

IMPROVISATION OF OFFSHORE IT OUTSOURCING IN HIGH-VELOCITY ENVIRONMENTS

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Abstract

Improvisation is becoming increasingly hot in the organizational and strategic field. Yet, from the improvisation perspective, it is less obvious about the origins of improvisation, the building of improvisation, and the relationship of improvisation and innovation. To answer these questions, this study uses an exploratory longitudinal multiple-case study design. The research setting was the high-velocity environment of the offshore IT outsourcing industry. Our sample consists of two globally recognized Chinese IT service vendors which had several characteristics that fitted our research question. The overall result of our work was a model of the improvisation in offshore IT outsourcing, showing that: (1) Improvisation is really cultivated by culture in offshore IT outsourcing. Uncertainty levels and time pressure, although necessary, is not a sufficient condition for the emergence of improvisation. (2) Taking form improvisation consists of two distinct but interdependent processes of building structural ties (routines, plans and rules) and building relational ties (communication, swift trust), which is in contrast to the isolation approach in the existing improvisation literature. (3) Improvisation, because both structural ties and relational ties promote or restrict information flow and time-consuming, is associated with good or poor innovation performance. The implications of these findings for researchers are discussed.

Keywords: Improvisation, Offshore IT outsourcing, Multiple-case study.

1 INTRODUCTION

Improvisation is becoming increasingly hot in the organizational and strategic field (Leone 2010). The purpose of this study was to explore the improvisation of offshore IT outsourcing. We defined improvisation as the spontaneous and creative process of attempting to achieve an objective in a new way. As a spontaneous process, improvisation is extemporaneous, unpremeditated, and unplanned. As a creative process, improvisation attempts to develop something new and useful to the situation, although it does not always achieve this (Vera & Crossan 2004). Improvisation contrasts with the dynamic capabilities, their straightforward distinction is reflect in terms of how they deal with environmental changes, prior planning, their underlying nature, and overarching logic (Pavlou & El Sawy 2010).

The research setting was the high-velocity environment of the offshore IT outsourcing industry. By high velocity, we mean those environments in which there is rapid and discontinuous change in demand, competitors, technology, or regulation, so that information is often inaccurate, unavailable, or obsolete (Bourgeois & Eisenhardt 1988). In this context, improvisational capabilities are critical to an organization, which are proposed to operate distinctly as a “third hand” that extends the “ambidexterity” of an organization and is used in highly turbulent environments when the two “hands” (dynamic and operational capabilities) can no longer work as well together (Pavlou & El Sawy 2010). During our study(2006-2012), the offshore IT outsourcing industry was undergoing substantial market-oriented change such as the introduction of the financial crisis (Jarvenpaa & Mao 2008), and RMB appreciation, as well as global competitive change for example vendors increasingly need to be able to operate effectively in culturally-diverse environments (Su 2013). Pavlou & El Sawy (2010) hypothesized that improvisational processes would accelerate in such dynamic conditions, yet there were no studies to build a framework of how improvisation unfolds, under which circumstances and what are its consequences(Leone 2010).

We organized our research around three questions. First, why does improvisation emerge? Our interest was in why improvisation emerges among some executive groups, and not others. Do they arise from uncertainty levels, time pressure, or others? Or are they the natural out-growth of coordination between functional units?

Second, what is the building of improvisation? Some authors have only considered real-time information and communication flux (Cunha et al. 1999; Brown & Eisenhardt 1995). Alternatively, others have only focused on organization memory (Moorman & Miner 1998a). If so, what is the role that individual previous knowledge plays in improvisation, and what is the relationship between organization memory and communication flux? In addition, the existing literature of building improvisation primarily based on the static view and cross-sectional data. Simplified static approach leads us still foggy how improvisation unfolds ?

Third, how does improvisation affect innovation performance? One view is that improvisation interferes with effective innovation (Moorman & Miner 1998a). Empirical studies have indicated that this view is common in organizations. However, other authors have taken the more balanced view that improvisation may be harmful in some situations and helpful in others (Vera & Crossan 2005). However, the empirical evidence for all of these positions is limited.

The conflicting answers to these questions and the limited research base on improvisation, especially regarding offshore outsourcing in fast-paced environments, led us to an inductive study. We found that improvisation is really cultivated by culture in offshore IT outsourcing. Uncertainty levels and time pressure, although necessary, is not a sufficient condition for the emergence of improvisation. We also found that taking form improvisations consists of two distinct but interdependent processes of building structural ties (routines, plans and rules)and building relational ties(communication, swift trust), which is in contrast to the isolation approach in the existing improvisation literature. Finally, we found improvisation, because both structural ties and relational ties promote or restrict information flow and time-consuming, is associated with good or poor innovation performance. The empirical derivation of those ideas is the subject of this article.

2 THEORETICAL BACKGROUND

2.1 Improvisation Theory

From the origins of improvisation perspective, improvisation takes place when there is not enough time for formal planning to solve problems and address opportunities quickly (Miner et al. 2001), and when novel events cannot be addressed with existing operational capabilities (Cunha, Cunha, & Kamoche 1999). However, improvisation may even be intentionally chosen as a deliberate strategy to avoid a lengthy and costly planning process (Winter 2003). As a result, there is a call for researchers should focus on the reasons that lead people to improvise regularly, even in absence of urgency and resources constraints (Leone 2010). Organizational culture and national culture may be related to regular improvisation (Aram & Walochik 1996; Sharkansky & Zalmanovitch 2000; Vera & Crossan 2005). Unfortunately, the existing studies dealt explicitly with the question of how culture influences information systems design, information systems development, IT adoption and diffusion, IT use and outcomes, IT management and strategy in a stable environment (Leidner & Kayworth 2006), and it is unclear on how culture influences improvisation process and outcomes.

Furthermore, improvisation occurs at different intensities or degrees of the same continuum (Leone 2010). A well-known improvisation taxonomy was introduced by Crossan, Cunha, Vera and Cunha (2005) noted that consists of three main types of improvisation: ornamental, discovery, full-scale. Ornamental improvisation is characterized by high level of spontaneity and a strong influence of prior experiences and routines. Discovery improvisation is characterized by high level of creativity, low spontaneity and a rich combination of past knowledge. The last improvisation (full-scale improvisation) is characterized by high level of creativity and high spontaneity. This paper will follow this kind of classification. But unlike Crossan et al. (2005) about how improvisation may arise according to uncertainty levels and time pressure, we will study how other factors will lead to improvisation diversity?

From the building of improvisation perspective, there exist two shortcomings in the extant literature on improvisation. First, although the existing literature recognizes the role of antecedents as both enabling and constraining improvisation, it has for the most part treated these antecedents logics in isolation. The first view is that good improvisation is built upon traditional skills and consolidated knowledge (Crossan 1998), which accounted in this stream of literature. In this perspective, memory or routine covers both a central and an ambiguous role in improvisation literature. For example, Moorman & Miner (1998a) only focus on organization memory. This study founds a high level of procedural memory can influence the incidence of improvisation, but it has a contrasting effect on improvisation, which is to constrain novelty. Unlike procedural memory, this role of declarative memory increases novelty of improvisation, but it decreases spontaneous dimension. The second view is mainly focus on exploration and learning by doing (Vera & Crossan 2007). In this context improvisation has often been related to real-time information and communication. For example, Cunha et al. (1999) and Vera & Crossan (2005) only identify real-time information and communication. The former relates to the relationship between the spontaneous dimension of improvisation and it, the latter relates to the relationship between the creative dimension and it. Others have examined improvisation from IT system perspective (Pavlou & ElSawy 2010). Separation between the first view and the second view may be lose the benefits that come from the interaction of opposites and miss the opportunity to see how one opposite can actually inform the other. Actually, despite literature proposes improvisation as a dialectical process in which the organization memory and real-time information paradoxes are intertwined, it is still unclear how this is achieved with respect to the particular organizational goals and contexts. Second, past research has focused primarily on antecedents and outcomes of improvisation based on the static view and cross-sectional data. Simplified static approach only conceptually has described and empirically tested the antecedents. As a result, there is a call for researchers should move to a deeper understanding of the antecedents of improvisation (Leone 2010).

From improvisation and innovation performance perspective, improvisation is not inherently good or

bad (Vera & Crossan 2005). One view is that improvisation interferes with effective innovation (Moorman & Miner 1998a). Other view is, more and more scholars pay growing attention to the role of spontaneity and improvisation as a way to achieve innovation in new product development activities, especially in view of the quickly changing market conditions and highly ambiguity circumstances (e.g., Weick 1993, 1998; Lewin 1998; Majchrzak et al. 2006; Brown & Eisenhardt 1997). For example, Kamoche & Cuhna (2001) depicted a product innovation model in which improvisation, combined with experimentation, represents one of the principal features.

Improvisation and innovation, they are not synonymous as Moorman and Miner (1998b) successfully tested the discriminant validity between these two constructs. Treating them as synonymous could lead us to confound the degree of improvisation with the degree of innovation, which are two different things (Moorman & Miner, 1998a). Similarly, Cuhna et al. (1999) also underlines innovation and improvisation share their focus on novelty and usefulness, but what differentiate improvisation from the similar concepts, are the spontaneity and the real-time nature of the action (Vera & Crossan 2005), while innovation may arise also through perfectly planned and scheduled activities. So far, despite existing literature distinguishes between improvisation and innovation, thus it appears that the relationship between them has not been totally explored, and we still foggy whether all improvisation can bring innovation, and how improvisation can bring more innovation?

3 RESEARCH METHODOLOGY

Our research question of how improvisation can be enacted in offshore IT outsourcing led to an exploratory longitudinal multiple case study, a methodology considered appropriate for how, why, and what questions (Dubé & Paré 2003). The longitudinal case study approach allowed us to observe developments as events unfolded, instead of relying on retrospective accounts. The advantages provided rich details about, and surfaced insights on the enactment of, improvisation. In addition, multiple cases were effective because they enabled the collection of comparative data allowing a cross-case pattern search, which reassured the researcher become more confident in a theory when similar findings emerged in different contexts and built up evidence through a family of cases (Bansal & Corley 2011; Miles & Huberman 1994).

3.1 Cases Selection

The selected firms encompassed two of the most globally recognized Chinese IT service vendors, which were headquartered in two major geographical drivers of China's IT service industry: North China, Northeast China. These vendors had varied sizes and backgrounds. And they had several characteristics that fitted our research question. First, there was a clear need for improvisation. Second, both vendors had clients from all three major markets, Japan, U.S., and China. Third, there were significant changes in these vendors when contracting with different clients. Fourth, we had comprehensive access to participants and documentation from firms. Table 1 provides an overview of the vendors and the key informants at each vendor.

In particular, Vendor A, was founded in the early 1990s, started up by two former university classmates, respectively chairman and president. The firm slowly grew its business in the domestic market. In the mid-1990s, the firm established an alliance with a Global Fortune 500 Japanese technology firm, and started to more aggressively expand its international business. In the early 2000s, the firm founded overseas subsidiaries in the U.S. In the mid-2000s, the firm formed close business relationships with several U.S.-based Global Fortune 500 firms and rapidly grew its presence in Western markets. In recent years, the firm had been consistently ranked as a global top 100 IT service vendor and a leading player in China. Vendor B was founded in 1995, started up by four former university classmates. From the Microsoft DOS system started, firm gradually established a wide range of European and American market, whose clients included many of the world's leading technology companies such as Google, Adobe, Microsoft, HP, Sony etc. In 2003, the firm entered into offshore software outsourcing market in Japan. During the financial crisis in 2008, the firm still obtained stable, healthy, rapid growth.

Firm	Starting	Background	Interviewees
A	early 1990s	80+% to Japan; strong relationships with major clients from China, and U.S.	Co-Founder and Director; North America CEO; Japan CEO; Software Development Division Manager etc.
B	1995	Focusing on the U.S. market; strong relationships with major clients from China, and Japan.	Chairman & CEO; Marketing Manager; Japanese Business Manager; HR Manager; Euro-US Business Manager; Global Marketing Manager etc.

Table 1. Profile of the vendors and the key informants studied

3.2 Data Collection

We obtained data from interviews with project participants and archives.

Interview. Specifically, at Vendor A and B, interviews started in 2006 and were completed in 2012. Most interviews were conducted in 2008 and 2011. Altogether, the field researcher paid five visits to the firms. 67 in-depth, semi-structured and open-ended interviews with 54 people were recorded. Each interview lasted between 50 minutes and 2.8 hours, with the average length of approximately 1.6 hours. The selected informants spanned multiple managerial levels, from top executives such as CEOs of the North American and Japanese subsidiaries to middle managers such as project leaders. The informants covered all major business lines, including divisions servicing Japanese, U.S., and domestic markets, as well as corporate-wide functions such as human resources and business development. Some informants oversaw multiple divisions such as both Japanese and U.S. business lines. Interview questions focused on issues of these vendors how to contract with different clients. In the initial interviews, interviewees were asked about their role in the project, the tasks in which they were involved, and the deliverables for which they were responsible. We asked interviewees to recount their specific experiences in the project, focusing on problems, issues, how they or others interacted, and steps taken to resolve problems. We then asked for interviewees' perceptions of project success, innovation, coordination and vendor capability. We closed interviews by asking for recommendations for additional interview subjects. Such snowball sampling is typical in exploratory research (Kuzel 1992). *Archival data.* In addition to the interview data, relevant information in the public domain such as company web sites, news releases, publications in the media, was all collected and used. In addition, another important source of information was the annual Chinese International Software and Information Service Fair, the leading IT outsourcing industry conference in China. This event provided valuable information about the firms.

3.3 Data Analysis

The data analysis included single-case analysis and cross-case analysis.

Step 1: We first sought to build an overall understanding of each vendor contracting with different clients. We created a sequential time line of major activities, issues, and actions taken by vendor, client and team members, and the project performance at each phase. The time line was structured in the form of the origins, tactics (enacting improvisation), and resolution phases suggested by Paré (2004). We were initially interested in identifying the improvisation of vendor in this complex outsourcing and how it evolved over time. We therefore sought to code and classify them by the definition of improvisation based on previous classifications in the literature. We regularly discussed and refined coding, paying special attention to how evidence fitted into the overall context (Miles & Huberman 1994). The two members involved in fieldwork drew on our understanding of the vendor in discussing coding, while the third team member provided an independent perspective to challenge possible coding biases (Adler & Adler 1988).

Step 2: We then began the cross-case analysis, looking for similar constructs and themes in the cases (Eisenhardt & Graebner 2007). Specifically, findings that emerged from Vendor A's interaction with different cultures were then confirmed, revised, or refined through cross-case analysis of the other vendor B. For example, if through synthesis, we identified that Vendor A developed a certain

behavior to respond to Japanese clients, we would then examine whether vendors B had exhibited the same behavior for the Japanese market. If there was a discrepancy between vendors, we would modify the finding by identifying a component of the behavior that was shared by the vendors. Sometimes, insights that emerged through the analysis required the researcher to reconnect with previously-interviewed vendors for additional information, and reanalyze the expanded dataset. The theoretical insights were continuously refined through iteration between theory and data until a theoretical model that fit all or most cases was reached (Yin 2003).

4 RESEARCH RESULT

4.1 The Origins of Improvisation

Why does improvisation arise? Many authors have argued that the source of improvisation is uncertainty levels and time pressure. Absent uncertainty and time pressure, there is no need for people to use improvisation to solve the problems in high-velocity environment. If so, when facing the same uncertainty and time pressure, why improvisation emerges among some executive groups, and not others? why some emerge ornamental or discovery improvisation, while others emerge full-scale improvisation? The evidence from our data tells a different story. Although uncertainty and time pressure was important in offshore IT outsourcing, client' cultural difference was crucial. Specifically, Both vendor A and B exhibited different improvisation approaches to survive in high-velocity environment towards contracting with Japanese, U.S., and Chinese clients. In the first scenario when interacting with clients from U.S., full-scale improvisation may overcome to respond to high-velocity environment. In the second case when interacting with clients from China, discovery improvisation may occur to respond to high-velocity environment. In the last scenario when interacting with clients from Japan, we found ornamental improvisation respond to high-velocity environment.

Culture encompasses values that form the basis of their schemata of how the world works (Bartunek & Moch 1987; Earley 1993). The schemata translates into patterns of behavior that people exhibit in relating to the world around them (Harris 1994). This "culture in action" view offers a valuable lens for analyzing a wide range of phenomena. In IS, the studies dealt explicitly with the question of how culture influences information systems design. The common result emerging from these studies is that variation across cultural values may lead to differing perceptions and approaches to the manner in which information systems are developed. In this cross-cultural outsourcing process, when client and vendor' culture is not consistent, it will affect the success of the project (Ang & Inkpen 2008). As a result, the vendor needs to adapt to clients' cultural backgrounds in order to successfully complete the outsourced tasks for the clients (e.g. Oshri et al. 2007; Du & Pan 2010).

Based on the above theoretical basis, by an longitudinal observation, we summarize the variation across cultural values of two vendors towards contracting with Japanese, U.S. and Chinese clients, whether in steady or turbulent environment (Table 2). This variation was reflected in four coordination categories-routines, plans and rules, representation and proximity (Okhuysen & Bechky 2009; Bapna et al. 2010)-to characterize the vendor's perceptions and practices during its interaction with clients from the three different markets. Specifically, such difference towards contracting with Japanese, U.S., and Chinese clients was especially pronounced in terms of the rigor and detail of routines requirement, in terms of the precision and scope of plans, in terms of the scope, equality, willingness, autonomy of representation, in terms of the extent of proximity.

Type	Description
routine	<ul style="list-style-type: none"> ■the vendor needed to comply with a set of highly rigorous and standardized business processes prescribed by the client. [Japanese] ■the vendor needed to comply with a set of standardized business processes, but allowing some flexibility. [U.S.] ■process requirements were less rigorous. [Chinese]
plan	<ul style="list-style-type: none"> ■the clients tended to specified the responsibility, requirement function, encoding test, interim and final milestones and priorities in much greater detail (almost down to the code level). The vendor

	<p>was expected to strictly follow the plans when performing the outsourced tasks. In addition, the clients tended to divide a task into several components and each is responsible for a small piece of fragmented component. As a result, each acquired only a limited view of the overall outsourced product. [Japanese]</p> <p>■the vendor anticipated specific and detailed plans, but could oftentimes obtain a more holistic view of the overall outsourced product. [U.S.]</p> <p>■the plans requirement from clients tended to be high-level, abstract, and oftentimes ambiguous. The vendor had to interpret and execute such plans. [Chinese]</p>
representation	<p>■the vendor tended to be assigned a passive role and low autonomy in the outsourcing relationship. Meanwhile, the vendor mostly focused on specific tasks with well-defined boundaries and only engaged in limited and vertical interaction with others. [Japanese]</p> <p>■the vendor played a more active role and was given more autonomy in the outsourcing relationship. Meanwhile, the vendor was expected to more proactively engage in joint problem-solving to address clients' business needs. [U.S.]</p> <p>■the vendor had a more active, autonomous role, and often assumed full responsibility for independently creating solutions to address the clients' business needs. [Chinese]</p>
proximity	<p>■sometimes the vendor needed to engage in activities that were beyond the content of the contract. [Japanese]</p> <p>■relational expectations were not as significant. [U.S.]</p> <p>■the relationship, especially between the two organizations' top managers, played a key role. [Chinese]</p>

Table 2. Typical variation reflected in four coordination categories

Next, we summarize the use of improvisation in each vendor during its interaction with clients from the three different markets (Table 3). We qualitatively assessed the incidence of improvisation by searching the interview data for behaviors by which executives tried to solve problems. One important initial finding was that the different accounts of improvisation can be accurately summarized by three forms: ornamental, discovery and full-scale. We found that typical characterizations of ornamental improvisation focused on high level of spontaneity between exchange partners, “firefighters” “in the moment” and less to innovation. “extemporaneous deviations from present models” “without reinventing the wheel.” While typical characterizations of discovery improvisation paid more attention to “experiments” which are no longer planned and controlled, but become discovery, and less to consider the spontaneity question. “try a lot” “an ongoing process” and “a trial and discovery process.” In contrast, typical characterizations of full-scale improvisation were both high level of innovation and high spontaneity reflected in the dynamic responsibility, priority, and flexible process. “thinking on our feet” “quickly conduct re-definition of the model” and “completely new and different mode.” Table 3 shows some typical examples of interviews of improvisation type.

State	Typical examples
Japan	<p>As one software development division manager summarized from vendor A: “<i>In fact, Yu Feng and I both work as firefighters. On the scene, questions are different. Every time if someone trapped in a mistake for the clients, we have to make a decision in the moment and find a way to rescue them out of it. But it is instead extemporaneous deviations from present models. No innovation.</i>” Similarly, one Japanese business manager from vendor B lamented, “<i>As circumstances changed, we often relies heavily on the use of routines or protocols to capture the lessons learned from previous experiences, quickly enabling a new process to be replicated without reinventing the wheel. These do not represent original creations.</i>”</p>
U.S.	<p>In flexible process, according to the vendor A' project manager said, “<i>Client' requirements are always changing Oftentimes when you present them, it is not what someone else thinks they are going to get.... Therefore, step-by-step development approach certainly does not work. Communication characterized by synchronous, temporary and horizontal, helps us adopt a more flexible way, Scrum ... a lot of trial and error, back and forth ... negotiations Thinking on our feet, we are able to quickly conduct re-definition of the model, and create a completely new and different mode to ensure fast to meet customer needs.</i>” Similarly, vendor B' Euro-US business manager business manager said, “<i>Initially what they (project) promoted did not land in time.... Since we worked on the foundation, we have an understanding of it. We came up with the idea to delete the parts related to manufacturing and built a new system on top.... We end up deleting these parts and produced a light weight model.</i>” In dynamic</p>

	responsibility, according to vendor A' software development division manager: <i>"Though time pressure, whenever and wherever we can obtain a clear accountability framework to clarify everyone's responsibility, even more surprising is that we often creatively find a person be more competent of new responsibility."</i> In priority, according to vendor B' project manager: <i>"Previously the priority-setting was a very troublesome thing, but now, whenever and wherever we can creatively set priority graph. It's been helpful for us to know where we sit in the priorities."</i>
China	For example, vendor B' marketing manager narrated that: <i>"Although we hadn't abundant marketing research before choosing the product to be made, we thought it might be an opportunity to move forward. So why wouldn't we give it a try? We try a lot. This is a trial and discovery process."</i> For another example, vendor A' Co-founder and director stated: <i>"When we look back later, those were fairly difficult tasks to accomplish. Everyone made an attempt at it, since they were managers, they tried talking to clients and finding prospective projects and we discovered many problems."</i> Finally, vendor A' software development division manager described: <i>"We require that every department exchange ideas with and provide business proposals for our clients on a regular basis. Even though not all the new ideas or proposals are sharp or great, but they together form an ongoing process of improvement, perfecting one point at a time."</i>

Table 3. Typical examples of interviews of improvisation type

4.2 The Building of Improvisation

Culture cultivates different forms of improvisation. If so, what is the building of improvisational behavior? In the existing literature the building of improvisational activity has often been described and treated logics in isolation. Some arguments have only considered personal characteristics, real-time information and communication; others have only focused on organization memory. The evidence from our data tells a different story. The building of improvisation was comprehensive, complex, integrative, multi-level, multifaceted in offshore IT outsourcing. Specifically, in the turbulent environment, we concluded when contracting with Japanese, U.S., and Chinese clients, regardless of the degree of improvisation generating, there formed a dual-network structure between vendors A, B and clients. Among them, routines, plans or priority, these mechanisms built a relatively static, formal, focusing on vertical coordination structural layer. Representation and mental proximity, these mechanisms built an informal and unstructured, focused on horizontal coordination, recessive, synchronization relational layer. Namely, we founded personal related factors (communication, swift trust) and non-personal related factors (routines, plans and rules) may be complementary, which commonly affect the building of improvisation. Another important initial finding was that variation across cultural values would accelerate in such high-velocity conditions considering the cultural inertia and availability. For example, when contracting with Japanese clients in turbulent environment, the vendor often relied on complying with a set of more highly rigorous and standardized business processes than that in stable environment to avoid risks. For another example, when contracting with U.S. clients, the vendor more proactively engaged in building weak relational ties to respond to high-velocity environment. Therefore, both structure ties and relational ties required by shaping improvisation were very different when the same vendor contracting with Japanese, U.S., and Chinese clients. In order to further explain the formation process of improvisation, the following would in detail describe vendor A and B' interaction with Japanese, U.S., domestic client (Table 4).

4.2.1 Contracting with Japanese Clients

Building Rigid Structural Ties

The approach at vendor A and B was a more structured development process than ever. Both vendor A and B thought that, as the uncertainty grows, and as markets and technologies change, a key to sustained profitable growth was the ability to improve and to revamp rules and procedures (routines). In our cases, we founded CMM to be undergoing continuous upgrading from CMMI IV to CMMI V in vendor A, from CMMI III to CMMI IV in vendor B. One manager called it "a more process-bound environment." As each step was completed, the project passed to the next step. The whole process was governed by specifications, procedures, and checkpoints. Once started, a project proceeded through a sequence of lock-steps in which developers completed their own tasks and then passed the

project to the next developers, according to one project manager from vendor A: *"The CMM specified which tasks would be performed, by whom and in what sequence, thus simplifying hand-offs among those involved in the development of software projects. ... If they are following a good CMM, smart developers know what to do in accordance with the procedures step by step. No too much communication...."* In addition, we also discovered, the management tended to develop specified the responsibility, requirement function, encoding test, interim and final milestones and priorities in much greater detail (almost down to the code level).

Building Vertical Relational Ties

Vendor A and B' managers complemented these structures with extensive communication. We observed the main feature of such representation was vertical. For example, in terms of how they deal with solve problem, vendor A' software development division manager explained that: *"How does a beginner in the group solve his problem? Firstly, he can refer it to his SL, if not solved, find other SLs; still not, reach the PM; further, through internal conferences."* *"To encounter problems, firstly address higher authorities."* in terms of report and information transiting, vendor B' Japanese business manager said that, *"For some meetings, we only report to our president and vice president. For others, we consider whether it is necessary to pass on to the subordinates according to the importance. There is a process of screening."* finally, in terms of training, vendor B' HR manager noted that, *"However, in practice, we have a tradition of mentoring. For example, the project manager teaches the PL or the head of the group, who then teaches others. When the project manager leads the PLs, the PLs learn from the project manager; and when the PL leads the others, the others learn from him as well."*

4.2.2 Contracting with U.S. Clients

Building Limited Structural Ties

Rather, when contracting with U.S. clients, the managers of these firms balanced between rigid structure and unstructure by combining clear and flexible responsibilities and priorities with extensive weak communication. Here, there were well-defined managerial responsibilities. But this paid more attention to a holistic view rather than a local view, which was in stark contrast to contracting with Japanese clients at vendor A and B. As a marketing manager from vendor B described, *"When contracting with Japanese clients, it was really pretty hard to hold anybody responsible, now this is more of a holistic (entire project) approach, rather than more their own little businesses...."* This allowed responsibility to be more agile and mobile when faced with crisis. As one from vendor A claimed, *"A holistic (entire project) approach of responsibility is propitious to responsibility rotation Through rotation, we find that responsibility versatility is huge... someone can be responsible for both web-pages and database development, or in a pinch, can jump from budgeting to server support."*

Similarly there were sharply defined project priorities. Vendor A and B' project managers claimed that *"We prioritize everything that we're doing. Without priorities, you never get focused on the core business. These priorities were then tightly tied to resource allocations."* But, we also observed, that in a turbulent environment, the priority-setting process was dynamically changing. As a senior manager from vendor A described, *"We're always looking for a better way to set priorities. ... We try to change priorities according to the need. ... We draw a cut line and take a good hard look at it and take a big swallow... If that one below the line is really a priority then you better be willing to kick something off the list."* The result was dynamically crystal-clear priorities. As a marketing manager from vendor B observed, *"We're well aware of where we sit in the priorities and we have a very specific priorities list."*

Finally, there was no evidence that the actual design process was tightly structured. In fact, vendor A and B had previously actually dismantled a very structured design approach when contracting with Japanese clients. Developers were now free to create designs iteratively and flexibly. As one from vendor A claimed, *"Step-by-step development approach certainly does not work, we adopt a more flexible way. Scrum ... a lot of trial and error, back and forth ... negotiations We fiddle right up until the very end."*

Building Weak Relational Ties

In addition to the structural ties, we also observed an informal, ad hoc relationship ties. Here, there was extensive horizontal communication, within-project and cross-project, even external. As one manager from vendor A explained, *"It used to be that it was a badge of honor not to use anybody else's ideas or to improve upon them...now everybody's borrowing everybody's stuff, the cycle is just so short and the pressure is so intense."* Another global marketing manager from vendor B described, *"Within our company, I'm afraid no. But among the mass public, there are some. We would refer to them when confront difficulties..."*

Similarly there were sharply synchronous and instant representation, which result in more quickly direct information sharing, acknowledging and aligning work, creating a common perspective. For example, according to software development division manager from vendor A: *"Sure, nowadays video conference or IP message is widely used when finishing projects.... It is wonderful that we can see people and check our job in time. Let us feel safe and secure. ...What's more, it is more effective when communicated with each other, avoiding possible ambiguities."* For another example, vendor need have the occasional meetings to solve unexpected events. Euro-US business manager from vendor B made this very clear: *"To address emerging problem, we, organized temporarily "grievance airing" workshops. Stakeholders from various groups could come to these workshops to express concerns..."*

Finally, equally important was swift trust. In traditional concept, trust is a history-dependent process and be built on shared experience and long-term, stable linkages. But for the outsourcing project facing a turbulent environment, it is not. As vendor B' Euro-US business manager made this very clear, *"The resource-scarce and time-pressured operating environment we face precludes such validation. In such groups, there is an implicit threat of common fate such that, unless one trusts others and takes immediate action, significantly more harm (even to their own security) may result. The threat encourages risk taking, while the generation of action increases the willingness to trust others' knowledge without social proof."* We observed extensive swift trust to one another. For example, the new vendor project manager happened to reside in the same neighborhood as customer representative in China. The customer representative in China took the opportunity to "multiplex" their relationship as colleagues and neighbors by offering to carpool. The two men came to work together in customer representative' car every morning. Such informal communication channels enabled them to know each other better, and encouraged an open and friendly discussion of various issues that arose in the project. For another example, As vendor A' project manager described: *"We had team workshops for all levels, including management, team leads. It was very open. It showed all feelings. ... I also had team lunches with every team to thrash out issues. There was user resistance. I had to mediate between them to quickly increase the level of trust."*

4.2.3 Contracting with Chinese Clients

Building Unstructural Ties

When contracting with Chinese clients, the approach was different. Here there was a very unstructured process. Managers described their culture as "rule breaking." It was acceptable and even encouraged to minimize structure and violate rules. One manager from vendor A related, *"It's part of the culture not to write things down."* Process existed, but they were free-form and multiple versions which lead to repetition and chaos. As one project manager from vendor B noted, *"With the increase of project complexities, many of my projects face tight schedules and changing objectives. As a result, there are many versions to administer and a modification may affect more than just the one module, meaning that all the modules need to be checked to prevent spillover effectsTherefore it takes us a lot of time to repeat testing and several rounds of discussion."* Responsibilities were unclear. As one project manager from vendor B noted, *"... In some case customers themselves are chaotic about what to do and to what extentNo one was accountable for the financial performance of specific products under development...Or, multiple units simultaneously considered themselves in charge of some product definition. As a result, managers did not actually do a coherent schedule because of the mire between units."* Structure was further obscured because senior executives often skipped over these

managers to tell developers directly what to do. As one manager from vendor A described, “*The conceptualization of the products keeps changing.... What happens is the VP will walk down the hall and say to the developers, 'You should add this.'*”

Building Strong Relational Ties

Contracting with domestic customers, the main feature of such representation and proximity manifested in the vertical communication frequency increasing and deep trust increasing. As vendor A’ co-founder and director described the situation: “*Our company had also made explicit investments to stay closely connected with the clients....The cooperation with the clients went very deep and the communication on the general level became frequent. Sometimes they would tell us that mutual support was needed and since they had difficulty in sustaining their business they would ask our company to lower the price a little.*” Similarly, another vendor’ B Chairman & CEO related, “*Because it takes very deep trust to achieve such kind of businesses, and actually they are also making a bet....One of the supportive elements for making a bet is the trust relation with which they believe we will support them move forward.*”

State	Structural Ties			Relational Ties		Improvisation
	routine	responsibility	priority	range	depth	
Japan	rigid	specified in advance, and not half-way adjustment	specified in advance,	within-project,	vertical	Ornamental
U.S.	limited	dynamical defined clear responsibility	dynamical defined clear priority	cross-project, external,	swift trust, temporary	Full-scale
China	unstructural confusion	unclear	unclear	--	deep trust	Discovery

(--)-indicate that no responses or phenomenon were made by interviewees or direct observation in that category.

Table 4. Result of cross-case comparison

4.3 Improvisation and Innovation Performance

Prior literature on improvisation has approached it from two perspectives, (1) concerns the building of the improvisation, and (2) leverages on an existing improvisation to generate innovation. From the second perspective, we still foggy the relationship of improvisation and innovation. Whether all improvisation can bring innovation? How improvisation can bring more innovative? Several authors’ view is that improvisation can be harmful. Other authors have argued that improvisation can be beneficial. Moreover, those authors have argued that improvisation may be particularly advantageous in rapidly changing environments because they serve as an important mechanism for adaptation(Brown & Eisenhardt 1997). Although limited, our data indicates the empirical evidence for these positions. We found, enacting improvisation consisted of two distinct but interdependent processes of shaping the improvisation and leveraging the improvisation. And without shaping the improvisation in place, leveraging the improvisation is impossible. In addition, both structure ties and relational ties required by building improvisation commonly affected two aspects of time consumption and information, to further restrict or enhance innovation.

When interacting with clients from Japan, on the one hand, such structural layer is heavily built on data that comes from directed objective, formal and relatively static coordination mechanism like plans, rules and routines. So, coordination in structural layer is realized by a shared metastructure consisting of a directory of who knows what and a set of cues for encoding and retrieving information from each group member. A shared metastructure is understood and agreed on by group members (Brandon & Hollingshead 2004). When an individual searches for specific content, he (she) gets information from the catalog and retrospective clues. Therefore, he (she) subsequent searches are likely to be for similar content. Structural layer is likely to link knowledge content that is broadly similar to one another, with relatively low variance. As one software development division manager from vendor A described it, “*Most people only look at their part-they say 'I have this spec. If it fits the*

specs, meets the spec, then it's good- the work of everyone else doesn't really affect my work. In this context, the rigid processes and vertical communication limit the scope of our searching information, and also limit departures from existing knowledge. Therefore, it was difficult for exchange new information each other." On the other hand, such relational layer is heavily built on frequency of vertical communication between particular nodes is often used as a proxy for strong ties. As discussed above, during the coordination process, and especially as time elapses, strong ties may cease to be interesting or informative because they point to similar content. In this context, improvisation is characterized by high level of spontaneity and a strong influence of prior experiences and knowledge of the structure layer, but the lack of innovation, as observed in cases.

When interacting with clients from U.S., the temporary linkages established by representation and mental proximity among members are not stable, dynamic changing over time. Therefore, there is without shared mental models in the relational layer of coordination. Based on past experiences either as observers of or participants in this context, members may have individual mental models about how people should behave in emergency situations and may bring expectations about their own and others' roles (Bechky 2006; Faraj & Xiao 2006). According to social capital theory, individual mental model, rather than shared mental model makes member bridge across several social circles, rather than limited to a circle. We can consider each individual member as being situated in the intersection of different types of knowledge circles. The typical individual does not post links to identical content (information) types but rather presents a variety of content (information) to reflect his or her different preferences. At the same time, they also do not search for information in a circle, but rather bridge across several social circles according to their own preferences. The advantages provide rich new information about improvisation. On the other hand, limited structural layer does not hinder the formation of weak ties networks, not make it gradually become strong ties network. As one North America business manager from vendor A described it, *"We have been able to rapidly communicate across organizations, thanks to we do not have too many restrictions. Imagine, if we are in a small circle brought by rigid structure, perhaps we can establish deep trust relationship, but it is useless and difficult for us to get new ideas. On the contrary, if the degree of freedom is too high, we will be in chaos, which lead to low efficiency."* Therefore it is very possible that we will be able to benefit from weak relational ties, together with limited structural ties.

When interacting with clients from China, confusion of unstructured layer leads to delays, and further impacts the spontaneity of improvisation. However, considering the introduction of relational layer, deep trust provides the environment of experiment for innovation. In addition, strong relationship layer will further promote the formation of structural layer and knowledge transfer. It is advantageous for developing trust and eliminating uncertainty (opportunism) behavior which impedes knowledge transfer among unit members. It permits individuals to develop a deep understanding to further refine and improve existing knowledge resources, therefore, increases a unit's discovery innovation (Subramaniam & Youndt 2005).

4.4 Toward a Midrange Theory of Improvisation in offshore IT outsourcing

The overall result of our work was a model of the improvisation of offshore IT outsourcing in high velocity environments, depicted in Figure 1. This model provides the rudiments of a midrange theory of improvisational behavior in offshore IT outsourcing, explaining relationships between variables in a particular setting: high-velocity environments. To the extent that our results are valid and can be supported by data from other research, we think that a theory of improvisation in offshore outsourcing is possible and that such a theory could inform a more general improvisation theory of organizations.

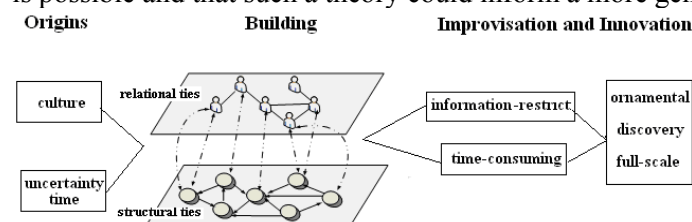


Figure1. The framework of Improvisation

Proposition1 Improvisation is really cultivated by culture. Uncertainty levels and time pressure, although necessary, is not a sufficient condition for the emergence of improvisation.

Proposition2 Taking form improvisation consists of two distinct but interdependent processes of building structural ties (routines, plans) and building relational ties (communication, swift trust) .

Proposition3 Improvisation, because both structural ties and relational ties promote or restrict information flow and time-consuming, is associated with good or poor innovation performance.

5 CONCLUSION

5.1 Contributions to Improvisation Theory

Our research refines and enriches improvisation theory in three ways. First, it reconciles the differing views on improvisation. Prior literature on improvisation has approached it from two perspectives, (1) leverages on an existing improvisation to generate innovation, and (2) concerns the building of the improvisation. Our study reconciles these two perspectives by demonstrating that enacting improvisation consists of two distinct but interdependent processes of building the improvisation and leveraging the improvisation. Each process is insufficient for effective improvisation. Viewing the enactment of improvisation only as the building of a improvisation is not sufficient as improvisation that emerge may not contribute to innovation. Viewing the enactment of improvisation as leveraging the improvisation is similarly incomplete as it presupposes the existence of a improvisation to ensure the effective enforcement.

Our second contribution lies in clarifying three questions around improvisation: (1) in terms of the origins of improvisation, our study founds culture will lead people to improvise regularly, even in absence of urgency and resources constraints. (2) In terms of the building of improvisation, we clarify the relationship between personal related factors (communication, swift trust) and non-personal related factors (routines, plans and rules). Prior research suggests these factors may be complementary, but has not revealed how and why. Our research thus partly clarifies how personal related factors and non-personal related factors can work together in a portfolio; one strategy is to employ one form of portfolios of personal related factors portfolios (communication, swift trust) to adjust and align the other portfolios of non-personal related factors (routines, plans and rules). (3) In terms of the relationship between improvisation and innovation, our research clarifies how improvisation can bring more innovation.

Our third contribution lies in providing a dynamic alternative paradigm to study improvisation. In contrast to the static and simplifying improvisational approach, the dynamic constructivist perspective emphasizes that improvisation is temporal, emergent, situation-sensitive, and is constantly produced and reproduced, interpreted and reinterpreted in social interaction. According to this view, the construction of shared continuous collaboration (interaction) among group members is central to the definition of improvisation. Improvisation generates and shows diversity dynamically with interaction/collaboration, rather than decided by time pressure and uncertainty at the beginning.

5.2 Future Research

This study can be extended in multiple directions. First, the notion of improvisation frame can also be applied from the client's perspective. Specifically, the emergence and embedment of improvisation frames within the vendor may be accompanied by changes in the client's improvisation frames. There is potentially a coevolution process between the two parties' perceptions and practices, and this process can be further explored. Second, comparison with vendors from other countries with significantly different client portfolios, such as Indian and Latin American vendors, can be conducted to generate further insights.

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