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Construction Management Research in Nigeria

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ABSTRACT:

Construction management is a well-known field of study in Nigeria, with a thriving community of academics and industry experts. It has evolved from primarily'research consultancy' activities to also attracting significant amounts of academic research funding, and has, to some extent, moved away from its applied, engineering-dominated origins to more actively engage with and contribute to mainstream academic debates in business and management, economics, and the social sciences. As a result, it has evolved into its own academic discipline. Recent developments in Nigerian universities, polytechnics, and other institutions, as well as the national economy, are altering the landscape of construction management research. Traditional university boundaries are being blurred, research money is being reprioritized, and national and international rankings are becoming more important, putting more pressure on individual academics and the communities they represent. We investigate, via scenario development, what might the futures of construction management research be in the face of a chaotic environment? Convergence, retrenchment, disappearance, and hybridization are four possible futures for construction management research depicted as four alternative scenarios. These are examples of possible results from the current institutional dynamics. The goal isn't to foresee the future or to emphasize one scenario over another; rather, it's to start a conversation about the institutional pressures that the field is under and what might happen as a result.

KEYWORDS: construction management, futures, institutional trends, academic fields

1.INTRODUCTION

Construction management (CM) has become a recognized topic of research in Nigeria, with a recognised and expanding community of academics, since the 1990s. Over this time, construction management research (CMR) has progressed from primarily'research consultancy' activities to attracting comparatively large amounts of research funding, and has partially moved away from its applied, engineering-dominated origins to increasingly engage with, and contribute to, mainstream academic debates in business and management, economics, and the social sciences [note: CM is here positioned as related to, but distinct from, CMR]. CMR stands for construction management and organizational research. However, recent developments in Nigerian universities, polytechnics, and other institutions, as well as the country's economy, are altering the landscape of construction management research. Universities, in general, are undergoing change (Göransson and Brundenius, 2011). Increased rivalry for student recruitment has resulted in a greater emphasis on national and worldwide rankings, putting pressure on individual academics to publish in pre-determined areas and commercialize and "spin out" research operations (Chan, 2012; Rauhvargers, 2013). Concurrently, the recent economic crisis has led in a reprioritization of research funding in many regions of the world, which has not only slowed the expansion of the building sector. In light of this tumultuous climate, it's worth pondering what the future of construction management research in Nigeria might be.

Our starting point is a general overview of CMR's origins and evolution. We've noticed that traditional construction management researchers are increasingly focusing on challenges relating to more mainstream management and organizational studies (Chris Harty, Roine Leiringer, 2017). Furthermore, a continual influx of academics from various disciplinary backgrounds have found their way into the CM domain, as well as researchers from other disciplines demonstrating an interest in building in their studies of management and organization (Schweber and Leiringer, 2012). We argue that, while it is not always feasible to draw clear lines around what should be included in the term construction management, it possesses the requisite features to be classified as an academic field. Following that, a methodology is developed that enables for the study of CMR dynamics at three different abstraction levels: network, institutional, and external. The discussion then shifts to the several coexisting demands that CM academics confront, with an attempt to situate these against increasingly visible tendencies both within and outside the university system. We construct four probable future scenarios for CMR using principles from the intuitive logics school of scenario planning: convergence, retrenchment, disappearance, and hybridization. The goal isn't to reach hard conclusions or to prioritize one possibility over another; rather, it's to start a discussion about the many and contradictory pressures that CMR is facing, some of their probable implications, and the future of this comparatively young academic subject.

2. CONSTRUCTION MANAGEMENT RESEARCH

Despite the fact that there are several early chairs in building economics (Bruckner, 2009), CMR has its roots in engineering (Asforth, 2009). It has been frequently associated with more technical disciplines (Langford, 2009), and has been dominated by the 'engineering paradigm' of knowledge creation, i.e. the application of scientific knowledge in an applied domain (Stokes, 1997; Becher and Trowler 2001) using positivist and quantitative approaches (Fellows and Liu, 1997). However, the extent and depth of what is typically referred to as construction management has grown throughout time. Even while there are still disagreements about the level of methodological variability within the subject, the days when it was just an extension of operations management in the construction environment are long gone (cf. Dainty, 2008). CMR is now filled by people from many walks of life who may not necessarily have the same ontological and epistemological ideas on the methods they use or the goods that their work produces (Schweber, 2015). This has resulted in a large and heterogeneous body of knowledge based on findings from studies conducted using a variety of methodologies based on a variety of theoretical underpinnings, some of which are competing (Dainty, 2007; Fernie and Leiringer, 2009). As a result, there appears to be little in common between many of the CM academics in terms of background and attitudes about how research should be conducted. Nonetheless, they come together to form recognized entities such as research groups, divisions, departments, schools, and faculties. On a larger scale, rather than being bound by a shared knowledge, CM scholars are bound by a network of social connections. They interact on a regular basis through a variety of activities, including refereeing, co-authorship of books and conference and journal articles, visiting professorships, the external examination system, membership of various committees and professional bodies, national and international conferences, and a variety of seminars, panels, and events. As a result, CMR can be viewed as an arena with specific co-evolved logics that reflect the configuration, coherence, interests, and formation of its members over time (cf. Oliver and Montgomery, 2008). Consequently, while there is no clear definition of the phrase "construction management," CMR may be thought of as a distinct academic area with a relatively well-defined membership and set of social dynamics (cf. Whitley, 1984). Networks, institutions, and the external environment are all used to conceptualize the field. Whitley's (1984) definition of fields is particularly important for the purposes of this paper. He defines an academic field as a social organization of academics engaged in both the pursuit of novelty and the collective production of knowledge, with a reputational system that awards acknowledgment for contributions to that body of knowledge. As a result, no differentiation between categories of knowledge created, such as pure vs applied, or methodological coherence, is required in this definition. Instead, reputational and bureaucratic systems, as well as networks centered on intellectual activity, produce it. Whitley recognizes three major categories of factors that have an impact on academia. The first one is focused on 'networks.' Field cohesiveness is created through a variety of highly or weakly connected networks, without which the field would disintegrate. The field's relative cohesion and the field-based elites who bestow reputational recognition are thus crucial factors of whether the field is tightly restricted or loosely organized. Too much coherence, on the other hand, limits one's ability to add acceptable new knowledge. This is not to suggest that the sort of knowledge and the manner in which it is generated are unimportant. There is a contradiction between the unpredictability of scholarly pursuits of innovation and the development of information that adheres to widely accepted norms, methodologies, or notions. Indeed, this may lead to the adoption of research approaches that align with the academic network's reputational standards, rather than individual interests or relevance to the study subject. Regardless, a crucial component of field membership is the conferring of recognition through networks of academic peers. With a few notable exceptions (e.g., research institutes), the bulk of research-active academics work in university (Higher Education) institutions, which play an important role in the field's formation and evolution. As a result, the university's structure and operations contribute a second set of 'institutional' dynamics to the network. These institutional dynamics support the reputational system in part, but they also impose a level of bureaucratic control over employed academics in terms of imperatives such as income generation or preferred funders, interdisciplinary initiatives, commodification of research outputs, or even the development of new markets for undergraduate teaching. Reduced risk is also a clear goal for the organization, as are measures to make the quest of novelty more predictable and, thus, manageable and repeatable. This is done by being able to manage resources and incentivise certain activities, but it comes with a tension between control and academic freedom to follow new ideas, as well as the possibility of a conflict between the field and the institution. Academics face reputational and regulatory constraints from things like research evaluations, publication conventions, and promotion boards. However, academic constraints, whether reputational or bureaucratic, are not the only ones. External players, such as individuals, organizations, and sectors who perceive value in the study, are required for research in an applied domain like construction management. Such players have their own beliefs about the academic community's role and contribution, which range from long-term, theoretically informed study to short-term, problem-solving with direct impact. This alludes to a third set of forces at work in academia: 'external' demands from industry, government, funders, and other users of research products. Both network and institutional dynamics may be more or less aligned with these. For example, university research income strategies are constantly redrawn to align with government policy or funding objectives, and'research friendly' high-profile businessmen are common in research environments. However, these external dynamics can be recognized as influences on the field's overall structure, development, and continuity. As described above, combining network, institutional, and external modes of control offers a foundation for a tripartite framework of field level dynamics, which allows for the separation of a variety of factors, drivers, and pressures in order to consider future developments. The approach advances beyond the relevance versus rigour debate, which has been well-rehearsed in management circles over the last few decades, by distinguishing between research network, university institutional, and external / industry dynamics (cf. Hammersly, 2000; Pettigrew, 2001; Starkey and Madden, 2001). Rather than defining the dynamics of research as a conflict between academics and industry, it does so by distinguishing between reputational and bureaucratic control. This is significant because, while it is obvious that research must be credible in both locations in order to be relevant and academically sound, the methods by which credibility is granted are not unproblematically aligned to each. As a result, the paradigm is beneficial since it provides for a better understanding of how reputational recognition and credibility (Breslau, 1997) are gained. In other words, the framework enables a more nuanced recognition of academic and external influences. We describe how the three dynamics interact in CMR and map out developing trends and existing pressures within the three sets of dynamics that affect recognition and credibility in the area in the following sections. We do so because we recognize that these many tendencies complement and support one another while sometimes contradicting and causing conflict. We focus on research publication and assessment, the conflict between research and teaching, and the ever-changing impact agenda.

3. EXPLORING THE DYNAMICS OF THE CMR FIELD

Publishing and Research Evaluation

Established reputational sources of legitimacy in academia are underpinned by discipline knowledge structuring and peer evaluation. Academic life has traditionally revolved on a number of social and organizational systems that are more or less internally consistent and generally homogeneous (Whitley, 1984; Breslau 1997). The balance between the search of novelty and new knowledge and regulatory institutional forces, on the other hand, is gradually shifting. Most notably, journal rankings and citation indices are becoming increasingly important measures of reputational legitimacy. Citations and journal rankings are increasingly being utilized as indicators of institutional quality and as a technique of establishing prestige for universities in general (Bornmann et al. 2013; Rauhvargers, 2013). A publication's 'value' and 'quality' are determined by the perceived quality of the journal in which it is published, the amount of citations it receives, and a variety of time-related indices (van Raan, 2005; Rauhvargers, 2013). As a result, academic units' publications in high-ranking sites and citations are strongly linked to their academic quality rankings (Judge et al., 2007). Even though there are alternatives, such as the 'SC Imago Journal Rank,' the Thomson Reuters1 (Web of Science) 'Journal Citation Reports,' with all of its shortcomings (for a detailed critique, see Macdonald and Kam (2010)), has become a dominant measure and is acknowledged in most nations. The above notion of academic reputation shapes (and reinforces) a number of major institutional developments. Evaluations of'research excellence,' for example, are becoming increasingly widespread around the world under many names (e.g. Australia, Hong Kong, Italy, Portugal and United Kingdom). In general, these are focused primarily on the evaluation of publications, and the outcomes have a substantial impact on state funding allocation. Publications, particularly citations, are also important components in bigger University ranking activities, accounting for about 36% of the overall score in the Times Higher Education rankings, for example (THE, 2014). Another example is the importance and weight that major funding sources, including national research councils, place on publications and citation indexes. This is evident in the evaluation of research proposals, but it is also evident in various national ratings of individual academics, such as the National System of Investigators of Uruguay's Agencia Nacional de Investigación e Innovación (SNI, 2016) and the NRF Rating of South Africa's National Science Foundation (NRF, 2016). Overall, the aforementioned trends have resulted in increased network and institutional pressure on individuals to publish. It has led to the emergence of official and sometimes highly unofficial incentive schemes that motivate (or pressure, depending on one's point of view) authors to publish in specific types of channels. The final result is a university system in which publications, citations, and impact factors are inextricably related to hiring, promotion, compensation, and external funding procedures. This is a trend that, in my opinion, favors heavy-handed bureaucratic control above the freedom to pursue creative ideas and opportunities through research.

The above-mentioned advances provide a fairly consistent playing field for established academic specialties and mature fields. Even if some disciplines have shown to be more resistant to the rising use of metrics, there is a discernible quality difference between better and lower rated journals in a given domain, and critical mass around specific techniques and theoretical perspectives. This allows for a more cohesive, stable, and cumulative peer network over time. However, in CM, the concept of disciplinary structure through reputation is far from obvious. To begin, the plurality of epistemological and ontological viewpoints held by academics in the discipline, as well as the diversity of research topics and theoretical underpinnings, characterize research outputs, preventing the creation of a homogeneous knowledge base. Second, in CM, the growth of narrower, specialised journals, such as those observed in organizational studies, has been challenging to maintain. Indeed, over the last decade, development appears to have gone in the opposite direction, with a proliferation of broad, all-encompassing CM publications with little difference in focus. As indicated by the small number of journals listed in the Web of Science, the complex referential networks that characterize established academic subjects are far less visible in CMR. As a result, it's unclear how a CMR scholar might achieve high institutional reputation while writing in the CM sector. As a result, the CMR unit as a whole is unavoidably at a disadvantage in comparison to many other departments and faculties due to the way these present "rules of the game" are changing. A logical solution, which is gaining traction, is for CM researchers to try to publish in 'ranked' journals outside of the subject, as well as to attend conferences in more mainstream organizational, management, and engineering areas. However, this is not always simple, as it may demand modifications in content, techniques, and presentation. Indeed, the same reputation-building forces are at work in a distinct set of networks. It also jeopardizes the field-level CMR network's coherence, as people who succeed begin to engage with and migrate into competitive fields.

4. TEACHING AND PRACTICE

Despite the foregoing, it is critical to emphasize that research is not the only way that field dynamics shape CMR academics. It's a tough market to break into when it comes to luring students. Although publications have become increasingly important in determining university rankings, teaching remains critical to a university's success in this competition. This has resulted in additional, albeit contradictory, institutional demands regarding research focus and distribution of findings. Academics must respond to new and emerging issues as well as engage with existing non-academic interests. Simultaneously, academic institutions are expected to provide a relatively steady base of information (i.e. text-book learning) in digestible pieces that informs, and in some cases even comprises, the activities, issues, and settings of "construction" and "construction management." This creates difficulties between offering an academic education and educating students to be competent practitioners. Professional accreditation systems are a good example of this. Academic units in countries that do not subscribe to the professional system are now looking for professional accreditation for their courses as a method of remaining competitive on the world stage. In an interview, the Dean of KTH Royal Institute of Technology's School of Architecture and the Built Environment described obtaining international certification for domestic courses as a strategy of attracting international students (Hult, 2010). It has long been contended, somewhat paradoxically, that university instruction in general, and management education in particular, fails to provide industry with personnel with the necessary skills to improve enterprises' competitiveness (e.g. Linder and Smith, 1992; Pfeiffer and Fong, 2004). However, the performance of educational institutions is still mainly determined by student attraction, which is derived in no small part from the employability of graduates with specific school or university diplomas. The rising financial relevance of self-funded courses, as well as continuous professional development (CPD) and company-specific courses (at times on the scale of academies) given and approved by universities, is also worth considering. This necessitates a closer alignment of external and institutional reputations.

5. RESEARCH AND EXTERNAL STAKEHOLDERS; THE IMPACT AGENDA

When we look at the status of research outside of academia, we discover that it is more varied than it is within the academic reputational system. Multiple groups impart external credibility and acknowledgment, including advisory committees, private and governmental research funders, industry spokespersons and practitioners, and so on. The practical (and non-academic) ramifications of research, as well as its utility as a resource for controlling, influencing, or understanding corporate situations, provide research credibility in business (broadly defined). Thus, when considering academic outputs from the perspective of industry, it is evident that the effectiveness of the resulting outputs in genuinely affecting industry and society cannot be determined by citation indexes or journal rankings. Furthermore, few in industry are likely to be concerned about citations or the journals in which academics choose to publish. The immediate benefits that may come from research results, as well as the perceived competitive advantages that these may provide, are far more crucial. Potential impact is beneficial in terms of framing research, but easily identified benefits are better. There's no denying that industry prioritizes short-term answers over long-term impact, and that there's a correlation between external reputation and the ability to deliver such solutions. Research that is highly focused on tackling current industrial challenges and hence ostensibly high in relevance appears to be favored from a policy and financing standpoint (Fernie et al., 2006; Green, 2011). Recent trends in national research bodies placing a greater emphasis on match funding can be argued to be increasing industry influence on academic research. For example, the Innovate UK funding board in the United Kingdom demands industry-led proposals with matched financing from private enterprises, as well as academic institutions as supporting partners. Given the foregoing, it is not unreasonable to believe that institutional bureaucratic pressure and external reputation are becoming increasingly aligned. The impact of research on industry and society is becoming a more relevant metric for university ranking and profitability. However, this may lead to a move away from peer networks that grant reputation based on novelty. In addition, there are growing efforts to physically bring academics and industry closer together, as well as new trends toward blurring traditional university boundaries. This manifests itself in a variety of ways, including the allocation of space on university campuses for start-up enterprises, the construction of science parks on or near university grounds, and the co-location of commercial and academic departments. There is also a growing trend toward industry-facing education, with universities moving away from offering various types of CPD courses and part-time degrees and toward bespoke MSc courses with organizations guaranteeing a certain number of students per year, and even the delivery of specially tailored 'academies' by one or several universities for public and private sector organizations. In the Netherlands, the private sector Shell Project Academy and the public sector National Academy for Project Management (Neerlands Diep) are examples of the latter. Universities are also expanding into new areas like spin-off commercialization of research outputs and consulting. Indeed, many institutions have made 'business,' both economic and social, a primary strategic issue. The foregoing tendencies have a parallel for the CMR field: academics are increasingly required to sell their ideas (and themselves) to a diverse variety of potential consumers in volatile and increasingly overlapping marketplaces. It's not as simple as touting academic research's distinguishing traits or 'unique selling factors,' which have typically included scholarly rigor, a unique (non-business focused) approach to understanding, and a dedication to long-term knowledge creation. While this may indicate a better convergence between external and institutional reputation, it is still a long way from the academic peer network reputation system.

6. FOUR FUTURE SCENARIOS FOR THE CMR COMMUNITY

If the preceding discussion has taught us anything, it is that construction management as a subject of study is dynamic, and that it is currently confronting a number of pressures that cannot be explained only in terms of academic vs industry agendas. We've previously referred to how individual academics deal with these demands as 'playing the game' (cf. Authors, 2008). This excludes techniques such as writing and citation 'clubs,' as well as the indiscriminate exploitation of data sets across several publications. We also don't mean pursuing citations via social media marketing. Our point has been that, in general, CM researchers are excellent at collaborating with industry and obtaining research funds. Many researchers and research organizations take satisfaction in cultivating and maintaining long-term relationships with both research funders and industrial collaborators. We've also suggested that most CM academics are more or less aware of the larger contexts in which industries, businesses, and other institutions, such as universities and research bodies, function, and that they aim to position their research in those contexts. As a result, we believe that CM academics have reacted to existing and emerging challenges by engaging in many games with various stakeholders. Ideas and outputs are developed and modified as they progress through funding, research, and publishing processes through determined attempts to play these numerous games. This debate, on the other hand, has focused on the predicament of the individual professor, and it is evident that there are significant structural concerns involved. If you go too far in the direction of impact and relevance, you risk drifting away from the epistemic terrains of academic research (cf. Elzinga, 1985). If we go too far in the opposite direction, we risk removing CM scholars from both their empirical environment and their graduate market. Although CMR is a relatively young discipline, neither of these strategies appears to be long-term viable. Instead, we're starting to extrapolate some of these phenomena from a CM field perspective, rather than at the individual level, such as the demands on publishing and funding, the increasing external emphasis on 'impact' or relevance, and the evolving landscapes of construction sectors. The basic principles of the intuitive logics school of scenario construction are used in our method (Amer et al., 2013). This is a highly subjective and qualitative strategy that allows us to generate a qualitative set of feasible situations and their consequences in the form of a narrative (ibid.). We want to emphasize that these scenarios are not forecasts, and we're not recommending one scenario over another or endorsing one reputational control technique over another. We're also not attempting to favor one set of activities over another. Furthermore, we are not claiming that the numerous actions listed below are original or our own invention; they are currently occurring in various forms and to varying degrees (in CMR as well as in other domain based research fields). However, as tools for thinking about CMR's ongoing growth, these scenarios show, if nothing else, the breadth of possible futures. So, based on our trend mapping across the three abstraction levels and taking both reputational and bureaucratic controls into account, we propose four alternative future storylines below: convergence, retrenchment, disappearance, and hybridisation.

7.CONVERGENCE

This scenario considers the harmonization of the corpus of knowledge as well as groupings of research challenges that CMR may be centered on. Disciplines can be loosely described as advancing toward increased specialization and fragmentation, such as into multiple sub-disciplines, or as convergent on a set of specific concerns, epistemological stances, and empirical areas (cf. Abbott, 2001, Pfeiffer, 1993). Indeed, Kuhn's model of 'normal science' outlines the gradual accumulation of new information around well-established and widely agreed-upon theoretical positions — paradigmatic upheavals are rare. As a result, there is agreement in this scenario on the main topics and issues that CMR is concerned with, as well as the methodological approaches and theoretical viewpoints that will be used to address them. There is also a collection of distinct construction management publications in which research findings are distributed; and agreement will have developed around a number of 'classics' that form the paradigm for the subject, as well as for a highly cohesive area. One driver for this scenario could be repeated requests for the CM community to become more cumulative in its knowledge development, and to cease reinventing long-standing problems and rehashing current research projects. Another factor could be institutional pressures to present research-intensive CM schools, departments, and divisions within the university as having a separate and identifiable identity in order to compete for internal resources and support. Another potential impetus is the need to enhance citation rates; a shift to a narrower, more gradual agenda would result in more constant and regular citation of prior related work. In terms of industry relevance, the constant pursuit of improvement is likely to gain traction throughout vast swaths of any construction business. This, however, should be addressed with caution. Existing, similar work may appear enticing and uncomplicated in terms of implementation, but academically derived redesign of construction businesses or processes has had a limited uptake. In terms of research, this scenario entails the use of common methodologies and languages to allow for the steady accumulation of and incremental additions to a shared knowledge base. CM becomes increasingly cohesive, homogeneous, and distinct from related sub-disciplines as a field (such as social science management and organisation studies). In terms of finance, the research agenda would undoubtedly reflect a focus on effect, and a unified voice could be more compelling in expressing the need for research support. On the basis of rising citation rates and various impact metrics, CM journals would become more coherent and cohesive, with the capacity to compete on reputation with more'mainstream' publications. Journals that reflect and represent a narrowly specialized field would emerge. However, it is not clear where the primary attention will be placed. However, there has always been a large body of research on improvement and efficiency issues in construction management, such as learning across projects, critical success factors for projects or firms, productivity (at organizational and sectorial levels), and so on, all of which, implicitly or explicitly, take a positivistic and instrumental / rational approach. This use of operations management-oriented methodologies in general could help to create a research agenda for the CMR discipline. However, this would limit prospects for variety and, in the community, could lead to the exclusion of those few voices that differ from the acceptable majority. Indeed, one of CMR's most distinguishing features is its diversity, as well as the way it (sometimes successfully, sometimes unsuccessfully) depends on a wide range of supporting disciplines.

8.DISAPPEARANCE

CMR has occupied an uneasy position in academia, juggling industry relevance while competing in a crowded academic space dominated by two- to four-year publication processes, large data sets, disciplinary conventions, and, not least, a diverse set of similar (but perhaps more established) research fields. Competing in the many established disciplinary domains is difficult, but CMR succeeds as a field (rather than as individuals) in this circumstance. In this sense, success means adhering to bureaucratic and network controls by publishing in mainstream social science and organization journals, rather than construction management specialist journals, and being cited there; securing the majority of research funding from social science funding bodies; and establishing CMR as a community of academics that contributes substantively to debates about individuals, organizations, and society. In other words, construction management as a distinct entity is fading, with academics and research shifting from more or less specific construction management units to business schools, social science faculties/departments. The success criteria become mainstream journal outlets, general funding, and broad academic quality. This scenario is driven by the pressure to pursue funding opportunities outside of the CM domain on the one hand, and the pursuit of citations and publication in highly regarded academic journals on the other, with all the changes in research designs and perspectives on knowledge accumulation that entails. It shows a gap between research and teaching, with the latter emphasizing transferrable skills and industry-specific practical knowledge. It also poses a threat to the CMR community's current level of industrial connection. To put it another way, academic reputation as determined by peers, combined with bureaucratic forces, has triumphed over external demands. As a result, research becomes longer-term and more detached from the messy reality of building, as well as much more targeted to a separate academic community. Indeed, the inference is that the CMR field will merge with or be swallowed by more established academic subjects. Joining university cross-departmental research institutes could be a good place to start. Specialist construction management journals are also disappearing in terms of research output as academics move to non-CM units and submit to non-CM periodicals. Construction management as an unique field with its own identity and existence within colleges eventually fades away. The community spreads across a variety of fields and institutional departments, becoming a diaspora. Construction is reduced to an empirical realm, under the examination of academics such as organizational theorists and social scientists. Although CMR is no longer unique, it does contribute to knowledge in these domains. This poses several fundamental questions in the realm of CMR. First and foremost, what would happen to the education that had been planned? Large consulting and contracting firms have already stated that they will no longer hire construction management graduates, preferring instead to hire civil engineers, architects, or scientists and then train them in management internally. Professional accreditation is becoming more important at the same time. Construction management degrees are reliant on graduate demand; if that demand falls, so does student recruitment. Second, industry impact is pushed aside in favor of more in-depth (and rigorous) academic research. The sector's connectedness will unavoidably be reduced as a result of this; and while it eliminates the problem of academics becoming handmaidens to business, the relatively easy access that many CM academics already enjoy will become more difficult to create and retain. Both of these concerns are intertwined. The sector recognizes that the field knows something about construction management, that it has a profile as a community contributing to the sector, and that it supplies expertise that the sector lacks, which drives the demand for graduates. If this degree of relevance and participation is lost, CMR's image in the industry may suffer, and demand may fall even more.

9. DISCUSSION AND CONCLUDING REMARKS

While national and international settings vary, it is obvious that CM scholars all over the world face numerous obstacles and varying demands. Industry is frequently described as desiring simple, immediately applicable solutions. On the one hand, research funders demand industry-engaged, problem-solving research with external non-academic impact, and on the other, publications in high-quality journals; and their goals and financing structures are constantly shifting in order to appeal to industry and government. Universities, like employers, impose pressure on academics to secure financing, disseminate core knowledge through teaching, and publish cutting-edge research that answers industry concerns while also maintaining and enhancing the institution's academic standing. University reorganization puts strain on established fields, such as the elimination of faculties and the reorganization around interdisciplinary themes. It is apparent that institutional pressures inside the university system are making attracting research funding and publishing in high-impact journals more important. Simultaneously, the necessity of adhering to external pressures, not least through close ties to industry, is at an all-time high, as funding agencies increasingly want co- or match funding from industry, as well as a visible influence on business and society. CMR, like arguably most other domain-focused research, faces a difficult challenge in establishing better integration with the wider foundation disciplines of the social sciences while maintaining field-specific skills such as excellent contextual knowledge and the ability to connect with industry (cf. Bresnen, 2017). Increasing or broadening the subject of investigation, such as switching from project management to project management of projects, or altering the 'label on the jar,' such as rebranding from CM to 'Built Environment,' may help to boost reputational legitimacy in the academic field. However, it dilutes the area in terms of shared logics, whether social or intellectual, and it makes no mention of publishing. On the other hand, there is an argument to be made that some of the nested fields within CMR, such as Lean Construction, are in a stronger position here due to their alleged methodological consistency. Such nested fields, on the other hand, might not be large enough to live on their own. One answer is to think of CMR as having some 'interpretive flexibility' (cf. Bijker 1992) that allows it to be moulded or mutated in various ways depending on the intended audiences. Underneath this flexibility, however, must be fundamental research pursuits that represent academics' genuine and independent interests. As a result, the question of how much flexibility 'core' research must have automatically arises, as well as the amount to which the moulding of research ideas can be divorced from the research process itself. And how would we avoid the dilemma of the research becoming diluted or stretched in order to serve various audiences, and thus losing or changing its emphasis - Elzinga's (1985) 'epistemic drift'? Academic institutions' research goals and procedures alter when their priorities shift in response to new external constraints, such as government requests to connect more with industry or demonstrate the non-academic significance of research.

On a research network, university institutional, and external / industry dynamics level, we attempted to map out existing and emerging patterns. Our method of scenario planning yields no scenario that is more likely than the others. Instead, the purpose of this paper is to raise issues, and it has been written from a deliberately confrontational standpoint. The goal was to shed light on the institutions that regulate the CM academic sector and to investigate their potential consequences. Given the nature of the exercise, we are confident that there are trends that we have overlooked, and that we may have exaggerated or minimized the significance of some of the trends that we have reported on. We're also aware that they'll play out differently in different nations and regions, despite the fact that one of the CMR field's most important features is its international peer network. What we've done is taken these patterns and investigated what would happen if they appeared in various combinations and with varying degrees of prominence in the CMR field.

We haven't gotten into a debate about what is right and what is wrong, or what is good and what is evil. Our contribution, such as it is, is that it moves beyond a binary debate between industry relevance and academic rigor, replacing it with a more finely grained framework that accounts for synergies and tensions among a variety of institutional, network, and external dynamics that influence academic activity. But, if we claim to make a compelling case here, it is that the CMR community as a whole is not capable of continuing to play several games in light of current developments, and that, despite the choices, the field is in a critical phase of transition. Our hope is that this will spark discussion and, as a result, contribute to the field's advancement.

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