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GOVERNING THE COMMON GOOD: COLLECTIVE ACTION IN INSTITUTIONAL MAINTENANCE

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This paper deals with the governance of a particular common good in the Danish construction industry popularly referred to as 'the technical knowledge commons.' The technical knowledge commons encompass the sum of practical experiences, professional literature, techniques and tested routines in different technical areas that professionals are expected to be familiar with. Due to its role in institutionalizing conceptions of proper conduct and professional practice, the technical knowledge commons have been met by industry criticism, being seen as 'backdoor' regulation that stifles innovation and constitutes a barrier to the globalization of labour and building materials. We illustrate how the technical knowledge commons is singled out as a battleground for struggles to redefine the governance of the industry. Using the concepts of institutional interlocks and meta-routines, it is analysed how actors are connected to the knowledge commons and contribute to a distributed maintenance of contested institutionalized practices. On this basis, we discuss how existing interlocks have been challenged and lost legitimacy in the face of the industry's deregulation and globalization, and how a new form of collective agency has arisen as professional associations have rallied in an attempt to establish new and legitimate governance structures to maintain the common good.

Keywords: collective action, deregulation, interlocks, knowledge commons, routines

INTRODUCTION

In the Tragedy of the Commons, Hardin (1968) tells the story of a pasture open to all where local herdsman let their cattle graze. Each herdsman will keep as many cattle as possible to maximize their personal gain. For centuries, a fine balance is maintained, but eventually the number of cattle exceeds the carrying capacity of the land, and the resource is depleted to the detriment of the common good. The tragedy lies in the eventual overexploitation of the commons that the collective action of individuals acting independently in own self-interest leads to (Feeny *et al.*, 1990). The story of the tragedy of the common is an example of a collective action problem. Collective action problems are situations in which individuals would benefit from

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collaborating but fail to do so as conflicting interests discourage joint action (Ostrom, 2000) leading to depletion of a resource. The problem of sustaining a public resource, which everybody is free to overuse, emerges in many contemporary social dilemmas where misalignments between individual interests and common concerns may exist (Milinski *et al.*, 2002). One of two solutions usually is typically offered to avoid this problem: privatization or government regulation (Ostrom, 1990). Ample empirical evidence, however, exists that common-pool resources may be self-governed. Feeny *et al.*, (1990) e.g., demonstrate that users have been able to establish rules and social norms among themselves for the sustainable use of the resource. Still, Ostrom (2000) argues for more research to investigate which conditions enhance or discourage collective action, and how to make structural changes to support collective action.

In this paper, we analyse forms of collective action in the governance of a particular knowledge commons in the Danish construction industry, referred to as ‘the technical knowledge commons’, which encompasses the techniques, routines, literature and practical experiences that professionals within different areas are expected to be familiar with. The technical knowledge commons has historically played a prominent role in the industry's regulation. In a neoliberal perspective, however, it is seen as 'backdoor' regulation, which constitutes a barrier to the globalization of labour and building materials as it institutionalizes professional norms and preserves tried and tested methods. This is, on the other hand, the very reason why opponents of the neoliberal economic model endorse the technical knowledge commons, highlighting its role in reducing defects and increasing the quality of the built environment. In the wake of the increasing deregulation and spread of neoliberal policies in the Danish construction industry (cf. Gottlieb and Frederiksen, 2020), the technical knowledge commons has consequently become centre of attention for discussions on which (and whose) values should be reflected in the governance and political institutions of the industry, and more importantly how to maintain the common good. On this basis, the purpose of the paper is to analyse how alternative forms of governance to the state-centric and neoliberal models emerge to sustain a contested knowledge commons.

First, the technical knowledge commons is introduced, followed by the theoretical framework with focus on institutional infrastructure interlocks and meta-routines. These are relevant for studying collective action, as they can shed light on different types of agency. Next, we analyse two interlocks and meta-routines. These are seen as expressions of a distributed form of collective action, which connects actors to the technical knowledge commons. It is then discussed how these interlocks and meta-routines are challenged by globalization and deregulation, leading actors to engage in a new form of deliberative collective action in maintenance of the common good.

The Technical knowledge commons

The technical knowledge commons inscribe a relationship between legal-regulatory requirements and professional practices in the industry, as illustrated in Figure 1. On the one hand, the technical knowledge commons is a concretization of the often abstract and vaguely defined requirements in the building regulation that prescribes methods and technical solutions to help practitioners meet the legal requirements in the building code. The technical knowledge commons consist of technical standards and norms that specify detailed requirements for the design and construction of solutions within various technical areas. This include international as well as specific national standards. Their use can be mandated explicitly in the building code or rest on the assumption that they are part of proper professional customs.

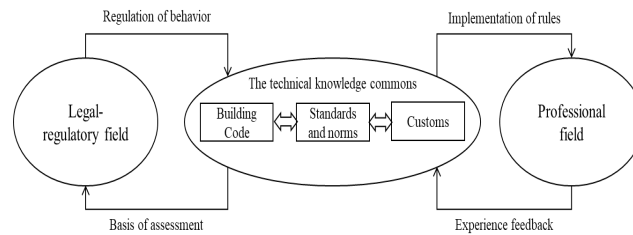


Figure 1: The dual role of the technical knowledge commons (own elaboration)

Customs are thus a third element of the technical knowledge commons. Customs are part of professions' esoteric knowledge base (Muzio *et al.*, 2013) and may over time become codified and find their way into norms standards and the building code. On the other hand, the technical knowledge commons is a codification of the often-tacit knowledge that professionals in the industry possess, which over time has been tried and tested and proven its worth in the sense that it is regarded as an expression of proper practice. In the legal-regulatory field, the technical knowledge commons is the basis for the standard of the 'bonus pater familias.' The culpa rule thus states that a tortfeasor commits the tort of negligence if he/she fails to show the degree of consideration that a reasonable person, the bonus pater familias, would show in similar circumstances. This is an extra-legal standard that rests on often vaguely expressed standards defined within a given profession - the technical knowledge commons.

THEORY

We see the technical knowledge commons as a particular type of common good, i.e., a good that serves members of a given community and its institutions (Etzioni, 2015). Our interest is in understanding what role it plays in the industry, and how it is shaped by a group of heterogeneous users (Hess and Ostrom, 2007) in a collective effort to organise institutional arrangements at the field level. To this end, we draw on the concepts of institutional interlocks and meta-routines.

Infrastructure Interlocks

Collective action takes several forms. In this paper, we deal with two modes, which result in institutional maintenance due to the creation of infrastructure interlocks. In business studies, interlocks have been studied in context of so-called interlocking directorates (e.g. Dooley, 1969), where they are seen as mechanisms employed by organizations or dominant social actors to regulate their environments. Interlocks are indicators of inter-firm ties, and there are many reasons why interlocks are formed. Palmer (1983) argues that interlocks form to facilitate formal coordination whereas Mizruchi (1996) propose collusion, co-optation, legitimacy, and social cohesion among the reasons. While this literature focusses on inter-firm ties, interlocks are also relevant in a context of distributed agency at the field level. In this context, Raynard *et al.*, (2019) define interlocks as the connections that influence the behaviour of actors and suggest that interlocking is the result of co-dependency processes between organizations, that does not necessarily take the form of direct inter-firm ties but can be more distributed. In their study of the persistence of the recruitment model of elite French business schools, Raynard *et al.*, (2019) identified three types of interlocks that mobilize actors in and across fields to maintain certain practices. These are: (i) sequencing interlocks where different actors produces outputs on which other actors depend, (ii) competitive interlocks that pull actors together, as they compete for the same pool of resources; and (iii) credibility interlocks that connects actors whose

independent activities reinforce the symbolic value of a given practice. Multiple interlocks can exist in an organizational field. These form a complex institutional infrastructure of interlocks (Raynard *et al.*, 2019), which gives rise to meta-routines.

Meta-routines

Meta-routines are routines for changing other routines (Adler *et al.*, 1999). They are loosely connected activities that coalesce into repetitive, interdependent actions that animate a distributed maintenance process, and as such, reinforce interlocks by promoting engagement, participation, and information-sharing (Raynard *et al.*, 2019). Meta-routines can take different forms. Van Driel and Dolfsma (2009) understand meta-routines as a propensity to select particular solutions for certain types of problems and suggest that they need not to be formalized. They also suggest that meta-routines may develop over time, and even prevail in the industry or in the economy as a whole. Adler *et al.*, (1999) see meta-routines as formal procedures for standardized problem-solving, which organizations develop to change existing routines and invent new. Meta-routines can thus both be formal or informal and serve an instrumental purpose or emerge as a shared logic of action. Institutional change is thus not necessarily a purposive act, but also can result from distributed agency based on the multiple actions and interests among actors within a collective (Semper, 2019).

METHODOLOGY AND DATA

The analysis is based on interviews with key persons from government, research and professional associations as well as archival data. In order to understand the context for the current debates over the technical knowledge commons, historical accounts were analysed, including policy documents, legislation, and industry reports that shed light on the origins and function of the technical knowledge commons. In order to analyse recent developments, multiple data sources were used, including industry and government publications, trade press news articles, interviews and presentations. Twenty-four interviews were conducted with professional associations, government agencies, non-profit information councils and universities. Observations from a public seminar in 2017 entitled “What is in the future for the technical knowledge commons?” is also used. This seminar gathered 100 participants from government and industry to debate recent developments and plot a course for future initiatives.

The empirical data was analysed in an abductive manner (Alvesson and Kärreman, 2007). We analysed data in three steps. First, we coded data qualitatively focusing on identifying the institutional underpinnings of the technical knowledge commons by identifying the rationales mobilized by the different actors in their elaboration of the role and functioning of the technical knowledge commons. The second step was identification of different interlocks and meta-routines in the maintenance of the technical knowledge commons. Here we identified several varieties of mechanisms that eventually was combined in the two interlocks and meta-routines presented in the paper. Finally, in the third step, we combined insights from step one and two to examine challenges to the interlocks, and the responses and practices the industry has engaged in to sustain the technical knowledge commons. As a limitation it should be noted that much of the source material were written in Danish making referencing difficult. It has been chosen not to include the numerous Danish language references.

FINDINGS

Interlocks and Meta-Routines

We identified two infrastructure interlocks (sequencing and expertise interlocks) and associated meta-routines (standardized problem solving and distributed enabling and policing). Sequencing interlocks are co-dependency relationships between actors, whose individual activities produce a collective whole (Raynard *et al.*, 2019). The building code contains the requirements that all building projects must comply to in order to ensure satisfactory performance. Specific guidance on how to fulfil the requirements are published by non-profit knowledge providers in the form of directions that professionals may apply to conform to the requirements. Some of these are local implementations of international standards and others are codifications of existing customs and best practices. The different knowledge providers are closely linked to each their professional area of expertise and exert a strong and relatively direct influence on professional practices in the industry. Where actors within the state and the knowledge provision sectors produce input to the building code and technical standards, the remaining actors play a role in relation to customs and practices. The insurance sector contributes to the technical knowledge commons by legitimizing and delegitimizing solutions and products through insurance policies. This is an indirect way of preserving certain customs and practices, as some new and untested solutions are attributed high risk and can be difficult or costly to ensure thus preventing use. In the case of the Building Defects Fund, they monitor existing buildings one and five years after completion and publicize statistics of recurring defects to contribute to the promotion of quality and efficiency in the construction industry. Companies in the sector reproduce and contribute to the gradual codification of customs and practices and rely heavily on the aids that are part of the technical knowledge commons. The judiciary, most notably the Danish Building and Construction Arbitration Board, monitor customs in the industry through rulings in cases of disputes and misconduct. In this way, legal practice plays a role in determining proper practice and contributes to stability in the industry. All these actors are connected to each other by their distributed contributions to the maintenance technical knowledge commons rather than through hierarchical relations.

Sequencing interlocks have developed hand-in-hand with a meta-routine we refer to as standardized problem solving. Standardized problem solving is an approach that is particularly suited in situations characterized by high degrees of uncertainty, as it is an efficient way of coordinating interdependent tasks whether through standardized work processes, outputs or knowledge and skills (Kadefors, 1995). Standardized problem solving is at the core of the technical knowledge commons, as it prescribes specific guidance and standard solutions that professionals follow. When the technical knowledge commons was legislatively formalized in the 1980s, the building regulation was characterized by its prescriptive nature. This meant that the building code contained specific solutions that were considered acceptable in the legal-regulatory field. Standard solutions were actively promoted in unison by state and industrial actors as they could help achieve the political aspirations of providing sufficient housing while contributing to efficient production and economies of scale.

The second type of interlock, we have identified, involves a set of actors that relate to the technical knowledge commons due to their technical expertise, and reproduce norms and customs by playing different roles in various parts of the system. We refer to this as an expertise interlock. As the technical knowledge commons to some extent is constituted through a formalization of existing best practice in different technical

areas, it is common practice among the knowledge providers to draw on the technical expertise of selected experts working in the industry (or at other knowledge providers) in the process of developing new aids and guidance. This is a meritocratic model in the sense that individual experts are appointed directly by the knowledge providers, either permanently or on a project-to-project basis, to serve on boards, expert forums or workgroups based on personal technical merits rather than company interests. There is thus a dialectical relationship between these experts and other professionals in the industry that act as consumers of the guidance. The guidance to which the experts contribute has a prescriptive effect in the industry as other professionals use it as sources of reference in their daily practice. In addition to their role in contributing to the technical knowledge commons, experts moreover often work as appointed building experts. In this role, they are a part of the judiciary when they testify as expert witnesses in disputes and tort liability cases. The judiciary, in turn, defines both professional standards in the industry and what is to be considered technical knowledge commons through their specific verdicts and rulings. This is done by attributing different types of guidance more or less importance as sources of law, hence curating the formal bases of the technical knowledge commons.

Expertise interlocks relies on mechanisms of distributed enabling and policing. This meta-routine can be seen as a system of checks and balances that ensures compliance to the technical knowledge commons, and contributes to the formation, dissemination and reproduction of shared meanings (Lawrence and Suddaby, 2006) among actors in the field. Judiciary, state and professional actors alike conduct enabling and policing through formal and informal means. Formal means include verdicts from the arbitration board or other authorities. These are instrumental in legitimizing or delegitimizing certain construction products or technical norms. Aids and guidance are moreover produced that are based on de jure standardization work. This is e.g., the case in some technical areas, where expertise is controlled through accreditation and where international standards exist. As a part of the quality assurance and liability reform, publicly subsidized housing schemes are given two building inspections. The first, a so-called deficiency inspection, takes place one year after completion. The second is an inspection with the purpose of monitoring whether deficiencies registered at the year-one inspection have been eliminated. Appointed building experts conduct inspections, registering all deficiencies, which fail to comply with public rules, good ethics and practice or agreements. This work has led to a reduction of major deficiencies in public housing schemes, which has not been matched in other sectors, e.g., private housing, that have voluntary market-based insurance schemes. Informal means of enabling and policing include decisions taken by knowledge providers on which technical solutions to include in aids and guidance. Such decisions are not formally authorized or endorsed but are often made within self-selected groups or forums of experts that have been assembled to produce, or provide input to, new or revised guidelines within a specific technical area.

DISCUSSION: CHANGING FORMS OF COLLECTIVE ACTION

On the back of the preceding findings, we now turn to a discussion of how pressures stemming from globalization and deregulation challenge existing interlocks and meta-routines, and how a new form of collective, deliberate agency has arisen in response.

Deregulation and Globalization: A Challenge to the Technical Knowledge Commons

The technical knowledge commons was initially established under a strong influence of concerns for the intrinsic quality and durability of the built environment. In an

open-market perspective, the technical knowledge commons, and the standardized problem-solving it promotes, however constitutes a barrier for trade and innovation due to its prescriptive character and local embeddedness. In this context, prescriptive regulation is a barrier towards the aspirations of improving the industry's productivity through increased competition and uptake of new innovative products and solutions. Prescriptive regulations and a technical knowledge commons promoting standardized problem solving are thus not congruent with market values. Moreover, as the technical knowledge commons is a codification of existing local norms, a regulation predicated on these is argued to constitute a technical barrier to trade, which is problematic in a competition perspective. As argued by a respondent from a major business and employers' organization: "The way experiences are used is the problem. If it the technical knowledge commons was less prescriptive and more generic, it would be better [...] it should be technologically neutral".

In order to improve the productivity of the industry and transpose EU legislation into a national context, efforts have been made to decrease the state's involvement in the building regulations. This development is linked to the increasing deregulation and spread of market values in the public sector in general. This is a development that has been problematized by actors opposing the potential harmful consequences of an unrestrained market focus, where even ethics, as one respondent remarked it, have been commodified. Several actors see a conflict between societal values and market interests, arguing that the free circulation of construction products, underpinned by European standards, constitutes a race to the bottom in terms of quality.

We suggest that this development is driven in part by the reconfiguration of interlocks, where the state's role in maintaining a strong common technical good has decreased concurrent with the gradual abolishment of the prescriptive building regulations. This has resulted in increased reliance on international norms and standards and a spread of building methods and practices that have yet to be tested and codified. The distributed enabling and policing that is associated with this interlock, has also been considered problematic in context of the deregulation and globalization of the industry. In particular, the informal foundations of this meta-routine are a cause of concern in a market perspective. The lack of transparency in the production of technical knowledge commons is thus associated with illegitimate 'backdoor' regulation enforced by self-proclaimed experts. In order to avoid distortion of competition, increased reliance on international standards and certifications has been proposed. This, is, however, problematized as such measures support market interests, and are seen as a benefit for producers and not consumers and clients. A respondent from a knowledge provider thus stated: "Only the market remains [...] It will end up as the wild west if they get what they want. They just want to throw one product after another onto the market."

From Distributed to Collective Action

The above discussion highlights how two different change processes are at play. One is motivated by industry interests in dismantling the technical knowledge commons. This is a process driven by efforts to undermine the moral foundations of the technical knowledge commons, by questioning its efficacy and legitimacy with reference to a market logic. The technical knowledge commons, as a form of quasi-regulation, originally played an important role in extending the state's legislative reach and concretizing the intentions of the law into practice. It is the legitimacy of this type of regulation that has been called into question due to the spread of market-based forms of organizing. This development has been supported by more indirect mechanisms of

transformative change in the form of defection and differential growth (Streeck and Thelen, 2005). Defection is the slowly rising salience of subordinate relative to dominant institutions, which e.g., is based on the cultivation of a new logic inside an existing field. Differential growth designates a situation where new rules or systems are introduced onto an existing system and over time crowd out the old system. These mechanisms are seen in the way that functions that hitherto have been public affairs have become subject to demands for regulatory simplifications to improve efficiency.

From the perspective of proponents of a strong technical knowledge commons, the problematic consequences of the deregulation became apparent in the wake of the recent rapid and uncontrolled spread of an innovative magnesium oxide board used as wind barriers that were found to be unfit for this particular use. This led to costly damages in many newly built and refurbished housing schemes. In order to anticipate similar future issues, various professional associations established a joint working committee to prevent the spread of untested products and new ways of using otherwise known products. Acknowledging the state's limited capacity to impose legislation to prevent the uptake of certified, yet in a local context unproven products, we suggest that the committee's efforts constituted a shift in the mode of governance. This was accomplished through conscious efforts directed towards orchestrating collective interests and redefining the contested meta-routines.

In response to the criticism of the distributed enabling and policing that had created an expertise interlock, all sectors of the industry were invited to sit on the committee; architecture, engineering and construction associations, professional bodies, clients, insurance companies, regulatory bodies, manufacturers, universities and knowledge providers. The idea was to gain a wide representation of actors to avoid allegations of cartel formation and illicit decision-making. Despite announcing that the committee would not hinder innovation and the development of new products, the construction manufacturers and suppliers' association declined participation in the committee.

The committee and its members worked to legitimize their collective action and dismantle the criticism that the technical knowledge commons constitutes a 'backdoor' regulation enforced by self-proclaimed experts. As argued by a respondent from the major Business and employers' organization: "Certain bodies have more or less gained the status of being producers of the technical knowledge commons [...] certain requirements must be set for them". The collective response was to increase procedural transparency to comply with external demands. The committee framed itself as a forum for knowledge sharing to working to mitigate the potentially problematic consequences of different products. The working foundation of the committee was arguably apolitical with potential decisions to issue warnings against specific products or methods being taken not with the mandate of the committee but by the individual membership organizations. Moreover, several knowledge providers developed procedures for developing their aids and guidance that were informed by the EU guidelines on horizontal co-operation in relation to standardization agreements that stipulate unrestricted participation in the standard setting and voluntary adoption.

In both cases, we argue that the committee, by driving the development of shared expectations across the entire value chain, acted as a 'filter' (Geary *et al.*, 2019) to mitigate pressures associated with the deregulation and globalization of the industry. Lee and Lounsbury (2015) suggest that community logics can dampen (or amplify) the influence of broader field-level logics. In our case, it was done by reattributing the meaning of the infrastructure interlocks and meta-routines.

We do thus not observe structural changes as such but more a change in the mode of maintenance, driven by an institutional arrangement shaping social norms in a heterogeneous community. Unlike commons, where overuse leads to depletion of the resource, the tragedy of a knowledge commons lies in its potential underuse (Hess and Ostrom, 2007), which result from restriction of access whether through privatization, commodification or regulatory fencing. Knowledge commons play an important role in many sectors of society from educating and engaging the public to building inclusive, resilient, and safe societies and ensuring values that not necessarily can be monetized or be paid for by the potential beneficiaries. Levine (2007) argues that knowledge commons need protection by groups interested in their maintenance. He suggests that 'associational' commons, where groups are in control of a good, will be an important part of the democratic use of public goods in the future, as they can promote values and protect the common good while being held accountable through democratic deliberations and collective decision-making. This is also the case in our analysis, where we have seen how the proliferation of neoliberalism and market-based values and the retraction of state have strained existing institutions and prompted alternative forms of governance to emerge based on the collective action of heterogeneous actors.

CONCLUSION

The paper has focused on the governance of a particular knowledge commons in the Danish construction industry. We have shown how existing infrastructure interlocks and meta-routines that had contributed to a distributed maintenance of the commons have been challenged by pressures arising from the globalization and deregulation. In response, a new form of governance has arisen, which is based on the collective action of heterogeneous actors in the field. A particular finding is that the establishment of a community to defend the commons acts as a filter to mitigate the pressure from wider field-level developments. On this basis, it can be concluded that collective action in a heterogeneous community assumes a function in governing common goods in the absence of firmer state regulation. Time will tell whether self-interests will prevail, or the collective action will be for the common good of the industry.

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