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EARLY STAGES IN THE INSTITUTIONALIZATION OF INTEGRATED PROJECT DELIVERY

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ABSTRACT

Integrated Project Delivery (IPD) is an emerging form of project delivery for North American construction projects. While IPD has been of great interest to scholars, little work to date has attended to its process of institutionalization. An institutions-based approach is appropriate to unravel the complexity of engineering project organizations such as IPD. This paper draws from a broad governance framework and the scholarship of multiple disciplines to account for the emergence of IPD in a construction industry that has long resisted institutional change. The account follows the actions of one institutional entrepreneur – Sutter Health – as it actively works to construct a new institutional framework for construction project delivery. Following a multi-stage model of institutionalization proposed by Mark Suchman, this paper traces the actions of Sutter Health at the locus of institutionalization as they progress through stages of problem generation, problem cognition, problem naming, response categorization, response comparison, and theorization. The paper concludes with a discussion of institutional legitimacy and the current state of IPD diffusion.

KEYWORDS: Integrated Project Delivery, Institutional Construction, Institutional Entrepreneur, Lean Construction, Relational Contracting

INTRODUCTION

Parties often need institutions to help capture gains from cooperation.

- Barry Weingast, Rational Choice Institutionalism

This simple yet insightful quote by Weingast (2002) captures the motivation for the recent development of Integrated Project Delivery (IPD). IPD is an emerging form of organization for the delivery of complex construction projects. It re-envisions the concept of the "Master Builder" as a collaborative building team of specialists by uniting the key stakeholders under a single multi-party contract. Formally IPD is defined as "a project delivery method that integrates people, systems, business structures and practices into a process that collaboratively harnesses the talents and insights of all participants to reduce waste and optimize efficiency through all phases of design, fabrication and construction" (AIA 2014). In a sense, IPD creates a virtual project-based "company" where employees are retained by their respective firms but take on roles based on project needs rather than the nature of their employer (Thomsen et al. 2009). This "company" is both a legal entity and a temporary project-based social organization.

As IPD emerged in the early twenty-first century, it has been accompanied by a growing body of literature that tries to understand it. Scholars have conducted comparative case studies of IPD projects (Cheng et al. 2012; Cohen 2010), investigated the impact of IPD on desirable project characteristics such as trust, innovation, and supply chain collaboration (Hall et al. 2014; Lavikka

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et al. 2015; Pishdad-Bozorgi and Beliveau 2016), and quantified the project outcomes of IPD versus other types of project delivery methods (El Asmar et al. 2013; Molenaar et al. 2014). Yet little research to date accounts for the early stage processes and conditions that led to the institutional construction of IPD. How is it that over the past two decades IPD has emerged as a novel form of engineering project organization?

To answer this question, this paper reviews and organizes scholarship from multiple streams of literature using an institutional theory perspective. Scholars contend that research efforts to understand new forms of engineering project organization should adopt broad governance frameworks that draw from multiple disciplines (Levitt et al. 2010). While contingency- and resource-based approaches primarily attend to governmental and regulatory environments, an institutions-based approach also draws upon the equally important roles that normative and cultural-cognitive systems play in project governance (Henisz et al. 2012; Scott 2012, 2014). This institutions-based approach is well-suited to unravel the complexity of networked, project-based organizations such as construction projects (Levitt et al. 2010). Source material comes from construction law, healthcare construction case studies, IPD governance, organizational theory, lean construction, and relational contracting.

The resulting account traces the early stages of institutionalization for IPD. This paper first introduces the Northern California healthcare provider Sutter Health as an *institutional entrepreneur* (Eisenstadt 1980; DiMaggio 1988) acting at the locus of institutionalization. The institutional construction of IPD was no accident. Sutter Health had interest in leveraging resources to help construct new organizational forms and routines. It worked alongside a regional network of actors to significantly transform the institutional frameworks and associated rules, norms and belief systems found in construction project organizations. Next the paper traces the actions of Sutter Health using a multi-stage model of institutionalization proposed by Mark Suchman (1995). This paper describes the processes and conditions found during seven phases of institutionalization: problem generation, problem cognition, problem naming, response categorization, response comparison, theorization, and diffusion. Throughout the paper attention is given to the influence of the regulative, normative, and cultural-cognitive pillars of institutional theory during institutional construction. The paper concludes with a discussion of the current and future states of diffusion and institutional legitimacy for IPD.

INSTITUTIONAL THEORY

Institutional theory and analysis addresses the processes by which social structures, including both normative and behavioral systems, maintain stability or undergo changes over time (Scott 2014). There is growing consensus that institutional structures have three elements or ingredients that contribute to the construction, maintenance, and change of institutions: regulative elements, normative elements, and cultural-cognitive elements (Scott 2012, 2014). These three elements are referred to as the 'three-pillars' of institutional theory.

Regulative elements are the "rule-setting, monitoring and sanctioning activities designed to establish and reinforce arenas of control" (Scott 2012). These elements create a system of rules with sanctions that reward conformity and penalize non-compliance in an attempt to influence future behavior. *Normative elements* introduce a "prescriptive, evaluative, and obligatory dimension into social life" (Scott 2014). Normative systems include values and norms. Normative aspects include the desire to behave 'appropriately' in any given situation, depending on one's role obligations. *Cultural-cognitive elements* are "the shared conceptions that constitute the nature of

social reality and create the frames through which meaning is made" (Scott 2014). Cultural-cognitive elements represent both the cultural elements (i.e. the shared beliefs within a community) and their linkage to cognitive patterns of thinking, feeling, and acting (Hofstede et al. 1991; Scott 2012). These three pillars are analytic constructs that seldom occur in isolation. Institutions are comprised of multiple elements and when those elements align, they produce lasting social systems. During the institutional construction of IPD, actors embraced a substantial shift in the regulative, normative, and cultural-cognitive elements typically found in other construction project organizations (Henisz et al. 2012).

INSTITUTIONAL CONSTRUCTION

A study of institutional construction requires an account of "the processes and conditions giving rise to new rules, understandings, and associated practices" for the novel institution (Scott 2014). While institutional construction can be a naturalistic process evolving as a result of unintentional actions over a period of time, it can also be intentionally designed by purposive actors known as *institutional entrepreneurs* (DiMaggio 1988; Eisenstadt 1980). Institutional entrepreneurs are "individuals or organizations who participate in the creation of new types of organizations or new industries, tasks that require marshaling new technologies, designing new organizational forms and routines, creating new supply chains and markets, and gaining cognitive, normative, and regulative legitimacy" (Scott 2014). These institutional entrepreneurs have an interest in particular institutional arrangements and thus leverage resources to construct new institutions (Maguire et al. 2004).

This paper recounts the actions of Sutter Health as an institutional entrepreneur. Sutter Health is one of the largest healthcare providers in Northern California. Starting as a small community-based hospital in Sacramento, it now cares for more patients than any other network in the region. Its affiliate-based system includes 27 acute care hospitals, over 3,400 physicians, and 41,000 employees (Lichtig 2005). Sutter Health is certainly not the only actor working to institutionalize an improved framework for construction project organizations. The construction industry is characterized by extreme fragmentation with dozens and sometimes hundreds of firms contracted on one project (Fergusson 1993). The birth of IPD required a diverse network of general contractors, designers, trade contractors, industry associations, attorneys, academics and others working to transform an accepted set of rules, norms, and values entrenched in the industry over the past two hundred years. Yet the locus of institutionalization is a highly contingent phenomenon, "determined by the interplay of information sources and communication channels, of institutions and enforcement mechanisms, and of normative models and cognitive definitions" (Suchman 1995). Recognizing the diverse actors present in the network does not imply that "institutionalization will necessarily occur uniformly across all levels" (Suchman 1995). Sutter Health occupies the role of institutional entrepreneur because they were well-situated for problem cognition; they faced a large and recurrent problem, they occupied a central position as customer, and they intentionally took action to understand the systemic issues plaguing healthcare construction. Thus this account follows Sutter Health's process closely while still giving attention to both the important contributions of a network of regional partners and the ideas adopted for IPD from other emerging forms of project organization or previous ad-hoc experiments.

MULTI-STAGE MODEL OF INSTITUTIONAL CONSTRUCTION

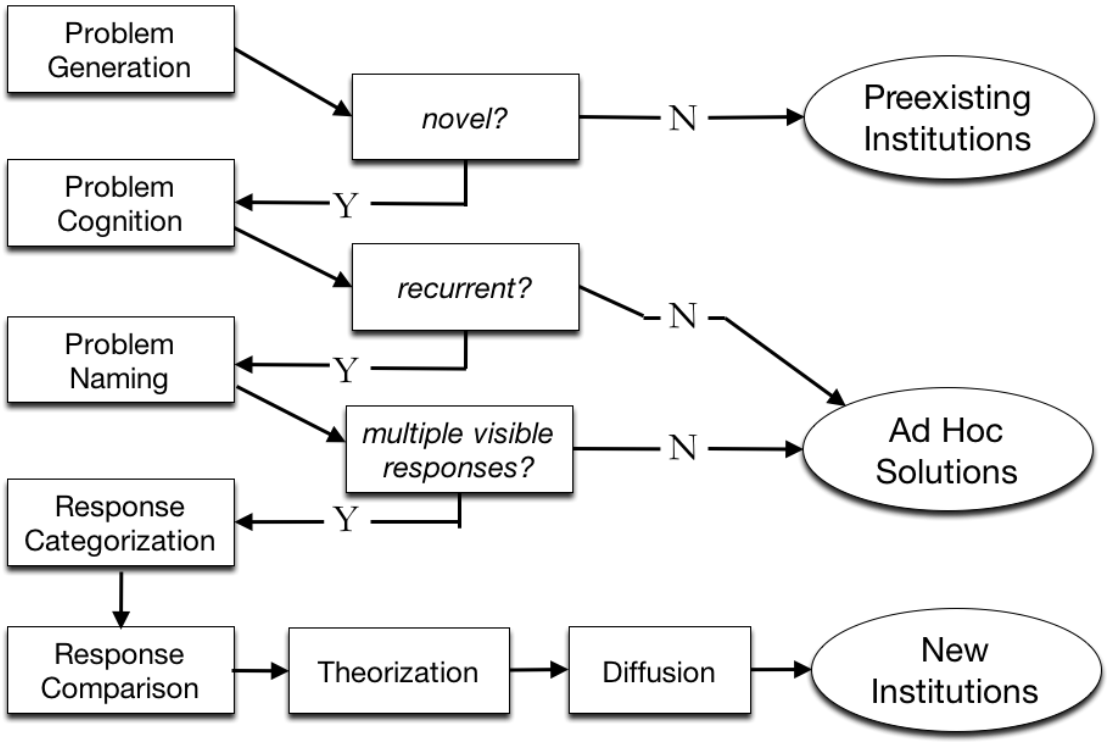

Figure 1 - Multi-Stage Model of Institutional Creation (Suchman 1995)

The following account maps the stages in Sutter Health's development of IPD by following a multi-stage model of institutionalization (Figure 1) proposed by Mark Suchman (1995). Suchman's model identifies seven stages through which a novel approach moves before achieving general validation and institutional legitimacy. (1) *Problem generation* engages with the larger problems facing the institution of construction project organizations as a whole. Current practices, long established, harbored built-in limitations that hindered creative collaboration among project participants. (2) Particular market conditions explain why Sutter Health had reason to engage in organizational *problem cognition.* (3) In response to these recurrent problems for which no existing "off-the-shelf" institution could solve, Sutter Health began an intentional campaign of *problem naming.* This allowed Sutter Health to situate the problem within the larger institutional discourse and to build a network of actors working on a commonly defined problem. (4) Sutter Health then looked to visible responses from relational contracting and lean construction projects in a period of *response categorization*. (5) During *response comparison*, Sutter Health selected from these responses a bricolage of regulative, normative, and cultural cognitive strategies, which it then employed on a successful medical office building pilot project. (6) Sutter Health and the broader community then entered into a period of *theorization* where participants formulated general accounts of how the IPD system should work. (7) The paper concludes with a description of the current state of *diffusion* and speculations concerning the future of IPD as it searches for greater institutional legitimacy.

Problem Generation

Prior to our description of attempts to institutionalize IPD, it is important to briefly examine the history of construction project delivery. The prior institutional setting "constitute part of the initial conditions in the processes leading to new institutions" (Greif 2006 p. 17). Institutions do not emerge in a vacuum. New organizations must rely on existing ideas, technologies, and social routines and therefore will always reflect their institutional origins to some degree (Scott 2014). While a full historical examination of the rise and later troubles of construction project organization remains outside the scope of this work, a brief discussion of the beliefs, norms, and organizations long utilized for guiding design and construction projects is presented here.

Construction project organizations are temporary endeavors where multiple actors seek to optimize outcomes by combining resources from multiple sites, organizations, cultures, and sometimes geographies. Projects are arranged through a combination of contractual, hierarchical, and network-based modes of organization (Orr et al. 2011; Scott 2012). The challenge for projects is to create a collaborative enterprise while navigating the span "of organizational and cultural differences in which individuals and firms holding different beliefs, operating under diverse norms, exhibiting differing identities and pursuing disparate interests" (Scott 2012).

Historically, a series of regulative, normative, and cultural events created the current institutionalization of the construction project as accepted today. A significant landmark was the founding of the American Institute of Architects (AIA) in 1857 that championed design practice as a specialized profession distinct from construction (Saylor 1957). Like other professional occupations, architects sought to "harness the collective knowledge, political power, and cultural cache of their best practitioners" to shape the future of their profession (Scheeler et al. 2009). The AIA fashioned and promulgated a normative identity for what it is architects do (and implicitly what they do not do). Soon after, engineering associations were formed separate from both architectural design and construction contracting. These developments embraced a broad movement to cognitively separate blue- from white-collar occupations. Architects and engineers viewed design as a white-collar profession similar to doctors and lawyers, while the act of building was a blue-collar domain. As buildings became more complex and also more regulated, engineering associations championed recognition of technical sub-disciplines such as electrical, mechanical, structural, civil and geotechnical engineering (Bruner 2007).

A series of regulative decisions enforced this new division of labor. Before the mid-1800s, construction projects were considered local and parochial, invoking the "law of the shop" instead of the "law of the courts" (Bruner 2007). However, states began to enact professional registration laws for architects and engineers beginning with Illinois in 1897. The 1906 San Francisco earthquake induced municipal regulators to take building and fire codes more seriously (Bruner 2007). Liability for non-compliance was assigned to the design team. Congress passed additional regulatory barriers between building architect and contractor with the Miller Act of 1935. Strengthening the provisions of the 1894 Heard Act, the Miller Act required contractors on federal contracts greater than $100,000 to post both a payment and a performance bond. Any default by a bonded contractor would expose his surety to potentially sizeable claims (Dauer 1972). Architects and engineers had little interest in exposing themselves to this risk and distanced themselves from any contracting requirements.

In this environment, the "design/bid/build" (DBB) or "sealed bid" format rose to prominence in the early twentieth century. In DBB, the project owner contracts with an architect for the design of the project. This design is then "put out to bid" to a general contractor and their network of sub-contractors. The method can be also considered "design, bid, then build" (Konchar

and Sanvido 1998). To avoid perceptions of chicanery or governmental collusion in the awarding of public construction projects, jurisdictions enacted competitive bidding laws in the late nineteenth century (Bruner 2007). The DBB organization provided an effective method to fragment a complex project into understandable pieces and served as a mechanism to improve transparency. In response to the rigid contractual risk allocated to contractors by the doctrine of the Sanctity of Contract, the AIA and the National Association of Builders created the first national standard construction contract, of which thirteen versions have been released to present day (Bruner 2007). DBB quickly became the default approach for the majority of public and private contracts.

While the fragmentation of construction bidding separated building systems into understandable pieces, it also created undesirable consequences. The majority of project work is governed through standardization (Langolis and Robertson 2009) and craft administration (Stinchcombe 1959). Stinchcombe's (1959) classic assessment of "craft versus bureaucratic administration" demonstrates the interplay of regulative elements – jurisdiction of work is owned by specific trades who organize their own supply chains – and the normative/cultural cognitive elements – craft workers following internalized routines and standards need little external supervision and can work in isolation from other trades present on construction projects. The institutionalized product architecture and design rules act as the coordination standards to ensure that modules produced by separate firms fit together in the end (Langolis and Robertson 2009; Sheffer 2011). General contractors act as a weak system integrator but lack the necessary capacity required to coordinate major changes in the interfaces or processes. As a result, beneficial decisions are passed over for localized product decisions that offer less global benefit but fit within the existing divisions of work and specialization (Sheffer 2011). Furthermore, "broken" agency is generated by vertical fragmentation where each project phase has a different set of stakeholders, decision-makers, and values. Parties engage in self-interested behavior and pass costs off to stakeholders in a subsequent phase to the detriment of the long-term user (Henisz et al. 2012). The technical and professional specialization solved some construction industry problems, but it also created new ones (Woudhuysen and Abley 2004).

In the past half century, the increasing complexity of technical building components exposed limitations of the DBB institution. DBB projects increasingly had inefficient designs, increased errors and disputes, higher costs, and longer schedules (Konchar and Sanvido 1998). Complex construction projects rarely met the market needs of customers. As a response, new project organization forms gained currency. Both the Construction Management approach (1960s) and the Design-Build (DB) approach (1990s) emerged as alternative procurement methods.[3] Despite increasing levels of adoption and success achieved by these new arrangements (Konchar and Sanvido 1998), these methods represent incremental changes to regulative practices while often ignoring normative and cultural cognitive elements. For example, the AIA code of ethics specifically discouraged "package dealers" that involved closer ties between designer and contractor. Although the AIA softened its stance on DB in the 1970s and 1980s, the normative stance of this approach persists in the industry today. In short, new organizational arrangements did not challenge the underlying problem of fragmented project teams and information (Kent and Becerik-Gerber 2010). As a consequence, construction projects rarely provide the best value for clients.

[3] The authors acknowledge that this brief summary of DB and Construction Management is inadequate. Unfortunately, an account of the emergence, contributions, and limitations of these project forms within the current institutional setting of construction projects deserves much greater attention than can be provided here.

Problem Cognition

Problem cognition begins when a troubled actor acknowledges a problem and instead of ignoring the problem starts the search for an appropriate response. Problem cognition is most likely to occur "(a) when these problems are large or recurrent, (b) when these problems affect central or vocal constituencies, and (c) when these problems arise in arenas that have been culturally designated as problematic" (Suchman 1995). Many designers, engineers, contractors and suppliers in the construction industry are well familiar with the institutional headaches normalized by current construction project organization. To these actors, the problems are not new but a recurrent dilemma. However, because these actors do not occupy a central role in the larger system, they often do not have the power to enact change. Instead they dismiss these problems as "business as usual" and rely on preexisting institutional arrangements. The headaches remain "one of the plethora of annoyances that arise from gaps or contradictions in the institutional order and are resolved in an ad hoc manner every day" (Suchman 1995).

It may be said that the opposite is true for many project owners. For many organizations, the construction of a new facility is of a singular "one-off" event. It requires new competencies that owners seldom have the capacity to understand. By the end of a project, the new owner may finally identify where things went wrong, but lack another occasion where these lessons can be applied. For these types of owners, problems are often novel and seldom recurrent. Furthermore, the high cost and risk associated with these large projects applies normative pressure to program managers to accept existing forms of project organization. Individual actors that understand the limitations of existing frameworks but act outside of organizational norms take tremendous career risks should new project arrangements achieve poor results. Thus real change requires more than the actions of one forward thinking program manager; it takes a full commitment to institutional reform by a client firm involved in multiple projects.

Sutter Health was such a client firm. In 2003, Sutter Health faced a large and recurrent problem: the need to execute a $6.5 billion capital program over a period of eight years (Cohen 2010; Denerolle 2013; Lichtig 2010). The San Fernando earthquake of 1971 (magnitude 6.6) highlighted the vulnerability of California hospitals. The earthquake destroyed UCLA's Olive View Hospital – only a few weeks old at the time – in addition to damaging four other area hospitals so severely that they were inoperable in the moment they were most needed. To address this problem, the California legislature passed the Hospital Seismic Safety Act (1973) requiring state regulations to establish design and construction standards for new hospital buildings. This bill and a later amendment focused only on the requirements for new construction, as it was argued that new construction would gradually replace older, vulnerable hospital buildings, and thus retrofit provisions were not needed. However, by the late 1980s there were concerns that California hospitals were not replacing older buildings, and that the state's health care infrastructure was seismically vulnerable (Meade et al. 2002). An anonymous study completed in 1990 found more than 83 percent of the state's hospital beds were in buildings that did not comply with the legislation (Applied Technology Center 1990). As the 1994 California senate began work on a new bill requiring seismic retrofits for these vulnerable hospitals, the Northridge earthquake (magnitude 6.7) struck southern California, providing even stronger tremors over much of the same region as the San Fernando event in 1971. Although all the hospitals constructed to post-1973 standards performed well (Office of Statewide Health Planning and Development 1994), the Northridge earthquake caused heavy damage to eight buildings, extensive nonstructural damage resulting in widespread evacuations, and disruption to utility services impacting first responders. As far away as Santa Monica, five healthcare facilities were declared unsafe for occupancy.

In September of 1994, Senate Bill 1953 became law requiring seismic retrofits or replacements of all existing, privately owned structures by 2008 (California Health and Safety Code 1994; Meade et al. 2002). As a result of SB 1953, California began the most extensive period of healthcare construction in state history. In 2002, the RAND corporation found that approximately 50 percent of California's hospital buildings would be retrofitted, restructured, or closed over the next 28 years with construction expenditures of $28.8 billion and total expenditures (including medical equipment) estimated as large as $41.7 billion (Meade et al. 2002).

When SB 1953 was enacted, the majority of California healthcare organizations were generating profits or surpluses. However, in the mid-1990s, hospital profits were impacted by the rapid increase in managed medical care expenses (primarily as a response to rapidly escalating health insurance premiums) coupled with cuts in reimbursement rates by the Federal Medicare program (Alesch et al. 2012). By the late 1990s, over 80% of California's health-care organizations and more than half of California's hospitals were losing money (Harrison et al. 2001). In addition, the costs of structural and nonstructural retrofitting of existing buildings could be very expensive—estimated at more than half the cost of simply building anew. In the face of fiscal losses and rapidly escalating construction costs, many healthcare organizations took advantage of a 2000 statute making it possible for hospitals to obtain authorization to comply by 2013 if there were a substantial community or financial reason making compliance by 2008 impractical (California Statute section 130060, amended September 28, 2000). By 2003, more than 140 hospitals sought a waiver for deferral. Healthcare organizations which had regained financial viability now wanted the additional time to execute newly built acute-care facilities instead of retrofitting existing structures (Alesch et al. 2012).

It is against this backdrop that Sutter Health would need to execute its large capital program for the construction of at least six new primary care hospitals in addition to new medical office buildings. Sutter projects would also be competing against other healthcare projects for the services of a limited number of design and contracting professionals, whose availability was constrained by the need for (1) specialized experience for the complex process of healthcare construction, (2) qualification for bonding and insurance (creating a barrier to entry for new contractors), and (3) knowledge of the extensive regulatory, review, and inspection required by the state of California's Office of Statewide Health Planning and Development (OSHPD) (Feng 2009). Limited supply and increased demand resulted in dramatic escalation of costs for California healthcare construction which outpaced those of non-California healthcare projects. For example, the healthcare construction cost escalation in Northern California rose an average of 17% annually from $330/GSF in 2003 to $620/GSF in 2007 (Feng 2009).

Sutter Health was well situated for problem cognition. The problem was both large and recurrent. Large healthcare providers were frequently frustrated with the outcomes provided by the conventional project delivery, such as cost and schedule overruns, accidents, less than expected quality and inadequate functionality. To compete for services from a limited quantity of qualified firms, Sutter Health needed a way to position itself as the "owner of choice" in the industry (Denerolle 2013). As the project sponsor with money to spend, Sutter Health occupied a central role in the process. For these reasons, Sutter Health was able to move forward to a period of problem naming.

Problem Naming

Starting in 2004, Sutter Health began an intentional campaign of institutional resolution to specifically label and understand the problems facing healthcare construction. During this phase,

institutional entrepreneurs come to the conclusion that the problems they face are not unique to themselves but widespread in their industry – otherwise they will normalize or respond in an ad hoc manner rather than find an institutionalized solution (Suchman 1995). Problem naming represents "a limited typification of the problem, linking it with other problems and perhaps, with previous ad hoc resolutions" (Suchman 1995).

Problem naming connects the problem to other problems within a larger institutional discourse. Problem naming has a long history in construction. As early as 1966, the Tavistock Report identified how the formal regulative controls marking the beginning and completion of activities (e.g. design, construction planning, sub-contracting, etc.) are subverted by a system of informal controls that emerges on all projects to provide more realistic phasing of decisions and more realistic flexibility to cope with the inherent *uncertainty* and *interdependence* on projects (Tavistock Institute of Human Relations 1966). The Tavistock Report called for "new formal system which incorporates the more adaptive characteristics of the informal system" (Tavistock Institute of Human Relations 1966 p. 53) claiming the "informal system is not the lazy man's way out but a means of adaptation that is essential for the formal system to work at all (p. 54)."

By the early twenty-first century, two movements were gaining significant momentum within the larger institutional discourse: relational contracting and lean construction. Aspects of each movement are not mutually exclusive. They share several of the same objectives and have borrowed or shared ideas from each other. However, important differences exist and are worth describing. Relational contracting attempts to solve the problem of interdependence in project organizations by creating integrated project governance with the potential to foresee many possible outcomes. When transactions become less discrete, and the transaction costs increase due to duration, uncertainty and complexity, relational contracts seek to bind parties to one another through social and cognitive psychological mechanisms as they jointly pursue project objectives (MacNeil 1974; Matthews and Howell 2005). Relational contracts are most commonly used when multiple, highly interdependent counterparties engage in multiple, sequential, complex transactions (Argyres and Liebeskind 1999; Henisz et al. 2012; Powell 1990). Projects using relational contracts take on the properties of "a mini-society with a vast array of norms beyond those centered on the exchange and its immediate processes." (Williamson 1979 p. 238).

The lean construction movement initially began by addressing the industry problem of uncertainty. Lean construction borrows heavily from lean manufacturing ideas pioneered at Toyota Motors, Inc. (Liker and Meier 2006; Womack et al. 1990). Lean ideas include a focus on customer value, production flow, eliminating waste, and a continuous improvement culture (Liker and Meier 2006). The Lean Construction Institute (LCI) was founded in 1997 and its founders, while acknowledging the need for better procurement methods and upstream decisions, argued that change should start from the normative and cultural processes and operations that occur around the design table and at the project site (Koskela et al. 2003). LCI is a professional association that operates by creating new frameworks, ontologies and principles to guide actors in lean activity, spreading ideas about appropriate "lean behavior," and attempting to influence the standard behavior of the construction industry as a whole. These types of associations legitimize change by "hosting a process of discourse through which change is debated and endorsed: first by negotiating and managing debate within the profession; and, second, by reframing professional identities as they are presented to others outside the profession" (Greenwood et al. 2002). The lean movement has focused on creating a normative set of shared practices and promoting a shared cognitive identity where a small set of "progressive" firms "do things differently" than the rest of the industry.

Sutter Health's problem- naming discourse first linked with the lean construction movement. Sutter Health sought to "develop a collective awareness and understanding of the concepts inherent in Lean Project Delivery, while also building a sense of community" (Lichtig 2005). With help from the LCI, Sutter Health hosted a three-day Sutter Lean Summit that brought their internal Facility Planning and Development Department together with designers and builders. They specifically named five ideas as a starting point to build a new framework for healthcare construction. The ideas are (1) collaborate, really collaborate, (2) Increase relatedness among project participants, (3) Projects are networks of commitments, (4) Optimize the project not the pieces, and (5) Tightly couple action with learning (Lichtig 2005). These "Five Big Ideas" can be considered five specific problems that Sutter Health named and began working to solve.

Response Categorization

After Sutter Health had identified the problems to be addressed, attention naturally turned to a search for responses attempted elsewhere in industry. This is a period of *typification* where actors identify a limited number of standard responses or solutions (Suchman 1995). Institutional entrepreneurs can develop a "cognitively tractable repertoire of alternative strategies" (Suchman 1995).

At this point, Sutter Health and the lean community observed two responses – project partnering and project alliancing - from the relational contracting movement. Project partnering is a single approach by organizations to achieve a specific business objectives (Bennett and Jayes 1995). Project partnering (PP) is characterized by identifying and sharing mutual objectives, engaging in a method of problem resolution and and searching actively for continuous improvements. The first partnering projects were developed by the US Army Corps of Engineers in 1988 with the intention of avoiding construction disputes. This partnering was a voluntary arrangement between the owner and the contractor and was applied only after the low-bid selection of the contractor to the project (Lahdenpera 2012; Larson 1995; Loraine 1994; Weston and Gibson 1993). Project alliancing (PA) goes one step further. The project owner and other actors "work together as an integrated, collaborative team in good faith, acting with integrity and making unanimous, best-for-project decisions, managing all risks of project delivery jointly, and sharing the outcome of the project" (UK Department of Treasury and Finance, 2010). Project alliancing emerged in the early 1990's when British Petroleum attempted to collaborate with its delivery contractors on an oil project (Knott 1996). Actors in Australia formalized and institutionalized this idea into a new form of project delivery method (Darrington and Lichtig 2010). The approach has been utilized primarily on road, rail and water infrastructure projects (Lahdenpera 2012).

A third type of response emerged from a consortium of design professionals and construction practitioners in Orlando, Florida. After several years of experimentation these actors organized themselves to function as a single "virtual" company with unified goals and objectives and an agreement to forego competition amongst themselves for profit or recognition (Matthews and Howell 2005). Under their new arrangement, one primary team member held the prime contract with an owner while each other primary team member entered into a single "pact" with the other members to jointly and severally bind themselves to each other and to the fulfillment of all of the terms, conditions and requirements of the prime contract. The primary team members also agreed to share the costs on the project and to distribute profit based upon a formula that rewards the members in accordance with their contribution (Matthews and Howell 2005). Although from the owner's viewpoint the arrangement was closer to a design-build contract it pioneered early involvement practices and shared financial risk and reward (Lahdenpera 2012). After its employment on several successful utility projects, the benefits of the approach were

highlighted in a detailed case study by Matthews and Howell (2005) in which the authors first coined the term "Integrated Project Delivery (IPD)."

Response Comparison

During response comparison, actors evaluate categorized responses with respect to various standards of desirability (Suchman 1995). While no direct account exists of Sutter Health's response comparison process, it can be reconstructed by reflecting on its next action – the construction of a prototype project. Sutter began construction of its Fairfield Medical Office Building (MOB) in 2005. The project gave Sutter the opportunity to test out a new process of designing and building facilities collaboratively in a relatively small project. According to anecdotal information, Sutter Health and collaborators envisioned a governance system that captured practices from PP and PA projects, advice from relational contracting experts, and experiences from the "IPD" projects in Florida (Lahdenpera 2012).

The resulting project employed a *bricolage* process combining selected structural and symbolic elements of construction best practices. In fashioning new institutional frameworks, actors do not discard all aspects of former enterprises but rather merge them with local structures and ideas to form new hybrid combinations (Scott 2014; Stark 1996). In the case of the Fairfield MOB, this bricolage included a set of regulative, normative, and cultural-cognitive elements. From a regulative perspective, the economic interests of the main stakeholders are aligned through a multi-party contract with shared-risk and shared-reward stakes. The project's Integrated Form of Agreement (IFOA) drafted by attorney Will Lichtig was the first Sutter Heath project (and possibly the first construction project in the United States) to use a three-way, integrated form of agreement as the basic design and construction contract (Lichtig 2006). This early version of an IFOA included a financial incentive plan that borrows from Project Alliancing (Sakal 2005); however, the participants were still somewhat "in the mindset of business of usual" and elected not to implement it (Cohen, 2010). In addition parties agreed to mutually waive liability for damages and to use alternative dispute resolution (Cohen 2010). From a normative perspective, the team was collocated in a single shared 'big room' to facilitate social exchange, and the sense of a shared destiny (Ashcraft 2012; Henisz et al. 2012; Thomsen et al. 2009). Lean language, thinking, and tools such as "The Last Planner System," "pull scheduling," and "daily huddles" created a normative set of shared practices around a common language and ideology (Cohen 2010). From a cultural-cognitive perspective, key project participants were brought into the project earlier in the process to facilitate shared identity and destiny through collaborative decision making and jointly developed and validated team goals (Ashcraft 2012; Cohen 2010; Kenig et al. 2010).

The Sutter Health Fairfield MOB was considered a great success. According to some scholars, it inaugurated the current era of IPD (Lahdenpera 2012). The project was completed at a cost well below industry standard (Ballard 2008) and participants reported increased feelings of respect, goodwill, trust, and professional satisfaction compared to past work. Soon the basic institutional framework was applied to Sutter Health's larger and more complex healthcare projects. Meanwhile other projects adopted and learned from the experiences of Sutter Health. An early comparative case study conducted by the AIA showcased five additional non-Sutter Health IPD projects completed between 2007 and 2009 (Cohen 2010).

Theorization

In 2009, a period of *theorization* began about the appropriate bricolage of elements to be used for IPD. Employing a process of compilation, "information intermediaries" such as consultants (see Cohen 2010; Kenig et al. 2010; Sive 2009; Thomsen et al. 2009) and lawyers (see Ashcraft 2012; Lichtig 2010) observed existing, relatively heterogeneous practices and distilled a core set of organizing principles (Scott 2014). These intermediaries formulated "general accounts of how the system works and, in particular, of which solutions are appropriate in which contexts" (Suchman 1995). Several frameworks emerged at this time that highlighted key similarities but also demonstrated the wide range of variability in elements (Figure 2). Scholars in this period are quick to point out that "there does not exist a standard definition of IPD that has been accepted by the industry as a whole. Different definitions and widely varying approaches and sophistication levels mean that the term 'IPD' is used to describe significantly different contract arrangements and team processes" (Kent and Becerik-Gerber 2010).

■ Definitive Characteristics
□ Desireable Characteristics
● Macro-Framework
○ Micro-Framework

	AIA Case Studies (Cohen 2010)	**IPD for Public & Private Owners** (Kenig 2010)	**The IPD Framework** (Ashcraft 2012)	**Kent & Becerik-Gerber** (2010)	**"Pure" IPD** (Sive 2009)	**"IPDish"** (Sive 2009)
Jointly Developed & Validated Goals	■	■	●			
Lean Construction Principles	□	□	○		■	
Collaborative Decision Making	■	■	○		■	■
Joint Project Control			●			
Multi-Party Contract	■	□		■	■	
Early Involvement of Key Participants	■	■	●	■	■	□
Co-Location	□	□	○			
Shared Risk & Reward	■	■	●	■	■	□
Reduced Liability Exposure	■	■	●		■	
BIM & VDC	□	□	○		■	□
Fiscal Transparency	□	■			■	
Mutual Respect & Trust	□	■				
Team Idea Generation & Support	□	■				
Open Communication	□	■				
Willingness to Collaborate		■			■	□
Intensified Early Planning	□	■			■	□

Figure 2 - Several contending "Theorizations" of IPD

The period of theorization is still ongoing; IPD remains *institutionally immature*. Participants often have little or no experience in IPD and the regulations and norms guiding actions are not established (cf. South et al. 2015). Approaches are often referred to as "IPDish" or "IPD-

lite" (Sive 2009). Proponents of "IPDish" assert that the philosophy of IPD can be effectively achieved without parties signing a multi-party contract or other legal agreement to share risk and reward. They argue a "progressive" design build contract coupled with an IPD philosophy will yield similar benefits to a multi-party contract. However, proponents of "pure" IPD argue that traditional construction contracts are inconsistent with fundamental IPD principles (Ashcraft 2012). Weaker "IPDish" approaches incorporate a misalignment of the regulative elements with normative and cultural-cognitive elements. This misalignment supports and motivates differing choices and behaviors, and provides "resources that different actors can employ for different ends" (Strang and Sine 2002), ultimately creating confusion and conflict (Scott 2014). In general, the existence of multiple accounts of IPD represents an "unstable equilibrium, easily disrupted either by further data or by more elaborate accounts" (Suchman 1995). Eventually it is possible that a single account will emerge composed of elements from the bricolage. In the best case scenario, "the choice of solutions tends to become prescriptive or even definitional. In this way, the prevailing model moves toward reification, and the preferred solutions towards institutionalization" (Suchman 1995).

Diffusion, Legitimacy, and New Institutions

Diffusion is the final step signifying that new organizational forms have gained institutional legitimacy. Johnson, Dowd and Ridgeway (2006) describe four stages - innovation, local validation, diffusion, and general validation - by which new collective organizational forms such as IPD gain legitimacy. As described in the sections above, an organizational innovation is created to address some need, purpose, or goal, at the local level. During local validation, local actors must construe it as consonant with and linked to the existing, widely accepted cultural framework of beliefs, values, and norms. Sutter Health is currently engaged at the final stages of its own local validation process. It is constructing its two final projects of its capital program in San Francisco for a combined budget of approximately $2.7 billion USD (including equipment). These two projects showcase best practices learned and represent a culmination of Sutter Health's twenty year IPD process.

Diffusion occurs as the solution generated and refined by Sutter Health begins to spread outward from their initial locus of institutionalization (Suchman 1995). Institutions perceived to be successful can spread to other regions via conferences, national media, and movement of field members across regions (DiMaggio and Powell 1983). Because the innovation has been locally validated, it is adopted more readily by actors in other local contexts as mere fact (Johnson et al. 2006). IPD diffusion has occurred across regions and across project type. Firms involved with Sutter Health have carried IPD to new markets in other regions. For example, the architecture firm HGA transposed experience with the Fairfield MOB project to two healthcare projects in the Midwest (Cohen 2010). Initial IPD diffusion predominantly occurred within the healthcare construction market. Healthcare projects composed more than half of all projects found in a national 2010 AIA study of 44 projects using or planning to use IPD. However, diffusion has more recently crossed into markets for education and commercial office clients (Cheng et al. 2012).

Meanwhile, general validation remains to be determined. After all, some institutions never gain legitimacy (Johnson et al. 2006). The majority of the construction industry is still characterized by extreme fragmentation. Sutter Health will soon complete the majority of its rebuilding campaign. While smaller Sutter Health projects remain, the organization will likely vacate its role as the primary financier of IPD projects. Certainly there are questions about the future of IPD as its institutional entrepreneur exits the role of central actor. Will IPD continue to

diffuse in additional regions and contexts, eventually achieving general validation and even replacing other organizational forms as the dominant form of construction project organization? Will it institutionalize only within a certain segment - such as only the healthcare arena - of the broader construction market? Will it fade away as a temporary reform movement like so many other construction reform attempts (Smiley et al. 2014)? Or will it further evolve and the current elements of IPD combine with other emerging ideas to create some alternative institutional form?

IPD proponents would point to client satisfaction and market success (El Asmar et al. 2013; Hanna 2016; Molenaar et al. 2014) as indicators of the lasting potential of IPD as a new institution for construction project organization. As IPD is perceived to meet purposes that are consonant with already widely accepted goals (e.g. cost, schedule, efficiency), additional actors will take on the belief that the innovation is acceptable. Future adopters can also be driven by the legitimacy that comes from emulation (Johnson et al. 2006). This can be understood as cognitive legitimacy - flowing from the prevalence of comparable organizational actors - and normative legitimacy - advanced by associations such as the Lean Construction Institute who prescribe appropriate language, standards, values, and behavior of actors in the field (Johnson et al. 2006).

DISCUSSION, CONCLUSION, AND FUTURE WORK

This paper accounts for the institutional entrepreneurship of Sutter Health using a multi-stage model of institutionalization. Sutter Health was well-positioned in 2003 for problem cognition because they were a central player (owner/financier) with a large and recurrent problem (need to construct multiple hospitals) that had been culturally designated as problematic (rapid industry escalation of healthcare cost and schedule coupled with decreasing owner satisfaction). In 2004, Sutter Health engaged in a period of problem naming by linking their problems within the larger institutional discourse of lean construction and relational contracting. Sutter Health was able to categorize and evaluate a set of responses from these two movements. By combining desired structural and symbolic elements of these projects, Sutter Health and its network of actors created by bricolage a combination of regulative, normative, and cultural-cognitive elements for a pilot implementation of its Fairfield MOB in 2005. The successful local validation of this pilot began the diffusion of IPD both internally to future Sutter Health projects and externally to other regions and project types. These new projects employed differing combinations of the IPD elements, leading to a period of theorization starting in 2009 where information intermediaries attempted to distill a core set of organizing principles.

Other California healthcare providers faced the same large and recurrent problem, but no other organization acted as an institutional entrepreneur to the same extent that Sutter Health did. Other healthcare organizations often looked to maximize productivity within the existing institutional frameworks. For instance, Kaiser Permanente developed a strategy for a modular design approach. By standardizing the design of patient rooms, surgical centers, and other common room types across all facilities, Kaiser can achieve greater production efficiency through prefabrication, economies of scale, and application of lessons learned. The difference between these two responses presents an opportunity for future institutional research. A comparative case study might identify the characteristics or conditions at Sutter Health that directed the organization toward the construction of a new engineering project organization as opposed to resolving the problem ad-hoc or using preexisting institutions.

Meanwhile, the period of theorization is still ongoing today. The term IPD can describe significantly different contract arrangements and team processes. While IPD appears to be on a

pathway headed to general validation and the creation of a new institution for construction project organization, this is not yet accomplished and questions remain about the degree to which IPD will institutionalize and become widely adopted. General validation will occur when most actors in the construction industry take on the belief that IPD is acceptable, that it is part of the status quo, and that it is useful to frame the future behavior of actors. Certainly, client satisfaction and market success indicate the potential of IPD, but the achievement of full legitimacy and the creation of a new and lasting institution remain to be determined.

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