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## CONTENTS

EDITORS' NOTES .....	5
MADELEINE GRANVIK, DANIEL KOCH AND MAGNUS RÖNN	
THE EPISTEMOLOGY OF CAMPUS DESIGN: RHIZOMATIC AND PARASITIC OR ISOLATED FABRICS? .....	13
THOMAS DAHL	
MAKERSPACES: ANALYSIS AND DESIGN STRATEGIES .....	37
SE YAN, HING-WAH CHAU, CLARE NEWTON AND SHIRAN GENG	
DESIGN PERFORMANCE IN PLANNING FOR DENSIFICATION – THE CASE OF OSLO .....	63
GORDANA ZUROVAC	
SYSTEMS, POLICIES, AND REGULATIONS SECURING THE FUTURE OF DANISH SOCIAL HOUSING .....	103
NEZIH BURAK BICAN	
ARCHITECTURAL QUALITY AND CULTURAL HERITAGE VALUES IN ECONOMIC ANALYSIS .....	133
MARI OLINE GISKE STENDEBAKKEN AND NILS O. E. OLSSON	

Photo on the front cover: Sculpture: *Diagonal in Room* by Ingela Palmerts.

The sculpture is situated in an exhibition at Pilarne, a heritage and a beautiful cultural landscape on Tjörn at the west coast of Sweden. Photo: Magnus Rönn



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## **ARCHITECTURAL QUALITY AND CULTURAL HERITAGE VALUES IN ECONOMIC ANALYSIS**

**MARI OLINE GISKE STENDEBAKKEN AND  
NILS O. E. OLSSON**

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### **Abstract**

This article examines the evaluation of architectural quality in socio-economic analyses of large public building projects in Norway. From a socio-economic perspective, a new building can be designed well or even better than existing buildings, based on a theoretical model that mimics the dynamics of society. However, it seems that this field does not appreciate how demanding it is to create and replace quality architecture. In Norway in recent years, several protected buildings and exceptional architectural works have been left empty or demolished. The resistance to the vacation and loss of these structures seems to come as a surprise to decision makers. This article examines documentation that serves as a basis for investment decisions for large, public building projects, specifically for the choice of concept, under the Norwegian Quality Assurance (QA) scheme. These documents are influenced by a socio-economic perspective and this article investigates how the affected buildings' significant values are described in the QA documentation. Architectural qualities are seldom mentioned in such documents; however, when they are mentioned, existing qualities are typically dismissed, or the focus is placed on the limitless possible qualities of future buildings. There is a need for a greater understanding of architecture within the scope of socio-economic analyses in order to make more informed decisions.

Keywords:  
architectural quality, cultural heritage,  
economic analyses, quality assurance,  
value, public building projects



## Introduction

The main research question addressed in this article is: How are architectural quality and cultural heritage values represented in socio-economic analyses of large public building projects in Norway? The article also reflects on these judgements and discusses how the valuation of architectural quality and cultural heritage values can be improved in future analyses.

Economic analysis can be applied to cultural heritage sites through public investment analysis, to guide politicians' decisions. In Norway, a quality assurance (QA) scheme is established to provide decision makers with sufficient information before making decisions (Concept Research Programme, 2019a). The QA documentation guides the politicians' decisions for larger public investments. This assessment applies to most governmental on-shore investment projects above 1000 million NOK ( $\approx$  €100 million). The QA scheme includes two intervention points for QA: QA1 and QA2. QA1 guides the decision on choice of concept, made by politicians, whilst QA2 has a similar impact on the parliament's decision for the project execution model. In this study, we have used documentation related to choice of concept. This is a critical point for affected cultural heritage: choice of concept typically includes choosing between the continued use of existing buildings, rehabilitation, or the construction of new buildings.

The choice of concept documentation consists of an initial concept evaluation report (called KVV, based on the acronym in Norwegian) made by an institution in the need of building investments, and a QA report based on the KVV report (QA1) and performed by external consultants (Concept Research Programme, 2019b). Presently, there are seven groups of consultants with framework agreements to perform the QA1 analyses. The consultant groups can be assigned to any type of major governmental investment, such as public buildings, infrastructure, or defence procurements. The consultant groups typically include a combination of consultants specialised in project management, and consultants or researchers with special competence in socio-economic analysis. The QA1 review is intended as an unbiased review of the KVV report, including its conditions, demarcations, reasoning, and conclusions. The QA scheme has been criticised for causing delays and additional bureaucracy in governmental projects, and for adding costs to projects such as consultant fees (Knudssøn, 2019).

QA documents are based on an economic analysis, which can be an unfamiliar tool for the evaluation of architecture or cultural heritage values. Still, an economic analysis is currently accepted as an important decision-making tool in Norway, as well as in a number of other comparative countries (Odgaard, Kelly, & Laird, 2006). Authorities use the analysis to weigh different concerns related to the allocation of limited resources

(Finansdepartementet, 2012, p. 9). The transport, health and building sectors are examples of fields for which decisions are based on an economic analysis (Stendebakken, 2018a). Architecture and cultural heritage have thus been involved in economic analysis for years, albeit haphazardly (Stendebakken & Olsson, 2017).

Under the Norwegian Cultural Heritage Act (Lovdata, 2020), buildings can be protected due to both their historical and architectural qualities. Traditionally, the economic analyses applied in the Norwegian QA scheme have not focused on architecture or cultural heritage, and Stendebakken (2018b, p. 4) found that in Norwegian analyses, there has typically been little or no awareness for cultural heritage values or architectural qualities in the actual analyses. This lack of awareness regarding cultural heritage values and architectural quality represents a problem when economic analysis is used to facilitate decisions where cultural heritage values and architectural quality can be considered a main aspect, such as for building projects—especially those regarding buildings that are listed as cultural heritage and have juridical protection under the Norwegian Cultural Heritage Act (Stendebakken, 2018a).

The level of abstraction in QA1 cost calculations is vast. For example, the costs for a co-located NTNU (Norwegian University of Science and Technology) campus in Trondheim were 3, 5 and 7 billion NOK (€330 million, €550 million and €770 million, respectively), with a standard deviation of 84%, 47% and 43% (Metier & Møreforskning Molde, 2015a, p. 73). Architecture is not an exact science, but neither is economics. Economics can be misconceived as part of the natural sciences, as it applies mathematics and attempts to obtain quantifiable results; however, this exactness can be misleading. Social economics is part of the social sciences, and the application of mathematics in economic theory is actually disputed (Sandmo, 2007, p. 359). The main arguments against mathematics in economic theory are that the mathematical models that are used to mimic reality must contain (too) many simplifications and that a mathematical approach can easily favour quantifiable fields above less accessible, more important, social responsibilities (Sandmo, 2007, p. 359-360).

Economic analyses are used to support public decision-making processes in a number of comparable countries in addition to Norway. Although there are differences between the models of different nations, there are many similarities, for example, regarding the challenges connected to unquantifiable values, including architectural quality and cultural heritage values.

This article is based on a review of Norwegian QA documentation. Cultural heritage values and architectural quality are also exposed to economic analysis through public management in other ways, as the methodology is also being applied to public investments outside the scope of the QA scheme.



## Background

First, we will look at how cultural heritage values and architectural quality are considered in economic analyses. Economic analysis does not have a strong tradition in the evaluation of architectural qualities, and there are fundamental differences between the two fields. In this article, what the authors perceive to be the core differences that influence the interaction between these fields are addressed. Interdisciplinary work differs from more homogenous work environments. Whilst the latter has a tradition within a field or profession as a framework, interdisciplinary work is more demanding in relation to both cultural and more deeply rooted epistemological differences (Öberg, 2008). The notion of terms linked to quality does not present a major issue in homogenous environments; however, this changes with growing differences between professional fields, and the judgement of quality in one's own and others' work becomes increasingly difficult (Öberg, 2008). Clearly, there are cultural differences between the fields of economic analysis, conservation and architecture in relation to language, theory and method (Stendebakken, Grytli, & Olsson, 2015); however, the differences between these fields also run much deeper and apply to the perception of value in these professional fields. Although there are differences between the notions of value in the professional fields of architecture and cultural heritage, these differences are much smaller than those found when we compare architecture and cultural heritage to economic analysis (Stendebakken, 2019).

## Different approaches to value

Economic analyses have limitations in their applications to cultural heritage qualities because the two professional fields build upon different value systems, research methods and professional language. Value can be perceived as objective, subjective or non-existent (value nihilism). One can define multiple types of value as "value pluralism", or one can assume that basically only one type of value exists, which results in "value monism" (Sagdahl, 2014). Sánchez-Fernández and Iniesta-Bonillo (2007) emphasise that value is preferential, perceptual, cognitive and affective. They also emphasise the difference between "value" as the result of an evaluation and "values" as implicit criteria, which a person must possess to make an assessment. Sánchez-Fernández and Iniesta-Bonillo also clearly distinguish between value and quality, where quality is more objective, and to a greater extent, value is the result of a subjective assessment. The philosopher Gadamer (2014) deliberately emphasises quality, as it does not seek a valuation, per se, but an increased understanding of what are described as inherent qualities.

An important perspective in understanding value, especially in relation to cultural heritage and architectural quality, is the fundamental difference between the understanding of axiomatic or relativistic value. For an axiomatic understanding of value, one leans on established axioms, its expertise and its tools, and entrusts evaluation to these authorities

(Holmen, 2018). Traditional cultural heritage protection is largely based on an axiomatic approach, where some values are considered to be evident or self-explanatory. For this reason, one seeks to select and to preserve these values; however, a relativistic understanding of values is gaining ground (de la Torre, 2002). The notion of cultural heritage sites' value as fixed and intrinsic has moved towards a more subjective concept of value (Barile, 2015; Smith, 2006). Similar tendencies apply to architecture (Stendebakken & Olsson, 2018). A relativistic notion of value represents a challenge in the management and safekeeping of cultural heritage. Subjectivism in the understanding of cultural heritage values can ultimately threaten the professional field of cultural heritage protection because there should be some degree of objective value for it to make sense with appropriations over state budget. A degree of objective value is thus necessary to defend funding for the safeguarding of cultural heritage and architectural quality, and such objective value should have a better basis than a layperson's views. David Throsby (2002) refers to economics as an objective, value-free science and describes how it is equally difficult for conservationists to define a net present value.

According to Satterfield (2002), when applying an anti-axiomatic, relativistic approach, it is the sum of the stakeholders – the community as a whole – that holds the power to define value (or ideally, at least). Regarding economic analyses, researchers have a responsibility to evoke the community's willingness to protect cultural heritage via their willingness to pay for this protection without affecting or judging (Mourato & Mazzanti, 2002). This is one possible way to assign a monetary value to cultural heritage values. Cultural heritage management, based on society's perceived willingness to pay, breaks with the traditional management of cultural heritage. As the philosopher Gadamer (2014) states, understanding cannot be value-neutral: A viewer's understanding of a given object begins with an existing understanding that the viewer uses to relate to the object at hand; buildings, their surroundings and our understanding of them change continuously.

Historically, value monism has had a strong position. For value monism, there is one overriding form of value that gives value to everything else; however, recently, value pluralism has begun to gain ground. Value pluralism recognises several different forms of value without a definitive answer regarding whether they can be compared or not (Sagdahl, 2014). During economic analysis, cultural heritage can be attributed to many forms of value, but ideally, it should be able to be assessed quantitatively in monetary value (Det Kongelige Forsvarsdepartement, 2015).

Whilst an economic analysis is user-oriented, relative, and based on one key unit of value (money), cultural heritage requires a multi-faceted, elite-driven, and object-oriented understanding of value. Although economic analysis seeks to quantify value, cultural heritage emphasises

qualitative descriptions of values, and it is difficult to quantify them in a way in which monetary value determines whether cultural heritage should continue to exist. Defining value is a task that is further complicated because the term “value” itself is related to volatile terms, such as quality, financial value, benefit and utility.

### On interdisciplinary cooperation

For interdisciplinary cooperation, common ground must be established as a starting point (Öberg, 2008). This is illustrated in Figure 1.

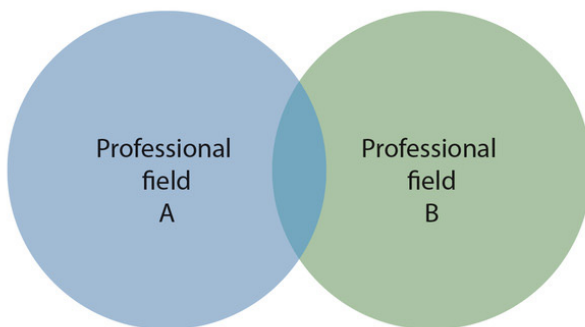


Figure 1  
Common ground in interdisciplinary work.

If such common ground is difficult to establish (Figure 2), it is also difficult to have a dialogue because the contrast between the fields is stark. It should be underlined that this figure more often applies to specific projects than whole professional fields, as a project is more restricted.

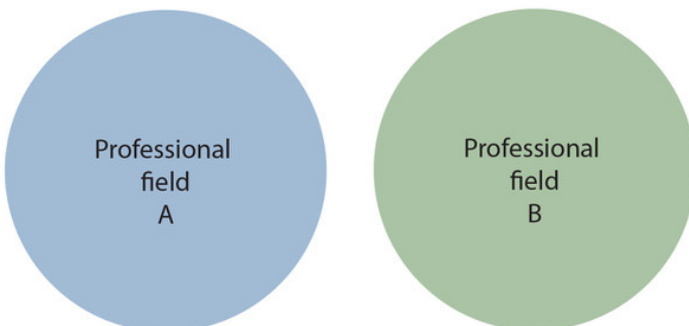


Figure 2  
No common ground between professional fields.

When fields are too dissimilar for a satisfactory, professional dialogue to develop, a translation tool that could be used to bridge the gap would be beneficial (Figure 3).

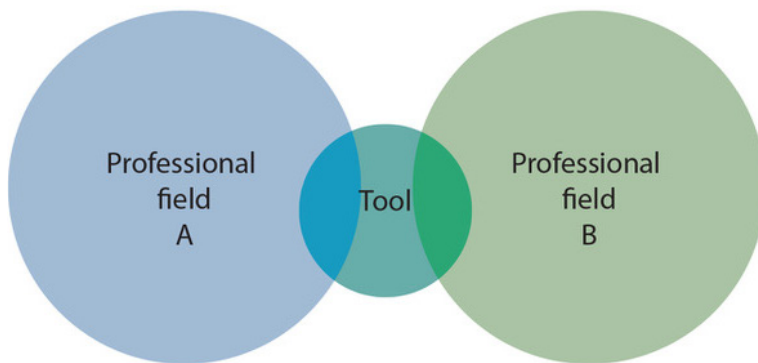


Figure 3  
A tool could bridge the gap; however, a satisfactory tool for the quantification of qualitative values does not exist.

In design management, the use of boundary objects can serve as a bridging tool (Leigh Star, 2010; Kjølle & Blakstad, 2014). A boundary object is a concept that has been introduced to analyse interactions in cooperative work between groups or communities of practice (Star & Griesemer, 1989). Boundary objects are drawings, physical models, prototypes, animations, artefacts and all sorts of other objects that help facilitate meetings and dialogue among actors (Chinyio & Akintoye, 2008); however, there is an increasing demand for the quantification of cultural heritage and architecture value, and an unimpaired tool for the translation between the paradigms of these fields does not exist. Although various forms of cultural monument analysis, be they architectural, cultural-historical or socio-economic, can be used to evaluate the same building or site, there is no generally accepted key to create a bridge between them. Aristotle experienced a similar challenge as he struggled to understand the logic of giving a building's value in sheep (sic; Mooya, 2018); as this measures a building's value in a seemingly irrelevant unit.

Without an efficient tool for translation between the professional languages of cultural heritage and economic analysis, common language and improvised wording that lack definitions are used. Stendebakken and Olsson (2017) have shown that architectural quality is described with informal language in QA documentation by using language that is borrowed from other professional languages and even novelties comprised as assemblies of words, such as "a signal building" and "the built solution" for buildings of high architectural quality. Attempts to quantify cultural heritage values have been made, but the economic analyses are persistent in their treatment of cultural heritage as a commodity, and are incapable of including the understanding of cultural heritage as a foundation for society. This understanding of cultural heritage as a societal binding agent is strongly connected to Europe's transition from feudal rule to democratic nations rooted in cultural similarities, such as history, language, clothing and building tradition. This understanding of the importance of cultural heritage for society is yet another point where the two disciplines of economic analysis and cultural heritage diverge.

## On the understanding of architecture

*A little learning is a dangerous thing;  
Drink deep, or taste not the Pierian spring:  
There shallow draughts intoxicate the brain,  
And drinking largely sobers us again.*  
(Pope & Seabury, 1900, p. 72)

Pope's text is unnerving, as we all have deficiencies at some level; it is part of being human. Regarding the understanding of architecture, the challenge of overrating one's own capabilities is pertinent, as all humans experience architecture and have subjective opinions about it. Constructed surroundings are referred to as the inescapable art form (Gadamer, 2014). Some of the studied documents bear an imprint of functionalism, also known as modernism in architecture (Munch, 2006), an architectural style with roots in the 1800s (Gunnarsjaa, 2007, p. 268-270). Functionalism claims that a building's form should be a product of its function, as in the famous slogan "form follows function" by Sullivan (Wergeland & Braathen, 2016). Functionalism as a style was a game-changer, which has inspired architectural masterpieces (Pauly, 1997) and had tremendous success, to a level at which it is easy to forget that such an emphasis on a building's function is actually part of a fading paradigm (Hvattum, 2006).

It has been claimed that functionalism has harmed the built environment because it dismisses the architectural qualities of historical buildings, which may result in the demolishing of buildings and larger milieus (Grytli & Nilsen, 2011). Amongst the most infamous initiatives are Corbusier's plans for the demolishing of Paris, and his description of a house as a machine for living (McQuillan, 2006). Currently, it is generally accepted that the majority of the (relatively near) future buildings have already been constructed (Yung & Chan, 2012). An architect's role is gradually changing from designing new buildings to transforming existing buildings. This shift in the building industry is important for sustainability, and an altered perception of buildings' generality, usability and capability of change is key. It should be noted that functionalism is not the only architectural style that appears to stand strongly in public QA; the preceding style of neoclassicism should also be acknowledged in terms of some of the examined reports that emphasise facades, surfaces and visual axes (Gunnarsjaa, 2007, p. 560).

## Economic analysis of architecture

One reason that it is difficult to quantify the value of architectural quality is that it is seldom "sold separately", and for collective goods, such as the National Gallery and other public buildings, it is not historically sold at all; thus, no market value is available. To isolate the quantifiable value of qualities that are sold as part of a larger entity, such as

architectural quality in real estate, a regression analysis can be applied. This aims to adjust for other aspects (to make them the same) so that one aspect stands out and can be studied. The result is then based on people's behaviours in prevailing markets (Finansdepartementet, 2012, p. 49). To quantify the value of qualities that are not sold, analysts utilise more problematic means, largely based on directly asking people how much they would theoretically be willing to pay for something (Stendebakken, 2018a).

In recent years, cultural heritage authorities have commissioned economic analyses of cultural heritage, aiming to prove that cultural heritage has potential for economic profit (Gierløff et al., 2019). When cultural heritage authorities also apply economic analysis to document value, it can be seen as both a wish for recognition from, and validation of, such an analysis. Either way, it adds to the methodology's impact. Because architecture and cultural heritage are being exposed to economic analyses, it is interesting to investigate how this is done in practice.

## Method

This study is performed by an architect with a specialisation in cultural heritage and an economist. The study is based on documentation reviews from the early phase of investments in governmentally funded public buildings. For the purpose of this article, QA1 reports for building projects regarding protected buildings have been reviewed qualitatively, by thorough reading by the main author. The findings have been discussed between the authors. In the Norwegian governmental investment decision process, the QA1 documents serve as input for a decision by the government on whether to begin a pre-project for a major investment, and if so, which conceptual alternative to base the pre-project on. QA1 reports are written by consultants commissioned by the Ministry of Finance. The consultant teams typically consist of experts in project management and socio-economic analysis.

The findings were coded to determine the categories below, instead of basing the categories on pre-existing categories in the reports or the QA scheme in general. Findings related to the potential for improvement in the document review were coded, and those connected to value and quality were chosen for discussion, as the understanding of value and quality is important for the final recommendations in alternative analyses. Main coding was done by one of the authors, and the other did quality assurance.

As the reports are in the Norwegian language, quotes from the studied documentation were translated for this article by the authors.

## Dataset

The reports examined in this article were collected from the database Trailbase, which is dedicated to the Norwegian QA scheme (Concept Research Programme, 2019c). The QA1 documents for the different projects analysed have a uniform structure and are thus suitable for analyses and comparison. The QA scheme applies to the largest public building projects in Norway. It was therefore likely that the selection would contain buildings of architectural quality. Indeed, the dataset includes QA1 reports of key architectural heritage. The selected projects are listed in Table 1.

**Table 1**  
Studied QA1 documentation and protected buildings

Project	Protected buildings affected by the project (construction year)	KVU/QA1	Processed documents	Authors
National Museum	National Gallery (1882) The Museum of Decorative Arts and Design (1904) The Museum of Contemporary Art (The central bank of Norway's second building) (1906)	KVU	KVU Utbyggingsprosjektet 2008/ KVU Pres styret ("Plan for investering og drift") 2006	Metier AS
	The National Museum – Architecture (The central bank of Norway's original building) (1828), including Jens Ulltveit-Moe's pavilion, by Pritzker Architecture Prize laureate Sverre Fehn (2007)	QA1	KS1 273 vurdering av alternativanalyse 2009/KS1 274 plan for investering og drift 2006/KS1 276 Kvalitetssikring av konseptvalg 2006	Terramar AS, Asplan Viak AS
Norwegian School of Veterinary Science (NVH)	10 buildings at Campus Adamstuen (1929–). The college also owned the adjacent farm Lindern, with buildings from ca. 1820-1950	KVU	KS1 292 (Sic) Norges veterinærhøgskole og Veterinærinstituttet – Utbyggingsprosjektet – Behovsanalyse, strategi, krav Kunnskapsdepartementet, juli 2006	Kunnskapsdepartementet, Metier AS
		QA1	KS1 287	Dovre International AS Transportøkonomisk institutt (KS1)



Project	Protected buildings affected by the project (construction year)	KVU/QA1	Processed documents	Authors
Museum of Cultural History	The Viking Ship Museum (1926–1954) The Historical Museum (1902)	KVU	391 Grunnlag KS1 / Grunnlag KS1 Grunnlag for kvalitetssikring av konseptvalg – KS1 Dato: 08.05. 2009	UIO – Kulturhistorisk museum, Kunnskapsdepartementet
		QA1	KS1 138 Kvalitetssikring fase 1 (KS1 – konseptvalg) av Kulturhistorisk museum Rapport til Finansdepartementet og Kunnskapsdepartementet Versjon 1.0, 23. oktober 2009, Versjon 1.1, 16. november 2009	Metier AS, Møreforskning Molde AS
New Government Quarters	13 buildings and one outdoor area, including two buildings with Picasso murals. The Government Quarters (1906–) include older buildings originally built for other purposes, dating back to the eighteenth century	KVU	KVU Fremtidig regjeringskvartal	Metier, LPO, OPAK
		QA1	KS1 Fremtidig regjeringskvartal	Dovre Group Transportøkonomisk institutt
Future Location of NTNU Campus	Nine buildings and two outdoor areas (1914–). The campus includes older buildings originally built for other purposes, dating back to the nineteenth century	KVU	Brev, tilleggsutredning til KVU / 1553.pdf KVU / KVU vedlegg 3	Rambøll, pka arkitekter, Rambøll arkitekter
		QA1	KS1 Fremtidig lokalisering av campus / KS1 vedlegg 7 / KS1 Vedlegg 8	Metier AS, Møreforskning Molde AS
National Theatre	The National Theatre (1899) The Torshov Theatre (1928) The outdoor area known as “Studenterlundene” This area was a historic garden turned park, surrounding and pre-dating the National Theatre. The area has been rebuilt several times	KVU	Konseptvalgutredning for utvikling av Nationaltheatret	Terramar AS, Oslo Economics AS, Snøhetta AS, Statsbygg. BlueNode Theatre Consultants & Engineers and AIX Arkitekter AB – Teater have contributed.
		QA1	KS1 Nationaltheatret	Metier, Møreforskning Molde
The National Stage	The theatre building (1909) and surrounding park from the same year, situated on protected ground from the medieval period	KVU	KVU DNS	Atkins Norge AS, Oslo Economics AS, Snøhetta AS
		QA1	1897.pdf	PROBA Samfunnsanalyse, A2, SNF centre for applied research at NHH, Holte consulting

Project	Protected buildings affected by the project (construction year)	KVU/QA1	Processed documents	Authors
Tullinløkka Area	The National Gallery (1882) St. Olavs gate 32 (1879), the former Norwegian Mapping Authority and Oslo National Academy of the Arts, including an outdoor area with an obelisk that used to be Norway's standard datum plane. The University in Oslo has two buildings in the area: Frederiks gate 2 (1902) (the Historical Museum) and Frederiks gate 3 (1875)	KVU	Alternativanalyse Tullinløkka / KVU Tullinløkka-området	KVU: Statsbygg. Alternativanalyse: Oslo Economics, Snøhetta, Atkins
		QA1	KS1 Alternativanalyse / KS1 Usikkerhetsanalyse / Tullinløkka KS1 KVU	Menon economics, DNV GL, ÅF Advansia. Arkitekt Alv Skogstad Aamo has contributed
New Courthouse in Bergen	The existing town courthouse (1933), situated on protected ground from the medieval period	KVU	KVU, oversendelsesbrev, vedlegg 3, 4, 5, 6 and 7, status, mandat, tilleggsutredning	Statsbygg, Metier AS, OPAK AS, Dark arkitekt
		QA1	KS1 Av fremtidig rettsbygging i Bergen / vedleggene: 7a, 7b, 7c, 7d, 7e, 9, 13	PROBA Samfunnsanalyse, A2, SNF centre for applied research at NHH, Holte consulting

QA1 reports are made for a wide range of governmental investments. A selection was made from the total number of QA1 reports for an investment project in Trailbase, and all building projects regarding protected buildings were selected. KVU documentation for three of the more recent projects; the National Theatre, The National Stage and the New Courthouse in Bergen, were provided from other sources. The sample includes nine projects, as listed in Table 1. Some of these projects consist of only one building, while others include several buildings and the surrounding areas. As the total number of relevant projects was relatively small, no further limitations were applied to the selected range of projects. The dataset consisted of all available QA1 documents for building projects that have buildings protected as cultural heritage sites in the existing situation.

As described, cultural heritage is traditionally described qualitatively, not quantitatively. Therefore, the topics of architectural quality and cultural heritage values are approached qualitatively in this article's discussion of the QA documentation, which was deemed to be the most suitable. This is done by describing argumentation that reoccurs in these documents and the notion of validity.

## Findings

In the next sections, examples are provided to illustrate how different aspects of architectural quality and cultural heritage are addressed in the reviewed reports.

## Jumping to conclusions

We find that, in some occasions, small groups are used as sources for definitive statements about the buildings. For the National Museum project, this is discussed in the QA1, as the initial KVV documentation used a small consensus group to document that it was highly unsure whether architectural quality could exist below ground in a museum. The QA1 consultants underline the importance of a thorough stakeholder analysis if consensus groups are employed (Terramar AS and Asplan Viak AS, 2006a). The QA1 consultants from Terramar AS and Asplan Viak AS also write:

*Our reference check is [...] relatively superficial and is mainly based on information retrieved from the website of the USA Underground Buildings. There are several examples of museums that have audience areas underground or that expand their existing showrooms underground. The Louvre [Paris] has expanded with large audience areas underground. [...] The consensus group for Metier/Møreforskning has emphasised that the display quality and the public's experience are reduced with showrooms below ground level. Other than the consensus group's assessment, there is no reference that can confirm this assessment (Terramar AS & Asplan Viak AS, 2006b, p. 59-60).*

It should be noted that the mentioned Louvre extension was designed by 1983 Pritzker Architecture Prize laureate I. M. Pei. The prize is highly recognised, and the Louvre extension is emphasised in their presentation (Pritzker, 2019). Thus, the consensus group's assessment regarding the possibility of creating exhibition space of high quality below ground appears lacking, as exhibition space below ground has already been built and recognized for its architectural quality at one of the world's most famous museums.

## Biased discussion of architectural qualities and juridical protection

All the studied QA1 reports were for institutions that have buildings with juridical protection as cultural heritage. These buildings may be flawed, meaning that they are not above critique. Maintenance lag and insufficient technical installations are to be expected; however, a pertinent evaluation of a building's architectural qualities cannot limit itself to pointing out such truisms if there is to be relevance and credibility. In an alternative analysis, a balanced presentation should be pursued.

If a building's minor shortcomings are discussed, its most striking positive features should also be noted. Mentioning the qualities that warrant juridical protection is also necessary as part of normative demands, because juridical protection under the Cultural Heritage Act is a normative demand, along with other relevant laws. Two descriptions of the same building, but from two different reports, could serve as an example of how differently one can characterise a building's qualities and potential:

*The National Gallery is housed in a building that was built for this purpose in 1881 and expanded in 1904 and 1921. The location in relation to the city centre is ideal, but the areas are far too small and the rooms partly inconvenient. This affects the museum's preservation function, exhibition activities and other offerings to the public. The building's constitution is poor, and there is a lack of facilities for regulating climate (Kultur og kirke departementet, 2006).*

The quote is taken from the KVV report for the National Museum project. Years later, there was a new assessment as part of the Tullinløkka project, which aimed to find new uses for vacated buildings. This second KVV report depicts the building differently:

*The suitability of the building is considered very good for museum use. There are large rooms on the 1st and 3rd floors with a flow from room to room in a symmetrical circle around the main staircase, which allows for traditional audience circulation. On the 3rd floor, there are no windows, but there are overhead lights from the ceiling. The juridical protection as cultural heritage carries severe limitations regarding alterations and changes, including the partitioning of spaces (Statsbygg, 2016, p. 22).*

The Historical Museum, which is an example of the art nouveau architectural style (Forsvarsbygg, 2016), is characterised as "burdened" with juridical protection in the Museum of Cultural History project (Metier & Møreforsking Molde, 2009, p. 85). The reason why the building has juridical protection as cultural heritage was not elaborated on. There are signs of biased reasoning, such as the QA1 documentation for the New Government Quarters, which repeatedly refers to some existing buildings as "the destroyed buildings", and not by their names: H- and Y-block (Dovre Group, 2014, p. 14, 15, 30, 67, 73, 79, 83, 91, 103, 104, 106, 108). The H-block building, with the prime minister's office, was one of these buildings, and was later declared healthy and able to comply with today's technical regulations (Statsbygg, 2014). It is now being rehabilitated for continued use.

The KVV report for the Tullinløkka project had a summary page for each building with information regarding the architect, construction year,

architectural style, additions to the building, former use, historical importance, juridical protection as cultural heritage and the surrounding area's main characteristics. This approach emphasizes a quite neutral description of the existing buildings' qualities.

It has been determined that defined terms are not used in their established meaning. Such discrepancies can undermine the text's intent and should be avoided. This applies to both linguistic fabrications and the inappropriate use of defined terms.

### Comparing an existing building with a concept

In the studied QA1 documentation, there are typically comparisons between the continued use of an existing building and a series of other alternatives that are still in the conceptual stage. Consequently, the existing building is being compared to concepts that are still fluid and that can potentially meet a wide range of needs.

The technical reviews are often quite short, and they can differ in their judgement of the building's technical state. This was seen in the KVV documentation for the new courthouse in Bergen (Statsbygg, Metier AS, OPAK AS & Dark arkitekter, 2016), a neo-gothic building built for the same purpose in 1929–1933, and described as, "The clearest and best-preserved example of the courthouses built in the years 1930–1950" (Regjeringen, 2020). A technical surveyor's report conducted by the firm Kristoffer Apeland AS in 2010 found the building's technical state to be "relatively good" (Statsbygg et al., 2016, p. 23). However, whilst the KVV documentation refers to the report performed by Apeland it includes a more recent report by OPAK (2015). The latter report claims that the building is relatively well maintained, but can only be used for five more years, given an estimated investment of 6.2 million NOK including taxes. After this, the report states that larger investments will be necessary to achieve the expected lifetime of a new building. From the report, it seems this is largely based on the expected lifetime for a range of technical structures, as well as for other materials. The building was already 82 years old at the time the report was written in 2015: roughly twice the expected lifetime of a new building, which can differ with the quality of the building, but typically varies between 30 and 50 years – with the majority in the lower range. The cost for this renovation is based on a pre-project for the rehabilitation of the courthouse (performed before the costs were estimated to possibly hit the mark for requiring an alternative analysis with the QA scheme), and is estimated at 43,500 NOK/m<sup>2</sup>. The cost for a new build is estimated at 36,900 NOK/m<sup>2</sup>, based on reference costs from public and private office buildings, adjusted for "demands that are specific for a courthouse" (Statsbygg et al., 2016, p. 75). The analysis thus compares a preliminary cost estimate with costs based on a technical assessment of the building and a pre-project. Preliminary costs are often based on a

standard project without specific deviations. This is done although it is well documented that costs rise with the detailing of projects, also specifically for the QA scheme (Welde, Samset, Andersen, & Austeng, 2014). The existing building is deemed additionally ineffective, and the demand for square meters acquired to meet the same need is set at 19,300 m<sup>2</sup> for the rehabilitation alternatives, but 16,600 m<sup>2</sup> for new builds (the existing courthouse is 12,485 m<sup>2</sup>) (Statsbygg et al., 2016, p. 95). Collectively, the sum of the higher cost and the significantly higher demand for square meters makes the rehabilitation alternative stand out as the costliest choice.

A corresponding challenge is to compare the cost of a new build with simple or plain standards to the rehabilitation cost for a monumental historic building that will require costly materials, artisanal work and detailing; however, this is done in some cases. For the new National Museum, where there was a choice between the continued use of protected buildings, such as the National Gallery and a new build, the QA1 report states:

*Statsbygg has prepared a cost estimate for the construction of a new building on the Vestbanen [...] Statsbygg has assumed a building with a simple but good standard. It is specifically said that a simple standard is used for the outdoor facility (Terramar AS and Asplan Viak AS, 2009, pp. 8-9).*

## Quantified and unquantified effects

Unquantified effects, such as non-monetary values, are typically communicated through a tabular overview, where the effects are evaluated for significance and scope that contribute to an impact (for society). The impact is typically communicated with what can be directly translated as the “plus-minus method” (which also describes other methods in other professions, such as genetics and geology). There should be a limited number of effects, and they should not overlap (Concept, 2019d). The impact of the effect is then defined as either positive, neutral or negative, and is placed on an ordinal scale (a scale with steps that are not necessarily the same size) from strongly negative to strongly positive, via zero.

Architectural qualities and cultural heritage qualities are typically criticised in QA1 reports for being unquantifiable. This lack of capability to present itself in numbers (as a price) is repeatedly presented as a challenge and even as a devaluation. The QA1 report for the new NTNU campus states:

*An objection that is often presented in relation to non-priced effects is that there will often be a tendency for such effects to be marginal. The argument for such a view is that if there are large unpredictable effects on society, then there will usually be incentives to extract these effects by some kind of arbitrage (Metier & Møreforskning Molde, 2015a, p. 79).*

It should be noted that this quote is followed by comments that such argumentation is less relevant for the new NTNU campus because education is a social responsibility. The obvious benefits will be obtained in the future and tracing them would be empirically demanding.

In addition to costs, alternatives are weighted based on how they are expected to meet a chosen set of measurable objectives: the effects. The objectives are connected to the main goal for the institution in question, and should ideally be formulated using targets with desired, measurable effects so that it is possible to estimate the alternative's success ratio. A building project can be perceived as a mere tool to achieve the objectives; thus, being reduced to the functionalist understanding of the building as a machine, underscoring constructed surroundings' measurable effects on human well-being. The actual building is even referred to as "the built solution" for several of the studied projects (Holte et al., 2017, p. 6; Kunnskapsdepartementet, 2014, p. 64; Metier & Møreforsking Molde, 2015b, p. 4; Statsbygg, 2016, p. 14; Terramar & Asplan Viak, 2006a, p. 19). It is important to include the quality of the building in the goals and objectives: if architectural quality is not a chosen measurable effect, it will likely not be considered in the choice of alternatives. To illustrate how a set of effects can be formulated, this example from the National Museum project is presented:

*Goal [...]*

*A building solution for the National Museum of Art, Architecture and Design shall facilitate professionally justifiable securing and preserving of the nationally important collections within visual arts, crafts, architecture and design for future generations. The building solution shall also facilitate a comprehensive and genre-wide display and the dissemination of a wide range of visual arts for a national and international audience with both a historical- and contemporary-oriented perspective. The building complex should appear as a profiled cultural building for Norway in general and for Oslo city centre in particular (Terramar AS & Asplan Viak AS, 2006, p. 19-20).*

*Objectives [...]*

- 1. Give the National Museum framework conditions allowing an activity and exhibition level, making it possible to increase the audience from approx. 500,000 to 750,000 annually*
- 2. Enable the museum to display 10-15% of the permanent collections, while offering the public both national and international temporary exhibition programmes*
- 3. Enable the museum to receive more school students with appropriate educational programmes*
- 4. Enable the museum to preserve the collections in a professional museum manner, where damage/decay due to building conditions is reduced to zero*



5. *Provide framework conditions that promote a rational, timely and cost-effective management of all museum features*
  5. *Promote the use and importance of visual art in a business context*
  7. *Increase the influx of foreign tourists to Norway and Oslo*
  8. *Strengthen Oslo city centre as a vital and public-friendly place*
- (Terramar AS & Asplan Viak AS, 2006, p. 20-21)

The main goal of the National Museum project opened a discussion related to architectural quality; however, it is not mentioned in the stated objectives.

Unquantifiable measures are typically mapped and illustrated using what is called the plus-minus method. This method is not very nuanced, but applies a series of pluses and minuses, along with zero, to illustrate the effect of a measure on an ordinal scale. The number of steps is typically nine or eleven in total: four or five negative and positive steps each, and zero. For the National Theatre project, the effect of a larger expansion of the theatre building was given five pluses in the KVV documentation. This was adjusted to two pluses in the QA1 documentation, as the theatre is already recognised for its high artistic quality, and the artistic results also depend on other measures. In the same rating of unquantifiable costs, the environmental impact was valued to three pluses for a larger extension and only one plus for a smaller upgrade of the existing building, although it would be a much smaller building project, as the new build would comply to current energy standards for new buildings.

## Buildability

In the studied reports, a lack of understanding of buildability was identified, such as understanding of soil mechanics, construction, materials, etc. A number of suggestions to build large areas below ground on complex sites were found. Several of these suggestions seem to have few objections and might have originated from a desire to create almost invisible buildings to preserve a historical situation. Of course, circumstances below the ground level must also be considered. Such conditions can span from automatically protected medieval-age ground, polluted soil, clayish soil and older foundations (especially in historic areas, where neighbouring buildings can be founded on fragile timber poles or even timber rafts) to modern infrastructure installations, train and metro lines. If a building excavation for a larger building is created in a busy area, traffic above ground and conditions for the building rig can also present challenges to project completion, even with “invisible” buildings. For the National Theatre, this is expressed in the KVV:

*Construction and civil engineering feasibility: This uncertainty is particularly related to the establishment of a building excavation, ground conditions, nearby tunnel runs and cable routings in the ground. In the area around the National Theatre, there are a number of cable guides and plumbing guides, including identified cables that are not registered on maps.*

*NGI [the Norwegian Geotechnical Institute] believes that there is a great danger of subsidence damage and consequential costs to surrounding buildings within a minimum radius of 350–400 meters. The greatest danger is for the piles under the existing theatre building. Building excavation will be very centrally located close to city traffic, buildings and public areas and will be technically demanding (Terramar AS, 2014, p. 90).*

For the Tullinløkka project, located a little more than 200 meters from the National Theatre, the tone is quite different:

*Construction technique feasibility: It is the alternatives with new buildings below ground at Tullinløkka that have the greatest feasibility of construction, technique-wise (Oslo Economics, 2016, p. 60).*

## Discussion

Above, we have listed the findings from the document review. We will now discuss these findings.

Within the documents, we found that there was a tendency to jump to conclusions. If it is to be useful, an alternative analysis must take a stand and recommend some choices over others; however, the basis for such recommendations can be of varying quality. Focus groups or reference groups can be important sources of information, but in the application of the collected information, it should be noted that there are differences between the aforementioned groups and a broadly composed panel of experts. Special attention should be applied if small groups are used as sources for definitive statements, to avoid decision makers depending on biased or otherwise incorrect information. Connected to the tendency to jump to conclusions, we also identified biased discussion of architectural qualities and juridical protection. The QA1 scheme's ramifications for cultural heritage buildings illustrate Aristotle's claim that cities are built politics (Mega, 1996). It is vital to understand that the QA1 scheme is tailored for larger public investments, and thus covers a wide range of investments in different fields. This could be part of the reason that QA1 reports regarding existing buildings with juridical protection do not emphasise the actual buildings and their architectural quality to a higher degree.

For many of the projects, juridical protection was mainly discussed as a problem. It was emphasised to a lesser extent that the reason the buildings have juridical protection is that the buildings, in many cases, have high cultural heritage value. Diverging descriptions of the same building in different reports were found. This can be a sign that the professional evaluation has been affected by political signals. Political signals regarding preferred or expected outcomes affecting professional judgement can deprive decision makers of the information they need to make a suitable decision for the investment project and should be avoided. This study also pointed to one report that had a super-side for each building, with the building's key architectural and historical characteristics. This approach can be commended, as it ensures such information is included and also displays these qualities and values in a rather neutral way.

References to examples of good cultural heritage management should be encouraged. This can include site visits and interviews with people with knowledge about the cases or can be achieved through documentation.

The terminology used in the QA reports is not aligned with the established language use in the cultural heritage sector. Such discrepancies can undermine the text's intent and should be avoided. This finding is in accordance with previous studies by Stendebakken and Olsson (2017), who have shown that a discussion of architectural qualities in QA1 documentation is lacking, and is often expressed in unprofessional language exempt from defined terms. Coincidentally, the goal is not language overburdened with technical jargon, as this could exclude stakeholders and other readers from understanding the text's message. Architects and others who wish to communicate with people outside their own narrow professional circles can benefit from applying a language that is both concise and accessible. We also found examples of prejudice and issues related to the type of language used. To ensure an impartial report is used as a basis for the decision makers' choice, between-the-lines communication, such as prejudice and biased phrasing, should be avoided.

In QA documentation, the evaluated alternatives are supposed to be genuinely different (and mutually excluding); the QA scheme encourages zooming out as much as possible and making decisions on a strategic level. When one compares costs for different alternatives, it is imperative to highlight the relevant differences. However, we found several examples of challenges when comparing an existing building with a new building concept. An imbalance in comparing existing, historical buildings with yet unrealised concepts has been highlighted. Part of the conceptual stage's vast possibilities can be realised in a new building, but not all. Sites can be unavailable, building restrictions might apply and resources are limited. If the new building is realised, it too can acquire a maintenance backlog. If a new and an old building are not compared on

equal terms, the new building can appear unreasonably attractive and the existing building equally unreasonably intransigent. Regarding cost estimates, there seems to be unrealised potential regarding the awareness for comparing cost estimates that have differing levels of detail, and also various uncertainties as their base. This issue is directly connected to the logic of the QA1-cost calculations, which are instructed to be swift estimates using reference costs and rougher estimates. This represents a dilemma when new-build alternatives based on rougher estimates are compared to the continued use of an existing building, with more detailed calculations based on technical information that can be accessed relatively easily in regards to the building, and can be paired with more detailed and possibly more pessimistic cost calculations.

The National Museum project was used as an example of comparing a modern building of “simple but good standard” to a historical building of higher standard. Not only does this underscore the difference in quality between the existing historical building and a new build, this statement could also conceal possible costs if a higher standard than “simple but good” is chosen. This creates a risk for cost escalations if the new build is chosen and could be capable of misleading decision makers twofold. In a similar way, the example from the KVV documentation for the new courthouse in Bergen illustrates several judgements that can negatively impact rehabilitation alternatives in the analysis of alternatives in the QA1, when one is comparing an existing building with a concept of a new building. In particular, we find that there are challenges related to the following issues, which can lead to an unbalanced comparison:

- Comparing cost estimates of different quality as if they were the same.
- Comparing buildings of different quality as if they were the same.
- Comparing buildings of different size as if they were the same.

There were several examples of the buildings being treated as technical objects that should fulfil a specification, with measures such as square meters being used for different types of spaces. This perspective tends to neglect issues such as architectural qualities and human well-being. Unquantifiable issues are addressed, and the plus-minus method has strengths, such as the capability to communicate information effectively and clarity of judgement; however, it is ironic that such an oversimplified method is used to communicate highly complex effects.

When evaluating effects, a tool for rating should be applied, and one should be cautious in the use of the extremities of the scale. It was also observed that the environmental impact of a new building versus the continued use of existing buildings is only addressed to a limited extent. In the consideration of an energy efficient design for a new building, it should be noted that if the existing building continues to exist

and somehow be in use, it too will use energy. Therefore, for example, it could be more energy efficient to use the building that already exists, even if it is draughtier. It has been shown that architectural quality and cultural heritage values are excluded from the measured effects of the studied investments, although the projects aim to create and preserve such qualities and values. This is a serious lacking, as it excludes architectural quality and cultural heritage values from being considered when weighing the alternatives: the ability to meet the measured effects are used to evaluate the alternatives. If architectural quality and cultural heritage values are project goals, they must be part of the measured effects. As these effects should preferably be measurable, this should ideally be possible through the constitution and the exact wording of the measured effects.

The buildability of a concept is a key factor in successful project execution. If challenges connected to buildability are underscored in the documentation for choice of concept, this can lead to great difficulties later on. As an example, we found a repeated wish to build underground, and two projects in the same area that made diverging judgements on buildability. Building below ground can be challenging. It can lead to great results, but the feasibility should be considered thoroughly. Overall, in QA1 documentation, both technical and heritage professionals should be consulted to check for red flags regarding buildability. The latter as cultural heritage concerns can affect buildability, also below ground, for example because of archaeological cultural heritage.

In this article, it is argued that economic analyses and cultural heritage are fields that are dissimilar. This could easily be dismissed as unsurprising. However, for those working with cultural heritage, there is a need for dialogue with economic analysts because the built surroundings are currently suffering from the lack of dialogue. In the Norwegian QA scheme, economists are assigned the task of evaluating objects for which they rarely have specialist competence (Stendebakken, 2018a), which may lead to poorly founded deductions with the potential to do irreversible harm to some of the country's most important historical buildings.

The review of QA1 documentation shows that there is unrealised potential with regards to a basis for knowledge and professionalism in the discussion of architectural quality. This unrealised potential can represent a solution for better-informed decisions regarding larger public building projects in the future. The possible benefit of a more thorough discussion of architectural quality would be the improved management of both investments and buildings. The downside could be the requirement for more comprehensive reports. The QA scheme has been criticised for its costs (Knudssøn, 2019); however, good decisions must be the main goal. As architects know, it is more cost-effective to experiment in a theoretical model, such as in a drawing, than in reality. This notion is

also the *raison d'être* for an economic analysis in decision making; ideally, a socio-economic analysis that offers a model in which the possible applications of limited means can be tested for the benefit to society. To truly do so, QA1 documentation for building projects should emphasise a knowledge-based, professional discussion of buildings, including their cultural heritage values and architectural quality, as well as the investment involved, because the goal of a true QA1 review should be to achieve an accurate estimate of both the cost and the capital good. This includes an assessment of the expected end results. Based on the totality of the reviewed reports, there is unrealised potential in this regard. It is understandable that costs are a major concern. Still, it should be recommended that resources be invested in an adequate and thorough alternative analysis, if one can avoid billions (NOK) in cost overruns later on in the same project.

## Conclusion

This article has addressed how architectural quality and cultural heritage values are represented in socio-economic analyses of large public building projects in Norway. In addition, it was an ambition to provide suggestions to how the valuation of architectural quality and cultural heritage values can be improved in future analyses.

In the evaluation of investments, a genuine assessment of the final outcome should be made. This review of QA1 documentation suggests that there is a need for a greater understanding of older buildings, and architecture in general, in terms of socio-economic analysis. Such an understanding could contribute to more informed decisions. To fulfil its task of documenting all relevant effects of a given measure or alternative, an investment analysis should have a genuine discussion in regard to architecture and cultural heritage. This should be done for all alternatives, including rehabilitation and continued use “as is”. Qualities and values in existing buildings should thus be discussed in their own right, regardless of the potential benefits of future buildings.

This research has shown examples of how architectural quality and cultural heritage values are discussed in the studied QA1 documentation. When they are mentioned, existing qualities are typically dismissed, or the focus is placed on the limitless potential qualities of future buildings. The discussion of architectural quality in QA1 reports regarding protected buildings being key architectural heritage is lacking. Differences between the professional fields of economic analysis and architecture have also been described, and the reason it can be challenging to include architectural quality in an economic analysis has been explained.

For the consultants who perform these assessments and reports, the projects are still mainly investment projects, and the focus is, therefore,

the investment. Naturally, larger public investments should be quality assured, and it is understandable that there is a focus on the costs; however, it is decisive for the built surroundings that the end-result is of high quality. There is little benefit in obtaining effective costs if the product is not acceptable.

This study has demonstrated that there is a need to strengthen competence and emphasise the qualitative discussion of architectural quality and cultural heritage values in QA1 documentation regarding the largest public building projects in Norway. This study has also described typical examples where the socio-economic analyses have reached conclusions that can be disputed. The findings should also be relevant outside of Norway, as a number of other countries have similar QA schemes and apply public investment analysis in public decision-making processes comparably.

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