Ethical behaviour in the design phase of AEC projects

Abstract

This paper reports on studies on the ethics in the design phase in Norwegian construction projects. The ambition is to establish a descriptive picture of ethical challenges practitioners meet in the design phase in order to raise awareness among them. In addition to a literature review and a document study of ethical frameworks within the industry, interviews with key participants were carried out according to a qualitative approach. The study was undertaken in order to address framework conditions for handling ethically challenging situations, challenges of an ethical nature practitioners commonly encounter in the design phase and finally the structural (systemic) reasons for such challenges. This research finds indications of actors manoeuvring in the design phase for own benefit at the expense of other actors. The findings equally indicate that the design phase poses significant challenges in light of tender documents pricing and exploiting cost reimbursement contracts. In some of the projects examined, participants shifted loyalty after novation contracting and they actively tried to steer the decision processes in their own favour. There does in fact seem to be perceptions of a room of manoeuvre between what is lawful and what is ethically sound in this phase.

Keywords

Ethics, AEC industry, Ethical conduct, design, hidden agendas, trust

1   Introduction

This paper outlines an understanding of ethics in the design phase as part of a more general enquiry within the field of ethics in the AEC (Architecture, Engineering and Construction) industry. The importance of increasing the awareness among practitioners seems, in fact, crucial to attain what Mirsky et al. (2014) maintain as the most important topic to the future of

the AEC industry, notably "honourable, professional practice" (Mirsky et al., 2014 :vi). The recent years have witnessed an increasing interest in the field of applied ethics in general and in professional ethics in particular (Christoffersen, 2010). Different professions establish rules and regulations, such as medical doctors, teachers, social workers etc., and the number of publications is ever increasing. The authors of this paper have so far not seen this trend reflected strongly in publications concerning the AEC industry in general, or in actual industry agreements (there is, for instance, as Walker (2014) remarks, no reference to ethics in the index of the latest Project Management Institute (PMI) body of knowledge (PMBOK) Guide (PMI, 2013)). As Walker (2014) further comments, "[t]here is a dearth of papers related to ethics in PM even though the PM discipline should maintain a strong and enduring interest in ethics to encourage project managers to deliver value in a more holistically manner that is consistent with being a member of a profession". According to the literature review leading up to the research presented here, codes of conduct do in fact exist (amongst which from the PMI, RIBA, AIA, ASCE and IPMA); such codes of conduct are, however, typically general in nature, and tend not to take practical challenges into concern. This lack is of particular concern, considering that, as Bredillet (2014) comments, "the underlying ethical approaches supporting the field, and consequently the practice, have immense impact". Notable exceptions from this general statement include the writings of Ray et al. (1999), Hill et al. (2013), Fellows et al. (2004), Corvellec et al. (2010), Collier (2005), Bröchner (2009), Bowen et al. (2007). Particularly worth noticing here is the special issue on *Ethics in Project Management* in the International Journal of Managing Projects in Business under the guest editorial supervision of Müller (2014), with contributions from Bredillet, Walker, Lloyd-Walker, and Kvalnes. However, the general picture of a lack of interest must be said to still be intact.

Considering that the AEC industry typically receives attention as an industry of doubtful virtue, 1) where neither the police, the tax authorities nor the professional organisations fully master the challenges posed by professional practice (Andersen et al., 2014); 2) where the inherent complexity in itself opens the opportunity for suspicious dealings (Gunduz et al., 2012); 3) where fraudulent business practices undermine the reputation of the industry (Slettebøe et al., 2003); and 4) that lacks a clear vision based on a fortified ethical foundation (Wolstenholme et al., 2009), we find this strange. As Hill et al. (2013) comment, there is probably no simple solution, no "quick fix", to the challenges of ethical nature that the industry face. It seems as tackling such challenges necessitates both insight and endeavour.

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One salient point here is the differentiation between general and specific analyses. We believe – as described by Walker (2014) – that ethics in project management in general and in construction in particular must be considered as a new field of analysis. Consequently, we want to contribute to this field.

In this paper, the ethical challenges in the design phase for the construction industry are analysed from a structural perspective. The underlying idea is that the manner in which the industry is organised and certain inherent characteristics form specific challenges of an ethical nature. Rather than presenting any clear (normative) framework of what is good and bad behaviour, we intend to outline the challenges posed in a descriptive manner. Put in other words, our ambition is to establish a descriptive picture of practitioners' ethical challenges in the design phase in order to raise awareness among them.

The research questions we address are:

1)   What are the framework conditions for handling ethically challenging situations in Norwegian AEC-projects?
2)   What challenges of an ethical nature do practitioners commonly encounter in the design phase of construction projects?
3)   What are the structural (systemic) reasons for such challenges appearing?

The literature on ethics of the AEC industry has concentrated on the production phase, with for example articles on social dumping (Friberg et al., 2014), tax evasion (Slemrod et al., 2012) and to a certain extent the use of counterfeit materials (CII, 2014). This paper examines unethical behaviour among three categories of project participants in the design phase, namely clients, contractors and designers (the last category includes architects and consulting engineers). As Müller (2014) comments: "the majority of work on ethics in project management takes a normative perspective by linking moral philosophy and management in addressing what can be done or is done in given situations". Rather than taking such a normative point of view, we examine perceptions of the practitioners concerning their judgement of normative questions in a descriptive manner.

Before we outline the chosen descriptive approach (in the theoretical framework section), one delimitation needs to be made. Figure 1 illustrates a simplified categorisation of different behaviours, depending on whether they are lawful and ethical. It also illustrates that the distinction between behaviour perceived as ethical and behaviour perceived as unethical is not

always clear-cut. The scrambled line indicates the fuzzy distinction between what is perceived as ethical and unethical among AEC industry practitioners.
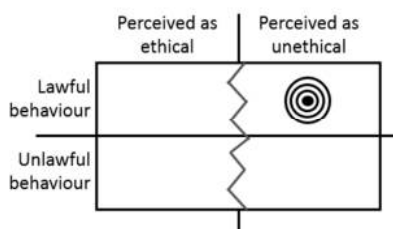

Figure 1: Extension of the law and ethical behaviour, where this paper concentrates on lawful behaviour perceived as unethical (illustrated with the target in the figure).

The point underlying this figure might appear trivial, but surprisingly it often seems to be overlooked. If the behaviour is lawful and perceived as ethical, nothing is wrong. If the behaviour is not lawful, then it is clear that something is wrong. Our research is limited to lawful behaviours perceived as unethical. Questions of directly unlawful behaviour (including grey areas in the law) is thus not discussed in this paper.

2   Method

Three sources of data constitute the research presented in this paper, gathered and analysed according to a qualitative approach as described in (Brinkmann et al., 2015).

Firstly, a general literature review examining the design phase and ethics in construction management has been carried out in accordance with the procedures described by Bloomberg et al. (2011). Secondly, the empirical findings presented in this paper mainly come from interviews of practitioners with considerable experience from construction projects, carried out in line with the recommendations of Yin (2013) – notably with key actors with experience from the design phase in ten Norwegian AEC-firms (two consultant firms, three architects, two clients and three contractors). The respondents were chosen on basis of their firms' size and reputation, and their willingness to describe actual challenges. Thirdly, a study of ethical frameworks from AEC-firms is included in order to map the framework conditions for the practitioners.

The field of research proved, not surprisingly, challenging to explore. Two master students of project management carried out the initial academic footwork of the research. This initial

research did not yield noteworthy results – the students found the respondents to be unwilling to comment on the questions concerning ethics. Consequently, we chose a more personal approach, where two of the authors of this paper contacted colleagues with whom they shared professional background. This approach proved more fruitful, even though the value-laden questions necessitated a certain period of convincing before the interviewees revealed pertinent information. The interviews were carried out over the period of one year.

Interviews with 26 professionals were carried out. All of the interviewees were either masters or bachelors in engineering or architecture, with experience in project based endeavours, especially concerning the design phase. Four respondents were interviewed in one group interview and 22 were interviewed individually. The interviews were all semi-structured and open-ended, with questions bearing on the design phase. The time spent varied between 30 and 90 minutes. All interviewees have played key roles in project execution teams, and they have varied backgrounds. Some had less than ten years of experience, and some had more. Table 1 shows the experience and current roles of the interviewees.

Table 1: Interviewees' experience and current roles, respectively.

Years of AEC industry experience	Project managers	Design managers	Architects
0-10	4	9 (two in group interview)	1
10+	2	6 (two in group interview)	4

The material presented constitutes a pilot study to the study of unethical behaviour in design. The limited scope of the study does not permit for generalising the results. However, as Flyvbjerg (2006) points out, even a small number of interviewees can constitute a powerful source of information to generate new knowledge.

A documentation study was carried out to provide an overview of approaches chosen among 25 major organisations within the Norwegian AEC-industry, notably an examination of their ethical frameworks. The reason for selecting major companies was the anticipation that they ambition to be in the forefront and show the way for smaller companies. The ten contractors were selected from top of the 2015 top 100-list (based on annual turnover) of the magazine Byggeindustrien. The authors picked the five public owners based on their general

knowledge of the Norwegian construction industry. The private owners are more randomly selected, but the selection criteria included visibility in the public debate of social affairs, membership in Grønn byggallianse [Green Building Alliance] and/or have recently developed projects that received BREEAM-NOR certificate for the design phase and/or completion. The designers were the five most popular on the 2015 career barometer, a result from a survey among approximately 8000 students initiated by a private media house (http://www.karrierestart.no). All the examined companies write that they have an ethical framework on their webpages, but not all publish them there. We found that eight of the ten contractors, one of the five public owners, four of the five private owners and four of the five designers had published their ethical framework on their webpages.

3   Theoretical framework

In order to understand properly what is involved, a scrutiny of the concepts of ethics and design management respectively imposes itself. We need to identify what ethical considerations are pertinent to the analysis, as well as describing in what the specific challenges of the design phase correspond to those of other phases. This scrutiny includes differentiating ethics and the law; normative and descriptive ethics; individual and socially oriented ethics. The commonplace example of Robin Hood (the heroic outlaw in English folklore who, according to legend, was a highly skilled archer and swordsman, "robbing from the rich and giving to the poor" alongside his band of Merry Men) will be used to elucidate these differentiations. Further, we examine characteristics of the design process, in order to single out what the particularities of this phase as compared with other phases of the construction process consist in.

Ethics

Though often concurrent with, ethics must be separated from the field of the law in order to be fully understood. What is perceived as unethical can – in certain circumstances – be lawful, whilst what is perceived as ethically laudable can be deemed unlawful. Robin Hood's stealing from the rich (unlawful) in order to give to the poor (ethically laudable) forms, in fact, a clear example of this distinction.

We can separate ethics into normative and descriptive ethics. The first of these profess judgments concerning the manner of acting in the world. This is ethics as most have encountered it, the lessons promulgated being from different traditions such as deontology

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(Kant (1828), consequentialism (Mill (2002 (1861)) etc.), virtue ethics (typically in the tradition from Aristotle (2009 (~350-322 BC))) or various contemporary approaches (Habermas (1992), Sartre (1976), Lévinas (2014), Foucault (1976) etc.). In fact, analyses of this sort seem – more or less consciously – to reveal how little that has been done of ethical analysis within the project management literature. Descriptive ethics, on the other hand, typically analyses the judgments of behaviour in the world according to the vocabulary of ethics. Rather than developing a framework for judging the appropriateness of actions, such analyses typically investigate the reasons underlying such judgements in specific contexts. In this paper, we proceed according to a fully descriptive analysis. For Robin Hood, the question of whether or not his actions are ethically laudable in themselves is not the key question of descriptive ethics – rather, it seeks to assess the judgements of particular groups of people of these actions.

Depending on which analytic level the analysis is situated, it is possible to distinguish individually oriented and social ethics (Ray et al., 1999). The first of these concerns the individual as moral actor, whilst the latter concerns the ethical qualities of social systems. The intention of this paper is not to carry out any sort of blame game on a personal level. What occupy us here are rather judgments of interviewees as representatives of a group, that is, as professionals within the AEC industry, analysing it as a social system. In Hood'ian terms, the question is not whether or not Robin judges his actions in a certain matter – neither, in fact, the manner by which the sheriff of Nottingham judges them – but rather how the social milieus these actors operate within judge them. It is more interesting to examine the differences between the perceptions of the simpletons who judge Robin and those of the elite that support the sheriff, than simply calling into attention the judgements of two single individuals.

In order to address questions as the above posed, with the limitations more or less explicitly outlined here, we base our analysis on Canadian philosopher Charles Taylor (2004) (best known for his contributions to political philosophy, the philosophy of social science, history of philosophy and intellectual history), who has developed the idea of a so-called *social imaginary*. The term denotes the common perceptions of what is acceptable behaviour and not acceptable behaviour within a certain social community. Such perceptions are often not explicitly recognised or proclaimed. Still, they form an important part of the social structure of communities. Social structures of this kind are typically influenced by natural (environmental) conditions, but in theirs essence, they are cultural. For the inhabitants

supported by Robin, the actions of his merry men fall in fact into a larger story of inequality and the need to address the injustice caused by this. Correspondingly, the perception of the sheriff will be one of addressing individuals and groups undermining the order of society. Such perceptions and opinions are often not properly articulated and therefore transmitted from individual to individual as "silent" or "tacit" knowledge. The central point of Taylor's argument is that individual actions in the world – that is, why we act as we do – can be made understandable in light of a narrative explaining the function of these individuals within a greater whole. The descriptive analysis of such social imaginaries can thus help the analyst to understand why practitioners act as they do, and why the actors judge certain actions as condemnable whilst they judge others as laudable. Applied on the AEC industry, the social imaginaries provide a tool for comprehending the judgements of professionals towards specific practices.

Taylor is not unique in this undertaking, a fact he himself acknowledges. The concept of a social imaginary correspond to some degree to what Austro-British philosopher Wittgenstein in his posthumous Philosophical Investigations (1953) calls "background" or what German philosopher Gadamer (best known for his 1960 magnum opus Truth and Method (Wahrheit und Methode) on hermeneutics) calls a "horizon of understanding". For a discussion of these thinkers, see Dreyfus (1991) and Searle (1995). The appeal of the concept of Taylor – which distinguishes it at least to some extent from these other conceptions – is the underlining of the social nature of this imaginary. This is in effect exactly the social anchorage we are seeking. Notably, we want to describe how certain practices occur and are judged within a social relationship such as that of the AEC industry. We thus seek to investigate aspects of what Bredillet (2014:556) calls the "community of practitioners" who "share common goals" and an understanding of the "way of achieving them". This does not mean, as Bredillet (*ibid.*) further comments, any "blind acceptance of standards, conventions, norms […] but at the same time the acceptance of historically developed laws, collective dialogues, debates, deliberations about them". What we set out to explore, then, is the landscape of moral judgement as experienced within a community of practitioners.

According to the literature study carried out in the research process leading up to this paper, neither ethical frameworks nor juridical ordinances suffice for understanding the challenges the actors of the industry face. By nature, such frameworks or ordinances enter the scene post-conflict. In the following, we intend to carry out a descriptive analysis of the design management and specific challenges posed in the design phase.

Design Management

Design work, in comparison to physical production, is peculiar in the sense that is potentially infinite. A marginally better solution can always be found (Meland, 2000). Traditionally, actors are not rewarded for coming up solutions that in the end will provide better value for the client. They are only required to satisfy minimum requirements. These requirements, however, are likely incomplete or not representative of the true needs of the client. The design process is loop between analysis, synthesis and evaluation (Lawson, 2006), thus any requirements locked down at any early stage in a design brief might need to be revisited if the object is to deliver an optimized product for the client. Due to this, the traditional ways to contract design work will necessarily be rife with ethical conundrums. They do not ensure alignment of commercial interest between the client and the designers (Kristensen et al., 2015). The designers have economic incentives to produce solutions that satisfy the minimum requirements, but nothing more. These are, however, unlikely to satisfy the clients to true need or be optimal for other users of the building. The designers will therefore often find themselves in an ethically difficult situation where they have to choose between doing what is most efficient for themselves and legally unproblematic, and what is best for the client and other users of the building. Not surprisingly, then, the design process is subject to fierce negotiation. Ethics in terms of negotiations is challenging. Kennedy (1986) asks for instance how much are you willing to do to get that deal go through. A particular interesting term is the "Russian Fronted," were you cover all the possible outcomes of a negotiation, forcing the other party to accept the less disadvantageous solution for them. Negotiation in the term of design phase could therefore be viewed as a sub-optimizing of one party's interest and easily therefore regarded as a threat to the management of the design process (Knotten et al., 2015b). In terms of using the leverage at your disposal, an ethical awareness together with your negotiation mandate should be considered in advanced.

The design processes constitute a key linkage point between the expressed needs of the client and the actual realization of the construction project. Not surprisingly, this is a phase when priorities clash, most notably when actors are suspected for following their own agendas rather than the general project objectives. Understanding the nature of the challenges involved in this phase constitute a necessary step in the progress towards the development of measures against unethical behaviour. In the following, we therefore outline some of the features found

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to be the most influential to the understanding of the design phase in contemporary literature, before summarizing the implications of these for the field of ethics in the design phase.

There exist several different ways to divide the building process into phases. Eikeland (2000) tend to divide the building process into three sub-processes; brief process, design process and the production process. RIBA (2013) divides the building process further down to seven phases; Preparation & Brief, Concept Design, Design Development, Technical Design, Construction, Handover and Close Out and In Use. Although these models appear as linear sequential stage models where each phase is finished before the next one starts, Eikeland (2000) points out that the brief-, design- and construction processes function in parallel and overlap.

The building design process consists of pooled, sequential, reciprocal and intensive dependencies between tasks (Thompson, 1967, Bell et al., 2002). Standard project management approaches (e.g. Pinto, 2013, PMI, 2013) are suited to manage the pooled and sequential dependencies. The reciprocal dependencies can, however, be challenging to manage using such approaches. However, it is important that the design manager knows that the different interdependencies will vary throughout the design phase – and sometimes the design phase consists of all four types. This, consequently, typically makes the design phase complex to manage as different tools and methods might not be capable of handling them all simultaneously. By recognising the different interdependencies, the manager can use the right tools to improve the design team performance (Knotten et al., 2015a). Further, trust is crucial for the performance of a design team (Mila et al., 2012), as lack of trust between the participants will have a negative impact on communication and the productivity (Erdem et al., 2003). According to Larson et al. (1989), trust consists of four elements: honesty, transparency, consistency and respect. Trust is broken if one or more of these elements is absent. Consequently, just adding a method or a tool is not adequate, there needs to be a basis for trust between the participants. According to Martin and Songer (2004), as cited in Ghassemi et al. (2011), traditional contractual models (contract models like Design/Build, Design/Bid/Build (Lædre, 2009)) encourage each project member to concern himself with its own interest rather than the interest of the project as a whole. The design team therefore needs a contract model that engages the four elements of trust to gain an open and transparent process with high degree of collaboration. According to the AIA (2007), mutual respect and trust are the single most important principles of Integrated Project Delivery (IPD). However, according to Smith et al. (2012), trust is currently rare on projects with traditional contracts and additional research is needed to determine if IPD and other relational contracts are

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capable of systemically supporting higher levels of trust. In sum: the design phase of a complex construction project is coordinated by mutual adjustment. For this to be efficient, the project needs direct communication and trust. This creates an environment for rapid design, but also possibilities of unethical behaviour.

4   Findings

In the following, an analysis is of different ethical codes of 25 large Norwegian firms in the AEC industry is presented. Furthermore, experience from key actors in the industry is analysed.

Ethical frameworks of Norwegian AEC-industry companies – codes of conduct interpreted as intended to sanitise the AEC-industry nationally

Most major companies within the Norwegian AEC-industry have ethical guidelines or codes of conduct, the distinction between which proves somewhat blurred. What is of interest in this context is their ambitions to codify the behavioural stance of members of the company. Ethical codes are adopted by organizations to establish frameworks for handling ethically challenging situations. These codes assist members in understanding the difference between 'right' and 'wrong' and in applying that understanding to their decisions.

The contractors have employees exposed to ethical challenges, so they seem to be dutiful when it comes to establishing and publishing ethical guidelines. They all separate between what is legal and illegal, but not all are that clear on the distinction between ethical and unethical behaviour. The clearest distinction in the latter case goes like this (our translation): *"Even though acts or neglects give positive results for the company, they will not be accepted if the result is achieved through breaking or evading laws, rules, internal norms, procedures and instructions or this code of ethics"*. The vaguest distinction is (our translation): *"Is it ok if what I do now becomes publically known? If the answer is no there is a reason for being careful, and choose another way to act"*. Turned upside down, the vaguest distinction says that there is a reason to be careful. It could have explicitly expressed that by no means do nothing that cannot stand daylight. The contractors' code of ethics illustrate that the distinction between ethical and unethical is not always clear-cut. Two of the contractors have not published their Code of ethics at their webpages.

On their webpages, the public owners appear to be highly engaged in ethical issues in light of their own descriptions of their Code of ethics. According to their own descriptions, their

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Code of ethics consist of several layers, with for example guidelines for contact with property owners, ethical guidelines for suppliers etc. Despite their engagement, only one public owner has made the Code of ethics available through the webpage. One approach to increase transparency – as public owners should – would be to make the code of ethics easily accessible for all stakeholders.

Private owners seem – at least according to the descriptions they leave on their webpages – to be highly concerned with both ethics and ethical guidelines. Two private owners that form part of a larger mother organisation with international activities have extensive guidelines that reach for standards above the minimum legal requirements. Two private owners are mainly operating in the Norwegian property market, and their Codes of conduct describe the distinction between legal and illegal, but not the distinction between ethical and unethical. One of the private owners has not established an own Code of conduct, but is planning to do so within short time.

Among the designers, four have published their Code of ethics on their webpages. The guidelines seem to have general formulations. The fifth one, which has not published their guidelines, describe on their webpage a procedure where their employees have to sign that they have read and understood the meaning of the Code of ethics.

A scrutiny of these codes reveals a surprising level of divergence, see table 2.

Table 2: Results from examination of the Code of ethics of 10 contractors, 5 public owners, 5 private owners and 5 designers.

Organisation	Distinction between legal/illegal	Distinction between ethical/unethical	Accessible on web	Number of text pages
Contractor 1	Yes	Yes	Yes	22
Contractor 2	Yes	Yes	Yes	10
Contractor 3	n/a	n/a	No	n/a
Contractor 4	n/a	n/a	No	n/a
Contractor 5	Yes	No	Yes	1.5
Contractor 6	Yes	No	Yes	2
Contractor 7	Yes	No	Yes	9
Contractor 8	Yes	No	Yes	1

Contractor 9	Yes	No	Yes	3
Contractor 10	Yes	Yes	Yes	8
Public owner 1	Yes	Yes	Yes	14
Public owner 2	n/a	n/a	No	n/a
Public owner 3	n/a	n/a	No	n/a
Public owner 4	n/a	n/a	No	n/a
Public owner 5	n/a	n/a	No	n/a
Private owner 1	Yes	Yes	Yes	10
Private owner 2	n/a	n/a	No	n/a
Private owner 3	Yes	No	Yes	2
Private owner 4	Yes	Yes	Yes	3
Private owner 5	Yes	No	Yes	10
Designer 1	Yes	Yes	Yes	14
Designer 2	Yes	Yes	Yes	20
Designer 3	Yes	Yes	Yes	1.5
Designer 4	n/a	n/a	No	n/a
Designer 5	Yes	Yes	Yes	9

Most remarkably, their extent varies between one and 22 pages. Even though length surely is not a clear-cut indicator of quality or depth, the general impression of the authors is that – at least what concerns the shortest codes – some tend to be overly general in nature. Secondly, their availability on the net is variable; some are merely not accessible for the general public (without providing any clear explanation for this withdrawal), a fact that renders this analysis problematic. Thirdly, and most importantly, all available codes distinguish clearly between legal and illegal behaviour, condemning the last clearly, whilst the difference between what is ethical and unethical, however, is more blurry. The codes thus maintain that actors should follow the prescriptions of the law (without entering deeply into the grey areas concerning what is legal/illegal, as they seem to consider the distinction to be clear-cut); but do not advance much further into the question of how to act properly.

It is in fact this latter point that is of prime interest to our analysis. Among the contractors, only Contractor 1, Contractor 2 and Contractor 10 describe the distinction between what is ethical and what is unethical. Five of the contractors have quite similar codes of ethics, which

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– roughly – tell their employees to follow the minimum legal requirements. Two of the guidelines of the private owners demand the same. If their employees want to, they can reach for a behaviour that is also perceived as ethical, but that will be their choice.

In our view, this fact point to a weakness in rule-based approaches. There seems in general to be no limit to what you can do, as long as you stay within the limits of the law. It thus seems that a majority of the codes of ethics examined in the research presented here are developed by actors not being aware of the (not always clear-cut) difference between ethical and lawful behaviour. In other words, there seems to be a lack of understanding of the very existence of grey areas between lawful and unethical amongst actors outlining such ethical guidelines. On a more general level, this points in fact to the shortcomings of such rule-based frameworks: actors operating within these frameworks can in fact go very far in acting in what can be called an unethical manner, without this action conflicting with the code of ethics.

Respondent's answers

All of the interviewees acknowledge the ethical challenges in the design phase. As described in the methodology chapter, however, getting them to talk about it was to some extent challenging. The difference between unlawful and unethical actions was not immediately clear to most, and needed explaining. Further, ethical challenges were not a theme they discussed frequently in their professional practice, and some were slightly uncomfortable entering into the subject matter. Nonetheless, certain highly interesting points came out of the interviews. The response was somewhat limited to their own experience and to some extent of what they had witnessed and judged as "unethical behaviour". However, a common finding was that the unethical behaviour seems be motivated by an intent to sub-optimise. By sub-optimising is here understood that one or more parties are acting on the grounds of convenience or self-interest. Further, we can divide the findings into two categories: Pre and post contract (see Table 3). The pre contract typically consists of behaviour intended to ensure that "they" get the lowest bidding. The post contract typically describes behaviour intended to ensure profit. With insufficiently developed tender documents (briefs) not describing the interfaces between the work packages, different disciplines can speculate on that and be awarded the contract on a price that seems cheapest. The final price can be very different from the initial price. We can summarise the main findings as follows:

Table 3: Main findings of unethical behaviour

Pre contract	Post contract
Pricing the tender documents	Exploiting cost reimbursement contracts
Companies size	Shifting loyalty after novation contracting
Change order tactics	Transfer of workload
	Sticking to agreements
	Greed
	Avoiding decisions
	Companies size
	Exploiting uncertainties
	Change order tactics

Pricing the tender documents

If the tender documents are poorly described or even wrong (not buildable), they give the different disciplines opportunity to speculate and price their work package cheaply in coherence with the tender documents knowing that the client will have to order more. During the design process, they know many variation orders will appear, and that they can price changes high. Inversely, the client can omit necessary specifications, or include imprecision in the tender documents, in order to transfer risk to the contractor concerning the choice of solutions actually chosen. One of the consultants put it this way: "*Pricing of the tender documents is only done of what is described, and not of what should be included to deliver a complete offer. That is the way the industry is. Procurement competence at the client is a problem*".

Company size

Being big creates opportunities, but also responsibilities. As a large actor in the AEC industry there is a source of power to force your will. This could e.g. be done by threatening a sub-supplier with that if not accepting the given terms or decisions, that sub-contractor will never be allowed to work for you again. This can occur, even though you know that you are inflicting a potential loss for the vendor.

Change order tactics

In a change order process, it is typically easy to see lack of trust between different organisations. For instance, the contractor of one project experienced that the client would always questions and "fight" them on every change order that meant a raise in the contract

price. The contractor, however, humbly agreed that they did the same with their consultants and sub-contractors.

Exploiting cost reimbursement contracts
Each discipline is responsible for logging its own hours in the project, and this logging is to some extent difficult to control for the client's project manager. Interviewees have experienced that the disciplines exploit that it is hard to predict how long it takes to come up with a solution and to design it. Although none admitted that they did it themselves, they were sure someone did log more hours than actually spent on the project. One of the owner representatives said it clearly: "*Usually, a consultant firm has several projects at the same time and if one of them is larger than the others it can be easy for the consultant in the firm to allocate resources from the smaller ones to the largest one*".

Shifting loyalty after novation contracting
Designers can sign an initial contract with the client, which is transferred to a contractor later on (novation contracting). The designers shift from being contracted by the client to being contracted by a contractor. The client transfers their contract to the contractor. The interviewees perceive this as a problem for the designers, as the contractor will pay considerably more attention on productivity than the client in the early phase. After the contractor has taken over the design contracts, the client still approaches the designers directly with questions concerning design alternatives and technical solutions. However, even though the designers still feel obligated to answer the client on basis of their former relationship, the contractor – which pays their bill – do not want to pay for this. According to one of the contractors, this is perceived as the loyalty of the designers stays with the client. In this manner, the client is trying to bypass the contractual frames of the contract to achieve something.

Transfer of workload
According to several of the respondents, the decision process (and correspondingly the information needed to make a decision) can be biased, so that the decision will only gain one project participant rather than increasing value for the total project. For instance, the structural engineer in a project can put severe constraints on the architect's room to manoeuvre when recommending the client to choose between cast in situ and precast concrete. Another example is when the designer knows about a better design solution, but deliberately ignores it because it involves extra work and the benefit comes to the other participants. One of the architects said that: "*I have experienced that consultants has withheld information so they can*

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use an easier solution. They do not want to explore the possibilities". According to the interviewees, this problem becomes larger the more specialist designers that are contracted in the project.

The contractor has a possibility to sub-optimise for cheapest solution when the contract is vague, with conflicting elements. Some design-build contracts have described a minimum solution and sometimes when the client lacks knowledge, the chosen solutions do not meet the building requirements. A contractor reported being faced with the problem of conflicting elements in the contract, when the described solution for handling storm weather did not meet the set requirement. The contractor could either choose the cheap solution as described, or take the cost of following the requirements: *"We had a conflicting element in the contractual documents; the specified minimum solution for handling storm weather we gave a price for in the tender document did not meet the general requirements set to be able to handle maximum water flow described by the client later in the same tender document"*. The contractor did not discover this conflict between the specific solution and the general requirements before the contract was signed.

Since the industry is fragmented, there will generally be a sub-optimization in a typical AEC contract. Companies are typically looking for the cheapest solution for themselves and not for the best solution for the project (both client and contractor). However, it is mentioned both by a contractor and by a client interviewee that is perceived as unethical to not bother to explore better solutions for the project, and instead claim that your cheapest solution is the only one.

Using personal power to exploit others to change their design to ease yours
There are different people working in a project, some are experienced, some have many other projects, some wants everyone to do their bit first. This creates a room for sub-optimisation of the design process. An example of a not exemplary behaviour is when you use your personal power – in form of experience; position etc. to get others to change their design – so you can reduce your work. A typical example of this sort of procedure is always turning down the others' suggestions so they fit your design, instead of participating in the design process leading to the best product.

Greed
One practitioner raised the issue of being greedy on the cost of other members in the projects. There is an acceptance that you try to ensure your winnings in the project, and everyone plays

that game. "*But when you deliberate try to gain your winnings on the cost of others, that's unethical"* one of the contractors admitted.

When the client asks the contractor for a cheaper solution, it is easy to be greedy and hide the total saving of the solution, thus keeping more of the profit for themselves by adding cost to the cheaper solution. One interviewee reported that on one occasion, this created a discussion in the contractor organisation on a project where the client wanted a cheaper solution for dry walling. They clearly had an opportunity to be greedy, by making a false price on the cheap material and cheat the client for some money. The client would still save money of the initial agreed contract price, but the potential for savings was greater. The contractor of course ended up with giving the client the correct price, but it is disputable whether this should even be a discussion.

Avoiding decisions

The clients' representative can be a direct employee of the client or hired inn from a consultant. His/her job is to ensure that the client get what he/she has commissioned from the contractors or other suppliers. A client representative from the clients company usually sees the challenges eye-to-eye with the other project participants, but hired representatives might have another agenda. Informants describe this usually as an explanation of their view of how the client is best served, but also as an opportunity to serve their own interests. An example was a client's representative ordering inquiries and constantly asking questions about the solutions presented and thus avoiding making a decision. This led to unclear responsibilities and risk migration. This was not helping the project or the client forward.

Exploiting uncertainty

One interviewee describes one case where the contractor in a design-build contract discovered a questionable solution to fire safety. The contractor hired in a third party fire consultant and got him to look over it in order to come up with a safer solution. The contractor sent a variation order request to the client, who rejected it because of the higher price involved. This was done with a reference to the first fire consultant, having written a note about his solution being in line with fire safety regulations. The contractor was therefore posed with the following ethical question; should he just follow the contract, or should he upgrade the fire safety? The project in question was a large shopping mall, so a fire could potentially have disastrous consequences. The contractor did not want to take this risk (even if he – according to their contract – can argue that he is not responsible) so he upgraded the system. Now, after

the commissioning of the building, the client still does not want to pay the upgrade bill. The case ended up in court.

In sum: the access to information in construction projects is typically askew. Such projects involve a high number of actors, creating interfaces between roles where influence over the decision-making process is characterized by lack of transparency on the subject of loyalties. Some interviewees had trouble differentiating between un-lawful behaviour and ethical challenges. In fact, when asked if they had experienced with ethical challenges in the design phase, one design manager responded, *"No, I always follow the rules"*. This interpretation was something several design managers had in common. Furthermore, they also tend to see their role as design managers to be unaffected by ethical challenges. Ethical challenges were in their eyes to some extent only connected to the procurement- and production process. One design manager had a definition of what ethics was: *"Ethics means treating customers and subcontractors properly"*. Further, he described that it was a challenge to please both the client and the production unit, since the production needed a fast and easy solution to keep up a satisfactory production speed and the client was more interested in getting the best value for the product. The challenge with this is that the documents from the early design phase in a design-build contract often are vague, leaving decisions on solutions to the detailed design phase. Finding the best solution will therefore be time-consuming.

5   Discussion

The ambition of this paper has been of a mainly descriptive nature, enabling raised awareness concerning what challenges an ethical nature practitioners of the AEC industry commonly encounter and why they appear.

Firstly, when it comes to framework conditions, the document study of 25 ethical frameworks revealed that only a limited number of them deal with the fuzzy distinction between what is perceived as ethical and unethical behaviour. However, these frameworks were clear on the distinction between lawful and not lawful in the sense that they signal clearly to the actors to respect the prescriptions of the law without at the same time prescribing that the actors should avoid unethical actions (or at least to a very little degree).

From the interviews with industry professional, we have observed that what is characterised as unethical behaviour – but still lawful – arise among all the three categories of project participants in the design phase, namely clients, contractors and designers (the last category includes architects and consulting engineers). Through the interviews, we found that

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the possibilities for unethical – but still lawful – behaviour is well known, but only as a tacit knowledge. It is also to a certain extent accepted – or there are few available sanctions – if a project participant uses such a possibility to gain own interests. The ethical frameworks open for unethical – but still lawful – behaviour among the participants, and this possibility seems to be generic for the design phase in all kinds of projects within the AEC-industry.

Secondly, a close reading of contracts and tender documents forms a challenge of ethical nature that opens room to act in what is perceived to be unethical ways. The lack of trust among team members – especially concerning their loyalty to the project – does equally seem to play an important role. The theoretical framework has illustrated that the reciprocal and iterative design process is challenging to manage properly with traditional management tools. There is a need for a more collaborative management style with a high degree of trust between the participants. In projects, the ethical challenges are easier to misuse the more participants there are in the design team. Consequently, the participants can hide behind a "false" trust, and this opens for ethical challenges.

Thirdly, the structural reasons for such challenges consist in poorly described tender documents, biased logging of work hours, shifting and unclear loyalties among design team members, and sub-optimizing of work processes for own gain. Not surprisingly, the interviewees were reluctant to share such information with the initial two master students involved in the study leading up to this paper. Interestingly, the interviewees came up with several anecdotes revealing the true potential for unethical practices in the design phase, when enquired further.

In sum: There are lacks in the formal frameworks. Within the Norwegian context, there does not exist any common (industry wide) ethical framework for AEC-industry professionals. Still, the responses from the industry professionals indicate that there exists a social imaginary among the members of the community. The ethical frameworks examined (from actors in the Norwegian context in Table 2) proved that the difference between lawful and unethical is little understood. Consequently, there ought to be an increased awareness of this among industry actors and professional organisations. A challenge here seems to be that the understanding of ethical behaviour is not sufficiently present among actors, existing as more or less tacit knowledge. In addition, ethical behaviour ought not simply to be stated in frameworks, but be subject to continuous debate.

6   Conclusion

As long as what is perceived unethical – but still lawful – only exists as tacit knowledge not explicitly described in the ethical frameworks of the major players of the AEC-industry, the field of design will be exposed to unethical behaviour. This paper constitutes one step to filling this knowledge gap.

The empirical research revealed that the design phase of AEC-industry projects is characterised by hidden agendas and power play among the actors involved. Most of the interviewees acknowledged this, in fact, several of them claimed that this was perceived among industry actors as a general characteristic of this phase. The research literature does so far not to reflect this situation. The importance of raising awareness – especially based on thorough research – can therefore barely be overestimated.

Our research on ethical frameworks shows that the available ethical frameworks clearly distinguish between legal and illegal behaviour, condemning the last clearly. The difference between what is ethical and unethical is more blurry. The interviews reveal that many ethical frameworks give substantial room for unethical – but still lawful – behaviour in the design phase. In sum: ethical frameworks should explicitly deal with behaviour perceived as unethical (though lawful), but only a limited number of them do so. As a minimum, ethical frameworks ought to take in the question of situations (e.g. conflict of interest etc.) where the actors' perception of what is "within the boundaries of good behaviour" (that is, what is perceived to be ethically sound) differ from the text of the law.

The AEC-industry actors should encourage their representatives to deliver value in a manner consistent with being member of a profession. The first step for these actors is to make sure they have ethical frameworks that deal with the difference between ethical and unethical behaviour, and presumably tell their representatives to act in line with this. Following the minimum requirements set by the text of the law is not always sufficient. This ought to be clearly stated in the ethical frameworks.

The limited number of interviews poses an obstacle to the generalisation of the results. However, the findings seem to correspond to the limited research carried out internationally. In the opinion of the authors, the AEC-industry will benefit from paying more attention to the difference between lawful and unethical behaviour. Following from this, more research is needed to check if actors that distinguish between ethical sound and ethical unsound behaviour actually have representatives with a more ethical behaviour than actors without this

distinction. This research ought not to be limited to the design phase, but rather to the whole process of construction.

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	Perceived as ethical	Perceived as unethical
Lawful behaviour		
Unlawful behaviour		