Project Governance Frameworks of Large Public Projects in Iceland and Norway: Perceptions and Practices

Steinunn Marta Gunnlaugsdóttir

Thesis of 30 ECTS credits
Master of Science in Management Engineering

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by

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Thesis of 30 ECTS credits submitted to the School of Science and Engineering at Reykjavík University in partial fulfillment of the requirements for the degree of Master of Science (M.Sc.) in Management Engineering

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Abstract

This study is a contribution to the debate about the over-running of large public projects in terms of cost and time. The main aim of the study is to examine the current state of project governance when it comes to large investment projects in Iceland and Norway. In Iceland, ministries and agencies are required to follow the law on public projects followed with official procedure guidelines when it comes to carrying out initial project analysis.

The Norwegian government has successfully developed a project governance framework that is intended to thoroughly analyse projects in their early stages. That analysis seeks out solutions for projects at a conceptual level. Also, the Norwegian model requires the use of external parties to quality assure that work.

This thesis seeks to define the elements and methods that characterize a robust project governance framework. The main objective is to benchmark these criteria with the content of the Icelandic law on public project arrangement. Also, examine practices carried out in the ministries and agencies through interviews with stakeholders.

The result indicates that the official guidelines include only a basic set of criteria. Most agencies and ministries exceed the given requirements, but not significantly. A more detailed analysis of critical factors at an early stage is needed and more consistency in practices within the administrative system of project governance, as well as more emphasis should be set on ethical values, such as transparency and accountability.

To increase consistency and transparency at an early stage of decision-making, the legislator must provide a more significant requirement that standardized methods be applied.
Umgjörð verkefnastjórnsýslu í viðamiklum opinberum verkefnum á Íslandi og í Noregi: 
Skilningur og aðferðafræði

Steinunn Marta Gunnlaugsdóttir

desember 2019

Útdráttur

Rannsókn þessi er innlegg í umræðuna um yfirkeyrslu stórra opinberra verkefna er varðar kostnað og tíma. Megin markmið rannsóknarinnar er að kanna núverandi stöðu verkefnastjórnarsýslu hins opinbera þegar kemur að viðamiklum fjárferstingarverkefnum á Íslandi og í Noregi. Á Íslandi er ráðuneytum og opinberum stofnunum gert að framfylgi lögum um skipan opinberra framkvæmda þegar kemur að því að framkvæma frumathugun verkefna.

Stjórnvöld í Noregi hafa með góðum árangri þróað umgjörð um verkefnastjórnarsýslu sem er ætlad að greina verkefni yťarlega á frumstigi. Sú greining leitast við að finna mismunandi lausnir á verkefnum til úrlausnar á hugmyndafraðilegum stigi. Auk þess gerir norska módelið kröfu um að utanaðkomandi aðili rýni gæði þeirrar vinnu.

Íritgerð þessari er leitast við að skilgreina þá þætti og aðferdir sem einkenna góða verkefnastjórnarsýslu. Meginmarkmiðið er að bera saman þessa þætti við innihaldi íslensku laganna annarsvegar og hinsvegar við þá starfshætti sem tíðkast. Við gagnaóflun var notast við viðtöl við hagsmunun af opinberum stofnum um verkefnastjórnarsýslu. Megin markmiðið er að bera saman þessa þætti við innihaldi íslensku laganna annarsvegar og hinsvegar við þá starfshætti semi tíðkast. Við gagnaóflun var notast við viðtöl við hagsmunun af opinberum stofnum um verkefnastjórnarsýslu.

Niðurstaðan gefur til kynna að lög um fyrirkomulag opinberra verkefna innihaldi einungis grunndviðmúli. Flestar stofnanir og ráðuneytir vinna nákvæmar greiningu en kvedið er á um í lögnum en þó ekki verulega. Ytarlegri greining á frumstigi eru þorf og meira samræmi í starfsháttum innan stjórnkerfisins, auk þess sem leggja ætti meiri áherslu á síðfarðileg gildi, svo sem gagnsæi og samfélagslega þætti.

Til að auka samræmi og gagnsæi á frumstigi ákvörðunartöku er nauðsynlegt að lögjafinn geri ríkari kröfu um að stöðluðum viðurkenndum aðferðum sé beitt.
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Steinunn Marta Gunnlaugsdóttir
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Chapter 1

Introduction

News of cost overruns and delays of publicly funded projects is an old story and new in Iceland and other countries. Local research indicates that many large investment projects exceed budget by 60%-175% [1]. At times, one could assume that a major cost overrun in Iceland is the norm rather than the exception. This raises questions as to whether appropriate project selection methods are applied and if the framework for decision making is adequate.

1.1 Background

Some countries, such as Norway, have taken the issues of cost and time overrun firmly and developed a governance framework to counteract this problem. In order to understand what that entails, it is essential to gain knowledge of the concept "governance".

A growing interest has been on governance during recent years and decades, but the concept is not a new creation. Governance is traditionally associated with government and with growing interest in law and economics in corporate governance in the 1970s the term started to evolve due to the publication of [2] Transaction Cost Economics: Governance of Contractual Relations [3]. A new meaning of the word emerged in the 1980s referring to more than just its traditional meaning, such as processes and actors outside of government [4]. Around the same time, the political environment in Europe and especially England was changing. The reduction and privatization implemented by the Margaret Thatcher government split up the systems of public service and created pressure on organizations to work together to provide services. In other words, this act multiplied the networks it was supposed to replace [5]. As a result, a change in steering approach by the British government took place, moving from the hierarchy top down command to governance through networks [5]. Following a considerable increase in literature on "governance without government" over the next decade, originated mainly from Europe and Britain [6],[7]. Governance studies have therefore been at different levels and fields, such as, corporate governance, project governance and public governance.

One of the government’s roles is to provide its citizens with the most efficient service possible. Governments are under pressure to increase efficiency and at the same time, promote investment growth. It is the citizens’ demand that the government be accountable for what they deliver with taxpayer money [8]. The concept of project governance is essential to this and refers to the administration of projects, how project concepts are chosen, that decisions are made by the responsible stakeholder using sound data and how project proposals are
prepared. Good project governance improves the efficiency and viability of projects. It supports decision makers that the correct projects are selected for implementation and support the successful delivery of the project [9].

Based on previously stated statistics regarding projects exceeding planned budget it could be suggested that project governance is lacking in Iceland. There are indeed many favourable factors done right. In 2001 a law on public project arrangement (Lög um skipan opinberra framkvæmda nr. 84/2001) was established on the initiative of the Ministry of Finance. In addition to the laws, an official procedures guidance was submitted. Also, at the moment, there is an ongoing Parliamentary resolution proposed by Jón Steindór Valdimarsson regarding improvements of project governance [10]. The proposal seeks to set a government policy to improve the quality of project governance in Iceland by setting up a team of specialists for three years at a turn to build up knowledge and capability when it comes to significant government investments. The policy was due from the Ministry of Finance on November 1st, 2018.

The framework for ethical decision making within an organization is provided by governance. It additionally provides many managerial actions that are founded in accountability, transparency and well-defined organizational roles in addition to setting managerial action boundaries [11]. Similarly, project governance refers to systems, methods, and regulations that is provided by the financing party in order to make sure that sustainable and relevant project alternatives are selected and efficiently delivered [12].

In recent years, some governments, such as the Norwegian government, have developed a project governance regime to deal specifically with large investment projects. The framework is designed to prevent the known problem of cost overruns and to ensure that projects meet their purpose [13]. The model, which is referred to as the State Project Model, is a governmental scheme for external quality assurance of large public investment projects [14]. The Norwegian quality assurance regime has been developed since the year 2000 and is applied in the front-end of projects. The main objective of the regime is to ensure a sound basis for decisions, addressing all relevant sides of the matters involved, and an independent evaluation confirming its professional quality [15]. A recent study [16], show that the State Project Model has proven to be successful. The research, based on comparing documents before and after the introduction of the scheme and focuses specifically on large transport projects, indicates a significant reduction in cost overruns.
1.2 Aims and objectives

Interest in project governance has been on the rise internationally for the past decades. Norway, among other nations, has succeeded in developing a state-of-the-art governance framework with a successful outcome. The objective of this research is to benchmark Iceland on that basis.

This research aims to investigate the existing standards on the government level in Norway and Iceland regarding project governance of large public investment projects. Define what robust project governance framework entails, how it is carried out in practice, and its perception by Icelandic stakeholders.

These fundamental questions motivate this research:

1. What characterizes good project governance?
2. How is the project governance standard in Norway?
3. How is the project governance standard in Iceland?
4. How do Icelandic stakeholders perceive project governance in Iceland?
5. Is there a difference in perception?

1.3 Structure of the thesis

The thesis starts with the introduction of the concept of governance and project governance. The first chapter also includes the research questions that drive this work. The following chapter provides a literature review of governance and project governance its ideology, purpose, and diverse meaning. Theories regarding the subject in context with private and public organizations. Some key concepts and principles related to the subject are defined, and the importance of the governance framework and the front-end phase will be declared. The importance of quality assurance as part of the project governance process will be presented. The third chapter explains the data collection and analysis, along with research methods and design. Chapter five provides descriptions of the Norwegian project governance framework as well as how project governance arrangement carried out in Iceland, followed by chapter five, presenting the main result of the research. The discussion on the main findings will be in chapter six, followed by a final conclusion in the same chapter.
Chapter 2

Literature review

This chapter will introduce further the term governance and project governance concerning private and public organizations. The main focus is set on public organizations and project governance regime for publicly funded projects. The literature review aims to determine what good project governance entails. The main objective is to define the factors that together form a comprehensive framework for project governance, which will set the foundation for the present research.

2.1 The concept of governance

The “governance” term can be used in many ways and has multiple meanings. The term can have a different meaning to different people depending on the level of governance it refers to. The traditional meaning of the word “governance” defines it as a synonym for a government [17]. The word is originated from French, Latin and Greek; Old French, from governor, from Latin gubernare ‘to steer, rule’, from Greek kubernan ‘to steer’ [18]. On corporate level, the use of the term is nowadays more in the context of ethical and transparent management of firms and institutions; corporate governance. A rather narrow definition of the concept originated from a financial perspective where governance is limited to the relationship between a company and its shareholders, ignoring the interests of other stakeholders [11]. The focus can be narrowed furthermore to a small fraction of governance within a corporation, such as project governance, where the same principles apply only within a smaller context.

2.2 Corporate governance

Probably the most commonly known researched area of governance is corporate governance. Cadbury [19] that corporate governance is not a stagnant state, it is a process and the field is constantly evolving. During recent years the meaning of corporate governance term has expanded. Clarke [20] pointed out that corporate governance had been subject to the static template of agency theory for too long. Early definitions of corporate governance take, in many cases, an agency perspective, which is the separation of ownership and control like Shleifer & Vishny [21, p.2] definition:

"Corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment"
Other definitions on the concept take more full implications which are critical to economic and social welfare. In its broadest sense Cadbury [19, p.Vii] defines:

“Corporate governance is concerned with holding the balance between economic and social goals and between individual and communal goals. The governance framework is there to encourage the efficient use of resources and equally to require accountability for the stewardship of those resources. The aim is to align as nearly as possible the interests of individuals, of corporations, and of society.”

This definition is more in line with the current use of the term. A definition must also be clear about what it is not referring. Corporate governance cannot be confused with management even though it is connected. Corporate governance refers to the process of controlling and directing managers with the aim to ensure good management. [22]. Organizations operate within the framework of governance. The framework is established by laws, regulations or the constitution of the organization by the owners and the financial party. The framework differs within each country and develops through time [19]. In the context of projects, a governance framework defines the organization structures, allocates rights and duties within these structures, and requires assurance that management operates efficiently and adequately within established structures [11]. Müller [11] argues that governance regulates the methods and processes used to define the objectives of an organization. It provides the methods to achieve those objectives and to monitor progress. Without a governance structure, there is a risk of conflict and inconsistency between the various ways to achieve organizational goals, processes, and resources. The role of management is to manage the organization within the framework defined by the governance system [23]. There is no one right way to corporate governance [22], there are established principles and guidelines for organizations that wish to practice good governance. This will be discussed further in chapter 2.3

Within an organization the content of governance varies by hierarchical level, see figure 2.1. Corporate governance refers to the mechanisms, and responsibilities of the authorities in which perform corporate governance [11]. Board-level governance is where the board of directors makes significant decisions regarding the organization’s relationship with projects. That includes the extent to which the organization uses projects as a foundation for its business, set up offices for project managers or the balance in hiring permanent versus temporary project managers and more [24]. Governance of projects refer to a portfolio of projects or programs regarding the standardization of governance. This is usually performed by senior managers who have the authority to perform the required tasks. That includes a decision on the types and number of management methodologies practiced in the organization. Also, to obtain transparency and compatibility of project performance and results from measures in reporting, questions of resource sharing across a project, as well as prioritizing of projects. Project governance refers to the governance of a stand-alone project. A steering group typically implements the project and also directs and controls the project manager. The group also defines the scope regarding reporting, reviews, audits, and provides necessary resources to obtain objectives [24].
2.3 Principles of good governance

The concept of good governance connects the association between stakeholders, that is, managers, the board, shareholders and other stakeholders. Moreover, it is linked with traditional institutional values such as democracy, accountability, transparency, and observation of human rights. It also contributes to the higher efficiency and effectiveness of the public sector. It promotes managerial practices such as effectiveness, economic growth, sustainability, and social justice in the public and private sector [25]. The Organization for Economic Co-operation and Development (OECD) have outlined six principles of good governance. OECD emphasizes continuous evolution of governance in order to practices, refining, adapting and adjusting governance at all levels of the organization. These principles are almost globally practiced, both in corporate and public governance policies. The purpose of these principles is to provide the foundation for an extensive program of cooperation between OECD and non-OECD countries with the objective to assist OECD and non-OECD governments in their attempt to appraise the legal, institutional and regulatory framework for corporate governance in their countries. Also, to guide and advice regarding stock exchanges, investors, corporations and others that have a part in developing a good corporate governance. The principles were first established in 1999 and then updated in 2004 including the four original principles; fairness, transparency, accountability and responsibility. The latest version of the principles launched in 2015 with sets of two new principles in addition to the four original principles [26] and are as follows:

- **Principle 1: Ensuring the Basis for an Effective Corporate Governance Framework**
  The first principle highlights the role of the corporate governance framework. It encourages transparent and fair markets and the efficient allocation of resources. It deals with the quality and consistency of different aspects of regulations that affect corporate governance practices and how responsibilities are divided between authorities. Particular emphasis is placed on quality control and enforcement.

![Figure 2.1: Governance levels within an organization][1]
• **Principle 2: The Rights of Shareholders and Key Ownership Functions**

The second rule defines the fundamental rights of shareholders, including the right to information and participation through the shareholders’ meeting in important company decisions. It refers to information on management structures, such as various voting rights. The rule involves the use of information technology at shareholders’ meetings - procedures for the approval of related party activities and the participation of shareholders in decisions on terms of employment.

• **Principle 3: The Equitable Treatment of Shareholders**

This rule discusses the need for good economic investment growth. It emphasizes professional investors working in confidentiality. It also addresses the need to uncover and decrease conflicts of interest that may impair the integrity of stakeholders who provide important analysis and consultation to investors. The principle also concerns the listing of borders and the importance of fair and effective price discovery in stock markets.

• **Principle 4: The Role of Stakeholders in Corporate Governance**

The fourth principle describes the importance of effective collaboration between corporations and stakeholders. It emphasizes the importance of acknowledging the rights of stakeholders established by law or through mutual agreements. The principle also supports stakeholders regarding access to information in a timely and regular manner and their right to obtain compensation for violations of their rights.

• **Principle 5: Disclosure and Transparency**

This rule recognizes critical areas of disclosure, such as the financial and operating results, company objectives, primary share ownership, compensation, related party transactions, risk factors, board members, and more. The rule also includes the identification of recent trends concerning items of non-financial information that companies may include voluntarily, for example in their management reports.

• **Principle 6: The Responsibilities of the Board**

The last principle guides critical duties of the board. This includes assessing corporate strategy, selecting and improving management, managing key corporate assets and sales. The principle ensures the honesty of the financial and accounting reporting system. It also includes the role of the board in risk management, tax planning and the internal examination.

The principles are presented in terms of the corporation matter but are equally suitable whether businesses are privately, publicly, or state-owned, or are subject to a controlling shareholder [19]. Principles such as these are guidelines and are more or less mandatory. It depends on the organization and its structure. Each organization should establish a project model that fits its needs, with standard principles as guidelines [27].

Deriving from the principles, the primary purpose of the concept of good governance is to ensure ethical, responsible, transparent, and fair procedures and practices. All stakeholders should be involved in the process and their needs fulfilled. The principles indicate that the purpose of good governance should be based on the needs of the many, which can be understood that the investment should be based on the best interest of all stakeholders and not only a few shareholders. If the shareholder approach is taken (see Section 2.4.1), that is, the benefits of a few are taken over the interest of many, there is always the risk of influential people impacted the decision in their own interest.
2.4 Governance theories

There are some leading theories that are frequently used to describe different approaches to governance. This chapter will discuss some of those theories, including two theories regarding the organization; shareholder theory, and stakeholder theory. Two behaviour-related governance theories discussed in this chapter also; agency theory and the transaction cost economics (TCE).

2.4.1 Shareholder theory

The Shareholder Theory of corporate governance emphasizes the return on investment (ROI) to its shareholders and views the company as the assets of its shareholders [20]. Müller [24] argues that the use of this theory approach may lead to a narrow financial focus in the corporations, seen in contracts, processes, and policies aimed to be in the best interest of the Shareholders. Further a shareholder driven corporate governance implies an organizational value system that favours the interests of shareholders over those of other stakeholders. Advocates of this governance approach often refer to the need to focus managers’ attention toward a single “bottom line” in order to reach corporate and shareholder objectives. These same advocates also refer to the complications of managing a more diverse set of stakeholders in alternative governance structure, which risk too much diversification and in return lose focus on the primary stakeholder group, the shareholders.

2.4.2 Stakeholder theory

The stakeholder theory was developed by R. Edward Freeman in the early 1980s and has since been developed and researched by many scholars [28]. Originally the theory addresses the economic relationship between the corporate and its stakeholders and the corporations’ responsibility to create value for all stakeholders not just shareholders. A stakeholder is any person or a group of persons that affects or is affected by the organization’s actions [28], therefore it is clear that stakeholders are vital to companies. During recent years a growing interest in corporate social responsibility has arisen. The term “social responsibility” has expanded from being interpreted mainly economical [29] to a broader interpretation where it also covers legal, ethical and Philanthropic responsibilities [30]. The demand for socially responsible business methods is growing, and the stakeholder theory has extended in that direction and is used to measure the social performance as well as economical [31]. Some have argued that shareholder theory and stakeholder theory are the opposite. It is not necessarily so; both emphasize long-term sustainability and create value. The most idealistic outcome is to find the balance between both theories [32].

2.4.3 Agency theory

The agency relationship is one of the oldest and most universal codified modes of social interaction. Ross [33, p.134] explains:

“An agency relationship has arisen between two (or more) parties when one, designated as the agent, acts for, or on behalf of, or as a representative for the other, designate the principal, in a particular domain of decision problems.”

The agency theory aims to describe this relationship, the separation between the two and conflict of interest [22]. The basis of the theory is that it is self-interested in favour of
individual actors [20] which can lead to something called the agency problem. The agency problem is the basic problem of corporate governance [22] and occurs when the agents acting on behalf of the shareholders use their designated power in their own interest. Moreover, fail to follow the given instructions of optimizing the shareholders’ value. The agency problem also regards to a simple disagreement between the agent and the shareholder [34].

2.4.4 Transaction Cost Economics

Transaction cost economics (TCE) is a theory describing the structure of business transactions in a challenging decision environment. TCE mainly concerned transactions that are complex in nature. Also, are subjected to uncertainty, and involve commitments that are difficult to reverse without economic consequences [2]. TCE suggests that organizations adjust their governance structures to attain the lowest possible transaction costs [35]. The TCE has evolved over the last five decades and is considered to be one of the most influential management theories. It addresses not only the scale and scope of the firm but also many internal working of the company and therefore becoming not only a theory of the firm but also a theory of management and governance [36]. Williamson [37] explains that transaction occurs when a good or service is transferred across a technologically separable interface. He also explained that a transaction cost analysis is an examination of the relative cost of planning, adapting and monitoring task completion under an alternative governance structure. In terms of projects, TCE explains the need for different governance structures for various projects. As well as the need for separate contracts when either buying a product in the Project governance market or within the organization [11].

2.5 Project governance

Turner and Müller [38] defines projects as a temporary organisation that has the goal of delivering a specific outcome. Deriving from that definition of a project as a temporary organisation, is the need for a governance system for projects.

Project governance can be reviewed as a link between project management and corporate governance. It ensures that managers and senior managers can share practices. That includes transparency and responsibility, as well as disclosure of the company’s investments, carried out through projects, programs and portfolios. Similarly, the task of the project manager is to ensure that project management is carried out acceptably [39]. The role of project governance is to provide and implement a managerial framework for responsible, ethical, and robust decision making. Project governance plays a key role in project success and provides extensive and consistent method of controlling the project [9]. Furthermore, the PMBOK® Guide- Fifth editions [9, P.34] defines project governance as follows:

“Project governance is an oversight function that is aligned with the organization’s governance model and that encompasses the project life cycle. Project governance framework provides the project manager and team with structure, processes, decision-making models and tools for managing the project, while supporting and controlling the project for successful delivery. Project governance is a critical element of any project, especially on complex and risky projects. It provides a comprehensive, consistent method of controlling the project and ensuring its success by defining and documenting and communicating reliable, repeatable project practices. It includes a framework for making
The definition is clear on the purpose of project governance is to ensure the process of choosing the relevant, sustainable projects and provide a clearly defined framework for executing projects formally and constructively. Furthermore, it explains how the project governance framework will provide an instructive frame on how to bring about the best solution to the most relevant problem. It ensures appropriate review of the issues and identifies important contacts to address and accept any deviations in project requirements. Ultimately to ensure friction-less transaction of resources between stakeholders and projects. Figure 2.2 demonstrates the relationship between stakeholders, projects and governance.

![Diagram of project governance within an organization]

The main objectives of project governance are to foster an environment so that projects can be successful and make sure that projects are prioritized for the best use of resources. Also, identify projects in crisis and take the necessary measures, either rescue, discontinuing or termination of these projects [11]. Effective project governance system aims to eliminate project failure. That includes choosing the right projects and performing them continuously right. Choosing the right project involves prioritizing and coordinating tasks to the strategic planning. Performing project properly, requires having an active project, program and portfolio management process. By that, it is more likely that a selected project will meet the expectations of key stakeholders regarding scope, quality, risk, budget, and time [40].

### 2.5.1 Public governance

Public governance is an extensive area of interest, and there seems to be a mix of governance and operational management in the public governance literature [15]. According to OECD [41, p.2], the definition of public government is as follows:

> “Public governance refers to the formal and informal arrangements that determine how public decisions are made and how public actions are carried out, from the perspective of maintaining a country’s constitutional values when facing changing problems and environments. The principal elements of good
governance refer to accountability, transparency, efficiency, effectiveness, responsiveness, and the rule of law."

This definition is highly linked to the principles of good governance, table 2.1 summarizes the four main principles that promote ethical public project governance, based on OECD criteria [41],[42]. There is a clear connection between good governance, investment and development. The most critical challenge now is to adapt public governance to societal changes in the global economy and the development role of governments requires a flexible approach to the design and implementation of public governance [41]. Müller [24] explained that in order to secure successful public investment projects, the investing organization needs to ensure some critical factors; accurate cost-benefit analysis, transparency, accountability, incentives for efficiency, and ensure that risk is accounted for. The connections between good public governance, investment, and development makes public governance vital for investors and their businesses. It helps build trust and provides rules and stability for planning for medium- and long-term investments. There are some characteristics that differ between the private and public sector in terms of governance relating to projects [24]. These characteristics can affect the projects. In a public project, people are usually managing taxpayers money and their own money not at stake. Goals are often complicated, and performance not easily measurable. Many stakeholders within and outside the government have views on the project [27]. In private projects, the board of directors is the owner of the project on behalf of stakeholders. Similarly, in large public projects, the government can be regarded as the owner on behalf of stakeholders; that is, the citizens. [43]. The citizens expect the government to act responsibly on their behalf but as stated in the agency theory (Section 2.4.3), there is always a certain risk of an agency problem when handling another people’s money. Public projects are vulnerable to corruption, capture, and mismanagement throughout the infrastructure cycle [44].
Table 2.1: Four main principles of good public project governance.

<table>
<thead>
<tr>
<th>Principle</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transparency</strong></td>
<td>Regulations, policies, laws, regulations, practices, procedures should be developed openly and transparently with appropriate procedures for useful and timely information from stakeholders. Furthermore, announce their activity to create credibility. Government intervention affects income distribution and social equity. Decision-making process should be sufficiently transparent to enable the public to have enough access to information. Also, report on results as well as mistakes. Transparency reduces the likelihood of regulatory capture, promotes pressure, reduces uncertainty, improves a sense for regulatory and user owners, and builds confidence in public policy by strengthening accountability. Also, transparency increases efficiency and reduces the threat of corruption and promotes democratic participation by informing and involving stakeholders.</td>
</tr>
<tr>
<td><strong>Accountability</strong></td>
<td>This concerns the duty of the government, its agencies and public officials to provide information on their decisions and actions. Furthermore, how they can justify actions to the public and to the organizations responsible for ensuring that the authorities have the ability and willingness to demonstrate whether decisions and practices are in line with clearly defined and agreed objectives. Independent review is necessary to enhance laws and regulation in avoiding corruption. Monitoring can be based on internal control, which is widely used to detect occasional irregularities and system failures. Often, it is followed by an independent investigation that makes public officials accountable to the public for their actions. Transparency in government operations guarantees responsibility.</td>
</tr>
<tr>
<td><strong>Responsibility</strong></td>
<td>Is to ensure that higher-level regulations all authorized other regulations are aligned with treaty obligations and follow the legal principles like proportionality, certainty and procedural requirements. All regulatory decisions that follow the regulatory process should follow the &quot;rule of law&quot; and morals so that the objective of sustainability of the project and society is assured.</td>
</tr>
<tr>
<td><strong>Fairness</strong></td>
<td>Fairness can only be ensured by making information throughout the process open and available to stakeholders. Avoiding inappropriate practices, such as selecting, contracting and unethically managing stakeholders.</td>
</tr>
</tbody>
</table>

2.5.2 Public investment

The definition and measure of public investment vary across countries. OECD [44, p.2] provides this general definition;
Public infrastructure projects are preferred investments for federal funds, since the whole
can consume the benefits. Infrastructure is the foundation of economic capacity,
impacting social inclusion, environmental sustainability and human evolution in general. The
development of infrastructure is a significant concern for both the government and res-
[16]. Forecasting indicate that estimated global infrastructure investment between
will need to amount to $3.7 trillion to keep up with projected global GDP
growth and could increase further. That amount is more than the estimated value of today’s
worldwide infrastructure [45]. In Iceland, public investment grew by 23% in 2017 after
remaining virtually unchanged for the previous two years. In the first three quarters of 2018,
public investment grew by 11.4% from the same period the year before. The share of public
investment in GDP rose to 3.1% in 2017, from 2.6% in 2016. The ratio has not been higher
since 2010, when it was 3.2% [46]. Increased investment in the community’s infrastructure
is one of the top agenda of the community’s recent years. As an example, over the next 15
years, one of the most extensive transport projects in the history of Iceland will be launched. The
main objective is to increase safety, improve transport for all forms of transportation,
reduce delays, and traffic congestion, and finally reduce greenhouse gas emissions. The
project is a joint venture between the state and municipalities and is projected to allocate 45
billion from the state and 15 billion from municipalities. [47].

As seen, public investment is not slowing down soon. It underpins the need for respon-
sible practices on the government level, both worldwide and in Iceland, to ensure that public
money is utilized reasonably. That includes making the right decisions for public investment
alternatives and choosing the right projects.

The McKinsey Global Institute [48] states that decision-makers too often invest in projects
that fail to have clearly defined needs and deliver, therefore not expected benefits. Also, as
often a decision is made to invest in additional physical capacity, such as; widen a road into
a city, without identifying the alternatives of resolving bottleneck and address demand with,
for example, better land-use planning, public transport improvements and handling requests.
This supports Müller’s [24] argue that there is a need for a more holistic and interdisciplinary
orientation with a particular focus on the conceptual appraisal part of the project planning.

2.5.3 Governance framework for public projects

As stated in the first principle of good governance in Section 2.3, In order for governance
to be efficient, it is essential to establish a robust governance framework. Drawing from
the definitions and analysis of the term project governance in previous sections, the pri-
mary purpose is to create a better decision-making framework that guides the development
of a project and where important project decisions are made. This means that within the
properly designed project governance regime, the context of the project will be defined with
all government development policies. Identification of problems that need to be resolved
and actions are taken to identify and inform stakeholders and allow them to participate.
This suggests that project governance should be designed to provide a framework for ethical
and fair decision making. In this chapter, the governance framework will be discussed further.

A number of developed countries have taken the initiative to develop a process to strengthen the capacity to manage large public investment projects. Norway is one of the early adopters of a governance framework specified to work with large public projects [13]. The Norwegian framework will be described later in chapter 4. To improve the fundamental and initial project design, the use of a governance framework can greatly contribute to the design and also prevent common mistakes that are found in the implementation of projects. Implementing a governance framework can have a cost-saving effect in addition to adding value by making through better cost estimation and time planning [15]. The financing party should establish the governance framework and aligned it with the overall strategies of the organization [27]. Governance framework should be flexible to fit projects of all sizes, types, and complexity. Also, be able to adjust to specific features in individual case situations [13]. Klakegg [15] explained that a framework can be two things (1) abstract: a set of ideas, rules or beliefs used for the purpose to make sense of facts or events or to decide how to behave. (2) concrete: a structure that forms or supports something, in this sense, public investment projects. In its particular meaning, the framework can have many elements and dimensions. It has informal dimensions, that is indirect but not based on written regulations, and formal dimensions of structural elements and written regulations.

Klakegg [49, p.14] has formulated the following definition on framework for projects:

“A governance framework for projects is a set of principles and an organized structure established as authoritative within the institution, comprising processes and rules established to ensure projects meet their purpose”

Keeping in mind that principals have wide meaning, from certain ideas to clear procedural rules. An organized structure also has a broad meaning, it brings purpose, defines structures, significant roles, and responsibilities as well as system elements. Comprising rules and processes refer to its specific content, and ensures that the projects achieve their purpose, which is the main goal of the framework. If the projects meet their purpose the governance framework can be defined as successful. It implies delivering the relevant solution effectively and delivering a sustainable effect [50]. Further, Klakegg [49] explained the three characteristics of a governance framework; (1) The development process, (2) The embedded governance principles, and (3) The framework elements. The development process is needed to explain the purpose of the framework and its origin. This sets the connection to its context and history. It demonstrates the situation in the business as well as the policy of the company or country concerned, which evokes events and purpose of the framework. The integrated governance principles are crucial for understanding how the framework should work and why it has been established. They explain the values, and are essentially the basic rule of appropriate business behaviour. The framework elements describe individual elements within the framework, how they are defined and interact. It is the exterior of a governance, the role and formal obligation, practices and methods that the owner or governing body requires. Within the framework, there may be multiple references to different systems, operations and methods. Further, Klakkegg [49] describes three main types of frameworks in his study; (1) The lean framework, described as simple, flexible and control based. (2) The integrated framework, described as a strong operational tool but limited in scope. (3) The complex framework, defined as open and includes options to suit different settings.
### 2.5.4 Front-end phase of projects and choice of concept

The front-end phase of a project is when it is only conceptual, it is the idea of solving a problem and before it is technically implemented. This phase spans the time from the idea is considered until the final decision on the funding of the project is made [51]. Many authors have stated the importance of the front-end phase and its crucial role [52], [53], and that selecting and prioritizing projects is the crucial element in a project governance scheme [11]. The primary purpose of the front-end management is to get the strategic prospect right and by that stand a better chance to succeed [54]. See figure 2.3 demonstrating project phases.

![Figure 2.3: Project phases [55]](image)

The choice of concept takes place in the front-end phase of a project. The term "concept" in the context of a project, is a mental construction to solve a problem or fulfil a need. Concepts should be general; that is, several concepts should be considered an alternative solution to the same problem. The alternatives should not express different versions of the same solution. Instead, they should all be fundamentally different. That part is often the most challenging task in the front-end face, to identify and evaluate one or many viable concepts [51]. The conceptual assessment is a systematic method for identifying tasks at an early stage. Organizers are forced to take a broader perspective and discuss social issues, rather than going straight to detailed technical solutions. This assumes that ideas will develop and encourage creativity in the institutions, as well as the likelihood that the most effective choice will be included in the analysis [14]. The single most important factor that affects the efficiency and viability of a project is the choice of concept. It determines if public funds are used effectively [56]. There are indicators that often the cause of a project failure may be attributed to inadequate front-end phase [51].

In order to evaluate the project’s success and improve future strategy, programs, and projects, it is urgent to review the feedback of the lessons. That includes providing information to the public, this can provide a basis for increased accountability. In addition to evaluating projects by their financial success, the OECD-DAC evaluation framework [57] suggest that post evaluating project regarding (i) relevance - the need for the project, (ii) efficiency - are resources and time used reasonable, (iii) effectiveness - are previously stated goals achieved, (iv) impact - positive as well as negative impacts of the project, (v) sustainability - and if the positive effects of the project will continue after the implementation of the project. This supports Klakég [49] statement that the most critical problems that take place in the front-end phase of substantial public projects may lead to the absence of relevance and sustainability, stated in table 2.2. Relevance refers to whether the financing party has selected the best alternative public project, which is likely to meet its objectives. Given that there are alternative projects without investment included. Sustainability refers to whether the chosen public investment project will have a positive effect on society after it has been concluded. It concerns long term affects for economy, institutions, society and environment.
Table 2.2: Problems that occur in project; related to lack of relevance and lack of sustainability

<table>
<thead>
<tr>
<th>Problem</th>
<th>Underlying reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Users’ needs are not analysed, underestimated or neglected</td>
<td>Planners and decision-makers ignore users needs due to political or personality reasons</td>
</tr>
<tr>
<td>The project’s objectives are unknown or misunderstood</td>
<td>The objectives of the project not stated at all or are very unclear</td>
</tr>
<tr>
<td>The project’s objectives are unknown or misunderstood</td>
<td>The objectives of the project not stated at all or are very unclear</td>
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<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Problem</th>
<th>Underlying reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conflict over objectives and strategies concerning the project</td>
<td>Neglecting or not solving conflict over priorities among key stakeholder</td>
</tr>
<tr>
<td>Lack of projects commitment from crucial stakeholders</td>
<td>Failing to identify that the project outcome has weak support from its owner- and financing party</td>
</tr>
<tr>
<td>Low economic and financial benefits compared to the investment and operation cost</td>
<td>Planning optimism misleads the decision makers, deliberate or not</td>
</tr>
<tr>
<td>Business or other conditions change between concept stage and final delivery</td>
<td>The political and administrative setting is regularly changing.</td>
</tr>
</tbody>
</table>

2.5.5 Quality assurance of public projects

To ensure a more realistic estimation of critical factors such as cost, risk, and benefits and secure transparent planning process, an independent quality assurance (QA) process is a necessary element of a project governance regime [27]. The QA is also essential to evaluate the choice of concept at an early stage of the project. It is crucial to get experts involved at an early stage to identify and possibly eliminate the worst alternatives. There is no guarantee within the political scene that the best option is chosen, but at least the worst can be avoided [12]. Also, it is essential to ensure the independence of the QA to assure the assessment of the proposed project and to avoid conflict of interest. The criteria should be structured and based on a standardized set to prevent the personal judgment of the person performing the evaluation [58]. Also, an essential part of the role of the quality assurer is that the recommendations should only be indicative, and the final decision is political [24].

2.6 Conclusion

The literature review aimed to gain an understanding of the term governance and project governance. That included studying its origin, theories, ideologies, practices, and understanding
its importance concerning both private and public projects. There is increased ongoing
demand from the public that both private and public organizations use responsible practices
that present openness to stakeholders. This study centres around large public projects, and
for approach, the stakeholder theory is taken and focus set on values that guide the interests
of the society as a whole, such as social responsibility, transparency, and accountability
in decision making. The conclusions from this previous literature review show the need
for governments to have established methods for the process of selecting the right relevant
projects and practising methods that are transparent and fair in order to utilize public money
wisely and avoid conflict of interest. Emphasize is on the front-end phase of projects and
that the project governance framework consists of elements based on the robust methodology
in order to formulate reliable data for decision making. Also, it is considered valuable that
an external audit evaluates the work, to check whether there is a sound argument for the
proposed project, to make sure that the right project is chosen at all times. Additionally, it is
vital to ensure the project’s relevance and sustainability regarding societal and environmental
needs where today’s societies are calling for increased social responsibility requirements.
On that ground, the literature review aimed at framing the most desirable features that define
good project governance regimes for public projects.
Chapter 3

Methodology

This chapter outlines the methodological approach underlying the study. That includes the design and purpose of the research and how the data gathering was conducted, processed and presented.

This study is conducted to examine project governance regimes and practices in Norway and Iceland. The main objective is to evaluate current project governance regimes and practices at a government level in each country. The data evaluation is based on benchmarking current project governance regimes in each country against criteria set by the researcher describing the most desirable framework for project governance. The study also aims to evaluate project governance practices at both ministry and agency levels in Iceland based on interviews conducted by the researcher.

The study is segmented into three parts. First, to gain a full understanding of the subject governance and project governance and establish knowledge, the previous literature review will be applied to collect the necessary findings and provide a solid theoretical basis for the results of the research. With the main aim of defining framework that constitutes good project governance regime. That was achieved by going through scientific papers, articles, books, reports and laws on the subject. The second part of the research is aimed at investigating project governance standards in Norway and Iceland. The Norwegian project governance framework will be examined through report analysis along with the Icelandic law on public project arrangement. Each regime will be benchmarked against the factors that constitute good project governance framework. Third part of the research aims at researching project governance practices in Iceland. The elements within the Norwegian framework will be highlighted in order to set the foundation for the local interview-based research. Additionally, the researcher will perform an independent evaluation based on the content of the Icelandic law on public project arrangements and compare to the results from the interviews.

3.1 Research approach

Based on the type of data that will be collected and processed as well as the objectives of the research. Such as descriptions of specific requirements, processes, methods, and procedures and interpretation of practices; it can be concluded that a large part of this research study can be classified as qualitative research. A qualitative research method seeks to explore and understand the meaning that individuals or groups attribute to social or human problems. The research process includes forming questions as well s procedures. Data is usually obtained
in the participant’s environment and data analysis is built by generating information from the participants and the researcher interprets the meaning of the data [59]. Within every research approach exists a research design [59]. A research design refers to the systematic process which will lead to the solving of the research objective and strive to answer the pre-stated research questions [60].

The chosen design for this research is a mix of two designs; (1) document analysis, is a valid technique for making reliable data for comparative content analysis [61]. It can be in many forms and are more than likely to be relevant to every case study project. Examples of documents can be letters, formal studies, and articles and obtained in many cases through internet searches [62]. This method was applied in order to collect information in context with the subject through reports, administrative data, laws and procedures, studies, articles and media. (2) Interviewing is a widely used method for collecting information for a research purpose. The interaction between two or more individuals to obtain information is called an interview [63]. Many interview styles exist and Robson [61] argues that a commonly used interview types practiced distinguishes between structured, semi-structured and unstructured interviews. In this study semi-structured interviews are applied, where the interviewer has an interview guide that serves as a checklist. The wording and order of the questions can vary, and unplanned questions can be added [61]. The approach applied for data analysis aims to investigate consistency in practices and specific requirements, methods, and processes utilized for public projects in Norway and Iceland and can, by that, be classified as descriptive data analysis.

3.2 Data collection

For the purpose of this research a mixture of primary and secondary data will be used. Primary data applies to the data collected by the researcher and is original in nature. Secondary data are those obtained by someone else, and the researcher is using the information generated by someone else [60].

The secondary data is collected with documents and literature analysis. With that knowledge on governance, project governance, theories, governance framework, and quality assurance is established, providing a solid base for the next step of data collection. Building on that, primary data is obtained by defining features that characterize good project governance. Those features are laid down in order to assess the Norwegian and Icelandic governance regime. Data is also collected through semi constructed interviews using a questionnaire which the researcher constructed based on the elements of the State Project model.

Iceland and Norway share many similarities ranging from economic, cultural, and ancestral. Norway is a high gross domestic product (GDP) country currently sitting in fourth place with the total GDP of $65.515, of the OECD countries as well as globally [64]. Up until now a large part of its GDP is coming from the oil industry which is projected to decline in 2020 [65]. Similarly, Iceland is ranked sixth of both the OECD countries and globally, with the total GDP of $57.453 [64]. Both economies are viewed as stable and perform well. Both countries are considered favourable regarding overall living standards, including a low unemployment rate and little wage and gender inequality [65][66]. The countries differ significantly in population, Norway being almost 16 times the population of Iceland [67]. However, these statistics put both Iceland and Norway in with other high income/low
population countries with high level cost. These similarities support the decision further to look towards Norway as a benchmark for comparison.

3.3 Drafting of criteria

The information on the Norwegian scheme will mainly be conducted through reports produced by the Concept Research Program. The program was established by the Ministry of Finance and assigned to collect data about the scheme over time and monitor its performance [14]. In Iceland, publicly funded projects must be subjected to the Icelandic law on public project arrangement (Lög um skipan opinberra framkvæmda nr. 84/2001) [68]. These laws, along with a public guidelines published by the Ministry of Finance [69] are the source of information for the analysis of the expected Icelandic procedure.

To be able to assess the project governance standards in Norway and Iceland, based on the previous literature review on the subject, the researcher laid down objectives used as a benchmark that by definition, characterize good project governance. The study is limited to the decision-making process in the front-end phase of public projects. Deriving from Klakegg [50] definition of framework, discussed in Section 2.5.3, the following four main items are defined; (1) The structure that makes up the framework. (2) The embedded principles, describing the values and the essential basic rules of appropriate behaviour to ensure ethical practices. (3) The development process, stating the purpose of the framework, its impact and effectiveness. (4) The elements, within the framework concerning cost estimate and time planning. Additionally, the following two items are also defined: (5) The quality assurance requirement, and (6) Post-evaluation of the scheme, as it is considered a valuable part to monitor the performance. Each category includes concerning items and are as follows:

1. The structure
   - The scheme is established from the top level
   - The scheme is based on regulation
   - The scheme has clearly defined project phases
   - The scheme has clearly defined decision points
   - Roles and responsibility are clearly defined

2. The principles
   - The scheme represents transparency – Regulations, policies, laws, regulations, practices, procedures should be developed openly and transparently.
   - The scheme promotes accountability – Open information about decisions and actions and are justified to the public and institutions
   - The scheme represents responsibility - Actions in the best interests of the environment and society as a whole
   - The scheme represents fairness – Open process which includes all stakeholders. Avoiding inappropriate practices, such as unethically selecting and contacting stakeholders.

3. The process
• The process is an open-ended appraisal process - instead of starting with a pre-designed project, a resolution should be found to the underlying problem that needs a solution.

• The relevance of the process is clearly stated - what is the main purpose of the process and what it should accomplish.

• The process is efficient - the process is presented in such a way that it is demonstrates efficiency

• The process requires detailed documentation at decision points

4. The elements

• All elements within the scheme are clearly stated and defined

• All critical elements within the scheme are analysed following established methodology

• Uncertainties about cost and benefits are identified

• Risk is identified

• Concepts are prioritized in align with the objectives

• All viable options are considered

5. The quality assurance

• The scheme requires a secondary audit at decision points

• The quality assurance is transparent and independent

• The criteria for quality assurance are based on a standardized set of items

6. Post-evaluation of the scheme

• The effectiveness of the project is evaluated - are previously stated goals achieved

• The impact of the project is evaluated - positive or negative effects of the project

• The sustainability of the project is evaluated - effects on society after it has been concluded

• The efficiency of the project is evaluated – the specified deliverable should be achieved in the most timely and cost-effective way and compared to other similar projects

3.4 Drafting of questions

To collect primary data for the last part of the study, five semi-constructed interviews were conducted to meet the objectives of this study. The conversations were recorded and processed afterwards. The collection of data was carried out in Iceland from April 2019 until June 2019 and took place at the participant’s work location. To enrol participants for this study, the assigned supervisors for this project, kindly paved the way for communication by sending out email to possible participants. The researcher followed up to schedule an interview with each participant. The group of participants consisted of stakeholders from the state and local authorities, who all shared the same objectives. It was considered necessary to include participants from across the administration spectrum to gain a broader view. In
consultation with the supervisors and participants in the study, it was decided not to name the institutions concerned. Table 3.1 shows the division of participants.

Table 3.1: Stakeholders representing public organizations

<table>
<thead>
<tr>
<th>No. 1</th>
<th>No. 2</th>
<th>No. 3</th>
<th>No. 4</th>
<th>No. 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A stakeholder from a large municipality</td>
<td>A stakeholder from an agency</td>
<td>A stakeholder from a ministry</td>
<td>A stakeholder from a public limited company</td>
<td>A stakeholder from a ministry</td>
</tr>
</tbody>
</table>

The questionnaire was constructed by defining elements within the project governance framework that promotes a detailed analysis at front-end phase and are in accordance with the State Project Model. The questions were asked with the intention of gaining information of perception of concerning stakeholders regarding current practices, that includes the process, methods and procedures that are applied in the decision-making process of large project, as well as the general perception of the involved stakeholders.

The questionnaire consisted of eight main items, each including one or more questions, adding up to a total of 21 queries. The list was constructed in Icelandic since the interviews were conducted in Icelandic. The set of questions are as follows:

1. Idea phase
   Q1. Is it well defined where ideas of projects originate?
   Q2. Are standardized methods applied in the process of choosing project ideas?

2. Needs analysis
   Q3. Is performed a stakeholder analysis?
   Q4. Is assessed relevance to societal needs and priorities?

3. Strategy
   Q5. Is the goal and purpose of the project clearly defined?
   Q6. Are all the requirements that define the scope up listed?

4. Possibilities study
   Q7. Are the needs and objectives clearly defined?
   Q8. Is made sure that the opportunity space is wide enough, so all possible options are considered?

5. Alternatives analysis
   Q9. Are at least two alternatives evaluated?
   Q10. Are both alternatives subjected cost-benefit analysis?
   Q11. Is the zero-option included?

6. Quality assurance of the pre-study
   Q12. Is performed quality assurance?
   Q13. Is the independence of the quality assurance ensured?
   Q14. Is listed what the quality assurance should include?
7. Overall Strategy Document
   Q15. Is constructed an implementation strategy for the chosen concept?
   Q16. Is produced a total cost and income estimate of the selected solution?
   Q17. Is budget cost and targeted cost evaluated individually?
   Q18. Is performed appraisal of at least two different contract strategies?

8. Quality assurance of the pre-project
   Q19. Is performed quality assurance after the pre-project phase?
   Q20. Is the independence of the quality assurance ensured?
   Q21. Is listed what the quality assurance should include?

3.5 Processing of data and data analysis

The processing of data was done by studying reports on the Norwegian governance practices, the State Project Model and its framework. Similarly, to obtain comparable information on Iceland, the Icelandic law on public project arrangement was studied. The content of each process analysed and its ideology. Each process was then benchmarked against the previously stated objectives, based on the researcher’s assessment, characterize a preferable project governance regime. In order to quantify the result, the consistency of each benchmarking objects is classified into the following categories:

<table>
<thead>
<tr>
<th>Full consistency</th>
<th>Partial consistency</th>
<th>No consistency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The ranking is either 1 or 0 and not possible to score 1 for two consistency categories at once. The consistency for each main item was then calculated by taking the average score of the sub-questions and present as a ratio of 100%. The processing of the interview-based data was done in such a way that each interview was transcript from an audio recording by the researcher. The overall information obtained through the interviews was then scored by the researcher for evaluation purpose. In order to quantify the results of the data and present the assessment, each of the answers from the questionnaire were given a score from 0-4, see table 3.2. The score value was given to each answer based on the level of compliance to the requirement of the question. The score for each main item was then calculated by taking the average of each sub-question and displayed as ratio of 100%.

Table 3.2: Scoring scale from 0-4

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>No consistency</td>
<td>Little consistency</td>
<td>Moderate consistency</td>
<td>Much consistency</td>
<td>Strong consistency</td>
</tr>
</tbody>
</table>

For comparison purposes, the same method was applied based on the content of the law on public project arrangement procedures. Its content reviewed and scored by the researcher from 0-4 and the score was then calculated for each main category and displayed as ratio of 100% for each main item. The full scoring chart can be seen in Appendix A.
Chapter 4

The cases of Norway and Iceland

Norway is one of the early adopters of an established governance framework. Along with the governance scheme introduced for major public projects in Norway, a Concept Research Program was established to collect information about the projects over time. The program objective is to improve the methodology and examine the influence of quality assurance and other methods during the front-end phase. This chapter will discuss the Norwegian project governance practices, based on the document analysis of the Concept Research Program, [55], [14], published by the Norwegian University of Science and Technology. This chapter also aims to examine current project governance practices and standards in Iceland based on the law on Public project arrangement.

4.1 Norway

4.1.1 Background

For the last 50 years Norway has found itself in extraordinary circumstances due to the booming petroleum industry. It has seen great growth and many large government investments. The ability to fund these large investments projects has raised expectations and willingness of Norwegians and its politicians, for large investments projects [70].

After certain public investment projects that went over budget, were heavily delayed, and in the end had limited public benefit, the Norwegian government appointed the Ministry of Finance in 1997 to analyse 11 projects in order to clarify (1) if the basis for the decision making of those projects were soundly based and (2) if their implementation was satisfactory. The result of this analysis was that the basis of decision making in several of those projects were inadequate and that failure in the introductory stage of the projects, before the decision was made to implement the projects, was generally the main reason for the massive cost overrun during implementation. The main outtakes from the analysis were matters like:

- Lack of need/function analyses of alternatives
- Projects being presented to Parliament before being thoroughly analysed
- Lack of cost-benefit analyses, based on partly inappropriate assumptions
- Failed to assess the uncertainty with regard to assumptions and computations
- Problems regarding procedures, qualifications, division of responsibilities, etc. during the projects’ implementation
Based on the findings of this study and another similar one published around the same time (Norwegian Official Report NOU 1999:11) the Norwegian scheme was introduced in 2000 and later expanded in 2006. The main goal was to achieve more successful projects and more public benefit for the money spent.

4.1.2 The State Project Model

The State Project Model is a standardized classification of projects into phases, with specific decision points and documentation requirements. The process is detailed and based on agreed economic theory and practice. The conceptual appraisal designed to find the most appropriate solution to a stated problem, is based mainly on the principles of system analysis designed to find an optimal solution to a problem through a methodological approach and procedures [71]. Official guidelines issued by the Ministry of Finance are composed of professionals and experts, including guidelines on conceptual appraisal [72], and extensive document on Cost-benefit analysis [73]. The cost-benefit document provides recommendations on how to seek economic profitability through “willingness to pay”, that is, the value of positive effect should be equal to what the public in total should be willing to pay. It should be at least as much as the project cost and involves both non-priced effects, as well as the distributional implications of actions. Further, the cost-benefit analysis is a way of organizing systematically information about the importance of public sector resource use, involving feasibility evaluation of all positive and negative effects of a scheme for the national population [74].

At important junctions in the process, decision points have been inserted. The project cannot move forward past these points without a favourable decision to continue has been made. Here is when the consulting party steps in and perform an assessment on the work done so far by the ministries or agencies. In 2016 the Norwegian Ministry of Finance had a framework agreement with six consulting companies. These contracts have a five-year duration, and there have been four calls for tenders for this service since Norway started to use this process in 2000. The Norwegian scheme, see figure 4.1, is in practice somewhat simple and involves two decision points with specific documentation requirements. It applies only to the front-end phase, i.e. from project conception until project final funding has been secured. The model does not reach into the implementation phase of the project, since it is assumed that agencies already have in place procedures for managing projects.

![Figure 4.1: The Norwegian State Project Model [55]](image)

The two checkpoints intend to improve the technical quality of the basis for decision making in the front-end phase. The two decision points differ fundamentally in their content...
and relate to different types of decisions. At the first gate, the goal of quality assurance (QA1) is to ensure tactical and strategic success. It centres on evaluating societal goals and allocation effectiveness. Moreover, the second checkpoint (QA2) is intended to ensure the quality of the operational success by focusing on realistic budgeting.

4.1.2.1 The model in practice

The way the model works is, in principle, straightforward. Ministries and agencies are not required to make any changes to the way that they are implementing their projects, but stricter requirements are made on the planning documents to assure quality and comprehensiveness of analyses. Great weight is laid on the alternative analysis in order to counter the effect of path dependency, i.e. that a previously established solution is re-applied to a new problem since it has been “proven” to work. The analysis requires that in addition to the zero-option alternative, at least one more alternative option is examined and compared to the initially proposed option. It turns out that the initially proposed option is not always the best choice since circumstances, underlying premises, user groups and priorities tend to change when time passes. The scheme introduces the quality assurance by external advisors of all documents that are to be submitted for review on the political level. These experts are to appraise the quality and soundness of the documents. They do not address the political motivations regarding the choice of project. Additionally, they undertake a separate independent analysis of the uncertainty associated with the economic profitability and investment cost.

As figure 4.2 shows, each ministry is responsible for new project initiatives and almost all of the projects are implemented by an agency that is subordinate to the corresponding ministry. Any project that is subjected to the State Project Model must be analysed following requirements that the Ministry of Finance stipulates. The practices requirements are partly adapted from international practices and partly developed by ministries, agencies, consultants and researchers in Norway [24]. These analyses are then reviewed by an external quality assurer on the behalf of the relevant ministry. The ministry then submits the analyses and quality assurance report to the Ministry of Finance with a summary. All of this is then submitted to the Government for political appraisal before finally being presented to Parliament for final decision.
4.1.2.2 The choice of concept

The process starts with the choice of concept in which an agency performs an evaluation that is called Conceptual Appraisal (CA) and the independent evaluation of the document is called quality assurance of the choice of concept (QA1). With this report, the project proposal is reviewed on the Government level and is either rejected or approved for a pre-project phase.

In the next stage of the process, after the pre-project has been finalized, a so-called Overall Strategy Document is created. It provides information on objectives, budgets and target cost, implementation strategy, contract strategy and more. The Strategy document is reviewed by an external quality assurer (QA2). These documents are passed to the Ministry of Finance, which summarizes them into a memorandum with particular focus on the proposed budget part. The matter is finally submitted to Parliament, which is responsible for the final decision on the project and stipulates the budgeted cost that commits the responsible ministry, and the target cost that commits the agency. Parliament can always reject a proposed project. This process is followed for all projects that exceed a budget of 750 million NOK. That is about 20 projects per year. There are exemptions from this process, like oil and gas investments, state enterprises and state-owned corporations. In practice, the scheme is mainly for all transport projects, except for aviation projects. Defence projects, central government construction projects and large ICT projects.

After the pre-study phase and before the Government makes a decision to bring the chosen concept into the pre-project phase, there can be multiple concept alternatives presented in the pre-study who all bring a conceptual solution to the societal needs. An example would be the societal need for linking an island to the mainland. The concept alternatives would be a bridge, a tunnel or the zero option, that is, the continuation of the existing ferry service. Which of these alternatives is chosen is a political decision and the quality assurer has no
role in that decision. The quality assurer’s duty is limited to verifying the technical quality of the basis for decision making.

The Conceptual Appraisal (CA) shall be produced by the ministry/agency and it acts as a basis for quality assurance. The document is structured with the following chapters:

**Pre-study**

1. Needs analysis
   - Stakeholder analysis
   - Assessment of the project related to societal needs and priorities

2. Strategy chapter
   - Definition of the projects goal and purpose
   - Overarching requirements
   - Requirement which need to be fulfilled for implementation

3. Possibilities study
   - Needs, goals, purpose and requirement will constitute an “opportunity space” which needs to be defined wide enough for all options to be considered

4. Alternatives analysis
   - Should include at least two alternatives as well as the zero option
   - Alternatives should be subjected to a Benefit-Cost analysis
   - For all alternatives, outputs, uncertainties, and a fiscal plan should be specified

5. Guidelines for the pre-project phase
   - Including the implementation strategy for the chosen concept

The goal of the conceptual appraisal is to identify the best solution to an existing problem rather than start with a pre-designed project of choice. It is essential to keep all options open and ensure that the opportunity space is not defined too narrowly. It should set the scope and clarify the underlying problem which requires resolution. Describe the conditions and requirements of that problem and what needs to be fulfilled and then identify solutions.

The Ministry of Finance is responsible for organizing the QA process. An external party performs the review on the conceptual appraisal work. The external quality assurance is required to perform systematic and accurate work by using their methods and tools to come to their conclusions. The quality assurer provides their independent evaluation as well as reviewing the previous work done by the ministries and agencies. The evaluation shall include:

- Review of the CA document
  - Consistency within chapters
  - If specified, alternatives are relevant and valid in terms of needs, strategy, demand and opportunity space
• Economic analysis
• Uncertainty analysis
• Relevance and feasibility assessment
• Sustainability and timing assessment
• Give recommendations on alternatives
• Give recommendation on management strategy

The quality assurer completes recommendation and independent evaluation regarding the conceptual solution, strategy framework, and guidance. The final choice is ultimately left with political decision-makers, which can consider the external review or not.

4.1.2.3 The process for the cost and steering frame

Once the conceptual pre-study phase is finished the project can move on to the pre-project phase. At that stage the responsible agency is required to provide a document analysis regarding the cost and steering frame of the project which will then serve as an input to the quality assurance review. The documentation shall include the following:

Pre-project

1. Ministry cost frame
   • A complete cost base estimate, including income/revenue estimate if relevant

2. Agency steering frame
   • Steering document that provides an overview of key aspects of the project and its objectives.

3. Contract regime
   • An assessment of at least two alternative contract strategies

4. Management strategy
   • Management framework and project strategy

The quality assurer reviews the documents and performs an independent uncertainty analysis of success factors and pitfalls. To determine the expected costs and uncertainty analysis, the review should be based on the baseline assessment and prescribe proposed additions. Ultimately, the reviewer should make suggestions regarding:

• Cost frame and necessary contingency reserves
• Steering frame
• How to keep within the cost frame
• How to manage and authorize the use of the contingency reserve
The applied method that should ensure the accuracy of the proposed cost frame is based on stochastic (probability-based) cost estimation. The technique is either applied by a mathematical tool or a simulation tool and provides a cumulative probability distribution of investment cost, see figure 4.3. Two key figures, P50 and P85, are termed. P50 stands for the expected value, meaning that there is a 50% probability that the final cost will be within this value. The P85 value is higher and represents 85% likelihood that the cost will not exceed that value. The curves are based on empirical evidences from past projects. While not specified in the Norwegian guidelines, it can be assumed that the assessment of the risk of cost overruns are in line with the Flyvbjerg database that utilises reference class forecasting to predict the chances of cost overruns based on the attitude towards risk [75].

![Figure 4.3: Stochastic cost estimation [55]](image)

The cost frame approved by the parliament is unusually higher than the expected cost. It considers the expected uncertainties related to the implementation and is usually close to the P85 value. However, the implementing party, the agencies, must manage the project within a lower steering frame, the expected P50 value. All costs that go above that figure require a ministry-level consent.

After the quality assurer hands in their recommendation, it is ultimately in the hands of the Parliament and responsible ministers to decide whether to follow it or consider it. The Parliament decides on the final overall cost frame, and the ministry will determine the steering frame for the executing agency.

### 4.1.3 Has the Norwegian model been successful?

At this time, more than 200 projects have been subject to the quality assurance scheme in Norway and 90 have been completed so far [76]. Recent findings conclude that when comparing the final cost of 78 government investment projects, which has been through
external quality assurance of cost estimates (QA2) that cost control is generally reasonable, with close to 80% of the projects remain within the cost framework [77]. The main findings from Odeck and Welde [16] study regarding the overall success of the project based on the OECD-DAC evaluation are as follows: (i) quality assurance has led to a reduction in cost overruns; (ii) quality assurance has not led to improved accuracy of the estimates provided by the authorities – rather, it has led to systematic overestimation by the authorities; and (iii) external consultants are more accurate than the authorities. Also, it is concluded that the quality assurance regime is fulfilling the objectives of reducing cost overruns and that similar schemes should be considered for smaller projects where overruns are a risk factor. The impact of the scheme has also been assessed in regard to (i) relevance, (ii) efficiency, (iii) effectiveness, and (iv) sustainability. A total of 20 projects were evaluated and were results in that way that most of the projects were considered successful in more than one aspect [76].

4.2 Summary

The Norwegian government has taken the matters of cost overrun and failed investments into their own hands. It is apparent that Norway is a leading country regarding this subject. It started with analysing and researching the cause of project failures and then developing improved procedures. The process is detailed, and its methodology designed by experts. Guidelines for procedures are very accessible as well as open documentation to the public.

The initiative for investments usually comes from the local level, i.e. municipalities and counties, but they expect the funding to be delivered from the state level since most investment projects are funded through the fiscal budget. This can cause perverse incentives since the funds spent on the investment might not be properly aligned with the public interest [55]. The State Project Model is a top-down process initiated by the Ministry of Finance. It emphasizes a broad societal perspective and transparency from an early stage. Those factors should reduce the likelihood of this principal-agent problem from occurring.

The Norwegian model emphasizes good governance and is linked to the principles of good governance, transparency, fairness, responsibility, and accountability [24]. The framework emphasizes total openness and transparency regarding the basis for decision making as well as who makes the decision and how. Stakeholders are kept informed, and that includes the general public, as the QA reports are open to the public after being processed in the parliament [15]. The framework can be viewed as socially responsible and ethical, supported by it’s extensive assessment of all aspects of the project and how it will affect all relevant stakeholders positively and negatively. The responsibility factor is a crucial element of the governance framework. That applies to all levels involved from the top political level to the agencies that implement the projects. By practicing transparency, fairness and responsibility, an advanced level of accountability is shown.

The Norwegian State Project model falls under that type of the lean framework described in Section 2.5.5, simple, flexible and control based. A structure that can be applied for all projects in all sectors. Based on high-level guidelines with focus on the front-end phase of projects and does not include explaining on how to solve project planning and execution.
4.3 Iceland

4.3.1 Background

Similarly, to Norway, Iceland has enjoyed the privilege of being rich in resources. The primary source of economic growth has been in the form of fishing. Additionally, the tourism industry has been booming in recent years. In 2017 Iceland was the fastest-growing economy in the OECD and had made an extraordinary turnaround from the 2008 crisis [78]. However, at present, growth is receding. The growing tourism is rapidly declining as a result of the insolvency of one of Iceland’s airlines. Marine exports have also decreased [79]. Several structural weaknesses overshadow Iceland’s strong economic performance. Productivity is held back by strict product market regulations, below-average openness, weak business and public investment, and few resources dedicated to innovation. Competitiveness is declining as wages have outpaced productivity for several years. Also, the competitive edge gained after the 2008 crisis has vanished. The quality and efficiency of the public sector have declined, and government effectiveness was already deteriorating before the crisis. In an economic report on Iceland published by OECD (2019), it is suggested that Iceland should now strategically turn its attention to structural reform, which will help boost productivity and inclusive growth [79]. Further, OECD suggests some critical improvement for the economy and are as follows:

- Improve the regulatory framework to support competition and openness of the economy, as well as to boost productivity and innovation.
- Make public spending more effective, underpinning productivity growth while maintaining Iceland’s fair society.
- Apply more comprehensive cost-benefit analysis to infrastructure projects. Including evaluation of social and environmental impacts.
- Raise investment in transport, energy and digital infrastructure.
- Introduce road pricing for demand management and funding of transport infrastructure.

Like Norway, Iceland has similar experience with large public investment projects exceeding budget and time plan. This has caused dissatisfaction among the public and criticism. Friðgeirsson [80], states that it is challenging finding a large infrastructure project, not suffering from cost overrun, with only a few exceptions. Earlier research demonstrate cost overrun up to 173% in large investment projects [1], and over 70% of smaller projects exceed estimated cost [80].

In 2001, the law no 84/2001 on public project arrangement was issued in Iceland (Lög um skipan opinberra framkvæmda nr. 84/2001). The law covers construction, maintenance, or alteration of a structure funded in part or fully by the state treasury with estimated costs of at least 5 million ISK. The Ministry of Finance issued the regulations along with official procedures demonstrating how to carry out the preliminary design, planning, and practical work. The work is carried out by the relevant line ministry, government agency, or municipality, but the financial control over the project conception and planning is in the hands of the Ministry of Finance. The Co-operation Committee (SOF) on public construction was established and serves as an advisory role to the Ministry of Finance. The committee has the task of bringing together the views of the owners of public projects at the preparation
and implementation stage and investigating the initial report and planning that precedes the practical implementation. Also, the committee monitors the financial aspects of those public projects [81].

4.3.2 The process

The procedure for public projects according to the law, includes some general description of the four-step process, (1) initial-analysis, (2) planning, (3) implementation, and (4) close down evaluation. The process is demonstrated in figure 4.4

The first task of the public project arrangement is the initial analysis. At this stage, the project idea that is under consideration receives material treatment and inspection to identify its need, scope and main premises. The analysis should identify the alternatives that may be considered as a solution of the project, their feasibility is evaluated and a reasoned proposal for one specific solution is made. The pre-analysis is divided into two phases. The pre-study phase and pre-project phase and includes the following items:

**Pre-study**

- **Project argumentation** - Goals that are intended to be achieved with the project and set in context of the development plan of the relevant issues.

- **Stakeholder analysis** - Who will the project serve and who will be the users, and what stakeholders and government agencies will support it.

- **Needs analysis** - the scope of the project is explained, and the need defined by which it is intended to be resolved.

- **Alternative analysis** - A summary of the options that will be considered when solving the needs and what are their main advantages and disadvantages.

- **Initial estimate of investment and operating cost** - A rough estimate is made of the initial and operational costs of the solutions that are being considered. Based on numbers from previous similar projects.

- **Feasibility assessment** - Comparison of the solutions that are considered, and their feasibility is assessed. Efforts should be made to compare different solutions on a conceptual basis.

- **Report on decision** - A proposal for a solution should be made and justified based on the alternative analysis. At the end of the pre-study phase, the line ministry reviews its outcome and decides on the continuation based on it. At this stage, there should be a specific proposal for a solution to the project and if agreed by the line ministry the project can be moved to the pre-project phase.

**Pre-project**

- **Premise of solution** - Explicit assumptions shall be made regarding the design and quality of structures for material selection and construction methods, as well as durability and cost requirements to the extent applicable.
• Preliminary draft of solution - Initial sketches of the structures should be made to understand the scope. The purpose of the drawings is not to have a shaping effect on the structure but to provide an overview of the structure.

• Planning - The budget and operating plan shall be adjusted based on the premises of the pre-study. Schedules should be drawn up to allow for rational planning and practical implementation

• Conclusion report - describing the chosen solution in detail

The line ministry reviews the results of the initial-analysis and submits it and a budget proposal to the Ministry of Finance. The Ministry of Finance reviews the results as well as the SOF committee and a budget proposal is made to the Parliament Budget Committee. A final decision on funding for the project is not taken until after the planning phase.

Figure 4.4: The Icelandic model - constructed based on the Icelandic law on public project arrangement

4.4 Summary

Even though Iceland stouts a strong economy and plans for future investments, there have not been many actions taken to counteract the problem of cost overrun by the application of governance. Research shows that project cost overrun is a persistent problem that needs to be addressed at the highest level of government. Furthermore, as listed in the 2019 OECD report, these issues have been identified as stifling economic growth.

The Icelandic law on public project arrangement is a top-down process as the Ministry of Finance sets the guidelines. The official procedure includes basic general instructions, and each ministry separately interprets how to carry out the work. It is unclear what methods were applied in the construction of the rules since there are no references to any. The conceptual phase of the project includes some basic criteria and is set out to identify its need, scope, and its main assumptions. Alternatives should be listed as well as their feasibility to make a reasoned proposal for one specific solution. As part of the alternative study, a cost-benefit examination should be required to be carried out. It is considered an essential part of such analysis process to use approved professional procedures to ensure that the project is achievable and able to meet its requirements [14]. Regardless, there is no evidence or
references to such procedures in the guidelines. The procedure is not a formalized stage-gate model, but it indicates two decision points at the front-end phase, where the project should be reviewed before moving to the next stage. No further guidance can be found on what should be included in those evaluations, suggesting that there is no formal process for quality assurance of the choice of concept or the cost estimate.
Chapter 5

Results

The research was set out to examine what characterizes good project governance and assess current project governance standard at the government level. Two countries were selected for comparison, Norway and Iceland. The aim of the literature review was to outline what defines a good project governance regime, laying the foundation for the research. The two countries were benchmarked individually against those factors. Additionally, document analysis on the Norwegian State Project model created the basis for the last part of the research. It aimed at investigating current practices and perception of project governance, obtained through interviews with stakeholders in the public sector in Iceland. This chapter will present the result of each research.

5.1 Characteristics of good project governance regime for public projects

The methodology for establishing a framework for project governance has no single defined approach. Its intake refers to the process, system and regulation established to support right decision making at an early stage of a front-end phase of projects. Based on literature analysis the researcher highlighted the characteristics that are indicative of a good project governance regime and can be seen in Section 3.3.

5.2 Project governance standards in Norway and Iceland

The data processing of this part of the research is based on the result from Section 5.1. The main objective is to evaluate project governance standards in each country by measuring their compliance.

The main findings present a considerable difference between the two countries. Norway scores 100% consistency for every object, see table 5.1.
Table 5.1: Scoring based on the Norwegian State Project Model - project governance criteria - researcher’s perception

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Full consistency</th>
<th>Partial consistency</th>
<th>No consistency</th>
</tr>
</thead>
<tbody>
<tr>
<td>The structure</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>The principles</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>The process</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>The elements</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Quality assurance</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Post-evaluation</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Total average</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

The overall consistency for the Icelandic regime is demonstrated in table 5.2, presenting the main result for each main item. The full list of objects consists of 26 items. The overall average scoring for all items state 35% for full consistency, 32% for partial consistency and 33% for no consistency.

Table 5.2: Scoring based on the Icelandic law on public project arrangement - project governance regime - researcher’s perception

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Full consistency</th>
<th>Partial consistency</th>
<th>No consistency</th>
</tr>
</thead>
<tbody>
<tr>
<td>The structure</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>The principles</td>
<td>0%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>The process</td>
<td>25%</td>
<td>75%</td>
<td>0%</td>
</tr>
<tr>
<td>The elements</td>
<td>17%</td>
<td>33%</td>
<td>50%</td>
</tr>
<tr>
<td>Quality assurance</td>
<td>33%</td>
<td>0%</td>
<td>67%</td>
</tr>
<tr>
<td>Post-evaluation</td>
<td>50%</td>
<td>0%</td>
<td>50%</td>
</tr>
<tr>
<td>Total average</td>
<td>35%</td>
<td>32%</td>
<td>33%</td>
</tr>
</tbody>
</table>

Figure 5.1 demonstrates the breakdown of each main item for the Icelandic regime. The only full compatibility is for the structure. The other items range from 0% - 50% for full consistency, 0% - 75% for partial consistency and 0% - 67% with no consistency.
5.3  Project governance practices - researcher’s perception

To evaluate existing project governance practices, the researcher prepared a list of questionnaires. The questions are based on the elements within the Norwegian State Project Model and are considered as optimal project governance practices. Additionally, the researcher performed the assessment, based on the Law on the public arrangement along with the official procedure guidelines. The main findings will be presented in this section.

The result from the researcher assessment is presented in table 5.3. The overall total score shows a 45.6% consistency with stated optimal project governance practices. Full scoring table for each question can be seen in Appendix A.

Table 5.3: Project governance practices - scoring based on the intake of the Icelandic law on public project arrangement - researcher’s perception

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Score</th>
<th>Total weighted average %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idea phase</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Needs analysis</td>
<td>4</td>
<td>50%</td>
</tr>
<tr>
<td>Strategy</td>
<td>8</td>
<td>100%</td>
</tr>
<tr>
<td>Possibility study</td>
<td>5</td>
<td>63%</td>
</tr>
<tr>
<td>Alternatives analysis</td>
<td>6</td>
<td>50%</td>
</tr>
<tr>
<td>QA of the pre-study</td>
<td>3</td>
<td>25%</td>
</tr>
<tr>
<td>Strategy document</td>
<td>7</td>
<td>44%</td>
</tr>
<tr>
<td>QA of the pre-project</td>
<td>4</td>
<td>33%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>37</strong></td>
<td><strong>45.6%</strong></td>
</tr>
</tbody>
</table>

Figure 5.2 demonstrates the breakdown for individual main item. The consistency with each item ranging from 0%-100%
5.4 Project governance practices - stakeholders perception

The processing of the data was executed in the same way as in the previous Section 5.3. The results are based on interviews with five stakeholders in the public government sector in Iceland, represented as No. 1 - No. 5. Results for each category are presented in table 5.4. The overall total average consistency is 61.5%. The consistency ranges from 40%-80% between the five organizations. Table 5.4 shows the total average score for each main category. Full scoring chart for each question can be seen in Appendix A.

Table 5.4: Project governance practices - stakeholders perception

<table>
<thead>
<tr>
<th>Criteria</th>
<th>No. 1</th>
<th>No. 2</th>
<th>No. 3</th>
<th>No. 4</th>
<th>No. 5</th>
<th>Total weighted %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idea phase</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>45%</td>
</tr>
<tr>
<td>Needs analysis</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>8</td>
<td>70%</td>
</tr>
<tr>
<td>Strategy</td>
<td>6</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>95%</td>
</tr>
<tr>
<td>Possibility study</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td>8</td>
<td>85%</td>
</tr>
<tr>
<td>Alternatives analysis</td>
<td>6</td>
<td>8</td>
<td>11</td>
<td>12</td>
<td>12</td>
<td>82%</td>
</tr>
<tr>
<td>QA of the pre-study</td>
<td>0</td>
<td>6</td>
<td>4</td>
<td>0</td>
<td>8</td>
<td>30%</td>
</tr>
<tr>
<td>Strategy document</td>
<td>9</td>
<td>12</td>
<td>10</td>
<td>12</td>
<td>12</td>
<td>55%</td>
</tr>
<tr>
<td>QA of the pre-project</td>
<td>0</td>
<td>6</td>
<td>4</td>
<td>0</td>
<td>8</td>
<td>30%</td>
</tr>
<tr>
<td>Total score</td>
<td>33</td>
<td>53</td>
<td>50</td>
<td>54</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>Total weighted %</td>
<td>40%</td>
<td>61%</td>
<td>59%</td>
<td>67%</td>
<td>80%</td>
<td>61.5%</td>
</tr>
</tbody>
</table>

Figure 5.3 presents consistency ranging from 30% - 95% over the eight main categories.
5.5. PROJECT GOVERNANCE PRACTICES - THE DIFFERENCE BETWEEN PERCEPTION

The results from each observation is presented in table 5.6 as well as the gap between the two. The gap ranging from 3% - 45%. Numbers presented in red indicate that the gap is in favour of the researcher's observation.

Table 5.5: Project governance practices - researcher’s and stakeholders perception

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Stakeholders</th>
<th>Researcher</th>
<th>Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idea phase</td>
<td>45%</td>
<td>0%</td>
<td>45%</td>
</tr>
<tr>
<td>Needs analysis</td>
<td>70%</td>
<td>50%</td>
<td>20%</td>
</tr>
<tr>
<td>Strategy</td>
<td>95%</td>
<td>100%</td>
<td>5%</td>
</tr>
<tr>
<td>Possibility study</td>
<td>85%</td>
<td>63%</td>
<td>23%</td>
</tr>
<tr>
<td>Alternatives analysis</td>
<td>82%</td>
<td>50%</td>
<td>32%</td>
</tr>
<tr>
<td>QA of the pre-study</td>
<td>30%</td>
<td>25%</td>
<td>5%</td>
</tr>
<tr>
<td>Strategy document</td>
<td>55%</td>
<td>44%</td>
<td>11%</td>
</tr>
<tr>
<td>QA of the pre-project</td>
<td>30%</td>
<td>33%</td>
<td>3%</td>
</tr>
<tr>
<td><strong>Total average %</strong></td>
<td><strong>61%</strong></td>
<td><strong>46%</strong></td>
<td><strong>18%</strong></td>
</tr>
</tbody>
</table>

Figure 5.4 demonstrates the researcher’s observation and the results obtained from interviews.
The gap between each participant is represented in table 5.6 as well as the gap between each participant and the researcher. The number presented in red demonstrate that the gap is in favour of the participant being evaluated.

Table 5.6: Project governance practices - the difference between perception of individual participant

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>No. 1</th>
<th>No. 2</th>
<th>No. 3</th>
<th>No. 4</th>
<th>No. 5</th>
<th>Researcher</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1</td>
<td>21%</td>
<td>19%</td>
<td>27%</td>
<td>40%</td>
<td>5.6%</td>
<td></td>
</tr>
<tr>
<td>No. 2</td>
<td>21%</td>
<td>2%</td>
<td>6%</td>
<td>19%</td>
<td>15.6%</td>
<td></td>
</tr>
<tr>
<td>No. 3</td>
<td>19%</td>
<td>2%</td>
<td>8%</td>
<td>22%</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>No. 4</td>
<td>27%</td>
<td>6%</td>
<td>8%</td>
<td>14%</td>
<td>21.3%</td>
<td></td>
</tr>
<tr>
<td>No. 5</td>
<td>40%</td>
<td>19%</td>
<td>22%</td>
<td>14%</td>
<td>34.8%</td>
<td></td>
</tr>
<tr>
<td>Total average gap</td>
<td>27%</td>
<td>12%</td>
<td>13%</td>
<td>14%</td>
<td>24%</td>
<td>18.1%</td>
</tr>
</tbody>
</table>
Chapter 6
Discussion and Conclusion

6.1 Discussion

The incentive for this research was that public projects in Iceland tend to exceed the planned budget and time frame. It was speculated that a well-defined framework for project governance might be lacking, resulting in a weak base for decision making. For guidance, the researcher looked towards Norway. The Norwegian government has put considerable effort into developing a practical project governance framework that aims to select the right projects for execution by providing a thorough analysis that is subjected to rigorous quality assurance. Ultimately, by implementing the scheme, Norway increases the probability that its projects are considered successful. The previous literature review concluded that predicted investment in public infrastructure projects in Iceland will increase, which further underpins the assumption that a fully established public project governance scheme is needed.

At the beginning of this process, the researcher assessed the factors that define what characterizes a good project governance regime. Based on that finding, the investigation of the current project governance standards in Norway and Iceland could be conducted. To gain insight into current project governance practices, the researcher explored the perception of Icelandic stakeholders in public organizations through interviews. This chapter will include a discussion of the main findings and observations.

6.1.1 Project governance standards in Norway and Iceland

In this section the main results regarding the project governance standards in Norway and Iceland will be discussed respectively.

6.1.1.1 Norway

The research confirms that the Norwegian State Project Model is a high standard project governance framework. The process, as well as the official policy that the framework is founded on, is thoroughly reasoned. The structure of the framework is well-defined and the elements within it coordinate well. The structure consists of two decision points, where the object undergoes a secondary review. The quality assurance procedure, as well as all other elements within the framework, is based on established principles and methods which are required to undergo a systematic analysis. The focus of the first external quality review is on the conceptual stage of the project and sets a definite value for the project’s outcome. The focus of the second external review is on detailed cost analysis and sets a value on achieving
the financial target of the project. Emphasis is placed on processes and documentation which represent fairness and transparency in decision making, with interests of all stakeholders at the forefront. Also, efforts are being made to improve the model by systematically measuring its performance through The Concept research program.

6.1.1.2 Iceland

The research results indicate that the overall framework for project governance in Iceland is lacking. Its official policy stated in the law on public project arrangement describes very general and basic elements without any references to principles or methodology. The overall structure is in place, but more could be added to the content. A more detailed description of elements within the process is needed, as well as a reference to established methodologies that should be used.

The study revealed some fundamental issues that distinguish between the Norwegian and Icelandic schemes. The front-end phase of the Icelandic scheme is divided into two phases, pre-study and pre-project. The pre-study phase is set to evaluate different conceptual solutions, which is in line with the Norwegian model. The pre-project phase focuses on rather technical factors, such as drawings and more, and the final decision on budgeting is not taken until after the planning phase. This is different from the Norwegian model, where the pre-project phase is set to focus on more detailed cost analysis, providing a better basis for final budgeting at an earlier stage. In Norway, the final choice of concept is made at the highest level of government and not in the line ministries performing the diagnostic work. In Iceland, the final decision on the choice of concept is taken by the line-ministry that performed the diagnostic work.

To establish a practical governance framework, various aspects need to be taken into consideration. Evaluating the Icelandic regime against factors that together form a robust project governance framework, the result indicates a gap of 65% with full consistency. Further, a difference of 68% with partial and 67% with no consistency, including items in connection to the principles of good project governance, transparency, fairness, responsibility, in which a minimal connection was detected. This assessment was based on the lack of open information on initial reports and procedures as well as no references in the public project procedure on how the process is intended to work and why it has been established, which is theoretically an essential part of a fully functioning framework. Also, insufficient emphasis is placed on risk and uncertainty analysis at the front-end phase. Little consistency was identified regarding items concerning post-evaluation of the project, positive or negative effect, as well as a societal impact of the project, such as sustainability, effectiveness, and impact. Evaluation against those factors was based on laws on close down reports [82]. Overall, the process seems to be more designed for small routine projects and is not flexible enough to meet the requirements of large-scale projects. Based on previous analysis and Klakegg definition of a governance framework in Section 2.5.3, it is rather difficult to classify the Icelandic process as a proper project governance framework.

6.2 Project governance practices and perception

This research contributes to investigating the current practices of project governance in the public sector in Iceland. Deriving from the results, it can be reasoned that current meth-
The elements stated in the law on public project arrangement include some general mandatory procedures without any further references to methodology. It is ultimately for the agents performing the work to set their own standard of practice. The gap between the researcher’s observation and the results from the interviews proposed not a vast difference and was, in some cases in favour of the researcher, which might indicate no significant deviations from what is stated in the procedures and what is practised. But it draws attention that the idea phase received zero points from the researcher but scores 2-6 points by the participants. The stakeholders’ consistency ranged from 40% - 80%, and the gap within each stakeholder, ranging from 2% - 40%, which could be descriptive of the difference and inconsistency in working methods.

In the previous literature review, the importance of the front-end phase of projects was highlighted. The emphasis on the front-end phase of the projects sets a clear assignment of the project’s role and responsibility. It emphasizes a detailed analysis of critical factors and the evaluation of different alternatives at an early stage as well as considering all stakeholders and the impact of the project with the primary objective of choosing the right project for implementation. The results indicate that the origin of a project idea is not clearly stated, and is, in many cases, a subjective decision. The results suggest that the basis for decision-making could be more detailed and more extensive analyses of critical factors at an early stage needed. Including, cost-benefit analysis, risk assessment and uncertainties analysis to create a more solid basis for decision making. Further, the decision-making process could be more transparent and standardized to support a more coordinated execution within different public organizations. It is worth mentioning that it was the researcher’s perception from the interviews that often the work in the pre-study phase featured more around finding different technical implementations rather than identifying different conceptual solutions.

The zero option was not always accounted for in the alternative analysis suggesting that the alternative analysis could be more detailed, which would counter the effect of path dependency, that is, a previously used solution is applied to a new project, likely resulting in the same outcome. This procedure seems to be rooted in Iceland, but interestingly, there appears to be no Icelandic translation for this term. Also, the term "opportunity space" seems not to be known in Iceland, whereas the stakeholders were not familiar with it. The lack of the social impact assessment was in most cases missing in the analysis. This is at odds with today’s social values, which call for increased social responsibility from the government. Also, no attempt is made to evaluate target cost and budget cost individually by using methods such as the stochastic cost estimation, see Section 4.1.2.3. Applying such a budgeting method would create a financial buffer in order to manage uncertainties. Appraisal of more than one contract strategies was absent in all cases, this is probably due to the official policy that all public projects are subjected to tending. The use of independent quality assurance was noticeably absent beside one unique case. Keeping in mind that it is crucial to ensure full independence of the quality assurance to avoid agency problems and provide a transparent and accountable result. An individual within the same organization, or is connected to the project in any way, is more likely to fail to produce a neutral and objective assessment.
6.3 Final conclusions

Project governance awareness is on the rise, and many governments have already realized the importance of a well-designed project governance arrangement. The focus in this thesis is on project governance at a government level and the assumption that such an arrangement promotes more ethical and responsible decision-making concerning large investment projects. The final result being more successful projects in terms of time, cost, and social success, creating value for all stakeholders.

First, the aim is set to answer the question *What characterizes good project governance?* Based on the literature review a framework representing good project governance is set. The criteria including six main categories is defined; The structure, the principles, the process, the elements, the quality assurance and post-evaluation of the scheme. The content and argumentation are discussed in chapter 3.3. Based on that, the answer to the questions; *How are project governance standard in Norway and Iceland?* can be provided. It is fair to argue that Norway stouts a high standard project governance framework, which is still evolving and has proven to be a success. The Icelandic law on public project arrangement is a positive initial step in establishing a project governance framework. However, even though the structure is in place, much of the other criteria are lacking. The findings indicate that more effort could be placed in the construction of a more comprehensive project governance framework, including factors such as ethical values, transparency, social impact and accountability. Improvement of the decision-making process. The more standardized methodology provided by the legislator. More detailed analysis of critical factors at an earlier stage. Independent quality assurance and more detailed post evaluation.

For the last part of this study, through interviews, the aim is set to answer the question: *How do Icelandic stakeholders perceive project governance practices?* The questionnaire was based on elements used for analysis at the front-end phase of projects in the Norwegian State Model. The results declare that the participants fulfil the criteria by 61,5% on average. The researcher evaluated the content of the Icelandic Law using the same questionnaire, resulting in 45,6% compatibility. The *Difference between perceptions* indicates that in most cases, the participants consider them to exceed the requirements, but the difference is not significant. There is also a difference between individual stakeholders, which could indicate some inconsistency in practices.

6.4 Recommendation

The main findings cast a light on the need for a complete project governance framework for public projects. To improve procedures and coordinate methods, it would be advisable that more detailed guidelines would be issued from the top down. That includes further guidelines and methodological references on behalf of the Ministry of Finance, for example, a handbook on cost-benefit analysis. More emphasis should be placed on the conceptual evaluation.

The objective of establishing a robust project governance framework should be to achieve reasonable cost and process control as well as obtain high economic benefits, emphasize standardized, professional methods and societal principles. This would enhance information flow between all stakeholders as well as outline the relationship between internal and external par-
ties, securing friction-less transactions between project and stakeholders.

A framework such as the State Project Model is not designed as a “one size fits all” solution. The framework is implemented and adjusted to each circumstance. The factors that cause large projects to exceed their plan need to be scrutinized, and the existing research on the subject must be utilized. Only then is it possible to design a customized framework to counteract the problem. As seen when comparing the schemes in the two countries, see table 6.1. The compared items is based on a similar table in the Norwegian research [55]. Some significant differences need to be accounted for. The threshold for projects subjected to the scheme in Norway is NOK 750 million, which sums up to roughly ISK 10.5 billion, which is a rather significant threshold on an Icelandic scale. It is not disadvantageous to lower the threshold to adapt to Icelandic situations. The model is not only applicable on the governmental level but also on the municipality level in a scaled down version.

It is preferable to implement external quality assurance as a standard regime for more substantial projects, giving the conceptual evaluation more validity when reviewed by stakeholders, including the public. It preemptively answers many of the questions that doubters and political adversaries have and create a healthier discussion platform for the general review. Further, independent review contributes to a more accurate analysis in terms of cost and other critical factors. Also, to establish more transparency and accountability, it is recommended that initial study reports for large public projects, be more accessible to increase the flow of information to all stakeholders. Ultimately, a robust project governance framework for public projects, provides consistency in decision-making and creates more accountability for the public.
Table 6.1: A comparison of the scheme in Norway and Iceland.

<table>
<thead>
<tr>
<th>Criteria/Country</th>
<th>Norway</th>
<th>Iceland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who initiates the process</td>
<td>Ministry of Finance</td>
<td>Ministry of Finance</td>
</tr>
<tr>
<td>Who decides the choice of concept</td>
<td>Government</td>
<td>Ministry</td>
</tr>
<tr>
<td>Who determines the budget</td>
<td>Parliament</td>
<td>Parliament</td>
</tr>
<tr>
<td>Sectors included</td>
<td>All, with some exceptions</td>
<td>All</td>
</tr>
<tr>
<td>Threshold value (million)</td>
<td>NOK 750</td>
<td>ISK 5</td>
</tr>
<tr>
<td>Who appraises the project</td>
<td>Agency or ministry</td>
<td>Agency or ministry</td>
</tr>
<tr>
<td>Who performs quality assurance</td>
<td>External consultants</td>
<td>Agency, ad hoc or not at all</td>
</tr>
<tr>
<td>Requires co-funding from promoters</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Budget cost</td>
<td>P85 (normally)</td>
<td>Project estimated cost</td>
</tr>
<tr>
<td>Target cost</td>
<td>P50</td>
<td>Project estimated cost</td>
</tr>
<tr>
<td>Decision points</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>QA or advisory interventions</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Transparency</td>
<td>Yes</td>
<td>Limited</td>
</tr>
</tbody>
</table>

6.5 Research limitations

The study takes a limited view of the project governance standards and practices in Iceland at the government level. That does not include a lower level of governing, such as all possible aspects of project planning, management, and implementation. For comparison and guidance, it is only looked towards the Norwegian framework and not frameworks practiced in other countries.

The interview criteria and benchmark items are set by the researcher and are limited to the literature review, and therefore also the conclusion. Also, the questionnaire scoring is based on the researcher’s assessment of the participants’ responses given during the interviews.


Appendix A

Complete scoring

<table>
<thead>
<tr>
<th>Project governance regime</th>
<th>Full consistency</th>
<th>Partial consistency</th>
<th>No consistency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. The structure</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. The scheme is established from the top level</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>2. The scheme is based on regulation</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>3. The scheme has clearly defined project phases</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>4. The scheme has clearly defined decision points</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>5. Roles and responsibility are clearly defined</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>2. The principles</strong></td>
<td></td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>6. The scheme represents transparency</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>7. The scheme represents accountability</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>8. The scheme represents responsibility</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>9. The scheme represents fairness</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>3. The process</strong></td>
<td></td>
<td>25%</td>
<td>75%</td>
</tr>
<tr>
<td>10. The process is an open-ended appraisal process</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>11. The relevance of the process is clearly stated</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>12. The process is efficient</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>13. The process requires detailed documentation at decision points</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>4. The elements</strong></td>
<td></td>
<td>17%</td>
<td>33%</td>
</tr>
<tr>
<td>14. All elements within the scheme are clearly stated and defined</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>15. All critical elements within the scheme are analyzed following established needs</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>16. Uncertainties about cost and benefits are identified</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>17. Risk is identified</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>18. Concepts are prioritized in line with the objectives</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>19. All viable options are considered</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>5. Quality assurance</strong></td>
<td></td>
<td>33%</td>
<td>0%</td>
</tr>
<tr>
<td>20. The scheme requires a secondary audit at decision points</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>21. The quality assurance is transparent and independent</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>22. The criteria for quality assurance are based on standardized set of items</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td><strong>6. Post-evaluation</strong></td>
<td></td>
<td>50%</td>
<td>0%</td>
</tr>
<tr>
<td>23. The effectiveness of the project is evaluated</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>24. The impact of the project is evaluated</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>25. The sustainability of the project is evaluated</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>26. The efficiency of the project is evaluated</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Total average</strong></td>
<td>35%</td>
<td>32%</td>
<td>33%</td>
</tr>
</tbody>
</table>

Figure A.1: Full scoring based on the Icelandic law on public project arrangement - project governance regime - researcher’s perception
### APPENDIX A. COMPLETE SCORING

<table>
<thead>
<tr>
<th>Questions</th>
<th>No. 1</th>
<th>No. 2</th>
<th>No. 3</th>
<th>No. 4</th>
<th>No. 5</th>
<th>weighted average %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Idea phase</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q1. Is it well defined where ideas of projects originate?</td>
<td>25%</td>
<td>38%</td>
<td>38%</td>
<td>75%</td>
<td>50%</td>
<td>45%</td>
</tr>
<tr>
<td>Q2. Are standardized methods applied in the process of choosing project ideas?</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Q3. Is performed a stakeholder analysis?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>2. Needs analysis</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q5. Is performed quality assurance?</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
<td>100%</td>
<td>100%</td>
<td>70%</td>
</tr>
<tr>
<td>Q6. Are the requirements that define the scope uplisted?</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>3. Strategy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q7. Are the needs and objectives clearly defined?</td>
<td>75%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>95%</td>
</tr>
<tr>
<td>Q8. Are all the requirements that define the scope uplisted?</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>4. Possibilities study</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q9. Are the needs and objectives clearly defined?</td>
<td>75%</td>
<td>75%</td>
<td>75%</td>
<td>100%</td>
<td>100%</td>
<td>85%</td>
</tr>
<tr>
<td>Q10. Are all the requirements that define the scope uplisted?</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>5. Alternatives analysis</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q11. Are at least two alternatives evaluated?</td>
<td>50%</td>
<td>67%</td>
<td>92%</td>
<td>100%</td>
<td>100%</td>
<td>82%</td>
</tr>
<tr>
<td>Q12. Is the independence of the quality assurance ensured?</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Q13. Is the independence of the quality assurance ensured?</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Q14. Is listed what the quality assurance should include?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>6. Quality assurance of the pre-study</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q15. Is performed quality assurance?</td>
<td>45%</td>
<td>60%</td>
<td>50%</td>
<td>60%</td>
<td>60%</td>
<td>55%</td>
</tr>
<tr>
<td>Q16. Is constructed an implementation strategy for the chosen concept?</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Q17. Is the zero-option included?</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>7. Overall Strategy Document</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q18. Is the zero-option included?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>8. Quality assurance of the cost and steering frame</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q19. Is performed quality assurance of the cost and steering frame?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Q20. Is the independence of the quality assurance ensured?</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Total average %</strong></td>
<td>40%</td>
<td>61%</td>
<td>59%</td>
<td>67%</td>
<td>80%</td>
<td>61.5%</td>
</tr>
</tbody>
</table>

Figure A.2: Full scoring for project governance practices - stakeholders perception

<table>
<thead>
<tr>
<th>Questions</th>
<th>The Icelandic procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Idea phase</strong></td>
<td>0%</td>
</tr>
<tr>
<td>Q1. Is it well defined where ideas of projects originate?</td>
<td>0</td>
</tr>
<tr>
<td>Q2. Are standardized methods applied in the process of choosing project ideas?</td>
<td>0</td>
</tr>
<tr>
<td><strong>2. Needs analysis</strong></td>
<td>50%</td>
</tr>
<tr>
<td>Q3. Is performed a stakeholder analysis?</td>
<td>4</td>
</tr>
<tr>
<td>Q4. Is assessed relevance to societal needs and priorities?</td>
<td>0</td>
</tr>
<tr>
<td><strong>3. Strategy</strong></td>
<td>100%</td>
</tr>
<tr>
<td>Q5. Is the goal and purpose of the project clearly defined?</td>
<td>4</td>
</tr>
<tr>
<td>Q6. Are all the requirements that define the scope uplisted?</td>
<td>4</td>
</tr>
<tr>
<td><strong>4. Possibilities study</strong></td>
<td>63%</td>
</tr>
<tr>
<td>Q7. Are the needs and objectives clearly defined?</td>
<td>4</td>
</tr>
<tr>
<td>Q8. Is made sure that the opportunity space is wide enough, so all possible options are used?</td>
<td>1</td>
</tr>
<tr>
<td><strong>5. Alternatives analysis</strong></td>
<td>50%</td>
</tr>
<tr>
<td>Q9. Are at least two alternatives evaluated?</td>
<td>4</td>
</tr>
<tr>
<td>Q10. Are both alternatives subjected cost-benefit analysis?</td>
<td>2</td>
</tr>
<tr>
<td>Q11. Is the zero-option included?</td>
<td>0</td>
</tr>
<tr>
<td><strong>7. Quality assurance of the pre-study</strong></td>
<td>25%</td>
</tr>
<tr>
<td>Q12. Is performed quality assurance?</td>
<td>3</td>
</tr>
<tr>
<td>Q13. Is the independence of the quality assurance ensured?</td>
<td>0</td>
</tr>
<tr>
<td>Q14. Is listed what the quality assurance should include?</td>
<td>0</td>
</tr>
<tr>
<td><strong>8. Overall Strategy Document</strong></td>
<td>44%</td>
</tr>
<tr>
<td>Q15. Is constructed an implementation strategy for the chosen concept?</td>
<td>3</td>
</tr>
<tr>
<td>Q16. Is produced a total cost and income estimate of the selected solution?</td>
<td>4</td>
</tr>
<tr>
<td>Q17. Is budget cost and targeted cost evaluated individually?</td>
<td>0</td>
</tr>
<tr>
<td>Q18. Is performed appraisal of at least two different contract strategies</td>
<td>0</td>
</tr>
<tr>
<td><strong>9. Quality assurance of the pre-project</strong></td>
<td>33%</td>
</tr>
<tr>
<td>Q19. Is performed quality assurance after the pre-project phase?</td>
<td>4</td>
</tr>
<tr>
<td>Q20. Is the independence of the quality assurance ensured?</td>
<td>0</td>
</tr>
<tr>
<td>Q21. Is listed what the quality assurance should include?</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total average %</strong></td>
<td>45.6%</td>
</tr>
</tbody>
</table>

Figure A.3: Full scoring for project governance practices - researcher’s perception