

Power and sensemaking in megaprojects¹

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Abstract

Megaprojects are complex achievements of organization, sensemaking and management of power relations. Typically, engineering practice stresses rationality and linearity, exemplified in the nineteenth century roots of modern management in writers such as Taylor or Fayol. A concern with contingency theory and the emergence of project management standards hardly changed these auspices. The emergent focus on soft systems theory and a more recent interest in the practice turn did begin to change megaproject management representations somewhat. In practice, megaprojects are occasions for much complex sensemaking, as Weick defines the concept. In turn, where there are different interests in different sensemaking, then power practices and relations need to be brought into focus. The chapter does this through discussing a number of studies in which these issues have been the focus.

Keywords: power, power relations, positive power, negative power, sensemaking, organization theory, practice.

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Introduction

By conventional account, megaprojects are large, transformational and complex undertakings with a long duration. Typically, their estimated cost is more than US\$1 billion (Aaltonen and Kujala, 2010; Flyvbjerg, 2014), although we agree with van Marrewijk (2015, p. 16-17) that it is less the money involved and more the substantive features of the large scale project that are significant. Above all, megaprojects are complex: complex in design, technologies, innovation, ambiguity, uncertainty, management, finance, budgeting, environmental impact, and mobilization of social movement and citizen opposition; in their temporality and temporal impact, public scrutiny and accountability; in their inter-organizational relations, in collaborations between public and private sectors, and in their multi-phasing and non-linearity.

The large number of influential and critical stakeholders assures complexity from both the public and private sectors; often they are of such significance that they have a great impact on the society (i.e. affecting millions of people) and are an object of considerable scrutiny. The most visible megaprojects leave a spatial footprint as construction projects of one kind or another; however, megaprojects are not exclusively construction works — they can occur in IT, defence, innovation, disaster relief and many other fields. With regard to their impact and the amount of resources dedicated to their delivery, megaprojects are not simply “magnified versions of smaller projects” (Flyvbjerg, 2014, p. 6) but have distinctly different problems, power dynamics and structures. Their size, duration and complexity make them costly sites of complex processes of contested sensemaking and power relations.

Once upon a time many such projects would have been public sector initiatives. As a result of the *mega-costs* associated with megaprojects and cuts in government spending, an increasing number of megaprojects rely on private investments from banks, private investors, or capital funds. Investors have their own objectives, which may not be entirely aligned with the overall objectives of the project *per se*, making the megaproject arena an even more fertile ground for power dynamics to affect project progress. External involvement of private sector capital means that continuation of vital project funding becomes partially contingent on third-party considerations of medium-term return on investment, which can affect important decisions throughout the project lifecycle. These questions of financial calculation and related considerations dramatically change the nature of negotiations and the decision-making processes in megaprojects. In other words, megaprojects face major social, political and cultural challenges, especially in the context of multiple stakeholders whose objectives, goals and strategies will, in all probability, not be aligned.

Megaprojects are typically designed, organized and delivered as mainly engineering-based (Giezen, 2012); typically the rational, linear, quantitative and value-neutral (Çiçmil et al., 2006) aspects of project management are favoured. The dominant scientific, normative and dualist assumptions of traditional project management define these projects mainly in terms of project structure and prescriptive processes. Such assumptions ignore underlying power dynamics both in the start up phase and in subsequent actions characterizing project practice (Çiçmil and Hodgson, 2006; Clarke, 1999; Clegg, 1975).

Given the increasing number of megaprojects and the movement towards the

professionalization of the discipline, project management practice has struggled to develop workable solutions and practices to address complexities that exceed the technical concerns of engineering. While there is a growing awareness that traditional project management approaches fail to meet the required standards of managing megaprojects, there is still a shortage of theoretical knowledge to draw on (e.g. Flyvbjerg, 2007; Holmes, 2001; Maylor et al., 2008). Such knowledge exists but is rarely incorporated into the engineering discipline because it is embedded in social science accounts of organizational politics. While successful project managers have to become adept at the 'dark arts' of managing organizational politics they often do so less through formal instruction in the discipline and more through embedded custom and practice learnt on the job. The chapter will look at current practices underlying the management of megaprojects and explore the role and importance of power relations in understanding them. To do so the chapter must first address the ways in which the disciplines of management and engineering entered into a path-dependent alliance of disciplinary formation, one with an implicit set of power relations inherent in them, that constituted a rationalist bias in analysis ill-equipped to deal with the realpolitik of projects.

Evolution of (mega)project management

Early project management

Project management as an explicit field of research began in the late twentieth century (Paton et al., 2010). However, significant interest in project management as a formal area of research started as early as the post-World War II era, with the significant growth of engineering-based disciplines such as construction, defence, chemical and aeronautics industries (Morris, 1997, p. 19) and projects that could be described as megaprojects, even by today's standards. A preference for technical, scientific knowledge due to the dominance of the engineering discipline led project management practice towards a focus on quantitative, positivist techniques and methods. Projects were researched in ways that aligned with existing engineering-based management methods as promoted by founders of modern 'classical' management techniques, such as Frederick Taylor and Henry Fayol.

Engineering metaphors were readily acceptable in the work domains of projects and their management. The early formalisation of project management was particularly influenced by the aerospace industry (Morris, 2013, p. 13), drawing on hard systems thinking approaches, such as Systems Engineering and Systems Analysis (Morris, 2002), cybernetics (Urli & Urli, 2000, p. 33), emphasising the quantitative use of techniques to control the budget, schedule and quality of a delivered product (Yeo, 1993, p. 115). Project management systems evolved, such as the program evaluation review technique (PERT) and critical path methods (CPM), building on the engineers' technical and scientific knowledge (Packendorff, 1995; Winch, 1998). These techniques tended to assume that the manager existed in a stable, closed, and uncontested world, one in which management control was a prerequisite, where it was possible to design solutions to problems clearly defined and blueprinted in advance early in the project lifecycle.

Contingencies always arise, of course: increasingly, from the 1960s and 1970s, project management learning moved from drawing on the singularity and linearity of individual (organizational) experiences towards a theory of standardised rationalisation (Paton et al., 2010). The standardisation of rationalities embedded in engineering knowledge and

local practice invariably meant the reassertion of the legitimacy of the former over the latter. By the 1980s, the emergent discipline had advanced to become what we now know as “mainstream project management” (Çiçmil and Hodgson 2006, p. 2). Innovations in technology enabled organizations to develop sophisticated project management tools (e.g. PRINCE2) and assisted the quest to professionalise the field, using the latest advancements drawn from the success of IT in the newly conquered computerised world. Those IT-based tools were used for planning and control as well as risk management (e.g. Monte Carlo). The use of IT systems satisfied clients’ desires for the appearance of precise, robust, quantitative and complete budget, risk and performance estimations that seemingly provided objectively accurate projections through using logical algorithms. The use of IT-based project tools as a universal solution to addressing the complexity of the modern project environment was increasingly relied upon as the way to further professionalise project management. The world of standards beckoned (Higgins, 2005| Higgins and Halström, 2008).

The development of standardised models for project management

By the 1990s, project management was expanding as a field of study and practice. Increasingly, its engineering-based roots were applied in many different industries and sectors (Paton et al., 2010), projecting many of its early assumptions, such as the validity of early definition and a reductionist emphasis on simplicity and unitary expression, into new fields of endeavour. The subsequent prominence of projects and project management became described as a “projectification” (Lundin and Söderholm, 1995; Midler, 1995) of the business landscape, seen to reflect a post-bureaucratic form of organizing (Paton et al. 2010). While the organizational model of bureaucratic management required a stable authority structure, which the flux and temporal instability of project life tended to personify, rather than attribute to structured authority relations, organizational stability in the post-bureaucratic form was embedded in standardised process, allowing structures to adapt to suit projects. Shifting towards a project-based approach of organizing has been a primary concern of organization studies since the 1990s (Whittington et al., 1999) as this ‘new’ structural form is characterised as being more dynamic, flexible, versatile, and predictable (Çiçmil and Hodgson, 2006). As such, Clarke (1999, p. 139) describes project management as a tool to address the changing world facing current business.

The implication of an increased reliance on projects as a universal solution to addressing the complexity of the modern environment and the increasing professional institutionalization of project management was to be achieved by introducing formal bodies of knowledge (e.g. PMBOK) that described the “generic nature” (Besner and Hobbs, 2008) of a project and provided a universally applicable recipe for project management. The PMBOK was very prescriptive, much as a Delia Smith (2009) recipe might be, rather than theory applied in practice. Project management and its methodologies were still typically seen as rational, linear and value-neutral, due to their natural evolution from an engineering-based discipline and their preference for quantifiable and objective project management tools (Çiçmil et al., 2006). The underlying assumption was that project managers face an objective reality that can be represented consistently in a representative project lifecycle, a model that serves as a tool with “predictive and exploratory power” (Çiçmil et al., 2006, p. 189). Implicit in this model is the assumption that the project can be managed and planned in advance. Due to the assumed objectivity of projects and their tools, traditional project management assumes

that projects can be managed in a pre-given form by applying universal 'best practices', where the strict, sequential and linear application of project management processes in each stage of the lifecycle will lead to a successful project outcome. Although there has been some acknowledgement that not all projects are alike, and that a variety of management approaches may be required (e.g. Turner & Cochrane, 1993), projects and their methods are typically assumed to be universally applicable in any given context and situation, and are able to provide simple solutions to achieve complex requirements (Winter et al., 2006). In this perspective megaprojects would just be projects, writ large.

The assumptions inherent to hard systems thinking continue to influence the practice of mainstream project management, even though it is now being applied in a wide variety of industries where the assumption of simply definable and agreeable goals, and a stable context, are often not supported.

The development of an interpersonal and practice-based focus

Although hard systems thinking remains a strong influence on mainstream project management, the debate within the systems thinking community has moved on. Starting in the early 1980s, a second broad group of approaches to systems thinking based on an interpretivist perspective started to emerge. These approaches, such as Soft Systems Methodology (Checkland, 1981) and Strategic Assumption Surfacing and Testing (Mason & Mitroff, 1981), emphasised the social and interpersonal aspects of a problem situation; that it is often necessary to facilitate the development of a mutually acceptable agreement on a way forward by structuring a problem situation, rather than exclusively focusing on the implementation of a technical solution. A variety of authors have argued for a greater emphasis on soft systems thinking in project management practice (e.g. Winter & Checkland, 2003; Yeo, 1993). Although it does not appear that the use of soft systems thinking techniques will soon become mainstream project management practice, the field does appear to be responding to the need for a greater emphasis on the social and interpersonal aspects of project planning and implementation, as the inclusion of stakeholder management as a tenth knowledge area in the latest edition of the PMBOK Guide (PMI, 2013) indicates.

*of in
advance
projects*

A greater emphasis on the context-dependant aspects of project implementation is also apparent in another recent stream of project management research that tries to overcome the issues of rationality and objectivity. Instead of aiming towards the development of universal models for the abstracted conceptualisation of project management, the emphasis is on the social science-based, process-oriented tradition of research (Blomquist et al., 2010; Blomquist and Packendorff, 1998; Engwall, 2003; Söderlund, 2002). Practice-oriented studies emphasise that projects and their underlying processes are relational, evolving over time:

relational

People make sense as they act upon their world and, typically, accept new practices insofar as they do not contradict their taken-for-granted knowing of what constitutes appropriate practice. The forming of a practice coming-into-being is always constituting and reconstituting itself: it is becoming per se. (Bjørkeng et al., 2009, p. 156)

Practice-oriented project management studies view projects as a "social and organized setting in which numerous conceptual organizational theories and organizational

behaviour frameworks can be applied and developed" (Blomquist et al., 2010, p. 6). The major contribution of the practice perspective is that projects must also be understood as social processes incorporating the complexities of social life (Çiçmil and Hodgson, 2006). Traditional assumptions about projects as objective realities are challenged. The project manager is seen as a reflective practitioner who resolves issues in a context-dependent, pragmatic and political fashion (Çiçmil and Hodgson, 2006), since "there is considerable agreement that conventional, universal statements of what management is about and what managers do — planning, organizing, coordinating and controlling — do not tell us much about organizational reality, which is often messy, ambiguous, fragmented and political in character" (Alvesson and Deetz, 2000, p. 60).

Practice-oriented project studies thus provide a much broader canvas, one that requires the researcher to focus on the micro-activities performed by the individual situated within an organizational context that influences the ways in which the project is being conceived, interpreted and delivered. The broader context entails not just the diverse spaces of the project occupied by the many formal and informal stakeholders but also the temporalities and political issues, through which these spaces evolve, engage and entangle.

Although these practice perspectives have not been explicitly developed in relation to megaprojects they have an evident affinity with analysis of them. Megaproject research, from this perspective, would need to focus on the context-dependant, interpersonal and lived experience of management, rather than universal models, early definition, and quantification. However, there has traditionally been little evidence of the incorporation of power relation or politics in project management research (e.g. Hodgson and Çiçmil, 2008; Çiçmil and Hodgson, 2006). This is of particular concern when the potential for power to affect the progress of megaprojects is considered. An initial way in which this might occur is through the sensemaking literature.

Sensemaking

Megaprojects have particular characteristics that highlight the need to incorporate power relations in the picture. Probably the first to recognise this explicitly in relation to project management was Clegg (1975). Using ethnographic techniques that entailed audio recording the proceedings on a construction site, largely in a project office, over a three-month period, Clegg analysed his data in an innovative manner. At the core of his analysis was a realisation of the central role played by contracts in constituting project relations. The typical hard money contract attempted to stipulate almost every aspect of the project in a rationalistic and linear manner, through a vast quantity of documentary material: technical drawings, blueprints, plans and consultant reports — the 'bill of works'. Project managers have to be highly skilled and competent in managing to make sense of what they do, a key competency that has become known as sensemaking, defined by Weick (1993) "as the ongoing retrospective development of plausible images that rationalize what people are doing" (p. 635).

The characteristic activities that constitute sensemaking are captured well in Weick's definition. First, sensemaking is ongoing: we are always making sense, and our sense of what we are experiencing is always of the moment — fleeting, experiential, changing, and contextual. Second, sensemaking is retrospective: we make sense of something as it is elapsing and we are constantly reviewing the sense we make in terms of additional

sense data. Third, the sense we make is plausible, as we never make perfect sense but only make provisional sense, sense that is good enough for the matter and people at hand. It allows us to go on with what we are trying to do. While accuracy may be desirable, reasonable constructions that are continuously updated work provide directional guides, especially when things are changing fast. Plausible sense is always provisional in another way as well: it depends on the interest that we have there and then in making *that* sense and not another. We shall return to this aspect in more detail. Fourth, sensemaking is a material practice: it is made using representations of things such as models, plans, and mental maps that are used to try and navigate meanings and actions, steering them in certain directions — directions that others may well resist. Our stock of knowledge is political, emergent and likely to be contested by others with different interests in sensemaking. Fifth, when sensemaking we rationalise the meaning of things in terms of the interest we vest in them. Sixth, although organizations contain many actants that are not people — such as computers and keypads — it is people who do the sensemaking but they do so using material things and devices that perform as actants. Seventh, it is through performing practices that actors construct and negotiate the sense of what they are doing that may be different between actors engaged in the same projects even when they think they are dealing with the same cues and seek to collaborate, which is not always the case in negotiations around projects.

We make individual sense of what's happening around us. We use our sense data to assemble impressions of unfolding events and then we use our cognitive capacities to make a pattern from the data. Many cues are used to make sense: past experience; what others say they think is happening; likely stories that you are familiar with that seem to fit the pattern that appears to be forming, as well as the rationalities that project management disciplines provide. Actors will not use these cues in a uniform way because they have different interests vested in their sensemaking and, as a result, people can make wildly different senses from the same set of cues.

Project organizations have a considerable interest in members making common sense. It is because common sensemaking is important for organizations that a vital part of the project management task is to try and produce cues for common sensemaking. An important part of the project manager's job is to create, adapt, and use common frames of meaning that characterise the organization and its members. We shall investigate ways in which this might be achieved. Making sensemaking common is no easy matter; the more mega the project the more problematic it becomes as there is a greater span of contractors, subcontractors, external authorities, stakeholders and a longer time frame for all of these to become more entangled and complex.

Megaproject managers can use tools to get things done and understood in common: accounting systems, resource planning models, PERT, and so on. These tools are designed to be rational instruments to aid managing; however, tools do nothing on their own — they have to be used; they have to be made sense of in terms of the specific context of their application, the time available to do something, the information that is at hand, the skills and capabilities that are available. The important thing is the *use to which these tools are put* — not that they *merely exist* — and the distinct agencies making sense of the context and situations of use. A number of factors thus enter into sensemaking.

Sensemaking is a complex phenomenon. It involves *social context*: sensemaking is influenced by the actual, implied, or imagined presence of others. If other people think that a particular interpretation makes sense then you are more likely to do so as well. *Personal identity* is important in sensemaking, particularly in terms of professional identities, of which a great variety will typically exist in any megaproject team. Certain situations may subvert or reinforce this sense of identity. What people notice in elapsed events, how far back they look, and how well they remember the past — in other words, *retrospective meaning* — all influence sensemaking as, above all, it has a temporal meaning, inscribed in memories of events past. Organizationally, this is extremely important because sometimes the most important decisions are often the least apparent: decisions made by minutes secretaries — what to keep and what to discard — can provide the basis for any later sense that can possibly be made by project members whose memories of these events might be quite distinctly different. While these are not strategic or conspicuous decisions they construct the organizational past. Project managers derive *salient cues* from their past experiences; thus they project their pasts onto their futures. Given the temporality and fluidity of project experience, this is an especially important element in project managing because most actors will have a great many distinct experiences to draw on when making sense. With megaprojects, which typically traverse more institutional fields (government, business, community politics, etc.) over longer periods of time, these issues intensify in complexity and intractability.

Project planning tools provide *structure* to divide the unfolding of events into different patterns. Sensemaking creates meaning that is sufficiently *plausible* to carry on with current projects; such meaning is always enacted here-and-now and thus is always subject to revision as new data emerges or new interpretations are made of old data (Weick, 1995, p. 2008). Hence, the story that emerges around megaprojects can be expected to be fragmentary, discontinuous, and subject to much subtle and sometimes not so subtle re-specification. Megaprojects are complex stories; they typically have many narrators and many narratives, some well rehearsed and polished, others more fragmentary antenarratives (Löfgren 2015), linking retrospective narrative to emergent stories, often in significantly ambiguous contexts (Alderman and Ivory 2015). Antenarratives may exist as a story turned into a formal narrative; they may be a bet, placed in hopes that something will become a retrospective narrative, a likely story in forecasting megaproject benefits. Sensemaking and antenarrative are endemic in project life. They contribute to the complexity of megaproject cultures, especially where people with different languages must work together (Smits, Van Marrewijk and Veenswijk 2015) and where there are multiple sites with distinct cultures (Smits et al 2015; Bektaş, Lauche and Wamelik 2015). Projects are full of plausible stories — rumour, gossip, official statements, business plans, and websites — each sensible in its own way but none necessarily coherent with the others. Project organizations often have multiple sources of meaning regarded as official. For instance, project managers often regard unions with hostility. Nonetheless, they achieve many positive things, such as legitimate grievance resolution and obliging more innovation in the use of capital and technology because the price of labour cannot be pushed lower.

Civil society stakeholder groups are often viewed as potentially obstructive forces. When stakeholders are seen as the recipient of the outputs of a megaproject, they are often seen as passive beneficiaries, rather than actors who will engage with and transform the project outputs. This is problematic, given the high social costs that can often result from poorly managed megaprojects. For example, Jennings (2012) has identified that government funding was required to support the Millennium Dome construction after

private equity could not be secured, and that the public sector was again asked to step in during the London 2012 Olympics to construct the Olympic Village after private developers withdrew. In Canada, real estate taxes were raised to pay the C\$1 billion deficit that resulted from the Montreal Olympics development. The debt was only paid off 30 years later, significantly longer than the six to seven years originally projected.

In many ways managerial claims to rationality are foundational for project management.³ They have a significant function to play: it is unlikely that any megaproject could get off the ground without these claims to expertise being vested in its management. Nonetheless, most megaprojects, as they unfold, will test the bounds of rationality due to the extreme complexity of the many actors and actants, the number of spaces traversed, and the lengthy elapsed time taken to achieve completion, as well as the very high degree of differentiated knowledge that must make sense together. How project relations actually pan out will always depend on the specific sensemaking that we find in local situations, discourses, and practices. Managerialism assumes that the decisions that management makes can always be rationalized. In such a conception of the organization, resistance to project management decisions, wherever it comes from, is regarded as illegitimate and irrational.

Sensemaking traces a frame, enabling us to connect things together and make a coherent and connected picture, a metaphor (Grant 2008, p. 896). Once we have the frame then we can make sense. Metaphors frame understanding to produce rationality. As we have said, one metaphor has long been dominant where project management is concerned: the metaphor of engineering. Metaphors influence the way we describe, analyse, and think about things. The metaphors of mainstream project management imply a unitary and objectivist view of the world, and suggest that commitment to early definition is both valid and desirable for megaprojects. The results of this can be seen in pressure for early progress and commitment to poor estimates. Jennings (2012) has noted that political acceleration of the Sydney Opera House project led to scope creep and uncertainty. Pressure from the New South Wales government in 1959 resulted in the project starting ahead of schedule while engineering design was still incomplete. The technical problems that resulted from this have been compared with the project management problems experienced during the Concorde development, the Montreal Olympics, the Millennium Dome, the Scottish Parliament project, and the Aquatics Centre for the London 2012 Olympics.

Unjustified belief in the need for megaprojects also appears to be common, and has led to the commitment of funds to projects that may otherwise never have been initiated. Hall (1980) identified that the Bay Area Rapid Transit System carried only 51% of forecast riders. Phillips (2008) noted that usage estimates of the Sydney Cross City Tunnel prior to construction were 90,000 cars per day. After completion, the financing costs could not be met by tolls from the 26,500 cars that used the tunnel each day. Prior to construction the Sydney Lane Cove Tunnel was estimated to achieve between 90,000

³ Managerialism involves the attempt to remake organizations in an idealized image revolving around a strong corporate culture, entrepreneurialism, quality, and leadership, and focused on achieving targets. The targets are often measured through audits — of culture, quality, job satisfaction, customer satisfaction, etc. These can be used to rank organizations according to a range of criteria. Power (1997) has argued that this is a sign that we live in an 'Audit Society' in which rankings of organizations are increasingly common, and where league tables determine the sense that is made of organizational performance. On this basis, as Flyvberg et al (2003) conclude, most megaprojects are managerial failures.

and 110,000 cars per day, but only achieved 50,000 cars per day when the toll was introduced to the newly completed tunnel. The construction of the Sydney Airport Link provides a similar example. Ng and Loosemore (2007) identified that six months after the line was opened passenger rates were only 12,000 per day, rather than the 46,000 predicted. The influence of the metaphors of mainstream project management on the sensemaking processes in megaprojects need to be acknowledged, because many of the assumptions of engineering and hard systems thinking do not transfer to megaprojects, where interpersonal politics and power can play an exaggerated role.

Power

The size and complexity of megaprojects is a fertile ground for power dynamics, as multiple stakeholder groups with different and often competing objectives come together to deliver a project of monumental size and impact. The collaborations that ensue are constituted through complex contracting arrangements reinforced and legitimated by contract law. It is the documentation that these arrangements produce that constitutes the relations between parties. The ties that bind the collaboration together, at their most fragile, are ones of financial interest. More robustly, they can be multi-stranded, drawing various normative and cultural considerations into the web of alliances and relations. Essentially, megaprojects should be considered as arenas in which players from various fields, such as government, private sector contractors, subcontractors, architects, unions, community groups, regulatory authorities etc., are engaged. Each of these players has their own interests as stakeholders in the project, interests that shift in terms and alignments as projects and sensemaking unfold.

At the project outset, as Flyvbjerg (2014) suggests, there may well be good organizational reasons for bad organizational projections of costs and benefits. These projections, of course, are a kind of power: they are productive in gaining commitments, harnessing resources, persuading key actors and constituencies that the projects are viable. An essential element of positive power — which the cynical might call 'spin' — is often necessary to make projects happen. As megaprojects unfold, many other practices of power come into play: variation orders will be submitted where there are elements of indexicality in interpreting project plans — and there always will be such indexicality where there are different interests being brought to bear on documentary and other materials (Clegg 1975).

The most important thing to understand about megaprojects is that they are constituted by many documents produced by many hands in many different places, all of which are saturated with meaning. Hence, when these documents are used in context, their meaning is always subject to indexical interpretation (Garfinkel 1967). Differentially interested actors in the project processes will have differential interests in different aspects of the sensemaking associated with the project. For instance, Clegg (1975) found that a common sensemaking pattern in project management is for different actors to try and exploit different indexical meanings of documents that constitute the project. They interpret ellipses, ambiguities, and contradictions in the documents in terms of the specific interests that, organizationally, they strive to achieve; hence, they index meaning and do sensemaking in different ways that are politically and organizationally interested. The contractual particulars thus become an arena for politicking.

There is always an explicitly manifest power function in megaprojects, which is for the

client organization to seek to ensure that the delivery is done in accord with contractual specifications. The organizational self-interest of the various parties contracted brings many power agendas into play. These agendas are not only concerned with the technical objectives of the project (i.e. time, cost, scope) but also with the financial interests of the various organizations involved as well as political, economic and aesthetic objectives (Flyvbjerg, 2014). Communities will find that projects that proceed with a minimum of consultation can have hugely deleterious effects on everyday life and the community, often rendering them asunder (see: <http://www.smh.com.au/nsw/westconnex-protest-brings-1500-newtown-locals-out-to-voice-their-objections-20150201-13322y.html>). For megaproject managers power relations play out in terms of accountabilities, in terms of targets set, met, and missed; milestones achieved, shifted, and slipped; industrial relations managed ill or well; communities' concerns considered and dealt with or not; and ecologies degraded or improved. The impact of megaprojects will always be multifaceted and every facet is an exercise in managing with power.

Typically, in the tough world of megaproject construction, the power relations are not particularly positive. Employee relations will be often confrontational, drawing on traditions of militancy and anti-unionism, respectively, on the part of the projects. Where they are made more positive, this will often be because of 'standover' tactics that contractors accede to by bribing the union for good behaviour — that is, not disrupting the project (see: <http://www.abc.net.au/news/2015-07-13/royal-commission-into-trade-unions-begins-cfmeu-probe/6613916>). 'Public works contracts and construction' is the most corrupt sector of activity surveyed by Transparency International in its 2011 Index. An absence of explicitly conflictual power relations does not necessarily signal an absence of negative power relations nor indicate that the power relations are entirely positive.

Positive power relations, premised on the exercise of power with others rather than power over them are possible, and they do occur, perhaps more rarely than one would desire. To the extent that contractors and subcontractors interest can be aligned; client interests negotiated and brought into accord with those of contractors; employee interests aligned with those of employers; community concerns met, ecologies respected or improved; if all these elements of the project can be managed well, then the power relations will be less obtrusive, more subtle, *pianissimo*, in a low key.

It is only where specific forms of collaborative contracting, such as Alliance contracting, are in process, that would one expect to find positive power in abundance. Under such conditions, a common will, framed by an encompassing and designed project culture for governmentality (Clegg, Pitsis, Marosszky and Rura-Polley 2002) rather than sectional interests in interpreting documents, topography, hydrography etc., organized around future perfect strategies (Pitsis, Clegg, Marosszky and Rura-Polley 2003), is more likely. Most projects will not conform to these conditions, which are usually signalled upfront through the form of contracting that occurs. The contracting tends not to be competitive based on the lowest tender but is based on an indicative price prepared by third party audit for the client organization which interested parties are invited to express interest in contracting.

The contract, once assigned, usually on the basis of a goodness of fit between client and lead contracting organization, is then subject to a risk/reward ratio that makes it

favourable for all major parties concerned to be innovative in finding savings, coming in below budget, on time, and perhaps also having to meet other performance indicators in respect of ecology, community, and health and safety. Where this type of contracting is deployed the conditions that it creates, while highly positive in power terms for the parties to the contract, are not immune to subsequent power games where the projects are government initiated and subject to subsequent audit requirements that unfailingly find that a competitive tender was not used. On this basis, it can be, and frequently is, argued that the contract was too 'slack', that it contained too much leeway, and so the usual power games over indexical detail were, of course, not necessary.

The more usual form of project process is one of messy muddling through, in which various bounded rationalities clash over project specifications, process, and outcomes, using various practices of pooled, sequential, and reciprocal interdependencies (Thompson 1967) to secure interests, outflank those whose interests do not align over whatever is at issue at the time, and gain small wins in specific episodes of power. Megaproject managers must be adept at managing with power; if not, they can expect to be done over, lose money, time, and professional face.

Megaproject management must deal with many forms of professional and occupational practice, bringing many different forms of power/knowledge into play. To the extent that each profession and occupation has its own ways of coding knowledge these do not always translate effortlessly. The classic examples have to do with the different trades and professions' capacity and propensity to read the same set of 3D plans or models differently, with different relevancies. Small matters of interpretation can blow out into big matters of cost, time, design, and function. As megaprojects entail a degree of complexity that is greatly in excess of more standard projects, the opportunities for these different forms of sensemaking to spark confrontational power relations related to matters of responsibility (Lukes 2005) is high. Where the usual trades and professions are joined by esoteric knowledges embodied in social science, ecological, community, political, and economic expertise, the opportunities for conflictual power relations between people secure in their own knowledge areas but unfamiliar with that of those with whom they are obliged to collaborate escalates the potential for conflictual relations in which negative power comes into play.

One of the most detailed, accounts of the processes alluded to as normal competencies for project managers are evident in *Rationality and Power: Democracy in Practice* (Flyvbjerg, 1998), a detailed case study of planning intended to limit the use of cars in the city centre of the city of Aalborg in Denmark. Although this case was not developed as an example of a megaproject, it illustrates ways in which projects entail highly fluid power processes in which power relations between actors involved in projects (not all of whom are necessarily direct stakeholders in the implementation process) shift and shape the project reality; a process that is exacerbated in megaprojects due to their visibility and the number of stakeholders typically involved.

Flyvbjerg's (1998) main theme is that power shapes rationality. At various stages, the different political actors sought to steer the project through their sensemaking preferences — they sought to structure obligatory passage points through which sensemaking would flow (Clegg 1989). Different claims were made for participation in different committees; differential participation produced different outcomes at different times, favouring different preferences. Small battles were fought over who, and what,

could be introduced in which arenas and meetings. In this way, the relations of meaning and membership in the various locales were contested, reproduced, or transformed. As these changed then the obligatory passage points shifted, as these shifted the relations of power that had prevailed shifted also. Small wins in specific episodes of power had the capacity to shift the configuration of the overall circuitry through which power relations flowed. The actors engaged in the plans were constantly seeking to fix and re-fix specific schemes, and although the play of power was very fluid, the underlying social integration of the small business people with each other, the Chamber of Industry and Commerce, and the editorial views of the local newspaper, seemed to mean that the small business people prevailed in the many struggles. The attempts to re-specify the system integration of the traffic plan in Aalborg continually foundered on the reef of social integration. How Aalborg was planned, designed and looked, as well as how it was not planned, not designed and did not look, was an effect of power relations.

Flyvbjerg (1998) alerts us to a very important fact of power relations and rationalities: that when power and knowledge are entwined then the greater the power the less the need for rationality, in the sense of rational means-end justifications. The relation between rationality and power was an uneven relation: power clearly dominated rationality. That is, those who presently configured power sought to continue doing so and were quite ready to define the reality of the project in any way that seemed to them to further their preferences, using whatever strategies and tactics were available to them. In this sense, what was defined as rationality and reality was an effect of power, as it defined and created "concrete physical, economic, ecological, and social realities" (Flyvbjerg 1998, p. 227). What was advanced and argued as rationality depended wholly on power relations; the more disadvantaged in these the agents were, the more they were liable to have recourse to conceptions of rationality that downplayed power, and sought to position themselves through factual, objective, reasoned knowledge. The most powerful rationalities took the form of rationalisations rather than authoritatively grounded accounts. Often these were public performances of rationality which other agents who were witness to the rationalisations felt compelled not to reveal it because they lacked the powers to do so; they anticipated and feared the reaction that their actions would in all probability produce should they move, dangers lurked in open conflict and identification of differences. The greater the facility with which agencies could have recourse to power relations the less concerned they were with reason, and the less they were held accountable to it. Access to more power produced less reason. Mostly, power relations were both stable and inequitable. Where power relations could be maintained as stable and characterised by consensus and negotiations, rationality could gain a greater toehold; the more power relations became antagonistic, the easier it was to deploy arguments and strategies that elided it. Thus, rationality must remain within the existing circuits of power if it is to influence them. To challenge them is to play a losing hand.

Reading Flyvbjerg is important because it takes us into the heart of projects as political processes as well as into the contexts in which their design is brought into being through processes of *becoming*: how dreams become designs, designs become concrete, and interests become embedded in the processes that surround these acts of becoming. The further utility of the general approach that scholars such as Clegg and Flyvbjerg have pioneered is evident when we consider one of the most contentious and successful dreams made concrete in the twentieth century: the Sydney Opera House. Jennings (2012) investigated the executive political issues and consequent risks surrounding of numerous megaprojects and concludes as follows:

While the sorts of formal controls favoured by the regulatory state seem to have been all but missing from the case of the Sydney Opera House, its combination of over-optimistic planning and scope creep, fuelled by political pressure to get the project started as soon as possible, seem to be the principal causes of under-performance of the project much like most of the other projects. (Jennings, 2012, p. 250).

Flyvbjerg (2014) notes that one of the major reasons why megaprojects rarely come in on time and on budget, and with design integrity, is because they can often only be launched with an implicit optimism bias inherent and political support of the project from powerful stakeholders (i.e. federal or state government).

Political Influences in Megaprojects

Megaproject are subject to enormous political constraints and mood swings throughout the project lifecycle, since they are often part of election promises, political agendas or other political decision-making processes, albeit there is rarely public acknowledgement of this fact. Hence, the support for or opposition to megaprojects often depends the current political climate in which such a major undertaking takes place. Leijten (2013) argues that certain (often undisclosed) information has a great impact on decision-making, which subsequently leads to strategic behaviour by interested parties. Politicians often need figures to justify their policies but realise that any estimate is likely to be wrong and the more likely it is to be accurate, the greater the figure will be. Consequently, one issue with megaprojects is that they are often justified by forecasts of benefits that are biased in terms of political sensemaking. Often figures are used to rationalise political decisions based on the ideology of the political decision-maker involved. As an example a political party conscious of environmental impact may use figures on environmental deterioration as a factor to reject certain alternatives. 'Soft' subjective figures can often be proposed in sensemaking as 'hard' and have a substantial effect in anchoring a decision around a subjective estimate. Often figures can become a vehicle to contest policies, asking for more and more reports as a way of challenging project progress, as in the case of the Australian National Broadband Network. This could lead to 'paralysis by analysis'. Contestability of information could also have an opposite effect in rendering decisions to be intuitive, making them redundant. When projects are deliberately underestimated to gain approval they often result in lock-in (Cantarelli and Flyvbjerg 2013) resulting in holding on to projects longer than desired due to the complex power relations and interests at stake.

Ownership of a megaproject can shift gradually during implementation eroding the values that the project owner presumed, something especially likely when an entrepreneurial actor influences public policy through the provision of private finance. An example is the Betuweroute freight railway line between the Port of Rotterdam and the German hinterland that was conceived by two entrepreneurial branches of public organizations (Letijen 2013, p. 72). The Dutch government became dragged into financing the project when the original plans became problematic.

Comparators that are used for decision making for private investment cannot predict how strategic behaviour will evolve during the project, which may affect public interest. Hard systems thinking and engineering assumptions persist in project management practice, particularly during the early stages of a megaproject where a false confidence

commonly pervades. Often early definitions in megaprojects are problematic due to the uncertainties involved. Private investors may also not share valuable information that will help define the project at an early stage when they are in competition with others who might benefit from that information. The decision-makers may then start from a suboptimal outset. The motives of the public owner and private actor may also differ. The private actors may be interested in trying a new untested technology for their own benefit, or may be required to use untested technologies because of commitments made during the formative stages of the project.

Grün (2004) argues that political influences have become more prevalent as the public sector becomes increasingly dependent on the private sector for delivering projects. Grün compares the socio-political influences on the Munich and Vienna hospital projects and concludes that one characteristic socio-political influence is the ad-hoc intervention by the owners. Political influences did not affect the technical goals of the Munich project. Failures to achieve key goals and significant cost overruns did not provoke public attention, as they were eclipsed by the public focus on the Olympic Games being organized in Munich at that time. In contrast, the Vienna hospital was a disaster due to intensive political interference. When the Vienna hospital was affected by a corruption scandal, the opposition parties forced the ruling party to establish 'special internal control procedures' that increased political interference, similar to the Sydney Opera House. The influence of public perception on megaproject progress can also be seen in the London Ring Way and Covent Garden developments, both of which were cancelled due to public opinion (Ng & Loosemore, 2007). Dewey and Davis (2013) also identified public involvement in planning decisions as a factor that contributed to the perceived failure of the Mexico City Airport. In this case, there was a significant division between the political class and citizens. Conflicts arose between the local and national authorities over the relevance of citizen participation in project development. A strong coalition of local, national, and international allies developed, using cultural identity, historical allegiances, and geographic location to build and expand struggle against the airport.

Interested contractors may also create pressure to start megaprojects that are attractive to them for sustaining their business. An example is the influence of the British and French aircraft industry in promoting the Concorde project. Contractors may also try to enlarge the project by offering advanced technical systems that would need more assistance in the operational phase. Political influence may also affect the choice of contractors. Project owners may be forced to employ local contractors. Barriers such as 'national security' can be used to justify eliminating contractors who are bidding.

The number and variety of megaprojects is rising, such are the underlying political drivers. For instance, the desire of countries vying to host large sports events, such as the Olympic Games, events whose benefits for the country in question may not be as obvious as political sensemaking promotes but which are used as a global platform to promote local political actors. Boosting a particular industry sector, one that is closely linked to government spending and income might be another reason for making the decision to undertake a megaproject. For instance, one of the reasons why Britain built Terminal 5 in Heathrow was to increase the aviation industry's contribution to Britain's GDP. Heathrow is expected to contribute 80 billion pounds in 2030 rising from 11.4 billion pounds in 2004 (Doherty 2008). To contextualise this, Singapore Changi Airport contributes 5.6% to Singapore's GDP (Oxford Economics, 2009).

Conclusion

Power relations are integral to the social construction of social reality; they are equally integral to the sensemaking that socially constructs material reality. Yet, despite the abundant evidence of this reality that we have presented in this paper there is a marked reluctance on the part of Classical Project Management (Winter et al. 2006) to recognise the pervasive reality of power relations in and around project relations. As we have been at pains to point out power relations are not necessarily bad; power is not a dirty word. While much power in the megaproject world consists of parties seeking to exercise power over other parties in pursuit of specific sectional interests it need not always be the case. Genuinely positive power practices can be contracted — but these are not the norm and, where they exist, they will often be regarded as violations of the norm. In fact, the norms of competitive contracting do much to encourage negative power relations as, once a bid is won, the onus is on the contracting organization to ensure the profitability of the project by exercising power over all stakeholders. Doing this can start with inflated projections of the metrics of project success and deflated projections of project costs, costs that have to increase if profitability targets are to be met. It can continue with practices of bribery and corruption to ensure industrial peace and an attitude to communities and civil society organizations that regard them as obstacles to be bulldozed in the achievement of the planned project outcomes. Sucked into these negative power dynamics are the vanities and ambitions of politicians for whom a megaproject is often more important as a photo opportunity and a hopeful vote winner than as a complex undertaking launched in a spirit of informed openness.

Discussion of the power relations of those who actually determine the meanings behind the facts of project progress, as well as the ways in which rationalities are systematically skewed by powerful interest is suppressed. Rationality cannot provide the ultimate warrant for project performativity (Spender & Scherer 2007); this much is evident from the work of Flyvbjerg (1998). Megaprojects usually require political sponsorship; political sponsors bask in the glow of publicity entailed in launching projects but, when the stories told to gain sponsorship and support run up against the realities of project performance, it is often the case that sponsors have vacated the scene as the duration of megaprojects invariably exceeds that of the political figures who benefit from their initiation. In this case, the Sydney Opera House may be an outlier in terms of budget overrun (1,000%) but it is not an outlier in terms of its politics but an exemplar.

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