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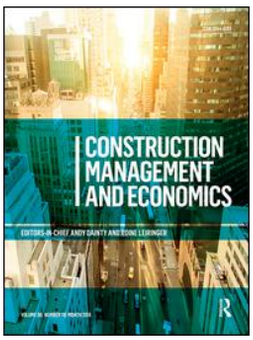

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Looking out to look in: inspiration from social sciences for construction management research

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ABSTRACT

In reaction to the recent call for critical debate in the field of construction management research, I argue that we should embrace the richness of adjacent fields of study in order to dynamically develop our own and face the plethora of contemporary societal challenges that exist in our industry. I introduce the concepts of other-than-rational thinking in decision-making and multiplicity in management responses as examples of inspirational sources from social sciences that would contribute to truly understanding the driving forces of construction management processes. I connect these concepts to contemporary studies in construction management and share my experiences with several positive collaborative approaches in conducting construction management research.

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Introduction

I love Antoine de Saint-Exupéry's book *The Little Prince*. The eponymous character visits six asteroids, making wonderful observations about life and human nature in which both the heart and the mind are essential. In line with this story, I consider myself an academic traveller, visiting different planets with unique characteristics, each of them of value to unravel the complexity of our beautiful world. In this article I would like to share my experiences with travelling to the world of social sciences and discuss the impact of these experiences on doing research in the field of construction management. For me, this travel is one of the primary reasons to stay in science. In my opinion, each piece of knowledge and experience gathered during those journeys is essential in becoming an independent academic – a professional who is able to teach students, professionals and colleagues about the beauty of science and perform research that adds value to society.

Like any scholar in an applied field of study, I also experience the balancing act between rigour and relevance, between theory development and practical relevance, and between teaching, consultancy and research when performing research. In this context, I fully agree with Dainty and Leiringer (2017) that we should critically debate our views on and experiences with construction management research (CMR) in order to remain (or become) the professionals we want to be. As one of the construction management community members "attempting to publish in 'ranked journals' outside the field and participating in more mainstream organizational, management and engineering areas" (Harty and Leiringer 2017, p. 395), I would like to show that we should not deny our origins, nor consider them as something from the past. Rather, we should embrace the richness of our rich professional roots in order to dynamically develop our field and face the plethora of contemporary societal challenges that exist in our industry. These challenges increasingly ask for a multidisciplinary, integrative and creative research approach and require us to look out in order to look in.

This contribution is based on my experiences with taking social sciences into account when studying construction management processes. In my opinion, we do not sufficiently acknowledge that management is about people – it is about people who make decisions that enable action in the construction industry. And studying people requires including in our research and teaching activities theoretical insights from scientific fields that address human needs, motivations, behaviour, practices and the constellations in which people operate. My experiences mainly involve the use of social theories, "elaborating an abstract framework of concepts which involve the specification of entities and types of relations and interactions" (Schweber 2015, p. 841) in order to understand more about the world of construction management and its actors.

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These actors often operate in organizations or other kinds of unified constellations, accepting that a "consistent and durable theory of the organizational body is simply not possible since organizations are too complex and varied to capture in a set of reliable, repeatable assumptions" (Ivory 2017, p. 386).

Following up on the discussion on the development of the field of construction management as an offspring of operations research (Koskela 2017), my view starts with the work of Herbert Simon and includes some of the latest insights from institutional theory and adjacent concepts in which interaction between actors and between different institutional levels plays an important role. For that reason I first introduce two concepts that I find very insightful when studying construction management: (1) other-than-rational thinking in decision-making and (2) multiplicity in management responses. These concepts originate from organizational science and social psychology, and are related through the notion of a certain amount of irrationality and duality in human behaviour, driven by the relatively unknown drivers of people and the influence of dynamics of the environment in time. Moreover, they show the need to connect behavioural insights across different levels (field, organization, group, individual) in order to identify managerial patterns, mechanisms and interactions that provide input for theory development and managerial support in construction management. I then link these concepts to contemporary studies in our journal of construction management. Based on these findings, I move on to my opinion on the possible futures of construction management research, addressing the issue of how best to ensure theory building and management problem-solving in co-production of each other.

The role of rationality in decision-making

According to Beach and Connolly (2005, p. 23), "decision-making is essentially social behaviour, even when there is nobody else present, because one anticipates how others will react and factors this into the decision. […] Organizations per se do not make decisions, but individuals in organizations do. And when they do they must take others into account". When decisions and decision-makers are identified, it is possible to assign responsibility for a course of action to decision-makers (Brunsson 2007). Because decision-makers are aware of this, they appear to gather information that they might not necessarily use to show that they are good decision-makers or to justify their decision in the case of an unexpected event (Feldman and March 1981) or they might, like a politician, choose the option that will be the easiest to justify (Tetlock 1992).

The field of decision-making offers a broad range of perspectives on individual decision-making as well as decision-making in groups or organizations. Beach and Connolly (2005) distinguish three generations of theories in the field of decision-making: the early models, the first-generation models and the second-generation models. The early models focus on how individuals should make decisions. This line of reasoning started with the utility theory of Bernoulli (1738) and Bayes's (1763) theorem of probability theory. The expected utility theory of von Neumann and Morgenstern (1947) can be considered one of the first prescriptive decision theories and the major decision paradigm since Second World War. These models assume that decision-makers are capable of making rational decisions because they are fully informed and able to estimate the risks concerning the maximum utility of a decision. Hence, empirical research has generally shown that the actual preferences and decision behaviour are not in line with utility and probability theory (Beach and Connolly 2005). The main reasons for this are probably that most real-life decisions cannot be seen as gambling problems. Although people sometimes perceive risks and estimate their chances, they do not utilize their options as rationally as is assumed. In daily life, decisions are far more complex than proposed in laboratory experiments; information about alternatives is usually absent and contextual factors influence the situation. This makes it hard for decision-makers to gain an overview of the available information and the consequences of actions.

When Simon (1987, first edition in 1947) found that the rationality of decision-makers is actually bounded, a new generation of behavioural decision theories started to be developed. Starting with Edwards (1961), behavioural decision theorists of this generation focused on finding ways in which human choice deviates from the maximization of subjective expected utility by identifying a variety of rules of thumb called "heuristics" (Kahneman *et al*. 1982). These general rules of thumb reduce the time and effort required to make reasonable judgements and decisions, especially routine decisions (Cyert and March 1963). Today Kahneman's book still appears on the bestseller lists.

According to Hodgkinson and Starbuck (2008), behavioural decision theory has, however, made no significant contributions that take meaningful account of social interaction or organizational complexity. There is a need for more behavioural research in practice because "problems identified in practice seldom correspond to only one or a few scientific disciplines and one or only a few organizational specializations" (Kieser and Wellstein 2008, p. 509). However, it clearly inspired a lot of researchers to analyse biases, namely the mistakes people make in probability estimation. The representativeness heuristic could, for example, cause a wrongful belief in the law of the small numbers (the belief that random samples of a population will resemble each other and the population more closely

than samples based on statistical sampling theory would do), or a neglect of the base rate information (the tendency to ignore the relative frequency with which an event occurs) (Plous 1993).

The second generation of behavioural decision theory, also called naturalistic research and theory, offers alternatives to the rational gambling principle by describing more realistically how decisions are actually made (Beach and Connolly 2005). These theories have, until now, mainly focused on professional decision-makers and the cognitive processes they engage in while making decisions in pre-choice processes (Zsambok 1997). Intuition, affect, mood and emotions have become more prominent than in previous generations of decision theory. To a large degree, second-generation research and theory is also based on the extensive work of Herbert Simon. Simon (1997) found that decision-making in organizations is strongly influenced by the structure and norms of the organization, and that decision-makers do not use the full array of options that an outsider might consider available. Whereas studies based on first-generation theories were often done in laboratory settings with inexperienced decision-makers and concerned non-contextualized situations, research in the second generation tried to simulate context-related factors, such as time pressure, incomplete or unreliable information, and ill-defined goals (Hutton and Klein 1999). Hence, researchers started to explore organizational processes that are far from rational (Lipshitz *et al*. 2006). One of the general paradigms belonging to this generation is the view of naturalistic decision-making (NDM). NDM rejects the notion of decision-making as choosing among alternative courses of action, and hypothesizes sequential option generation and evaluation based on pattern matching, situation awareness and story construction (Lipshitz *et al*. 2006), but focuses on the way people use their experiences to make decisions in field settings. This emphasizes the level of expertise and the context of the decision-maker and the actual process of decision-making (Zsambok 1997). The context studied in NDM typically has ill-structured problems, dynamics, time pressure, multiple players, complex tasks and other issues dealt with in practice, which shows great similarities with the context of construction. Debate about the degree to which NDM truly represents a paradigm shift is ongoing (Gore *et al*. 2006), due to the scattered character of the work in this field and the lack of an organizational framework.

In the debate about the degree of rationality of decision-makers, March (1997) concludes that rational theories commonly assume that every decision-maker knows all alternative actions, is able to do a probability estimation of all consequences of every alternative action, has a consistent preference ordering for alternative preference courses of action and uses decision rules that can select a single action to take. Context and problem structure, however, also play a crucial role in determining the appropriateness and efficacy of judgements (Klein 1998, 2004). So in tightly structured, intellective tasks in data-rich, objectively quantifiable and computationally complex domains, statistical models perform better than human judges (Sadler-Smith and Sparrow 2008). Hence, based on several studies it can be concluded that intuition outreaches analytical approaches in loose decision structures with moral, political, ethical, aesthetic or behavioural judgemental tasks, ill-structured strategic problems with little precedent and information to draw on, and in situations with time pressure, dynamic conditions and experienced participants (e.g. Dijksterhuis *et al*. 2006, Hogarth 2002). Possible reasons for the higher performance of intuitive decision-making in certain situations include the ability of intuition to sense changes, to detect failures, to make sense, and to include the company's culture and values, which are difficult to describe. These individual, organizational and cultural factors that seem to influence the use of intuition, need however additional research before these insights can actually be applied (Hammond *et al*. 1987, Sinclair and Ashkanasy 2005).

Since people's behaviour is based on their perceptions of reality, and not on reality itself (Robbins and Judge 2008), framing is another important element in decision-making. This concerns the process of embedding perceived events in a context to provide for meaning (Kahneman and Tversky 1984). Although the basic function of a decision is to solve a problem and thereby reduce uncertainty (March and Simon 1958), later insights showed that every decision may produce new uncertainties. Uncertainty is intimately linked with error: the greater the uncertainty, the greater the probability of making an error. More recently several researchers realized that even when rationality is important in decision-making, feeling, affect and emotion cannot be ignored (Plous 1993). Current research on emotions show that mood, regret, disappointment, attachment, overconfidence and risk perception influence decision-making in several ways (Beach and Connolly 2005). In his book *Blink*, Gladwell (2005) uses the work of several scholars from this domain to provide a convincing story of how people unconsciously make the right judgements and decisions while embracing these emotional factors instead of ignoring them.

Etzioni (1988) distinguishes three types of influence on decision-making that must be taken into account to understand human decision-making: the utilitarian influence (utility as studied by economics and normative theory), the social influence (social influences as studied by anthropologists and sociologists) and the deontological influence (as studied by ethics). Table 1 shows the field of tension that decision-makers experience during decision-making.

Table 1. Overview of possible decision strategies from different perspectives (based on Etzioni 1988).

Perspective	What is the decision-maker trying to do?	How do decision-makers choose the means to advance the goals?	Who are the key actors?
Utilitarian	Maximize pleasure or self-interest (utility)	Selection of action with greatest net utility by weight of costs and benefits	Free-standing individuals make decisions on their own
Social	Conformation to social norms and cultural demands in order to avoid punishment	Selection of course of action that conforms to the expectations of reference group or community	Decision-maker conforms to rules of group or community
Deontological	Evaluation of moral and ethical considerations (pleasure and morality) in light of utilitarian and social considerations	Use of emotion and value judgements to select or reject courses of action that are compatible with or that violate or are prescribed by moral or ethical codes	Decision-maker is guided by own moral and ethical principles derived from groups and communities

Furthermore, it is good to be aware that many decisions in organizations are made not by individuals but by groups or teams of people. People align their individual value frames with others in two ways: by discussion and by sharing a set of beliefs and values, called an organizational culture (Beach and Connolly 2005). If value frames are similar, people are more likely to understand other people's intentions and goals. This means that conflicts tend to be about the solution to the problem, not about the interpretation of the problem. According to Beach and Connolly (2005) there tends to be less variation in cultures within organizations than between countries. In organizations, shared understanding, power struggles, ill-defined problems and unclear decision options increase the complexity of decision-making. A lot of research drawing on anthropology, economics, management, psychology and sociology is still needed to enrich our understanding of the dynamic micro-economic psychological interplay between actors, and the sociological and macro-economic contexts of those actors and their practices (Hodgkinson and Starbuck 2008). I think that construction management scholars should definitely contribute to this increased understanding.

Multiplicity in organizational responses

Whereas the previous section addressed the decision-making perspective, the concept of multiplicity addresses the responses of organizations as embedded actors in a system. This relates to institutional theory, as for example Bresnen (2017) points out in relation to CMR, as well as to the duality of choices and paradoxical situations that occur in daily life, as addressed by for instance Bygballe and Jahre (2009) and Ivory (2017). Research in institutional theory has established that expectations about what is appropriate behaviour are not only judged by their technical and economical rationality, but also often shaped by external forces (Heugens and Lander 2009). As a consequence of different forces of external actors (e.g. governments, associations and customers), organizations operating in the same field tend to adopt similar structures and practices (DiMaggio and Powell 1983). Institutional theorists have recently conceptualized external influences as institutional logics (Thornton *et al*. 2012). Institutional logics define comprehensive "rules of the game" for organizational conduct in different spheres of social and economic life. They are typically associated with societal sectors such as professions, corporations, family and religions (Thornton *et al*. 2012), shaping the cognitions and behaviours of actors (Friedland and Alford 1991).

Organizations can be subject to multiple logics (Greenwood *et al*. 2011, Zilber 2011). These logics may originate from different societal sectors. For example, Greenwood *et al*. (2010) investigated how organizations in Spain reacted to a "regional state logic", a "family logic" and a "market logic". Others have discerned more field-specific logics, for example an "editorial logic" and a "market logic" in higher education publishing (Thornton 2002); a "care logic" and a "science logic" in medical schools (Dunn and Jones 2010); and a "business logic" and "non-profit logic" in energy supply companies (Jay 2013). The presence of multiple logics creates the possibility for conflicting expectations and raises the question how organizations and their actors deal with the multiplicity of influences.

One part of the literature has seen the presence of multiple competing logics as a more or less temporary phenomenon, because the one logic will ultimately replace the other, at the level of an organization and possibly also at the level of a field. For instance, Thornton (2002) described how publishers shifted their adherence from an editorial logic to a market logic, and, somewhat similarly, Lounsbury (2007) showed how a regulatory logic was replaced by a market logic in the field of finance. Another set of studies focused on organizations that continue to face multiple logics, and investigated how individuals and organizations weigh their adherence to these logics (Greenwood *et al*. 2010). A key factor that drives the adherence to a particular logic is who represents these logics internally and the relative power of these factions (Pache and Santos 2010). For example, the rise in the number of women in medical schools increased adherence to a care logic over a science logic (Dunn and Jones 2010). Further, individuals' roles and identifications drive their selective conformity to conflicting institutional norms (Delmestri 2006).

Other studies have investigated in more detail the ways to deal with institutional pluralism (Binder 2007, Pache and Santos 2013). Pache and Santos (2013) grouped responses to deal with pluralism into three categories: decoupling, compromising and combining. Decoupling means that organizations implement practices promoted by one logic and only symbolically follow practices prescribed by another logic (Pache and Santos 2013). In this way, organizations may try to eliminate conflicting demands by avoiding their influence. Compromising means trying to balance conflicting expectations, for example, by conforming only in a minimal way to the logics, creating new behaviour that uses elements from both logics, or bargaining with external actors that represent the logics to change their expectations (Pache and Santos 2013). Finally, combining logics refers to attempts to reconcile competing logics by selectively drawing on elements from the repertoire offered by each logic. In this context, Pache and Santos (2013) showed how work integration social enterprises, for example, selectively combined intact demands drawn from both logics.

The institutional logics perspective has emphasized that actors do not just adopt, but are actively interpreting logics and reflexively monitoring the associated practices (Jarzabkowski *et al*. 2013, Thornton *et al*. 2012). This reflexivity may be strengthened by the prospect of engaging in a novel situation (Emirbayer and Mische 1998) and the presence of multiple competing logics (Battilana *et al*. 2009, p. 74): "ongoing experience of contradictory institutional arrangements is likely to trigger actors' reflective capacity". Contradictions require and trigger sensemaking – the process of making something sensible, involves the ongoing retrospective development of plausible images that rationalize what people are doing (Weick 1995, Weick *et al*. 2005). Sensemaking has its genesis in disruptive ambiguity and its mixture of retrospect and prospect, and is embedded in interdependence and based on a dialogue among people who act on behalf of larger social units. Weick *et al*. (2005, p. 409) emphasize that sensemaking is about the interplay of action and interpretation rather than the influence of evaluation on choice – "it is a process that is ongoing, instrumental, subtle, swift, social and easily taken for granted". According to Balogun *et al*. (2008), little research has been done that actually integrates the managerial and organizational cognition. This kind of research probably requires an ethnographic method, but it is essential that "the study of deciding not just considers the information processing focus on personal preferences, biases and heuristics, but also on decision maker's identities and their social skills and capabilities" (Balogun *et al*. 2008, p. 243), which relates back to the previous section on other-than-rational elements in decision-making processes.

A concept that is related to these responses to institutional conflicts is the work on paradox theory (Smith and Tracey 2016). A paradox can be considered a set of contradictory yet interrelated elements, logical in isolation but irrational when juxtaposed (Lewis 2000). These elements can be demands, feelings, perceptions, identities, practices or messages at multiple levels in the organization. In professional organizations, tensions exist with regard to goals (performing paradox) and to identity and interpersonal relationships (belonging paradox), as well as to processes (organizing paradox) and knowledge (learning paradox) (Smith and Lewis 2011). Previous research found, for instance, competing demands between financial and social goals and long- and short-term orientations (Andriopoulos 2003), and between firmness and flexibility (Tatikonda and Rosenthal 2000). All these contradictions can be considered inevitable and ubiquitous features that challenge professionals in their everyday lives (Gaim and Wåhlin 2016).

Similar to organizational responses to institutional pluralism, approaching tensions as paradoxical implies accepting and fostering the coexistence of competing extremes. This helps in capturing and explaining the complexity of reality, sustaining long-term performance, enabling learning and creativity, and fostering flexibility, creativity and resilience (Smith and Lewis 2011). To some extent, acceptance requires a process of sensemaking – learning to live with paradox by appreciating the contrasts between the extremes (Poole and Van de Ven 1989). Resolution then could require a process of sense giving, entailing the iteration of separation and synthesis tactics (Lüscher and Lewis 2008, Smith and Lewis 2011). Separation focuses on one of the two extreme poles. It can be spatial when opposite forces are allocated to separate individuals, teams, organizational units or even physical spaces, and temporal when attention is shifted from one pole to the other, ensuring attention to both alternatives over time (Poole and Van de Ven 1989). Synthesis accommodates opposite poles and encourages interdependences between them. This implies thinking paradoxically, reframing assumptions and developing a more complicated understanding of complexities (Smith and Tushman 2005).

In relation to further research, it is noteworthy that most studies on these topics have investigated single moments at which decisions with regard to institutional logics and dilemmas are made. So despite these contributions, we still know relatively little about how and why actors in organizations respond to multiplicity over time. Some exceptions are for example Jay (2013), who showed how the Cambridge Energy Alliance arrived at an innovative integration of multiple logics after years of struggles and shifting balances. The study by Smets *et al*. (2015, p. 935) on

reinsurance traders emphasized that institutional demands may "fluctuate with situational exigencies" and that individuals have a "practical understanding" of where and when to enact multiple logics. In these micro-processes, different responses alternate in the day-to-day interactions of employees, exemplifying that logics are "conflicting yet complementary", not "conflicting or complementary". It is these notions that I consider relevant for taking our knowledge of construction management processes further.

Other-than-rationality and multiplicity in construction management research

Regarding the role of other-than-rational thinking in construction, not many recent contributions seem to be present in construction management research. The study by Mochtar and Arditi (2001) on the pricing strategies of contractors is one of the rare examples in our field to acknowledge the use of intuition, although the findings of the study turn towards the rational approach of decision-making. Several decades ago, the character, measurement and implementation of design quality was a topic of debate (Burrows and Seymour 1983, Pheng 1993, Seymour and Sui-Pheng 1990). This resulted in, for example, the development of the Design Quality Indicator (DQI) by the UK Construction Industry Council to stimulate the development of design quality in building projects (Gann *et al*. 2003, Whyte and Gann 2003, Prasad 2004) and the implementation of value management in construction (Kelly 2007, Kelly *et al*. 2004, Yu *et al*. 2005). This triggered the debate on rationality, since the DQI was developed based on a "rational adaptive approach", which accepts that quality is a difficult and uncertain aspect to measure. Experience showed that although the DQI stimulated discussions about quality among stakeholders (Cardellino *et al*. 2009, Slaughter 2004), it could not be used as a performance measurement system (Markus 2003), nor did it offer actors a concrete solution to the problem of formulating requirements (Dewulf and Meel 2004). According to Cardellino *et al*. (2009, p. 260), "the compulsory use of the DQI has successfully cemented the commitment to design quality […]. However, the architecturally biased approach seemingly underestimates the value of intangible aspects of design and chances are that the tool becomes a 'tick the box' exercise." Apart from some recent contributions, such as the study by Bos-de Vos *et al*. (2016) on value trade-off in architecture firms or the introduction of the ecosystem concept by Pulkka *et al*. (2016), this discussion on the tangibility and exchangeability of professional design values seems to have disappeared from the current agenda in CMR.

Regarding multiplicity in decision-making, Hedgren and Stehn (2014) and Viking and Lidelöw (2015) found that actors manage multiple meanings in adopting industrialized building processes. Both these studies, and the work by Jia *et al*. (2017) and Gluch and Svensson (2017), show the importance of studying multiple levels in order to grasp the full complexity of managerial processes in construction. The concept of sensemaking has been picked up several times in recent CMR contributions, for example by Fellows and Liu (2016) in relation to cultural differences in project environments and by Kreiner (2006) and Volker (2012) in the context of architect selection processes. This latter work was followed up by a recent study on architectural firms competing for commissions, in which was found that paradoxes and management approaches are interwoven, each requiring different collective and individual mind-sets and mental templates (Manzoni and Volker 2017). Recently, Linderoth (2017) applied the concepts of sensemaking and institutional logic in a longitudinal case study on the adoption of BIM technology. The notion of sensemaking processes has recently also been applied in relation to expertise and knowledge development (see for example Chan 2016, Gacasan *et al*. 2016).

The response strategies of organizations have been primarily studied in relation to suppliers, such as contractors (Ye *et al*. 2010, Tansey *et al*. 2014). Hence, these studies do not actually focus on the multiplicity of responses. The same applies to the recent work on institutional logics by Rasmussen *et al*. (2017) in the context of change in the Danish construction industry. Jia *et al*. (2017), however, applied different pairs of institutional logics (religion and market) on different institutional levels (project and society) to address the gap between safety rules and safety behaviours. Empirical findings indicate a refocus of institution-led promotion activities on a single level towards interventions that actually change the attitude, intention and choice of actors on multiple levels. The work by Bygballe and Jahre (2009) also confirmed the importance of balancing both logics, in their case the project and the supply chain, creating intra- and inter-organizational interactions across different logics. This indicates that there seems to be enough breeding ground in construction to accept and foster the co-existence of competing extremes, adopting a "both/and" rather than an "either/or" perspective.

So why is this relevant for our field?

What is important to realize is that we ourselves are our community – we are the driving forces in taking this community further. And whether we address this challenge in a qualitative or a qualitative manner, we should study the actual management practices better in order to truly understand what drives actors in the existing cultural and social systems of construction. There are several reasons why our field of construction management provides

excellent conditions for making valuable contributions to science without sacrificing the relevance of our work.

We have unique access to very interesting study objects

The construction industry offers a very interesting area of study due to its complexity, extreme conditions and project-based character, and the physical closeness of the topic to people's personal environment which makes it relevant to everyone you talk to. The dynamics of the environment and quality-related debate on physicality reinforce the complexity of the objects of study, which is reflected in, for example, the recent experiences with PPP projects or institutional change. One of the benefits of being a CM scholar is that we are strongly connected to our field of study: we know what is going on inside projects, we are aware of the current struggles of professionals and we know the challenges that need to be addressed in our sector.

Furthermore, we have relatively easy access to our objects of study. During conferences on organizational sciences (such as the European Group for Organizational Studies Colloquium and the International Process Symposium), I witness that management scholars envy our deep understanding of actual practice and show great enthusiasm for the richness of our data. This comes at a price, however, since we can only spend our time once. And being actively involved in the field often has its payoff in catching up on literature and debating theoretical contributions. For us, one of the main challenges is to take this knowledge further and link it on a more abstract level and build theory, preferably in collaboration with others.

Our industry has proved to be a grateful audience

Another challenge we face is convincing practitioners to apply these concepts in their daily work and concede that knowledge can help them in developing new insights, and perhaps even assist them to innovate. At Delft University of Technology we have a Chair of Public Commissioning that was established in collaboration with the Dutch Construction Client Forum, a network of board members that represent the most important public client organizations in the Netherlands. While developing this relationship over the past four years, we have experienced both retrenchment and hybridization, to use the terms of Harty and Leiringer (2017). On the one hand, this network of professionals expects concrete insights into project practices to inform their actions in the near future. They also hope that educational activities will support them in fighting the war for talent that has been going on for years within the public authorities that are involved in real estate and infrastructure development and maintenance. On the other hand, they are eager to join us in our pursuit of academic development in order to fathom the mysteries of the construction industry and finally go beyond the common sense in order to actually bring about change in our sector.

We also have positive experiences in our futurA project on the future role of the architect in the construction supply chain. A Dutch government science subsidy to stimulate the creative industry triggered a consortium of architectural firms, contractors and public commissioning agencies to actively participate in this four-year project, funding two PhD candidates and project support. The consortium members make both cash and in-kind contributions to the project and have created a strong and neutral network of people who find each other in their need to improve current practices. As academics we take them along on our scientific journey, inspiring them to think about issues such as entrepreneurship and capturing value.

Our field has considerable social and theoretical relevance

Both the futurA project and the Chair in Public Commissioning enable us, as a technical university, to collaborate with a business school in developing scientific knowledge that provides a strong foundation for practical instruments for increasing organizational performance. In recent years we have defined our research agenda and approach based on interactions between the daily "wicked problems" of practitioners and the concepts that we picked up at conferences and in journals in fields of construction management and adjacent arenas. Indeed, this type collaboration requires different funding models that do not always match with current university governance systems (Harty and Leiringer 2017).

New types of collaboration also require another type of academics, namely those that are able to combine several scientific disciplines with different professional fields in a flexible manner. Such multitalented academics are – at least in the Netherlands – hard to find among the current graduates due to the strong interests in working in construction practice right after accomplishing their Master's degree. In our educational programs we still primarily educate engineers, not scientists. And for professionals who are interested in returning to academia and able to make a shift in their thinking towards the more abstract world of academia, we often cannot offer the right financial conditions.

Hence, we still believe in a strong potential for bringing both the academic and the professional field to another level. For our colleagues at the business school, we open

up a socially relevant topic, to be studied in an accessible and multidisciplinary way. As close colleagues, we complement each other's competences and perspectives. Moreover, it is fun to discuss phenomena from our field and explore possible practical and scientific contributions from a multidisciplinary perspective. This stimulates the level of reflection and critique on our academic findings but also on the concrete insights we offer the construction management practitioners. Of course it remains a continuous struggle to choose which conference to go to, to select which theoretical framework would best address our findings and to decide which journal would benefit both us and our stakeholders most. Hence, collaborating with bright scholars, eager professionals and grateful practitioners makes working in the field of CMR an inspiring activity.

Conclusions

In line with Schweber (2015), I think that the essence of science is to "stand on the shoulders of giants", building upon each other's work despite the origin of the work. Hence, I claim that we need to get inspiration from other fields to truly understand the actual driving forces in construction management processes. This indicates that tensions between external and internal forces, acceptance of rationality as well as other-than-rational thinking, pathways between past and future, and interactions between different institutional levels are essential in understanding change, or the lack thereof, in our industry. Since "managers are best served by a variety of cognitive and material sources to deal with the realities in which they entangled and, therefore, themselves also constituting – not a limited set of potentially falsifiable paradigmatic assumptions" (Ivory 2017, p. 387), we should stimulate the level of reflection and critique to increase our research impact rather than try to offer concrete solutions.

I believe that both the rigour and the relevance in our field would benefit from including insights from social sciences, since it would "help to break with taken-for-granted assumptions, thus creating the possibility for new policy and industry relevant insights into construction, and contribute to the consolidation of construction research as a distinct field" (Schweber 2015, p. 840). The fact that organizational sciences are moving away from "either/or" thinking and opening up to "and/and" thinking indicates that other fields are also beginning to acknowledge that rigour has its limits when it overshadows relevance and practicality. It is good to recognize that the relevance of creative professional services, such as architecture and engineering, and pressing social issues related to our built environment, such as public commissioning the ambitions of public clients and other stakeholders in relation to a more sustainable future, provide a fruitful breeding ground for research. Furthermore, accepting other-than-rational thinking in decision-making and multiplicity in organizational responses would provide room for new insights in addressing the current challenges.

Consolidating the recent contributions to the debate on research directions in *Construction Management and Economics*, I realize that for the sake of the argument we still prefer to box our world. We seem afraid to integrate or mingle and look outside the frames we are familiar with, since this might confuse our identity as construction management scholars or threaten our existence. Being too busy trying to find a path of our own, struggling to position ourselves in the demanding academic world, might prevent us from actually taking a chance and changing our current way of doing. This worries me, since a lack of exploration might be the biggest threat of all in the further development of our field. When moving from one place to another, we continuously look ahead in order to reach our destination. We generally love to travel and share our experiences. So why don't we use this natural urge to look around us to make progress in our beloved field?

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