Institutional pressures to digitalise and decoupling in project-based contexts: the case of BIM level in the UK's construction sector

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Introduction

The construction sector is among the largest industries in the global economy (Taylor and Levitt, 2004). However, the sector is not particularly innovative (Cao et al., 2014; Hall et al., 2018); scholars argue that innovations are hindered by industry fragmentation, risk aversion, and a culture of low-cost competitive bidding (Hall et al., 2018). The reform of this legacy sector has been an ongoing concern for governments in numerous countries (Smiley et al., 2014), who have applied coercive isomorphism to promote innovation and novel technological trajectories in this industry. For example, over the last decade, numerous governments (Whyte and Hartmann, 2017) coercively pressured public-sector construction projects in the US and several European countries for the use of building information modelling (BIM) (Aksenova et al., 2019). BIM can be conceptualised as a set of interacting processes and digital technologies that enhance coordination between various project stakeholders, thus facilitating the digital capture of required information throughout the whole project life cycle (Sacks et al., 2010). It has increasingly been regarded as one of the most promising innovations, capable of addressing performance problems that have long plagued the construction industry (Cao et al., 2014). However, recent evidence suggests that these coercive pressures and national BIM approaches have neither produced the envisaged digital transformation and systemic change within the industry nor progressed at the expected pace (e.g., Aksenova et al., 2019).

This research is empirically motivated by this failure of the construction sector, a project-based industry (Taylor and Levitt, 2004), to achieve the digital transformation expected through coercive isomorphism. There is a clear need to understand how projects, formed by a constellation of organisations, interact with, and respond to, environmental pressures, such as the pressures to digitalise. Organisational theory has long been interested in how organisations respond to environmental pressures; yet, this phenomenon has been under-theorised within inter-organisational project contexts (Söderlund and Sydow, 2019; Hetemi et al., 2020). The responses to environmental pressures at the project level are reflected in the work of multiple

interconnected actors – not individually, by single organisations. Also, the project management literature has persistently claimed that scholars have rarely studied projects' responses to institutional pressures (Soderlund and Sydow, 2019; Tonga et al., 2019). Building on these two bodies of literature, we ask: *How do projects respond to coercive pressures to digitalise?*

Responses of project-based industries to environmental pressures

Scholars have widely acknowledged that organisations adapt to technical pressures and environmental and societal expectations (Boxenbaum and Jonsson, 2008), leading to institutional isomorphism (DiMaggio and Powell, 1983). While organisations often conform to formal policies, plans and programmes from their respective institutional environment, they may also 'decouple' these formal structures from ongoing practices to buffer internal routines from external pressures (Meyer and Rowan, 1977; Westphal and Zajac, 2001). In other words, organisations are not passive receptors of environmental pressures; they respond to the institutional processes affecting them differently (Oliver, 1991). In recent decades, a considerable body of research has been built around this argument, and a range of studies have been conducted looking at organisational responses to institutional pressures. Studies have proposed categorisations of responses varying from coupling to lose coupling or decoupling (Oliver, 1991; Bromley et al., 2012), indicating varying degrees of non-conformity. Studies so far have primarily conceptualised decoupling as a dichotomy: some organisations implement exogenous pressures, often from policy, while others do not (Bromley et al., 2012).

Recently, some scholars started to assert that, in an increasingly managerial world that emphasises evaluation and benchmarking, the policy–practice form of decoupling might become less common, and another type of decoupling, named 'means-end', is on the rise (Bromley and Powell, 2012). These studies indicate that organisations that comply with imposed policies may not, or may hardly, achieve the ends that policymakers envisage (Wijen, 2014). Furthermore, studies suggest that multiple causes might be related to non-extensive compliance. Battard et al. (2017) asserted that organisations do not respond to institutional pressures as a whole; instead, physical (material elements and formal rules), mental (meaning) and social (identity) spaces of organisations integrate institutional expectations separately and varying degrees. Li (2017) also recently posited that decoupling occurs not only between 'doing' and 'saying' but also between 'doing' and 'meaning' and between 'meaning' and 'saying'.

Despite these contributions, decoupling has been chiefly investigated at the organisational level. As Crilly et al. (2012) pointed out, decoupling responses identified by previous research

are focused on single actors' responses, not when a constellation of project actors coordinates responses. This is the gap our research addresses.

Methods

We employed a multiple case study approach to explore and compare how project organisations interact with and respond to coercive institutional pressures. The coercive pressure imposed on projects and explored in this research is a BIM mandate: a set of interacting processes and digital technologies that enhance coordination between various project stakeholders, arguably facilitating the digital capture of required information throughout the project life cycle. The BIM level 2 mandate involves a range of standards, documents and tools that should be implemented across the projects' lifecycle to support capturing assets' digital information. Since 2011, BIM has become central to the industrial strategy for the construction sector in the United Kingdom. Formal structures have been devised and imposed as part of BIM coercive efforts, including standardised processes for managing information on delivery, handover and throughout the operation, and have been mandated in public-sector projects (Whyte and Hartmann, 2017).

However, evidence suggests that these coercive pressures have neither produced the envisaged systemic change nor progressed at the expected pace. Interested in studying how projects decouple from coercive pressures from governments, we considered this a suitable case study for in-depth investigation. More specifically, we looked at the implementation of formal structures as part of the BIM level 2 mandate in the UK – which mandates enabling digital tools and a range of standards and documents – to explore how projects decouple from the coercive pressure to digitise their processes.

Case selection and data collection

This research applied theoretical sampling to select projects that were implementing the BIM mandate across the UK. The longitudinal in-depth analysis encompassed eight construction projects (Table 1) from three different client organisations (hereafter project organisations A, B, and C).

Table 1. Overview of the projects.

Project	Description	Stage at the moment of data collection

Project 1	18,000 m2 six-storey building containing state-of-the-art laboratories	RIBA 6 (handover)
Project 2	2,600 m2 research facility for the study of neurodegenerative disorders	RIBA 6 (handover)
Project 3	Biological support facility for clinical medicine and biological sciences	RIBA 6 (handover)
Project 4	Three-storey building comprising laboratory and workshop spaces for engineering science	RIBA 5 (construction)
Project 5	37,160 m2 building comprising a range of laboratories, offices, clean rooms, and workshops as well as multiple lecture theatres for physics	RIBA 4 (design)
Project 6	Three-story educational facility with enhanced sports and arts facilities	RIBA 5 (construction)
Project 7	Laboratory-based facility for health and life science	RIBA 7 (in use)
Project 8	Teaching block, four-storey building for engineering science	RIBA 5 (construction)

Throughout data collection, we aimed for maximum variation: we diversified the selection of projects in different stages of their implementation (ranging from 'design' to 'in use') and years of experience that project organisations had with BIM. We collected data from 2018-2020, starting with five construction projects from organisation A – these were the first BIM Level 2 projects a project organisation had implemented, thus offering rich insights on cross-project variance. The data collection then progressed to evaluate a project from Organisation B. This organisation was more experienced than Organisation A with BIM mandates, as it had implemented BIM level 2 in various projects since 2011. We then collected data for two of Organization C's projects (7 and 8) – these were the first completed BIM level 2 project and

their second, which was still in the construction stage. We employed multiple techniques to collect data for the 8, as summarised in Table 2.

Table 2. Data sources.

Case study setting	Techniques	Transcribed data (pages)
Client organisation A (projects 1 to 5)	Semi-structured interviews with BIM managers and project team members Observations of meetings, BIM documentation analysis Secondary data analysis Shadowing of project stakeholders	1274
Client organisation B (project 6)	Semi-structured interviews with BIM managers and project team members BIM documentation analysis Observations of meetings Shadowing of computer-aided facilities management (CAFM) system provider	576
Client organisation C (projects 7 and 8)	Semi-structured interviews with BIM managers and project team members BIM documentation analysis Secondary data analysis	501

Multiple data sources were combined to 'reconstruct' how the mandate implementation took place. The first author interviewed 22 different project members, including the people undertaking the role of information management/BIM manager on behalf of the client organisations and behalf of the project teams, project managers, asset or facilities managers, designers, etc. We used a semi-structured questionnaire for interviews; this questionnaire included questions on each aspect of the BIM Level 2 mandate that had to be implemented,

which included questions on the implementation of each standard and its clauses (details of the standards that had to be implemented can be found in BSI, 2013). We also collected required documentation that had to be developed by project teams as part of the mandate's implementation and observed project team meetings to understand how the project team worked. We analysed internal reports from the client organisations on their BIM strategy.

Data analysis

The data-analysis process started with a within-case analysis of the projects. Throughout this process, we considered the different viewpoints of multiple project members in our data entries and used multiple data sources and triangulation to approach our data from different angles. We analysed which mandate requirements (i.e., the standards, causes, documents and procedures) had been adopted and implemented in each case. We then unpacked how mandate requirements were implemented in each project and the reasons for enacting the policy mandate. This was a starting point to allow us to move into a more systematic axial coding and comparison of the eight projects.

In our axial coding, instead of following a single methodological template, our approach involved methodological bricolage (Pratt et al., 2022). One of the authors open-coded our data, going through textual data to examine mandate requirements: whether they had been implemented or not, why and how. This process allowed us to identify and compare projects for similarities, differences or relationships.

We then synthesised our first-order insights into more aggregate and abstract themes. In this process, first-order responses to the BIM level 2 policy were categorised as i) non-implementation, ii) violation, iii) assimilation and iv) accommodation. If the standard or a clause of a standard was not implemented, it was coded as 'non-implementation'. Alternatively, if a clause/process was implemented but not fully implemented, i.e. part of the clause/its prescription was not implemented, it was classified as 'violation'. There were other occasions in which, despite clauses of standards being implemented, they were not implemented as envisaged – these were classified as 'assimilation'. When a clause was fully implemented, which means implementation in terms of prescription and meaning, it was classified as 'accommodation'. From these second-order categories, we abstracted two higher-level themes: that projects decoupled both from the 'what' (i.e., the content of a policy) and from the 'how' (i.e., the ways it is supposed to be implemented in order to enact its intended purpose).

Throughout this process, we also revealed the conditions leading to decoupling through the following first-order codes: strategic orientation, scripts from bodies of knowledge, repetition of role expectation, repetition of models of reality, early stages of adoption, existing authority systems, existing governance systems, repetition of existing procedures and reward and cost structures. From these findings, we categorised them as i) the willingness or the ability of project organisations to implement the policy mandate and ii) alternative (often competing) norms within the organisational and industry context. These two were grouped into the macro-theme "underlying conditions leading to decoupling".

Projects responses to institutional pressures

The data revealed that, when faced with coercive pressures, projects both comply with the imposed structure and decouple from it. We noted that projects 'adopt' the pressure discursively, either because they are too dependent on those imposing it or because of the societal expectations regarding its adoption. However, when it comes to implementation, the projects we studied presented a 'hybrid' response; they simultaneously coupled with some aspects of the institutional pressures for conformity and decoupled from others.

The findings revealed that a policy–practice decoupling phenomenon might occur at different 'levels', that is, in terms of decoupling from both the 'what' of the coercive pressure (i.e. its content) and from the 'how' (its intended meaning), revealing two variances of decoupling (Figure 1). Our analysis revealed four distinct responses that emerged simultaneously: non-implementation, violation, assimilation, and accommodation. Non-implementation and violation were conceptualised as forms of decoupling from the 'what' of the new structures that the coercive pressure has imposed. Assimilation is characterised as a decoupling from the 'how' of the imposed structures. Accommodation is related to the full implementation of the imposed structure, i.e., its content and interpretation. The findings showed that project members implemented all those types of responses simultaneously. Our data also revealed a range of conditions underlying decoupling and, more particularly, aspects related to whether institutionalised rules were coerced at both project organisation- and project levels or only the organisation-level.

Figure 1 – Projects' responses to institutional pressures and underlying reasons of decoupling.
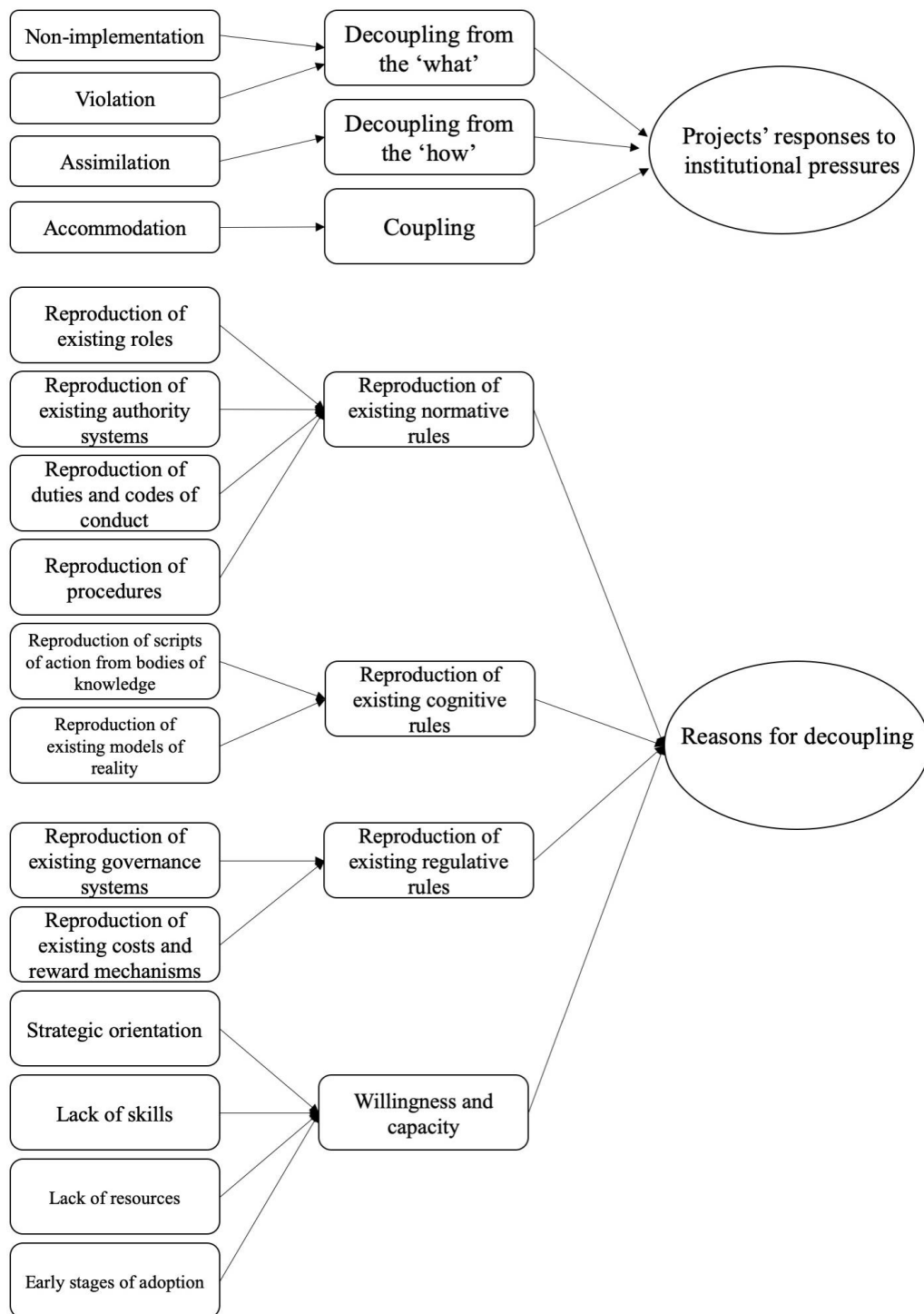
Contributions

Most existing research on policy–practice decoupling has conceptualised its occurrence as an 'either/or' proposition concerning whether organisations adopt it completely (in terms of the content) and whether organisational practices change or not. The findings suggest a hybrid approach to implementation. Existing literature has also proposed that achieving outcomes is

related to the full implementation of content (Bromley and Powell, 2012). However, as posited by practice scholars (Jarzabkowski et al., 2016), analysis of performance cannot be attributed merely to the adoption or non-adoption of practices without considering 'how' these practices are transformed when put into action. Our findings suggest that, in the conceptualisation of policy–practice decoupling and, more particularly, when considering outcome achievement, it is appropriate to consider decoupling both from the implementation of the content (the 'what') and the underlying intended meaning (the 'how') of the analysed practices. This proposal of a more fine-grained decoupling conceptualisation represents this research's first contribution.

Second, the findings align with recent studies (e.g. Li, 2017) in that decoupling occurs in the gap between adoption and implementation. Our results indicate that implementation might not be holistic because of a prior decoupling that occurs at the level of the imposed structure itself (i.e. a decoupling between what the proposed standards as part of BIM implementation 'say' and what they 'mean' for multiple project partners). In other words, the implementation might not be observed because there is a gap between what the imposed structure suggests and what it is intended to mean. Our findings thus contribute to decoupling literature (Li, 2017) by demonstrating that the formal structure might not be framed in a manner that induces awareness and the actions necessary for its full implementation.

Third, studies often interpret decoupling 'as a whole'; studies posit that organisations either couple or decouple (in different forms) their activities from policy and institutional pressures (Meyer and Rowan, 1977; Kern et al., 2018). The results in the context of projects reveal that multiple responses can be employed simultaneously during implementation; they partially couple or decouple from elements of a policy framework. By studying responses to projects composed by a range of organisations instead of responses from single organisations, we add more layers to the understanding of dissent and conformity in complex institutional environments. We mainly build on Crilly et al.'s (2012) argument that considering exclusively firm-level decoupling variables is only relevant when single actors direct firms' responses. In the case of projects, although the client plays a significant role in the delivery and activities enacted, delivery is coordinated by multiple actors whose actions are shaped by different institutional environments. We thus argue that a multi-level perspective, which accounts for both the organisational contexts of actors and the industry context, is appropriate to explain the responses employed by projects.

Fourth, previous studies primarily focused on exploring individual causes of decoupling to coercive institutional pressures, unveiling a range of firm-level variables or environmental circumstances that explain non-conformity. Recent research has revealed that a reconfiguration

of an organisation's 'spaces' involving physical spaces (the infrastructure and equipment, formal rules and role structure within the organisation), mental spaces (the shared meaning and sense that members make of their organisation and field) and social spaces (the sense of belonging and how identity is constructed concerning practices) is necessary for coupling with institutional pressures (Battard et al., 2017). As Battard et al. (2017) argued, although previous studies provide fruitful information by focusing on these various elements, they are typically considered separately. Our findings show that decoupling may present characteristics of conjunction and equifinality, namely, complex causality. This means that there are multiple paths and combinations of underlying conditions that coexist, and the different combinations of conditions are related to the decoupling variance observed in our study.

Conclusion

This study explored how projects, as a temporary and inter-organisational arrangement, decouple from coercive pressures. By exploring a context yet not studied (i.e., the context of projects), we reveal that projects decouple both from the content (i.e., from 'what' has been imposed) and from the intended purpose (i.e., the 'how' of implementation) of a policy and identify the underlying conditions leading to decoupling (i.e., the willingness and ability of the project organisations to respond to the imposed pressure and the reproduction of prevailing industry and organisational norms). Juxtaposing our findings with extant literature, we contribute to the literature with a more nuanced view of decoupling in distributed and heterogeneous institutional spaces and the complexities and conditions that lead to policy-practice decoupling in projects.

This research could consider only a limited number of settings and cases, as projects take time to complete. We encourage the examination of a larger sample of projects in construction or across sectors, as well as the investigation of decoupling of the 'what' and the 'how' as a process, unveiling a sequence of activities through longitudinal data across different stages of a project's lifecycle. Future studies could also compare decoupling across international BIM mandates; insights from these studies could improve policy mandates and support national efforts to transform the construction industry and BIM policy development.

In practical terms, our study provides policymakers with new ways of minimising the chances of policy-practice decoupling in large-scale projects, which may include different ways of designing policies, monitoring their implementation, coercion via regulation or in public procurement, or by establishing close collaboration between project members and regulatory agents.

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