

STRATEGIES TO SUCCEED IN FOREIGN ENVIRONMENTS: A knowledge-based contingency approach

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“What is called foreknowledge cannot be elicited from spirits, nor from Gods, not by analogy with past events, nor from calculations. It must be obtained from men who know the situation.”

-- Sun Tzu (500 B.C.)

ABSTRACT

Managers and executives in the international AEC industry report that on global projects, heightened levels of uncertainty impact project performance. This article provides insights and case-examples from a series of ethnographic interviews and draws on relevant sources in the literature to investigate two research questions: Where does this heightened uncertainty come from? And how do firms cope with this uncertainty? The findings reveal that this heightened uncertainty originates from four broad categories of unfamiliar elements in a foreign region or country: actors, institutions, natural environment, and technologies. The findings also uncover that managers adopt a variety of strategies to lessen this uncertainty—they increase the supply of local knowledge, they intentionally reduce the demand for local knowledge by reducing dependence on local elements, and they integrate lessons learned. This article will be of interest to managers involved in the financing, planning, procurement and implementation stages of global projects.

Keywords: global project, knowledge deficit, embeddedness, risk, strategy, cost growth

INTRODUCTION

Global projects include industrial, commercial, residential and infrastructure projects that assemble component parts and organizational participants including financiers, vendors and contractors from around the world (Chan & Tse 2003, Levitt et. al. 2004). Participants on global projects report that they face many unforeseen, unexpected, uncertain and unknown costs and conditions during planning, design and construction. Where does this uncertainty and cost growth come from? What strategies do firms use to control these costs? The contribution of this article is two-fold. First, to identify where these costs come from; and second, to describe the strategies that firms use to reduce these costs. This article is divided into three sections. First, it describes the methodology. Second, it provides a brief theoretical background. Third, it presents the findings from a series of open-ended interviews with global project managers.

METHODS

Over the past year, I have used open-ended interviews to learn from managers and executives of firms involved in the international AEC industry. I have conducted more than 60 interviews with civilian and military global project managers who have cumulative experience in 90 plus countries. Firms sampled include AirProducts, Bechtel, Billfinger-Berger, CCC, Cisco, Fluor, Gerald Hines, Kone, KPMG, Ledcor, Nokia, Obayashi, Parsons Brinkerhoff, Shell, Shimizu, The US Navy, Turner, Veritas and VeriSign, Walt Disney among others. I made every attempt to start these interviews with

a *tabula rasa*, clean theoretical mind recommended by established methodology primers. Glaser and Strauss (1967:37) suggest that:

An effective strategy is, at first, literally to ignore the literature of theory and fact on the area under study, in order to assure that the emergence of categories will not be contaminated by concepts more suited to different areas. Similarities and differences with the literature can be established after the analytic core of categories has emerged.

Thus, the interviews followed an open-ended format where the informants were encouraged to talk about a global project that they had participated on and the challenges that their organization had faced. In the ethnographic tradition of Spradley (1979), I started these interviews with open-ended questions such as, “Take me on a grand tour of the project...” or, “Tell me about the challenges on the project that were surprising...”. These general questions created chances for spontaneous discussion around emergent topics. If an informant did not mention something that I wanted to learn more about, I asked a more specific question. For example, “How much do you think this problem cost your firm?” or, “How was this situation eventually resolved?” encouraged respondents to talk about consequences of, and resolutions to challenges they had faced. As Glaser and Strauss (1967) note, these types of interviews are very dynamic and involve a constant interplay between experience, induction, and deduction.

My data analysis philosophy was grounded-theory building (Eisenhardt 1989) and analytic induction (Glaser & Strauss 1967). This is different from enumerative induction, which applies statistics to assess the strength of relationships between variables. At the heart of analytic induction is the constant comparative method. Through constant comparison, theories are extended and refined such that negative cases force us either to reject the generalization or to revise it (Lindesmith 1947: 12). Thus, the exceptional instance forces science to grow. Glaser and Strauss (1967) explain this as a process of:

First, coding each incident in the data into as many categories of analysis as possible and comparing incidents applicable to each category; second, integrating categories and their properties...resulting in a unified and... developing theory; and third, delimiting the theory...and reformulating it with a smaller set of higher level concepts.

As I conducted interviews and constantly analyzed the growing set of field notes and interview transcripts, insights emerged that were grounded in manager’s experiences. These insights are presented here along with theories and concepts from extant literature.

THEORETICAL BACKGROUND

Although I did not have a theory in mind when I began conducting interviews, as I became immersed in the variables and their relationships, I recognized that several extant theories might be complimentary in explaining the nature of the field phenomenon under observation. The threads of literature I rely on most heavily are as follows:

- The sensemaking literature (Weick 1996) identifies how actors gradually perceive, interpret and make sense of a new environment, social situation or technology.
- The organizational learning literature (e.g. Levitt and March, 1988) identifies how organizations develop new routines and competencies.
- Institutional theory (Scott 2001, North 1990) provides a robust analytical framework to show how institutions—beliefs, values, norms, rules and laws—support, guide, and constrain regularities of social behavior.

- The knowledge-based view of the firm (e.g. Grant 1996) shows how firms derive competitive advantage from distinctive bundles of knowledge, skills and resources.
- Transaction cost economics (e.g. Williamson 1979) identifies that the greater the knowledge asymmetry between trading partners, the greater the transaction costs.
- Internationalization theory focuses on the strategic process of increasing international operations across borders (Melin 1992).

In my overall work, beyond the scope of this single article, I am working towards an integration of these theories to show how accumulated *sensemaking* and *organizational learning* about the basic *institutional* arrangements in a foreign market environment become a strategic *knowledge competency* for international firms, which lessens their *costs of transacting* as they become *internationalized*.

KNOWLEDGE DEFICIT & UNFORESEEN COSTS

What is the cause of cost growth on global construction projects? Managers and executives at international AEC firms report high-unforeseen costs caused by heightened levels of uncertainty when they enter an unfamiliar country or region. Table 1 provides a typology and examples of the categories of heightened uncertainty that emerged from the interviews. The labels of these categories draw on scholarly work in institutional theory (North 1990, Scott 2001) and project management (Stinchcombe 1985).

Table 1. Categories of heightened uncertainty in a foreign environment, with examples¹

Unfamiliar Human World	1. The Local Set of Actors
	* Skill - Who has technical, management and advisory ability * Reputation - Who is honest, who is a newcomer, who is a free rider, who is in financial trouble * Network - Who knows who, who knows who knows who, who holds various knowledge & resources
Unfamiliar Physical World	2. The Local Set of Human Devised Institutions that Enable, Guide & Govern the Actors
	* Regulative - Formal constitution, law, rule, property right, sanction * Normative - Informal norm, value, protocol, taboo, custom, tradition, code of conduct * Cognitive-Cultural - Tacit human-devised belief system, script, identity, schema, role
Unfamiliar Physical World	3. The Local Natural Environment
	* Project Site Environment - Slope stability, groundwater flow, soil strength, poisonous vegetation * Surrounding Environment - Monsoon seasons, freeze-thaw cycle, seismic activity
Unfamiliar Physical World	4. The Local Set of Human Devised Technologies to Contend with the Natural Environment
	* Basic Infrastructure - Roads, buildings, warehouse capacity, other built infrastructure * Tools - Sextants, GPS systems, scaffolding, pumps, trucks, heavy equipment, software, hardware * Building Systems - Retaining walls, foundation systems, building materials

I want to draw attention to the parallel between these categories and the faddish management buzzword, *theatre* (as in Japanese theatre, European theatre, etc.). In the performing arts sense of the word, a theatre brings together four primary elements: actors, scripts, sets and props. Note the near perfect analogy to the categories in Table 1: Theatrical *actors* in a play are analogous to the individuals and organizations in an economy, polity, or society; Theatrical *scripts* for a play are analogous to the institutions

¹ Note that the word “local” (as used in Table 1 and throughout this paper) is meant to include the numerous forces and actors that become activated in the local project context, including international non-governmental organizations, professional associations and other international actors who play an important role in promulgating environmental, technological, occupational and legal logics and rules to the local level.

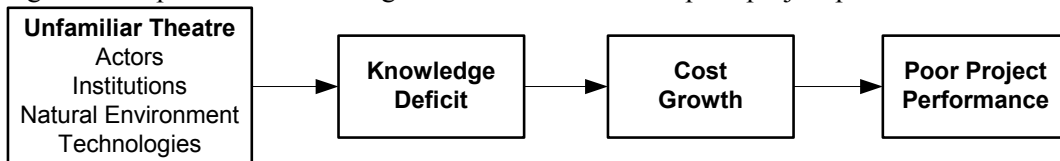
that enable, guide and constrain the actors' behavior; a *set* for a play is akin to the surrounding natural environment; and theatrical *props* correspond to the array of human-constructed technologies. As actors, scripts, sets and props are unique in every theatre and vary from play to play, so the actors, institutions, natural environment, and technologies are unique in every country, or region, and vary across projects.

To illustrate how the four categories of heightened uncertainty in Table 1 lead to unforeseen costs, consider the following examples from the interviews:

1. On a mega hydro-electric dam project in China, a German contractor hired a Chinese subcontractor by competitive bid, only to find out after the project was well underway that this particular Chinese subcontractor had a staff of peasant farmers with little technical experience; after a near-miss with a failed cofferdam, the subcontractor was fired and replaced, causing a nine month project delay.
2. On a motorway project in Albania, a US Navy construction team was uncertain about how to procure crushed rock, office equipment and camp provisions from local vendors who traded according to traditional norms of personal exchange; misunderstandings concerning the trading arrangements caused months of delay.
3. On a project in Kazakhstan, a large US contractor was unfamiliar with the annual freeze-thaw cycle and missed the three-month window to barge equipment and supplies into the arctic construction site; the project was delayed by one year.
4. On a project in Guam, a US contractor discovered that a dewatering system they had shipped by ocean liner from Florida was unsuitable for porous local ground conditions; they lost a week and the cost of the cargo shipment.

Indeed, foreign participants on global projects face heightened uncertainty that stems from a knowledge deficit about the many elements defined in Table 1, which vary across theatres. This knowledge deficit leads to uncertainty and unforeseen costs, which in turn impact project performance. Figure 1 summarizes this proposed cause-and-effect model.

Figure 1. Proposed model linking an unfamiliar theatre to poor project performance.



STRATEGIES TO SUCCEED IN A FOREIGN ENVIRONMENT

How do foreign firms succeed in an utterly unfamiliar project environment? A basic proposition is that the execution of every task associated with local actors, institutions, natural environment or technologies requires a certain basic level of local knowledge about those elements. If the relevant elements in a theatre are well understood prior to performing the task, much of the activity can be planned in advance and the task is accomplished in the most efficient fashion at a minimum level of effort to the responsible actor. If these elements are not understood, then during the performance of the activity more knowledge is obtained which leads to changes in priorities, plans and strategies. All of these changes require sensemaking, trial-and-error learning, rework and adaptation *during* task execution. *Therefore, the greater an actor's knowledge deficit at the outset of a task, the greater the amount of sensemaking, trial-and-error learning, rework and*

adaptation that must occur during task execution to achieve a given level of performance. The central effect of an actor's knowledge deficit is to limit that actor's ability to anticipate issues, assess problem areas, set priorities, develop strategies or make decisions about activities in advance of their execution. *Thus, from a strategic point of view, the interviews revealed that organizations adopt two general strategies to increase their fitness, efficiency and effectiveness when they face a knowledge deficit: (1) they increase their supply of local knowledge on a project, (2) they decrease their demand for knowledge on a project. Also, at the end of a project, they integrate lessons learned as a way to reduce their initial knowledge deficit on future projects.* Examples are provided on the following pages. The overall effect of these strategies is to decrease an organizations knowledge deficit; to minimize the unintended sensemaking, learning by trial-and-error, rework and adaptation that is associated with such a knowledge deficit; and to increase the organizations capacity to operate in the most intelligent and intentional fashion. The assumption is that the greater the match between an organization's stock of knowledge and the stock of knowledge it requires to preplan, coordinate and execute tasks in a given environment, the greater the viability, effectiveness and efficiency of that organization's local operational performance.

Increase the Supply of Local Knowledge on a Project

Local knowledge is necessary to efficiently and effectively transact and maneuver within the social and physical arrangements of a foreign environment. The following examples summarize five strategies used by managers to increase their supply of local knowledge:

Intelligence Gathering. Identify and integrate key drivers, indicators, indexes, metrics and trends before entering a new market. Such information is compiled from public and proprietary sources such as industry trade associations, market research consultants and economic journals. Many informants report that industry-benchmarking partners are a key source of recent and reliable unit cost and productivity data for foreign markets.

Formal Training Programs. Educate and prepare personnel for global assignments—both personally and professionally. Teach both general strategies—to cope with heightened uncertainty in an unfamiliar market, and specifics—about the relevant actors, institutions, natural environment and technologies that will be encountered in a foreign assignment. Consultants provide such training for firms that lack global market experience.

Trial Balloons. Use scaled-down versions of full projects or partnerships to “get up the learning curve” before tackling larger projects. As one executive who had managed the construction of two factories in China reported, “first build a small factory, work out the kinks, train the locals, build a team, then build a large factory. If you don't... you'll end up with a white elephant, like [XYZ firm] did in [a certain Chinese city].” Experienced managers utilize this strategy to gain the benefits of trial-and-error learning before they irrevocably commit resources to a high-risk project or partnership.

Local Partners. Seek advice and mentorship from trustworthy local partners who are attuned to local ways of life, politics and economic trends. Local partners increase a foreign manager's rate of learning. Partners range from individual professionals, to local guides, to formal joint ventures to acquisitions. Many global AEC firm's report a heavy reliance on local branches of large global financial advisory firms, such as Ernst & Young, Price Waterhouse Coopers and HSBC. As one informant explained, “They can

tell you what to look out for. They will have locals who speak the language of that country. They don't understand your project, but they understand labor law, contract law and local financial markets. They will keep you legal and give good advice that you can implement and indoctrinate into your system. They are advisors.” Thus, the strategy is to build trustworthy relationships with well-connected and locally knowledgeable partners.

Freelance Expatriates. A colleague has discovered that on most global projects in Asia, a group of freelance expatriates—primarily from the UK and other British Commonwealth countries such as Australia, Canada, India and New Zealand—play an important role as cultural intermediaries (Mahalingam, forthcoming). They provide technical expertise and act as negotiators, links, or go-betweens to guide relations between culturally diverse project participants. These professionals show little allegiance to a particular firm and rove from project to project through a social-network of acquaintances developed on past projects. Their unique experience base and skill-set enables them to anticipate, assess and adapt to subtle differences in a new environment; to unify various organizational, professional and national cultures; and to mediate disputes and standoffs rooted in differing institutional logics. Therefore, a strategy is to hire these freelance expatriates on a project-by-project basis to gain access to their knowledge base.

Decrease Demand for Local Knowledge on a Project

The following examples summarize four strategies used by managers to decrease their demand for local knowledge:

*Outsource.*² Outsource activities that are heavily embedded in the local regulatory environment—such as buying land, permitting, getting shipments through customs and hiring a labor force. This goes beyond partnering. A local partnering strategy entails the use of partners to gain access to key local knowledge. In contrast, an outsourcing strategy entails the use of contractors and consultants who are contractually obligated to complete a specific activity, or set of activities. Outsourcing can prevent errors and mistakes. This strategy reduces the amount of local knowledge that a firm needs internally by shifting the burden of responsibility to local contractors and consultants.

*Off-shore Technologies.*² Pre-fabricate and assemble modular building components and sub-components. Many equipment providers use this strategy for products such as elevators, pumps, and air conditioners, but this approach is being used for increasingly larger sub-systems such as structural steel building frames and bridge decks. Pre-fabricated members or modules are shipped by barge or inter-modal transport container, and are welded or bolted together with minimal onsite labor. This strategy reduces reliance on local labor, expertise and building technologies.

*Off-shore Contracts.*² Sign contracts under the jurisdiction of international law, or under the law of a third-country, rather than under the law in the country where the product or service is to be provided. This strategy lessens the need to learn about legal institutions and protocols in the host country, which may be very different from at home, and reduces dependence on foreign legal professionals. This strategy is especially useful in weak or failed states where legal institutions are unclear and their enforcement is unpredictable.

² Note that these avoidance strategies—outsourcing and deciding which regimes to operate under—can undermine important controls and create unexpected and unpleasant costs for other project participants.

Evolve Contract Clauses. Develop contracts to be flexible under conditions of heightened uncertainty, with clauses designed to account for all possible contingencies—even those that are unforeseeable at the time the contract is drawn up. Executives who have worked many years abroad report that their standard-form contracts become both more “internationally generic”, yet more “locally specialized” as they iteratively revise and improve their contracts with each successive project.

Integrate Lessons Learned after Project Completion

Project organizations are “learning disabled” by nature because the team disperses rapidly during the project close-out phase and any accumulation of project or team knowledge or innovation tends to vanish, only to be rediscovered by trial-and-error on a future project by another team. By integrating lessons learned during a project, a firm can retain lessons and improve future projects. Two examples follow:

Knowledge Integration Systems. For local knowledge to yield sustained advantage, it must be captured, interpreted and deployed (Grant 1996). When a firm recognizes what it has learned and decides what to do with it, this process is called knowledge integration (Hamel and Prahalad 1994). Knowledge integration makes the information and skills gained from the internationalization process a vital part of the routines that guide the firm’s future strategic actions. In practice, knowledge integration and collective learning happen in official lessons-learned and project post-mortem sessions, unofficial conversations and the creation of training programs, policies and process manuals.

Corporate Culture. Establish a corporate culture to reward managers that develop international experience. As one vice-president remarked, “At Fluor, if you don’t take international assignments—you won’t move up. It’s that simple.” Successful firms in the global AEC arena often reinforce this culture with human-resource policies that count global experience as a major criterion for employee promotion. Deference to managers with global experience is an important factor in the success of firms in global markets and a chief source of their competitive advantage. In an evolutionary sense, it seems that such a culture and policies act as a selection of the fittest mechanism to ensure that top-managerial, executive and board positions are filled by individuals with the highest levels of global experience and cross-cultural savvy. Global experience is a key knowledge competency that equips AEC firms to acquire pertinent local knowledge on subsequent projects. In turn, local knowledge is necessary to improve strategies and minimize costs.

ENVIRONMENT-STRATEGY-STRUCTURE FIT

A stylized-fact in the management literature is that a firm’s strategy and structure need be aligned with the characteristics of its environment (Chandler 1962). Yet, there have been few studies in the international business literature to build upon this classic model (Melin 1992). Addressing this gap in the literature, this exploratory study provides strong indication that firms on global projects design their entry strategies and subsidiary staffing plans, whether consciously or unconsciously, according to their “embeddedness” in the unfamiliar project environment. Embeddedness is the degree to which a firm must interact, coordinate and negotiate with local actors. This depends on the number of touch-points, interfaces or interdependencies with local actors and institutions, and the necessity, intensity and complexity of interaction across each interface.

Table 2. Relative exposure to local institutions, by type of firm.

Activities Embedded in Local Institutions	Hardware Providers	General Contractors	Developers
	Eg. Kone / Kverner	Eg. Bechtel / Fluor	Eg. Disney / Shell
Buying land	-	-	hi
Handling resettlement issues	-	lo	hi
Getting shipments through customs	low	hi	hi
Permitting	-	med	hi
Procuring local labor	low	hi	med
Procuring local supplies	low	hi	med
Negotiating with local politicians and government	-	med	hi
Signing contracts under local protocol	low	hi	hi

For example, Table 2 shows how three types of firms face varying levels of embeddedness, or exposure, to local institutions on global projects. Accordingly, these firms also report very different strategies and structures. These are discussed briefly below. *Firms in the hardware provider category* indicate that their international strategy relies heavily on reducing their demand for local knowledge by providing a piece of equipment that is an autonomous sub-unit, which can be installed with bolted or welded connections. This design minimizes dependencies with other local organizations and institutions. Thus, the hardware providers typically report an organizational structure utilizing just one specialist per country, or region, to manage sales and to learn, manage and navigate all of the local interfaces, rules, and requirements. *Firms in the general contractor (GC) category*, who are more heavily embedded, report both strategies of increasing local knowledge supply—by hiring locals, integrating local knowledge for future projects, and selecting expatriates based on prior country experience and language ability—and reducing local knowledge demand—by outsourcing to local consultants and contractors, signing contracts in other countries, and utilizing a pre-fabricate and assemble approach where applicable. As a consequence, organizational structures of the GCs are far more complex and utilize a complex array of locals to manage local interfaces and freelance expatriates to manage aspects of the technology and contract. *Firms in the developer category*, who are most heavily embedded in the local environment and usually invest in that environment for a longer term, report a primary strategy of increasing the supply of local knowledge. Their strategies include trial partnerships with potential local partners, acquisitions of the best local firms, education and training to indoctrinate the local partners in the parent firm’s practices and protocols, and eventual transfer of operating control to locally acquired partners. Often, the structure of local operating units maintained by developers is influenced heavily by the preferences of their local acquisitions. In summary, an important strategic consideration for a firm that participates on a global project is its level of embeddedness in the local institutional environment. The greater its embeddedness, the more its success will depend on its ability to acquire local knowledge, and the more that this need for local knowledge will dominate its strategic and organizational design.

CONCLUSIONS

The findings have important implications to global project managers and to academic researchers. To managers, the implications are three-fold. First, unforeseen costs on global projects arise when foreign managers fail to fully understand an unfamiliar theatre—the actors, institutions, local environment and technologies in a foreign market. Second, using three general strategies—assimilating local knowledge, decreasing the need for local knowledge, and integrating lessons learned—managers can derive many

sub-strategies to reduce their knowledge deficit and decrease their unforeseen costs on a project in an unfamiliar environment: Finally, the selection and combination of these strategies depends on the degree of embeddedness a firm faces in the local environment. To researchers, this article provides a fresh framework to define a foreign environment and it establishes a knowledge-based contingency approach to explain why firms adopt different strategies and structures. This approach advances scholarship in international business, which incorrectly posits that entry modes into foreign markets are selected on a purely discretionary basis. Instead, these findings reveal that firms adopt an entry mode and design their subsidiary staffing in a way that matches their need for local knowledge.

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