 2020

Having the segregation between the approving authority and the sponsoring agency enables the approving authority to ensure compliance on the project. The sponsoring agency can then focus on the delivery side, safe in the knowledge that the proper due diligence and reviews are taking place.

2.3. Can a restrictive governance process hinder project delivery?

There are not many occurrences within the literature where project governance is considered a hindrance to project delivery. One scenario where it is evident is in organisations where the project delivery methodology is restrictive.

Larson (2004) recognises that some organisations have project management frameworks that are designed for large projects only, and as a result are often cumbersome and counter-productive when trying to deliver smaller projects. He believes that projects that are smaller in scale should be managed with an appropriate level of process, which focuses only on the essential elements that will add value.

A study that evaluated the effectiveness of project management in one of the largest government departments in Trinidad and Tobago determined that the project governance processes lacked maturity (Caliste, 2012). Implementing projects using the approved governance framework was very difficult and as a result project failures were commonplace (Caliste, 2012). The types of governance issues hindering the delivery included.

1. Formal approval was never obtained for the projects to proceed through the various stage gates.
2. There was a failure to identify project champions that would help convey the value of the projects to the wider organisation.

2.3.1 Conclusion

The benefits of project governance is very apparent. Ineffective governance can cause projects to fail and tarnish the reputation of those involved. Much of the research supports the need for project governance. There is little evidence found that governance hinders projects, provided the governance processes are effectively established and adhered to.

2.4 Case Study – Dubai Metro Project

This case study provides a summary of a mega-transport project delivered in Dubai (Hamdy, 2014). Mega-projects are described as complex, large-scale, lengthy in duration, involving multiple stakeholders, often transformational, impacting millions and typically costing upwards of $1 billion (Flyvbjerg, 2017).

What the case study shows is that there is a common pattern of issues in transport projects in the public sector, which if not addressed will derail the largest and smallest of initiatives.

Even though this was a very large project the issues encountered were typical of those encountered on many transport projects, irrespective of size. Challenges in areas of governance, stakeholder management, project management leadership, risk and project planning were cited as contributory factors. Recommendations included the importance of having an effective project manager, robust governance, and an effective risk process to counteract any bias or unrealistic optimism. An overview of this case can be seen in Figure 5 below (Hamdy, 2014).

<table>
<tr><td colspan="3">Case Study – Dubai Metro Project</td></tr>
<tr><td colspan="3">Project Sponsor - Roads and Transport Authority (RTA)
The Roads and Transport Authority (RTA) established in 2015, is the public body responsible for the provision and management of all surface transportation in the emirate of Dubai.</td></tr>
<tr><td colspan="3">Project Description
"Dubai Metro" a mega-project was delivered in September 2011 and involved the introduction of the largest driverless metro system in the world, spanning over 75km and included 47 stations.</td></tr>
<tr><td colspan="2">Project Phasing
The project was delivered in two phases.
1. Introduction of Red Line - 52.1 km from Dubai Airport to coastal development area.
2. Introduction of Green Line in the old town, and consisted of 22.5 km.</td><td>Project Team
The Dubai Metro project team consisted of:
• Five main contractors,
• Over 160 sub-contractors, and
• Circa 30,000 workers</td></tr>
<tr><td colspan="2">Project Issues</td><td>Key lessons learned</td></tr>
<tr><td>Conception</td><td>• Large number of stakeholders (including those external and from other nationalities). Communication issues were not adequately addressed.
•Requirements changed frequently, and traceability was an issue.</td><td rowspan="4">• The project manager must possess, and display greater characteristics of leadership excellence for megaprojects.
• More robust risk management processes required without relying on those of the 3rd party consultants.
• Mega projects need motivated managers who empower their teams.
• RPA should have developed its own project plan covering all areas of the project.
• RPA must improve on governance and perform regular audits to ensure that the engineers are doing their work.</td></tr>
<tr><td>Design</td><td>• Large number of complex systems & integration points
• Many changes and variations were initiated.</td></tr>
<tr><td>Tendering</td><td>• Contract clauses were ambiguous and impractical.</td></tr>
<tr><td>Construction</td><td>•Timelines were short for construction.
•Team had to work in congested areas.</td></tr>
<tr><td colspan="3">Project forecasts were $4.2 billion and actuals was $7.8 billion (Billing, 2009).
Red line was due to complete in Sept 2009 but took until April 2010, (Railway Technology, 2012)
Green line completed on Sept 2011, (Railway Technology, 2012)</td></tr>
</table>

Figure 5 – Source Hamdy (2014). Final section taken from Billing (2009) and Railway Technology (2012).

2.5 Differences in Public and Private Projects

2.5.1 Introduction

At its most simplistic level, a key difference between the public and private sector are the goals each sets out to achieve. For the public sector, the goal is service delivery under government control, while for the private sector, it is mostly about generating profit (Nutt, 2006; Van der Waldt, 2011). Public sector projects are predominately financed from taxes, which means they are public property (Van der Waldt, 2011).

The private sector also has entities not concerned with profit making, for example NGO's, which are non-profit organisations operating outside of government (Campbell, McDonald & Sethibe, 2010). The perception has been that public sector organisations are too unique to be managed using private sector organisational practises (Gomes, Yasin, and Lisboa, 2008). Some of these constraints are, unmotivated employees, political influence, budget constraints and rigid operating procedures (Ward and Mitchell, 2004). The sections that follow will review some key areas for consideration.

2.5.2 Cultural Differences

Woods (2017) felt that cultural differences are a key distinction between the public and private sector and something project managers transitioning between the two need to be aware of. In the private sector, employees are accountable for every action and need to provide the appropriate level of visibility to promote their business (Woods, 2017). Public sector employees must show full transparency because of government oversight, but the objectives within the public sector are more indefinite and confusing than the private sector (Woods, 2017). Managing stakeholder interests has been cited as more important in the public sector than the private, largely due to the frequency of changes imposed by political appointments (Thong, Yap and Seah, 2000). The number of stakeholders involved in public sector projects can hinder the organisation from making a clear commitment to follow the governance rules (Fountain, 2007).

2.5.3 Risk Management

It has been found that the public sector invests more effort in terms of time, on managing project risks than the private sector, 25% to 17% respectively (Jurisch, Ikas, Wolf, and Krcmar, 2013). The frequency of changes imposed by political appointments in the public sector is a reason why risk management is important (Thong et al., 2000). Gasik (2018) outlined how managers working in environments where there are high levels of internal controls are more risk adverse. For the practical management of risks in the public sector it was determined that a formal structured approach that is integrated with all other areas of management is most valuable (Tworek, 2016).

2.5.4 Sustainable Development

The agenda for sustainable development is another area that while important for both, is at the forefront in the public sector. Seven out of ten of the highest global risks are in relation to environmental and societal issues (World Economic Forum, 2021). An increase in transport due to the population growth will further reduce the country's quality of life and decarbonisation goals (Gov.ie, 2021). The Irish government has implemented a Climate Action Plan which is applicable for public sector transport projects to assist in driving the types of changes required (BusConnects.ie, 2021). The Programme for Government and Climate Action Bill has set new emissions targets for 2030, (Prendiville, 2021). The NTA for example have set a goal to have all electric buses operating by 2030, (NTA, 2022). The transport sector appears to be one of the few sectors, who have been unable to curb the high energy and emissions usage, not to mention, making progress in reversing the unsustainable amount of resource and environmental pressures (IEA, 2010). In Ireland, the transport sector is one of the greatest offenders in producing greenhouse gas emissions, (EPA, 2020). In 1990, transport accounted for 9.5% of Ireland's Greenhouse gas emissions and by 2020 this had increased to 17.9%, second only to agriculture (EPA, 2020).

2.5.5 Governance (Public versus Private)

Both the public and private sector must demonstrate an ability to deliver results which is an increasing challenge (Crawford & Helm, 2009). Governance plays a key role in defining how an organisation functions and because of this there is now a wide range of governance concepts, (Kelly, 2010). Bozeman and Bretschneider (1986) hypothesised that the public and private sectors require different principles in governance due to their clear differences. In the private sector the governance objectives are centred on enhancing shareholder value and to provide assurance that the value is growing (McCann Fitzgerald 2020). Governance in the public sector on the other hand is to ensure that the delivery, whether of product or service, is provided to the country's citizens in an efficient, effective, and ethical manner (McCann Fitzgerald 2020). The alignment of objectives in the public sector can be more difficult as the public sector are limited in their ability to create market linked incentives so the need for governance is strong (Campbell et al., 2010).

2.5.6 Public Procurement

Public procurement is the acquisition of goods or services by public sector bodies from private sector organisations (Johnson, 2020). It continues to be heavily outcome based as it relies on traditional tendering methods that stifle innovative improvements (Johnson and Klassen, 2022). The procurement process can be lengthy, involving numerous stages from when the initial opportunity is identified, to deciding whether to tender and then the process to contract award (Loader and Norton, 2015). Evidence has shown that obstacles continue to be associated with each stage of the process (Loader et al., 2015).

2.5.7 Conclusion

There are clear differences between the public and private sectors as outlined above. The next section will delve deeper into what makes public sector projects unique.

2.6 Uniqueness of public sector projects

Public sector projects can be likened to doing business in a fishbowl such is the high-visibility nature of the work (Bell, 2009). Political influence can undermine the advice that public sector managers give to policymakers, based on what a constituency favours, as politicians can opt for a "pandering" strategy for populist reasons (Bovaird & Löffler, 2009).

Foti (2005) argues that while politicians are good at making promises, it is up to the public sector project managers to deliver on them. Project managers have the added challenge of balancing public sector operating procedures and managing the perceptions of a project (Foti, 2005). The public sector through the years has taken the approach to transfer many tasks to the private sector by contracting out the work (Van der Waldt, 2011). Bovaird et al. (2009) refers to this as the "hollowing out of the state" and felt that it was leading to a loss of government control.

Getting the best and brightest talent to join the public sector can be a challenge, fewer than one in five people see the public sector as attractive to work (McCarthy, 2019). The public sector has embraced hiring contracting staff to get the type of skills required, as otherwise the organisations are unable to compete with the higher salaries paid in the private sector (Campbell et al., 2010). This approach enables the public

sector to shed employee numbers if funding becomes a challenge (Campbell et al., 2010).

Kwak, et al. (2014) identified six unique characteristics of public sector projects.

1. No-financial benefit.
2. Susceptible to political dynamics and environment.
3. Typically follow a mandated project management process.
4. Projects are large and complex.
5. Long product lifecycle.
6. Large number of stakeholders.

Although planning is common practice in the public sector, evidence has shown that the planning is often ineffective because managers do not adapt their project planning strategy to changing risk levels (van Meerkerk and Edelenbos, 2018). This lack of an adaptable framework can result in government projects investing too much time and effort in planning lower risk initiatives, and too little time and effort when planning higher-risk projects (Zwikael, 2020).

2.7 Conclusion

By reviewing the literature, it clear that the project management paradigm is well defined, however, it is also evident that project management practises are highly contingent on the context of the organisation (Besner & Hobbs, 2008; Cooke-Davies, Crawford, & Lechler, 2009). Assigning a project manager with the appropriate level of skills and experience can have a direct impact on the outcome of a project. There are differences in project delivery between the private and public sector. Cultural differences, public procurement challenges and the lack of flexibility in the public sector governance being a clear differentiator. The need for effective governance, including robust risk management practises is apparent, but how this is achieved is under constant review. Each of these areas will be probed in the author's primary research and the results will be used to inform the conclusion to the study's research question and objectives.

Chapter 3 – Research Methodology

3.0 Introduction

This chapter details the rationale for selecting this study's methodology, the context of why it was selected and how the research was conducted, as well as any ethical considerations and limitations.

This research is focused on project management challenges which have resulted in the failure of public sector transport projects. The aim is to close the gap on the lack of information in the Irish context. The salient challenges under review from the literature are focused on the role of the project manager, risk management and governance areas. This study also looks at the attributes which makes public sector projects unique and whether it is more difficult to deliver large transport projects in the public or private sector.

For this study, "The Research Onion" (Saunders, Lewis, and Thornhill, 2012) was selected, because it provides an effective progression path into designing a study (Bryman, 2012), see Figure 6 (Saunders et al., 2012).

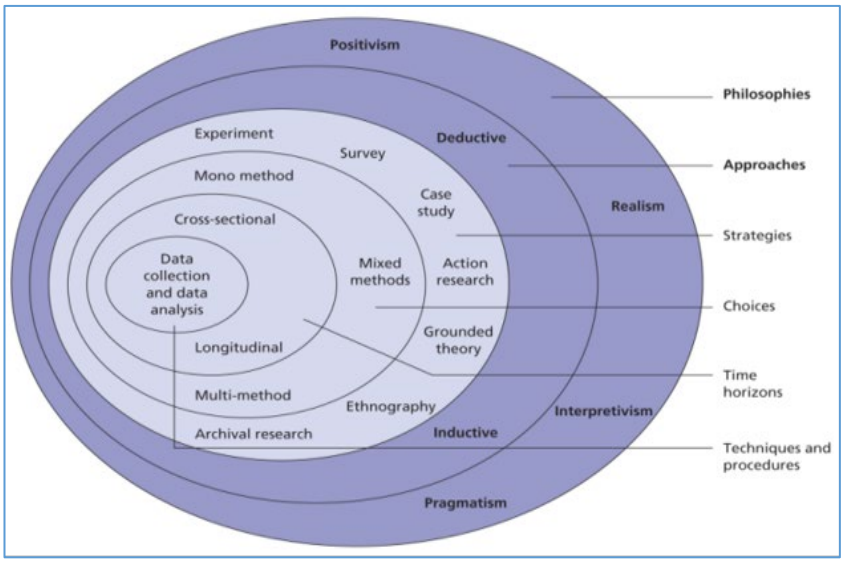

Figure 6 - Saunders et al., 2012

This framework consists of the following layers: the philosophy, the approach to theory development, research strategies, the methodological choice, time horizons and techniques & procedures. When each of these individual areas are combined a clear explanation on how the research was conducted is formed.

3.1 Research Philosophy

Understanding the philosophy is an important early step in the research process. A research philosophy is a system of beliefs and assumptions that will provide guidance on how a subject's data is gathered with the objective of further developing a knowledge area (Saunders, Lewis, and Thornhill, 2016). It is usually studied in terms of ontology and epistemology (Saunders et al., 2016).

Ontology is the study of existence which involves questioning the nature of reality (Collis and Hussey, 2014) and examining the nature of humans as individuals (Awasthy and Gupta, 2015). Epistemology questions what can be accepted as knowledge (Collis et al., 2014) and is regarded as essential when discussing insights on a topic to validate assumptions and knowledge (Burrell and Morgan, 2016). For this study, an epistemology philosophy was deemed appropriate, using interpretivism to interpret the results. This philosophy was selected as the researcher found value in interacting with people when trying to ascertain what areas within the literature was valid in transport project delivery in Ireland.

With interpretivism, reality is constructed through social interactions between the researcher and the study's participants (Bryman, 2016). Interpretivism is associated with qualitative research methods (Goldkuhl, 2012). The researcher has an opportunity to understand a participant's perspective by using methods including interviews (Howson, 2021). This allows the researcher to use open-ended questions to explore the participant's beliefs and thoughts on a topic (DeJonckheere and Vaughn, 2019).

In contrast, quantitative research, is built on numbers and precision and has clear measures to ensure accuracy (Rutberg and Bouikidis, 2018). The researcher discounted the quantitative philosophies such as positivism, pragmatism, and realism. The lack of exploratory freedom with positivism was deemed limiting (Park, Konge, and Artino, 2020). Positivism does not allow for personal points of view to be considered (Alharahsheh and Pius, 2020). This would have been limiting for this study as the perspectives of those working in the Irish transport industry adds value. Realism is associated with epistemology and assumes a scientific approach to developing knowledge in an area, like positivism (Saunders et al., 2012). Pragmatism evaluates beliefs that are based on the outputs of a practical application, this was disregarded as the researcher found value in the existing literature (Morgan, 2014).

3.2 Research Methodology Approach

The "research approach" considers how the data and findings will be tested. There are two methods outlined within "The Research Onion", inductive or deductive, (Adam, Khan and Raeside, 2014; Saunders et al., 2012). The inductive approach involves analysing theories from research, understanding if there is a gap, and then forming a conclusion based on the data collated (Ketokivi and Mantere, 2010). Inductive approaches are usually used within qualitative research studies.

A deductive approach involves starting with a theory to ascertain a hypothesis, and then researching to confirm or reject the hypothesis (Gratton and Jones, 2009). A deductive approach is mostly associated with quantitative research.

In this study, the researcher felt that an inductive approach was the most appropriate as the research is building upon data that already exists (Ketokivi et al., 2010). This provided the researcher the opportunity to use an exploratory approach. Saunders et al. (2009) proffers that the exploratory approach is beneficial when trying to get more insightful and novel information. The lack of data in the Irish context for large transport deliveries meant that this exploratory approach would be valuable.

3.3 Research Choice

A mono method qualitative design was used to conduct the research (Saunders and Tosey, 2013). This was chosen because the data would be collected in a non-probability manner. The mono aspect refers to the fact that only one method was used. The qualitative method provided the researcher the freedom to get the thoughts of the participants and to form an opinion by reviewing the correlation between theory and reality before reaching a conclusion (Saunders et al. 2012). Qualitative research methods are known to be diverse and innovative (Lê and Schmid, 2022). Haynes (2012) considers the importance of a researcher being able to sharpen their reflexivity skills so that they can acknowledge their own role in research and challenge the status-quo from previous studies.

3.4 Time horizon

As part of the study, it is important to decide on when the data will be captured. This can be longitudinal (a long period of time), or cross-sectional (a snapshot in time) (Saunders et al., 2009).

This study was best suited to cross-sectional due to the nature of the study and the time constraints involved. The primary data was collected through online surveys (42 respondents) and semi-structured interviews (4 interviewees).

3.5 Research Strategy & Data collection methods

Following from the research approach, choice, and time horizon the "research strategy" layer provides options for how the research will be conducted based on the study's aim, (Saunders et al., 2012).

The researcher used two instruments for gathering the primary data which included an online survey and semi-structured interviews. The outputs of both methods were an expression of language rather than numerical values which is conducive of a qualitative research study. The researcher found similar studies that followed the same approach by using semi-structured interviews (Aarseth, Rolstadås and Andersen, 2013; Amoatey and Hayibor, 2017), and qualitative surveys (Amoatey et al., 2017).

3.5.1 Survey design

An online survey was the first instrument used as it was effective in reaching the appropriate representation and quick to administer. From the outset it was vital to pay attention to the survey design, formatting, and presentation to ensure that all respondents have the same positive experience (Saunders et al, 2016). To ensure that the data captured was of value and that the process worked, several test surveys were sent to test participants and the results analysed.

The study's research question and sub-objectives were the constructs that the researcher wanted to assess. The qualitative open-ended questions provided the respondents an opportunity to provide their opinions (Appendix 1).

There were several questions in the survey that was taken from previous research in a similar area. These questions were useful for comparing results across countries and themes. The questions were from two studies:

1. "Effective project leadership: a combination of project manager skills and competencies in context", (Krahn, & Hartment, 2006)
2. "Owner challenges on major projects - the case of UK government", (Winch et al., 2020).

The questions in the survey relating to these were - 20, 35, 36 and 37 (Appendix 1).

3.5.2 Survey execution

The survey participants were selected from three state owned transport organisations in Ireland, all of whom are actively involved in the delivery of large transport projects. This included a mix of public sector and contractor staff. The survey had a 70% response rate. It was decided that there was little value in including people from the private sector as their challenges and experiences would be different (Boyne, 2002). Prior to conducing the survey, an email was sent to the survey candidates explaining the research and giving them an option to opt out. The first page on the survey also provided a similar message and noted how the responses would remain anonymous, (Appendix 1).

3.5.3 Survey data analysis

Following the closure of the survey, the data was skimmed to ensure that no responses were invalid and to get a sense of the themes and the level of information returned. Tags were developed to assign the responses to the constructs. These tags were created in the survey development stage. Any new or novel data that was an outlier was assigned a unique tag. The responses that were common across respondents were tallied together to get a sense of common themes. These responses formed the most significant insights from the study.

Thematic analysis was used to review the open-ended questions. This enabled the researcher to identify the most relevant quotes that would help support the overall thrust of the findings. The outputs of the survey were also beneficial in giving the researcher an opportunity to determine the type of information that required further probing at the interview stage.

3.5.4 Interview design

The benefit of semi-structured interviews is that a person's true feelings can be conveyed through their speech and mannerisms (Longhurst, 2003) as interviewees are less guarded in unrestricted conversations (Kotler & Keller, 2016). The interview questions (Appendix 2) were developed taking into consideration the research question and objectives, the literature, and the survey data. Prior to conducting the interviews, the researcher performed a sample test with one interviewee. This helped

ensure that the questions were appropriate and that the timings were accurate (Saunders et al., 2012).

Four interviewees were selected to bolster the information already gathered through the surveys. All four are experienced and senior within their respective disciplines in transport project delivery, including senior leadership, project management, contract management and financial management. The researcher circulated a detailed email and consent form (Appendix 3) in advance of the interviews to ensure that full expectations were known.

3.5.5 Interview execution

The interviews were conducted through a mix of video and face-to-face. Interestingly, the two face-to-face interviews took approximately 10 minutes longer. This highlights the more relaxed nature of a face-to-face interview as time pressures appear less. Handwritten notes were taken during the interviews.

3.5.6 Interview data analysis

The hand-written notes were first transcribed. Thematic analysis was used to analyse the answers from the interviews. The coding themes used in the survey analysis were also used for the interview outputs. Once complete the common tags were combined to get a more complete picture of the findings in a particular area. Any outliers were noted and assessed taking into consideration the findings from the literature and the comments from the other interviewees.

Due to data protection regulations, all interview transcripts are password protected and only the researcher has access to the information. This information will be held for a maximum of 3 years and will then be destroyed.

3.6 Challenges and limitations

Finding a convenient location to carry out the interviews was a challenge due to the new working arrangements since the Covid-19 pandemic. Therefore, a mix of in person and video technology were used.

The sample size of the research was limited due to time-constraints, but the response rate was positive, and the respondents were representative.

The data collected was from three large state sponsored transport organisations, however, all three are in the same geographical location therefore, the data set may be a good representative of that location only.

3.7 Ethical Considerations

The researcher completed the National College of Ireland Ethical review form in advance of commencing this research project. The purpose of this form was to ensure that the researcher understands the ethical considerations of all aspects of the study, when surveying and interviewing the participants and collecting and storing the data in a secure and confidential manner. It is important that researchers are aware of the ethical considerations so that all participants are treated in a fair and respectful manner and that no harm is caused because of this project (Fisher, 2007). All interviewees were asked to sign a consent form in advance of the interviews. This form outlined how their identities would remain anonymous and that they could redraw from this process at any time (Appendix 3). The same type of information was also outlined at the start of the survey (Appendix 1).

3.8 Conclusion

This chapter detailed the research methodology for the dissertation. The researcher decided that an epistemological philosophical approach using an interpretivism stance was the most appropriate. Qualitative research methods were used to collect the data. The methods leveraged were online surveys, followed by, semi-structured interviews. Throughout the duration of the dissertation, ethical considerations were adhered to. The next chapter discusses the data collected and highlights the important areas that will provide insights when concluding the study.

Chapter 4 - Data Presentation, Findings & Analysis

4.0 Introduction

This chapter presents the findings and results of the primary data which was captured using online surveys and semi-structured interviews. A qualitative approach was taken.

Both the surveys and interviews were designed from the research question, objectives, and literature. The surveys were sent to 60 candidates out of which there were 42 responses. The interviews were held with four senior transport managers.

The collective results from both the surveys and the interviews are presented using a thematic analysis. Braun and Clarke (2006) outline how thematic analysis is an effective method for identifying and analysing patterns within datasets. This method provides the researcher with the flexibility to interpret the data but done in a transparent manner to ensure confidence in the findings (Castleberry and Nolen, 2018). The key issues and patterns that emerged are highlighted, all of which will be discussed further in Chapter Five.

4.1 Thematic Discussion & Analysis

4.1.1 Survey and Interview Results

The participants were selected from three major transport organisations in Ireland, all of whom are experienced in delivering large transport projects. The findings are presented in the same order as the research sub-objectives. In advance of that, a profile description of the participants is outlined in the next section.

4.1.2 Profile of participants

Tables 3 to 5 defines the participant's demographics. The respondents to the survey are in different roles within the project delivery domain, including management (33%), project management (31%), project team members (14%), portfolio managers (10%) and portfolio management office (PMO) (5%). Others (7%) consisted of consultants, technical staff and contract experts. Of those surveyed 64% were public sector employees, where 81% had previously worked in the private sector.

Table 3: Job Profiles

Job Title	Count	Percent
Management	14	33%
Project Management	13	31%
Project Team Member	6	14%
Portfolio Management	4	10%
Other	3	7%
PMO Management	2	5%
Total	**42**	**100%**

Table 4: Number of public sector employees

Public Sector Employee	Count	Percent
No	15	36%
Yes	27	64%
Total	**42**	**100%**

Table 5: Number of employees previously in private sector

Private Sector Previously	Count	Percent
No	5	19%
Yes	22	81%
Total	**27**	**100%**

4.1.2 Sub-objective 1

The first objective under review is:

- "To investigate the common project management challenges in transport projects within the public sector, with a particular focus on Ireland."

Survey question 20 (part 1)

Table 6 displays the results of survey question 20. From the list of common project challenges experienced in the last three transport projects, 'Complexity, ambition & size' was the most common challenge. This makes sense given that mega-projects like Bus Connects, Metrolink and the Dart expansion programme are currently underway within the state.

Those that selected 'Other' included additional challenges:

1. Poor supplier performance.
2. Portfolio management.
3. Optimism bias, strategic misrepresentation, and political will.
4. Dependency management.
5. Under-development of investigative area.
6. Over-reliance on people to mitigate process/system issues.

Table 6: Areas that experienced challenges in the last three transport projects

Challenge Area	Count	Percent
Complexity, ambition & size	22	10%
Contract & Commercial	19	9%
Technology & Systems	15	7%
Poor risk management strategies	15	7%
Communication	14	7%
Program or Project Management	12	6%
Business Case Development	12	6%
Governance	12	6%
Human Resources (HR)	12	6%
Over-reliance on methods and process	10	5%
Fragmentation & poor co-ordination of joint service delivery	9	4%
Lack of proper leadership/management	9	4%
Lack of change management skills	8	4%
Lack of large scale IT project management skills	8	4%
Leadership & Strategy	8	4%
Benefits & Value Proposition	7	3%
Operational Benefits Realisation	7	3%
Other	6	3%
Issues with trade-off triangle	5	2%
Poor handling of volatility	3	1%
Total	**213**	**100%**

Survey question 20 (part 2)

A subset of the challenge areas from question 20 above, were analysed against the results of a similar study in the UK (Winch et al., 2020). Ten of the challenges selected in this survey (Table 6) were identical to those identified in the UK study. Table 7 shows a comparator view of the results of both studies.

Table 7: Comparative view of challenges between Irish and a UK study

	Challenge Areas	Primary Data (Ireland) (2022)		UK Government (2020)
1	Contract & Commercial	19	17%	8%
2	Technology & Systems	15	14%	14%
3	Program or Project Management	12	11%	10%
4	Business Case Development	12	11%	10%
5	Governance	12	11%	12%
6	Human Resources (HR)	12	11%	7%
7	Leadership & Strategy	8	7%	11%
8	Benefits & Value Proposition	7	6%	11%
9	Operational Benefits Realisation	7	6%	6%
10	Trade-off triangle (cost, schedule, scope)	5	5%	11%

Top 5 rated challenges -

By reviewing the top five common challenges across both it appears that "Technology & Systems" and "Governance" are common. "Contract & Commercial" is the number one challenge from this survey. It is a common preference for public sectors to contract out certain activities (Bovaird et al., 2009; Van der Waldt, 2011) and to acquire key skillsets through contracts (Campbell at al., 2010). Previous studies that have highlighted project challenges have this as a contributing factor to project failures (Alexandrova et al., 2012; Winch et al., 2020).

Interview question 1

The interviewees were asked to describe what they believe is their organisations biggest challenge in delivering transport mega-projects.

The responses had a similar theme in most cases. Deliverability capability was a big concern. This is understandable given the scale of transport mega-projects now underway. Sourcing specialist resources of the calibre required in a buoyant market is difficult. The level of outsourcing is believed to be resulting in loss of connection to the business. It was felt that there was enormous ambition in the plans but not necessarily a strong political will or backing. The reliance on a wide range of third-party stakeholders to partake in the projects was also seen as a key challenge.

Survey questions 28 and 29

Survey question 28 asked the respondents whether they had a standardised risk management process within their organisation. While question 29 focused on whether

the respondents felt that they had enough time to think about risk. The results are in Tables 8 and 9 respectively.

The results highlight that a substantial number of people believe they are not spending enough time on risk which is reflective of the literature findings, where insufficient risk management is a clear cause of project failures (DfT, 2019; Hamdy, 2014).

Table 8. Standardised risk management process within organisation

Standardised Risk Management	Count	Percent
No	16	38%
Yes	26	62%
Total	**42**	**100%**

Table 9. Adequate management and time on risk

Adequate Management of Risks	Count	Percent
No	19	45%
Yes	23	55%
Total	**42**	**100%**

Survey question 30

Question 30 asked those who answered "No" (45%) to question 29, why they believed they did not have enough time for risk management. Some respondents believed there was not enough time for this on top of other activities. Others felt that risk management was regularly treated as a "tick-the-box" exercise and not treated as a core element of successful delivery. The pace of the projects pushes the projects team hard to deliver results, attention is focused on "getting the deliverables complete" and risk management is de-prioritized at times. Some respondents also thought it is treated as a back office, administrative activity and that it does not attract the requisite scrutiny, challenge, thinking or attention across various levels of management. One such comment was, "*We have not transitioned as an organisation from risk management to risk leadership*".

4.1.3 Sub-objective 2

The second sub-objective under review is:

- "To ascertain whether the governance processes within the Irish transport public sector supports or hinders project delivery."

Survey questions 13, 14 & 15

Table 10 displays the results for question 13, where the respondents were asked whether project governance helps or hinders. As supplemental questions, question 14 asks those who felt it hindered projects, why, and question 15, asked those who feels it helps, why.

Table 10: Does governance help or hinder a project?

Governance impact on delivery	Count	Percent
Hinders	4	10%
Helps	36	86%
Has no impact	2	4%
Total	**42**	**100%**

Survey question 14

Of those who responded 10% believed governance hinders a project. They believe there is an over reliance on processes which serve to frustrate rather than assist. It is often a box-ticking exercise, generally involving people who don't understand the complexities and variables associated with project implementation in a highly unionised environment.

There are multiple governance approaches, and more time is spent reporting project progress and governance rather than delivering. Governance for governance's sake in some instances. The decision makers are often far removed from the realities on the ground and therefore do not understand the benefits or risks involved in complex projects. Lastly, it was felt that it is often unduly lengthy, with parallel paths for approvals.

Survey question 15

86% of respondents believed governance helps. While it was acknowledged that it can be onerous, it was seen to reduce the risk of unforeseen issues and assists with meeting objectives. It helps avoid scope creep. It also provides assurance on appropriate accountability, transparency, and removes ambiguity. Governance provides greater control in project delivery. A respondent commented on how they "come from a group of doers who have successfully delivered many projects but as the number of projects increase and resources are scare, there is great benefit in the formality of writing things down and taking the time to think". Governance was also found to help remove

blockers quickly by applying focus through project controls. The fact that it provides a forum whereby diverse views and constructive debate happens was deemed beneficial.

Interview question 3

The interviewees were asked whether they felt governance was a tick-the-box exercise and if "yes", whether they had suggestions on how the organisation can make it more meaningful?

All interviewees felt that it can be at times. They felt that if there were clear terms of references at the outset, better stakeholder expectations would be set. It was felt that it can be individual behaviours, rather than the process slowing things down.

Another positive suggestion was for the sponsoring body to perform a formal walkthrough of the delivery plan to obtain appropriate challenge and scrutiny from the approving authority. The experience is that deliverables sent for review via email is not as effective as a formal review.

Interviewees felt that governance should scale dependent on the size of the project. They also felt that organisations need to move from project administration to project management and leadership. It was recommended that routines and structures should be created to encourage constructive consent. Dissenting views are often not welcome.

Interview question 4

The interviewees were asked whether they feel it is possible to reduce the burden of governance on the project team and still have effective governance.

They felt that if governance is clearly communicated upfront and expectations are set it should not be complex. All stakeholders need to be aware of the processes involved and play their part to ensure success. Burden can be reduced by tailoring the governance process to the project size and complexity. There should be more delegation of authority and team empowerment so that it is not overly burdensome at any one level.

Survey question 7

Table 11 gives the results for question 7 which asked the type of governance structure in place in the respondent's organisation. The results indicate that the majority have

formal governance structures. Caliste (2012) outlined how a lack of a formal governance structure in Trinidad and Tobago led to multiple project failures.

Table 11: Governance process type

Governance Type	Count	Percent
Formal	38	90%
Informal	3	7%
Don't Know	1	2%
Total	**42**	**100%**

Survey questions 8, 9 & 10

Table 12 shows the results from survey question 8 which asks respondents whether they felt they had sufficient knowledge of the governance process to effectively do their job.

The vast majority felt that they did. Other studies have detailed how a lack of knowledge in the governance processes can be detrimental to the organisation (Blixt et al, 2017; Fanning, 2014). Survey question 9 (Table 13) queried whether they had received training on their organisation's governance process. The majority have not. Other studies have shown that by introducing governance training for project managers and other stakeholders, project delivery has improved (Fanning, 2014). When questioned (question 10) on whether training would be beneficial, 93% felt that it would.

Table 12: Governance process – sufficient knowledge

Governance Process Knowledge	Count	Percent
Sufficient Knowledge	38	90%
Insufficient Knowledge	4	10%
Total	**42**	**100%**

Table 13: Training on Governance Process

Governance Process Training	Count	Percent
No	26	62%
Yes	16	38%
Total	**42**	**100%**

Survey questions 16 & 17

Question 16 asked the respondents whether the same governance approach should be used on all projects irrespective of size and complexity (Table 14). 93% of the respondents felt that one size does not fit all. This is in line with most of the literature (Burgan et al, 2014).

Table 14: Governance approach – Does one size fit all

Governance – does 'one-size-fit-all' suit	Count	Percent
No	39	93%
Yes	3	7%
Total	**42**	**100%**

Survey question 17

Why the same level of governance should not be applied to all projects, respondents believed the level of governance should be related to the project size/cost or when there is a dependence on other projects for its success. The scope, cost and risk to business should be considered, to allow for agility in delivery and reduce overheads. For smaller projects it was recommended that a lighter approach should be taken. It was noted that governance is expensive. Interestingly, it was noted that some projects can include small value software enhancements but have lots of interfaces which adds complexity and needs heavy governance. Others may be high value projects but low complexity, an isolated system with no interfaces. This highlights how project size and governance levels do not always go together.

Survey question 18

Question 18 asks respondents whether they have had external independent advisors involved in their current or last projects. 74% did, which shows that the Irish public sector projects are becoming more effective in getting the required level of scrutiny and challenge that is recommended on large transport projects. Having an independent reviewer was a re-occurring recommendation in the study literature (Kutz et al., 2006; Patanakul, 2014).

Survey question 19

This question asked whether the governance regime in the public sector would make them consider leaving their job. 81% said that it would not, while 14% said it would. 5% put it as non-applicable.

Survey questions 25 & 26

Question 25 queried whether the stage gates on their projects are strictly adhered to (Table 15). The impact of not properly following stage gates was cited as a major project challenge in Trinidad and Tobago (Caliste, 2012).

In question 26 the respondents were asked whether the stage gates are effectively and objectively challenged (Table 16). 12% felt that they were never challenged. Although it's not transport related, the National Paediatric Hospital was one project where the level of challenge and scrutiny was deemed insufficient & contributed to the project failures in Ireland (PWC, 2019).

Table 15: Are stage gates strictly adhered to?

Stage Gates - adherence	Count	Percent
No	11	26%
Yes	26	62%
Don't Know	5	12%
Total	**42**	**100%**

Table 16: Are stage gates effectively & objectively challenged?

Stage Gates - effective and objectively challenged	Count	Percent
Always	5	12%
Sometimes	32	76%
Never	5	12%
Total	**42**	**100%**

4.1.4 Sub-objective 3

- "To determine if there is a uniqueness to public sector projects that makes them more difficult to be successful than projects in the private sector."

Survey question 5

Question 5 asked the respondents who have worked in the private sector whether it was more challenging to deliver a project in the public or private sector (Table 17). One respondent commented that there should have been an option for 'Similar', which is a good point. The fact that 5 didn't provide an answer could suggest that they either "don't know" or "about the same".

Table 17: Are projects in public or private sector more challenging to deliver

More challenging in public or private sector	Count	Percent
Public	30	71%
Private	7	17%
No response	5	12%
Total	**42**	**100%**

Interview question 9

The interviewees were asked that if a mega project was transferred to the private sector for delivery would it be delivered faster, cheaper and to a higher quality.

All interviewees believed it would not. This corresponds with research studies which have shown that the private sector is not superior in terms of major project delivery. The public sector has the appropriate controls to better protect the public's interest. Public ownership of public funds is important, so the leadership and accountability needs to be kept within the public sector.

A lot of transport mega-projects today are delivered in conjunction with the private sector through PPP. It was felt that the private sector would not deliver more effectively without public sector involvement. All interviewees believed that the public sector would be more efficient as they have the appropriate governance setup and connections to deliver the scale of these projects. If the private sector was left to deliver in isolation, it would likely slow down delivery. The private sector will still need to go through the same statutory processes, such as getting planning permission.

Survey question 6

Survey question 6 asked the respondents to identify the challenges that they have experienced in the private sector (Table 18). While "Complexity, ambition & size" is the top challenge in the public sector (question 20), "Contract & Commercial" is the most common challenge in the private sector. Three of the top five in the public sector are also listed in the top five of the private sector.

1. Complexity, ambition & size.
2. Poor risk management.
3. Contract & Commercial.

Table 18: Main challenges found when managing projects in the private sector

Challenge Areas – experienced in private sector	No of occurrences	Percent
Contract & Commercial	13	9%
Over-reliance on methods and process	13	9%
Governance	12	8%
Complexity, ambition & size	9	6%
Lack of large scale IT project management skills	9	6%
Poor risk management strategies	9	6%
Communication	8	5%
Fragmentation and poor co-ordination of joint service delivery	8	5%
Issues with trade-off triangle	7	5%
Lack of change management skills	7	5%
Lack of proper leadership/management	7	5%
Benefits & Value Proposition	6	4%
Business Case Development	6	4%
Leadership & Strategy	6	4%
Operational Benefits Realisation	6	4%
Technology & Systems	6	4%
Human Resources	5	3%
Other	4	3%
Program or Project Management	4	3%
Poor handling of volatility	1	1%
Total	**146**	**100%**

Interview question 2

The interviewees were asked do they think that the influence of unions on public sector projects increases the complexity and risk to the project. For anybody who answered "yes" a follow up question of what can be done to reduce the impact was asked.

All interviewees felt that it can increase both the complexity and risk, but if managed appropriately they can decrease the risk. Managing relationships early on is vital, if unions are brought on the journey early and fully understand the benefits, they can be great ambassadors.

One point of note raised was the challenges of two unions competing for members within one organisation. This can cause friction and highlights the importance of an on-going open dialogue between all parties. One interviewee believed with the inclusion of unions, the complexity of stakeholder management is massively understated. The processes used are not sophisticated enough to clearly articulate, track and monitor concerns. Projects need to be propositioned in the right way, for

example, if a project is providing sustainability benefits that needs to be made known. Being more cognizant of the influence and interest of these types of stakeholders would help ensure a smoother process.

4.1.5 Sub-objective 4

- "Does a project manager's experience and ability have an impact on a project's outcome?"

Survey questions 32, 33 and 34

Question 32 asked whether a project manager's experience influences the types of projects they are assigned to (Table 19). Question 33 looked to understand was formal training prevalent within the organisation (Table 20). Question 34 asked whether they had formal training in public sector specific project management practices (Table 21).

Table 19: Does PM's experience influence project assignment?

Does experience influence project manager assignment	Count	Percent
No	7	17%
Yes	35	83%
Total	**42**	**100%**

Table 20: Formal project management training or certification?

Formal project management training	Count	Percent
No	9	21%
Yes	33	79%
Total	**42**	**100%**

Table 21: Formal training in public sector specific practices

Formal project management training in Public Sector practices	Count	Percent
No	33	79%
Yes	9	21%
Total	**42**	**100%**

Interview question 6

The interviewees were asked whether enough emphasise is placed on project management skills as part of the competencies required for senior roles in the public sector.

The majority believed there is. One interviewee believed that there was but felt that having a centralised PMO would be beneficial. Currently there are several PMO's responsible for different areas and not enough consistency in approaches.

Another interviewee thought that there is strong a focus on these types of skills for the recruitment of permanent roles and that qualifications in the area is something that is required. They also believed that across the management teams there is considerable project management experience.

One interviewee believed there was not enough emphasis. They believed that there needs to be a greater importance placed on training in areas such as risk management and finance. Also, there is no designated role levels and pay scales for a project manager in the public sector, there is for the likes of engineers, and it would be advantageous as the organisation is now a project oversight organisation.

Interview question 7

The interviewees were asked whether they think emotional intelligence has become an important attribute for project managers and why?

All interviewees were unanimous here. They believed it was vital for the delivery of the complex eco-system of projects where there are multiple stakeholders. They feel it is vital to build strong diverse teams and recognise the different dimensions that everyone brings to a project. The environment needs to be conducive of risk taking & innovation, which emotional intelligence can help foster. The highest performing teams have been found to be those that are diverse in thinking.

One area where they believed it was not as important is when a project is very technical and a standalone piece of work.

Survey question 35

Question 35 tasked respondents with ranking their top five skills that they deemed most important for a project manager (Table 22). A similar exercise was conducted in a Canadian study "Effective project leadership: a combination of project manager skills and competencies in context", (Krahn et al., 2006). The results show that the two countries differ substantially on what is most important.

People skills was the only common result in the top five, in this study it was fourth ranked, the Canadian study ranked it top. The reason for "Understanding, balancing priorities" being ranked first in this study could be due to the large programme of work currently underway where managing priorities is critical.

Table 22: Top 5 skills most important for a project manager

Ranked Top 5	Irish Study	Canadian Study
Competencies – General PM skills	Rank	
Understanding, balancing priorities	1	
Planning	2	
Critical thinking, problem solving	3	
People skills	4	1
Risk Management	5	
Integrity, ethical behaviour, consistent	6	4
Relevant prior experience	7	
Strong at building trust	8	5
Conflict management & resolution	9	
Expectation Management	10	
Leadership	11	2
Verbal communication	12	
Listening	13	3
Strong team building skills	14	

Survey question 36

In this question respondents were asked to rank the top 5 skills most important for a project manager managing a large complex project (Table 23). Adding this project characteristic changed the requirements for a project manager. This was also reviewed against the Canadian study (Krahn et al, 2006). This time results are similar with both studies displaying commonality in three of the five perceived top skills required.

Table 23: 5 most important skills for a PM managing a large complex project

Ranked Top 5	Irish Study	Canadian Study
Competencies – Large complex project	Rank	
Planning	1	3
Leadership	2	1
Relevant prior experience	3	2
Critical thinking, problem solving	4	
Understanding, balancing priorities	5	
Strong team building skills	6	5
Risk Management	7	
Expectation Management	8	
Strong at building trust	9	
Verbal communication	10	5
Conflict management & resolution	11	
People skills	12	4
Integrity, ethical behaviour, consistent	13	
Listening	14	

Survey question 37

In question 37 respondents had to rank the top 5 skills most important for a project manager managing a project with high uncertainty (Table 24). This was also reviewed against the Canadian study (Krahn et al, 2006). The results are again showing commonality with three of the five perceived top skills required the same.

Table 24: 5 most important skills for a PM managing a project with high uncertainty

Ranked Top 5	Irish Study	Canadian Study
Competencies – High uncertainty	**Rank**	
Critical thinking, problem solving	1	
Risk Management	2	1
Understanding, balancing priorities	3	
Expectation Management	4	2
Planning	5	5
Conflict management & resolution	6	
Leadership	7	3
People skills	8	4
Relevant prior experience	9	
Integrity, ethical behaviour, consistent	10	
Strong at building trust	11	
Verbal communication	12	
Listening	13	
Strong team building skills	14	

4.1.6 Sub-objective 5

- "To provide recommendations that could help alleviate the issues and contribute to improved operational effectiveness in the Irish public sector transport industry."

Interview question 10

Here interviewees were asked if there was one change that they could introduce to assist with project delivery what would that be?

This question elicited different responses from each interview. One interviewee recommended the introduction of a centralised PMO to drive a consistent PMO methodology across the organisation. Clarity on business case development was another area mentioned. There needs to be clear ownership of the business case and tracking of a project's benefits.

Another would change the public procurement process as they believe it slows down project delivery due to its complexity and lengthy timelines. Insufficient resources to cope with the large amount of change within the organisation was another theme.

Finally, there should be a greater orientation towards risk. The organisation needs to move from risk administration to risk leadership. It was felt that all owners in the mitigation plans should be permanent staff and not assigned to contracted staff. The accountability aspect needs to be greater. There should not be a hesitation to keep mitigation plans blank if the organisation does not know how to address. These items should be tabled for discussion.

4.2 Conclusion

Common perceptions and trends clearly emerged from the findings. The management of public sector contracts has emerged as a challenge. Deliverability challenges based on the portfolio of work to be delivered over the coming years is a concern. Prioritising risk management is seen as essential but difficult while there are many other competing tasks. Also, while governance is seen as important it should be flexible and take proportionality into account.

Much of the primary research supports the insights from the literature review. The findings will be discussed in more detail in the next section and the key elements will be drawn together so that the findings can be evaluated.

Chapter 5 - Discussion

5.1 Introduction

This chapter focuses on discussing the results of the study, and includes the insights gathered from the literature review in Chapter Two and the findings presented in Chapter Four.

From the survey results, "Complexity, ambition and size"' is the greatest challenge that the Irish transport public sector is currently facing. Considering that some of the largest state funded mega-projects are underway, like Bus Connects, Metrolink and the Dart expansion programme this is unsurprising. In the sections that follow each key finding will be discussed, and practical considerations identified.

5.2 Transport project management challenges - an Irish context

The role of the project manager, poor governance and insufficient risk management were salient themes throughout the literature (Hamdy, 2014). The data from the surveys shows that these are prevalent in Ireland, all three ranked in the top five challenges.

As previously mentioned, the survey data shows that, "Complexity, ambition and size" is the number one challenge. From the interviews the need to build more diverse teams with project managers who have strong EI skills was determined to be paramount. Diverse teams it was felt leads to innovative behaviours and risk taking (in a controlled manner). Gola et.al (2020) puts forward the importance of having leaders that have self-awareness and an ability to manage emotions as a great benefit. One interviewee felt that although the country's ambition was high, political will and support was not always evident. Bovaird et al. (2009) spoke of how political influence can impact progress on initiatives due to populist reasons. The Irish government have started to make strides in supporting major project delivery by introducing initiatives such as the "Our Public Service 2020" framework, which is intended to provide advanced approaches to governance, service delivery and people management (OPS, 2021).

It is clear from the literature that risk management is a ubiquitous challenge across transport projects, regardless of country (Hamdy, 2014). Poor risk management (McManus et al., 2003) and the absence of formal risk management procedures (Hamdy, 2014) were common themes, which left unmanaged can increase the

complexity. In Ireland 62% of survey respondents have a formal risk process within their organisation, however, 45% admitted to not spending enough time effectively managing risks. The main reason for this was due to time constraints. Other activities take priority over risk management, which results in it being a "tick-the-box" exercise. To alleviate this, a transition from risk management to risk leadership was a recommendation from the interviews. This would involve the leadership teams embracing and championing a risk culture.

Yucelgazi et al. (2019) outlined the importance of early risk identification on transportation projects. Hamdy (2014) discussed the need for public organisations to stop relying on third-party consultants to manage their risks. Patanakul (2014) determined that including an independent verification function in areas like risk, can add considerable value. The NTA which is the approving authority for the current key transport mega-projects, has outlined the importance of having a peer review panel for the more complex projects (NTA, 2020). This relatively new criteria from the NTA Project Approval Guidelines should help alleviate the issue of the lack of challenge and scrutiny which concerned the interviewees. The survey results show that 74% of respondents have had an independent external advisor on their recent projects. This is encouraging and demonstrates that actions are being taken to improve in this area.

Separately, interviewees were asked to outline their "single" biggest concern in delivering mega-projects. "Deliverability" was a reoccurring theme, and in particular acquiring the right calibre of people to deliver projects of this scale. McCarthy (2019) proffered how only one in five people rates working in the public sector as attractive. This will limit their ability to attract this talent.

As the public sector is bound by public procurement rules when acquiring goods or services from the market (Johnson, 2020), it is no surprise the survey results rated "Contract & Commercial" as the second highest challenge. The fact that the public procurement process can be lengthy and error prone, (Loader et al., 2015) reinforces this point. An interviewee, when asked what one change to alleviate project delivery challenges they would like to introduce, felt that an overhaul of the public procurement process is needed. Government legislation through the years has over-complicated this area and it has slowed delivery down. Johnson et al. (2022) mentioned how the current public procurement and tendering guidelines can stifle innovation.

"Technology & Systems" was the third highest challenge, ranking jointly with "Insufficient risk management". This mirrors a study from the UK in 2020 (Winch et al., 2020) where "Technology & Systems" was the number one issue. The PWC audit report on the failings of the Irish Children's Hospital also cited "System Issues" as one of the reasons for the projects failure (PWC, 2019). The section that follows provides some practical considerations to help alleviate some of the challenges discussed above.

5.2.1 Practical considerations

- Perform a review of the organisation's resourcing capability to determine their ability to adequately resource their portfolio of projects.
- Roll out a formal risk management process across all public sector agencies with appropriate education on the importance of managing risk.
- Transitioning the organisation from risk management to risk leadership needs to be actively championed.
- The government body should be the owner of risks and not third-party suppliers and contractors.
- Mandate the addition of independent external reviewers on all projects over a certain value.
- Perform a review of the public procurement process and an internal review on how the organisations are interpreting this should be undertaken.

5.3 Governance a support or hindrance in project delivery

Most of the literature and primary data supports the idea that governance helps project delivery. Kelly (2010) proffers how an organisation can be at risk of pecuniary problems if governance is not adhered to. The author found it difficult to find many instances in the literature where governance was found a hindrance. There were cases where it was ineffective, but the value of it was mostly recognised, if implemented correctly. Caliste (2012) discussed how the lack of maturity in the governance process can hinder progress in government projects. Larson (2004) determined that some organisations have frameworks that are designed for large projects only, so smaller projects suffer. Similarly, 93% of survey respondents felt that the governance structure should not be a "one-size-fits-all" and that proportionality should be taken into consideration by reviewing the complexity and priority of the projects.

86% of survey respondents felt that governance helped on projects, 4% felt it had no impact and the remaining 10% felt that it hindered. Interesting, 14% of public sector employees would consider leaving their job because of it. The majority (93%) felt dedicated training on the governance process would be beneficial, as 62% have had no training. Of those that thought it hindered projects, some of the reasons given were

- Processes served to frustrate rather than to support.
- Tick-the-box exercise.
- Unduly lengthy.

Others felt they spend more time reporting on progress rather than delivering.

The absence of a centralised project management office was cited as a concern from the interviews. The lack of standardised templates for some of the governance deliverables in the PAG was frustrating, having a unified approach would improve project delivery.

For those who thought it helped, providing accountability, transparency, and removing ambiguity were the key reasons. Others felt that it made them feel in control of the delivery.

Related to the "tick-the-box" survey comment, the interviewees were asked if they agreed. All felt that this can be the case. Clear terms of reference at the start of all projects, would help with expectation setting. Having the sponsoring body perform a full walkthrough of the delivery plan would be beneficial, as it leads to appropriate challenge on weaknesses. Encouraging constructive consent and having the organisation move from project administration to project management and leadership was also cited as important. Further practical considerations are outlined below.

5.3.1 Practical considerations

- Implement dedicated training on the governance process.
- Ensure proportionality is considered at the outset of projects so that the governance level is appropriate.
- Introduce a centralised project management office to ensure standardisation across the organisation(s).

5.4 Are public sector projects more difficult to deliver than private sector?

81% of survey respondents felt that delivering public sector projects is more complex.

The interviewees were asked if a large public sector project was handed over to the private sector, whether it would be delivered faster, cheaper and to a higher quality. The answer was a resounding 'no'. This was because the same statutory approvals process would need to be followed. The fact that the public sector has the appropriate controls in place to protect the public's interest is important. Another reason is that the public sector has the "appropriate connections" to the right stakeholders. Thong et al. (2000) discuss how managing stakeholder interests is more important in the public sector than in the private sector.

It has also been found that the public sector invests more effort in respect to time on project risk management than the private sector, 25% and 17% respectively (Jurisch et al., 2013). Effective risk management is key when managing complex transport projects. The private sectors primary focus is enhancing shareholder value, while the public sectors is to ensure that projects are delivered in an efficient, effective, and ethical manner for the country's citizens (McCann Fitzgerald 2020).

5.4.1 Practical considerations

- A training program should be developed for new employees on the uniqueness of public sector transport projects.

5.5 Does a project manager's experience & ability impact project outcomes?

The literature has shown that the role of the project manager can have a significant impact on the outcome of a project (Blixt et al., 2017; McManus et al., 2003). The primary data supports this view. The survey results highlight the following top five skills that a project manager should possess:

1. Understanding and balancing priorities.
2. Planning.
3. Critical thinking, problem solving.
4. People skills.
5. Risk management.

A similar study in Canada (Krahn et al, 2006) highlighted substantially different results from the same list. There was only one similar skill across the two studies,

which was “People Skills”. This was ranked number 1 in Canada and number 4 in Ireland. The Canadian study identified a high number of soft skills which are centred on the relationship aspect.

1. People skills.
2. Leadership.
3. Listening.
4. Integrity.
5. Strong at building trust.

The results may be indicative of the transformational environment that the Irish transport sector is now in. Understanding and balancing priorities could be linked back to the challenge that people are experiencing in getting the appropriate level of resources to deliver the mega-projects. All the skills, make sense when considering that “Complexity, ambition and size” is the number one challenge.

While people skills are vital, perhaps the other areas such as planning, risk management are at the forefront of people’s minds. Another reason is that the Canadian study was conducted in 2006 and it could be reflective of how the world has changed and other complexities have now emerged. It was seen in the survey results that the characteristics of a project (e.g., one with high uncertainty) also changes the skills that are deemed beneficial for the project manager to have.

The importance of having project managers with the correct training and skills was also identified. The survey results highlight how 79% of the respondents have formal project management training. However, training specific to public sector practises was less, with 79% not having it. The Australian government dealt with this by developing a nationally recognized qualification in project management practices for the public sector (APSC, 2014b). In the interviews, interviewees felt that there is a strong focus on project management experience and qualifications when recruiting for permanent roles in the project management area.

Also from the interviews, some felt the project management sector needs to go further and design a designated role level and pay scale structure for project managers in the public sector, similar to what has been done in the engineering disciplines. Further practical considerations are outlined below for this sub-objective.

5.5.1 Practical considerations

- Introduce a dedicated training plan on project management practises, specific to the public sector.
- Introduce a designated role level and pay scale structure for project managers in the public sector.

5.6 Recommendations for Irish public sector transport industry.

The practical considerations listed above under 5.2 to 5.5 answers this sub-objective.

5.7 Limitations

Limitations of study.

- A qualitative research method was used to determine insights into the project management challenges in the transport industry. While the data represents an accurate account of the individual's experience in the transport industry, a larger sample size would have allowed for a more widespread range of views.
- The interviewees are currently working in public sector transport, and this opens them up to bias. It may have been beneficial to include people who had previously worked in the industry but now have left.
- The study did not provide a detailed breakdown on the different challenges that can occur on small, medium, and large projects. Many of the examples are focused on larger projects.

5.8 Conclusion

This chapter provides an overview of the key insights found when reflecting on both the findings from the literature and the primary data. The researcher has highlighted several recommendations. The next chapter will draw a conclusion to this research project and provide a clear outline of the areas for future study.

Chapter 6 - Conclusion

6.1 Conclusion

The purpose of this research study was to review the main project management challenges in the public transport sector in Ireland. The research question was framed as being "What are the main project management challenges for transport related projects in the Irish public sector and what type of organisational changes would help drive more successful outcomes?". This study sought to address this question and provide specific, achievable and measurable recommendations.

To provide structure to this investigation, five sub-objectives were considered. These areas guided the researcher when reviewing the previous literature and helped identify gaps. Three salient challenges were identified in the role of the project manager, risk management and governance. Additional gaps and findings from the literature review, highlighted other gaps to be tested in the primary research. A qualitative research study was deemed the most suitable approach to conduct this project. The researcher used online surveys and conducted semi-structured interviews to capture the primary data.

The study contributed to the existing literature by providing a clear outline of the present-day project management challenges in Ireland. "Complexity, ambition and size" was the number one challenge identified. That coupled with "Deliverability" and the country's struggle to source and retain the appropriate talent to deliver, were at the forefront of the findings.

Issues with the public procurement process was evident and the need to provide greater capability in the management of risk and governance was apparent. The role of the project manager is key, and the public sector needs to look at the supporting structures to help the project manager be successful.

The key recommendations to help mitigate the challenges include:

- Transition from risk management to risk leadership
- Review of public procurement process to streamline and simplify
- Introduce centralised project management office
- Training on project management practises, specific to the public sector
- Designated role level and pay scale for project managers in the public sector

Section 6.1 outlines some suggested research topics for future exploration.

6.1 Further Research

- A review of the public sector to increase attractiveness of the permanent roles.
- The challenges of public private partnerships was briefly touched upon in this study. A more in-depth review in this area would be beneficial.
- "Technology and Systems" was a challenge that emerged from the primary data, while not as prevalent in the study literature. A further deep examination into the complexities in this area would provide an additional layer of insights.

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Appendix 1 – Survey Questions

Q1. Dear Respondent,

Thank you for taking the time to complete this survey, which should take you 10 minutes of your time to complete. The results of this survey will be used as part of an important research study on project management challenges in the public sector with a particular focus on transport. Your participation is greatly appreciated. Your responses are anonymous – they will only be available to myself and my supervisor. Your name will not be captured, and the data will be non-identifiable. The data will be saved securely, password protected and kept for 1 year. Please note that your participation is voluntary, and you have the right to withdraw at any time.

Q2. Which of the following best describes your role in the organisation?

- Management
- Portfolio Management
- Project Management
- PMO Management
- Project Team Member
- Other

Q3. Are you a public sector employee?

- No
- Yes

Q4. Have you ever worked previously in the private sector?

- No
- Yes

Q5. In your experience, is it more challenging to deliver a project in the public or private sector?

- Public
- Private

Q6. From the list below what are the main challenges you have found managing projects in the private sector. Please select all that apply.

- Technology & Systems

- Governance
- Leadership & Strategy
- Benefits & Value Proposition
- Program or Project Management
- Business Case Development
- Contract & Commercial
- Human Resources
- Lack of proper leadership/management
- Lack of change management skills
- Lack of large-scale IT project management skills
- Poor risk management strategies
- Complexity, ambition & size
- Fragmentation and poor co-ordination of joint service delivery
- Poor handling of volatility
- Over-reliance on methods and process
- Communication
- Issues with trade-off triangle (cost, schedule, scope)
- Operational Benefits Realisation
- Other

Q7. What type of governance process does your organisation have in place?

- Formal
- Informal
- None
- Don't know

Q8. Do you have sufficient knowledge of the governance process in your organisation/department to effectively do your job?

- No
- Yes

Q9. Did you receive training on your organisation's governance process?

- No

- Yes

Q10. Would dedicated training on the governance process be beneficial?

- No
- Yes

Q11. In general, how closely do you follow the governance process?

- Very Closely
- Closely
- Rarely
- Not At All

Q12. Do you feel, completing project governance tasks impedes on your ability to drive delivery?

- Not at all
- To a small degree
- To a large degree

Q13. Overall, do you believe governance helps or hinders the delivery of a project?

- Hinders
- Has no impact
- Helps

Q14. How do you believe governance hinders a project?

Q15. How do you believe governance helps a project?

Q16. Do you think that the same governance approach should be used on all projects irrespective of size and complexity?

- No
- Yes

Q17. Why do you believe the same governance approach should not be used on all projects?

Q18. Do you have any external independent advisors involved in your current or last projects as part of the governance process?

- No

- Yes

Q19. Would the governance regime in the public sector make you consider leaving your job?

- No
- Yes
- N/A

Q20. Taking into consideration the last three transport projects that you were involved with; in what areas did you face challenges? Please select all that apply.

- Technology & Systems
- Governance
- Leadership & Strategy
- Benefits & Value Proposition
- Program or Project Management
- Business Case Development
- Contract & Commercial
- Human Resources
- Lack of proper leadership/management
- Lack of change management skills
- Lack of large-scale IT project management skills
- Poor risk management strategies
- Complexity, ambition & size
- Naïve & undifferentiated approach to contract and size
- Fragmentation and poor co-ordination of joint service delivery
- Poor handling of volatility
- Over-reliance on methods and process
- Communication
- Issues with trade-off triangle (cost, schedule, scope)
- Operational Benefits Realisation
- Other

Q21. Is the delivery of transport projects within your current business unit coordinated by a Project Management Office?

No

- Yes

Q22. Does your business unit follow a mandatory project management methodology?

- No
- Yes

Q23. Is your organisation more process (compliance) or more outcome (results) focused?

- Compliance
- Results

Q24. Is your work and the work of the PMO in alignment with the organisation's governance approach?

- No
- Yes

Q25. Are stage gates on your projects strictly adhered to?

- No
- Yes
- Don't know

Q26. In your opinion are the stage gates effective and are they objectively challenged against the criteria?

- Never
- Sometimes
- Always
- Don't know

Q27. What challenges have you experienced in the public transport sector that have not occurred in the private sector? Please select all that apply.

- Technology & Systems
- Governance
- Leadership & Strategy
- Benefits & Value Proposition

Programme Management

- Business Case Development
- Contract & Commercial
- Human Resources
- Lack of proper leadership/management
- Lack of change management skills
- Lack of large-scale IT project management skills
- Poor risk management strategies
- Complexity, ambition & size
- Naïve & undifferentiated approach to contract and size
- Fragmentation and poor co-ordination of joint service delivery
- Poor handling of volatility
- Over-reliance on methods and process
- Communication
- Other

Q28. Is there a standardised risk management process used within your organisation?

- No
- Yes

Q29. Do you feel you spend enough time managing and thinking about risk on your project?

- No
- Yes

Q30. Why do you feel you do not have enough time to manage risk?

Q31. How would you describe the risk management maturity level in your organisation?

- Initial
- Repeatable
- Defined
- Managed
- Optimising
- Don't know

Q32. In your organisation, do you believe the experience of the project manager influences the types of projects that they are assigned to?

- No
- Yes

Q33. Have you ever had formal project management training or certification?

- No
- Yes

Q34. Have you ever had formal project management training covering public sector practices?

- No
- Yes

Q35. Rank in order the top 5 skills you believe to be most **important for a project manager**? Please drag your top 5 choices to the right.

- Integrity, ethical behaviour, consistent
- Strong at building trust
- Verbal communication
- Risk Management
- Planning
- Strong team building skills
- Conflict management and resolution
- People skills
- Critical thinking, problem solving
- Expectation Management
- Leadership
- Listening
- Understanding, balancing priorities
- Relevant prior experience

Q36. Taking into consideration a project's characteristics, which of the following skills and competencies do you believe to be the most important for a project

manager managing **a large complex project**? Please drag your top 5 choices to the right.

- Integrity, ethical behaviour, consistent
- Strong at building trust
- Verbal communication
- Risk Management
- Planning
- Strong team building skills
- Conflict management and resolution
- People skills
- Critical thinking, problem solving
- Expectation Management
- Leadership
- Listening
- Understanding, balancing priorities
- Relevant prior experience

Q37. Taking into consideration a project's characteristics, which of the following skills and competencies do you believe to be the most important for a project

manager managing a project **with high uncertainty**? Please drag your top 5 choices to the right.

- Integrity, ethical behaviour, consistent
- Strong at building trust
- Verbal communication
- Risk Management
- Planning
- Strong team building skills
- Conflict management and resolution
- People skills
- Critical thinking, problem solving
- Expectation Management
- Leadership
- Listening
- Understanding, balancing priorities
- Relevant prior experience

Appendix 2 – Interview Questions

1. What do you think is your organisations biggest challenge when it comes to delivering large transport projects?

2. Do you think the influence of unions on public sector projects increases the complexity and risk to the project? If yes, what can be done to reduce the impact?

3. From the survey, some comments referred to governance as a tick the box exercise. Have you any suggestions on how the organisation can make it more meaningful?

4. Do you think it is possible to reduce the burden of governance on the project team and still have effective governance?

5. How can you ensure that the organisations decision makers are close to the realities on the ground so that they have a greater understanding of the benefits and risks involved in complex projects?

6. Do you think that there is enough emphasis placed on project management skills as part of the competencies required for senior roles in the public sector?

7. Do you think emotional intelligence has become more of an important attribute for project managers and why?

8. Do you think that there would be value in having a CPO (Chief Projects Officer) on the executive team?

9. Do you think if one of the organisations mega projects was handed over to the private sector for delivery that it would be delivered faster, cheaper and to a higher quality?

10. If there was one change that you could introduce to assist with project delivery what would that be?

Appendix 3 – Consent Form

1.0 Consent Form

I..... voluntarily agree to participate in this research study.

• I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question without any consequences of any kind.

• I understand that I can withdraw permission to use data from my interview within a week after the interview, in which case the material will be deleted.

• I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.

• I understand that participation involves discussing project management challenges in the public sector transport industry.

• I understand that I will not benefit directly from participating in this research.

• I understand that all information I provide for this study will be treated confidentially.

• I understand that in any report on the results of this research my identity will remain anonymous. This will be done by changing my name and disguising any details of my interview which may reveal my identity or the identity of people I speak about.

• I understand that disguised extracts from my interview may be quoted in the final dissertation as part of this study.

• I understand that if I inform the researcher that myself or someone else is at risk of harm they may have to report this to the relevant authorities - they will discuss this with me first but may be required to report with or without my permission.

• I understand that signed consent forms and any original audio/video recordings will be retained in a secured manner by the researcher until the exam board confirms the results of their dissertation.

• I understand that a transcript of my interview in which all identifying information has been removed will be retained for two years from the date of the exam board.

• I understand that under freedom of information legalisation I am entitled to access the information I have provided at any time while it is in storage as specified above.

• I understand that I am free to contact Denise Gormally to seek further clarification and information.

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Signature of research participant Date

I believe the participant is giving informed consent to participate in this study

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Signature of researcher Date