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EXPECTATION SHORTFALL IN THE HIGHLY SPECIALIZED B2B IT INNOVATION

Research

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Abstract

Expectation shortfall is a common occurrence in outsourcing. Prior literature suggests that strategies such as strict contract terms and proper evaluation of the vendor capabilities are adopted to avoid expectation shortfall. However, in the case of highly specialised technical products custom made to vendor requirements (i.e., B2B IT innovation), traditional strategies in managing outsourcing projects may not work as expected. This is mainly due to the complexity of the product requirements and the inability to assess the scope of the project in depth at the beginning. In this research, we adopt the vendor's perspective to better understand how organizations in the highly specialized B2B IT innovation handle outsourced projects to avoid expectation shortfall. We uncover a dynamic innovation process which the client and the vendor go through. In addition, we suggest strategies to achieve B2B IT innovation in a win-win scenario while elucidating reasons of failure.

Keywords: Expectation shortfall, outsourcing, B2B IT innovation.

1 Introduction

The present day organizations operate under stiff competition from rival firms and escalating consumer demands. With rival firms churning out potentially new substitute products and services rapidly, and with consumer demands changing constantly (to better capture their market), organizations cannot survive with unchanged products and services which become obsolete quickly. In the case of technology-driven organizations, rapid technological advancement, shorter product life cycles and globalization (Gumusluoğlu and Ilsev, 2009) render IT innovation even more critical. To remain competitive, organizations must continually strive to innovate to survive (Peters, 2010).

1.1 Definitions of “innovation” and “expectation shortfall”

Organizational innovation could be defined as the process where creative ideas are successfully implemented within organizations (Amabile, 1988). This definition of innovation is quite broad, as it could embrace new products, new services, new processes, or even new policies that are implemented within an organization (Amabile, 1988). In the information age, traditional industries are seeking disruptive innovations with cutting-edge digital technology. To achieve this, traditional industries typically outsource. Outsourcing is the subcontracting of a part or all of the IT function of an organization to an external vendor (Altinkemer et al., 1994). In doing so, organizations enhance their capabilities and can innovate through interacting with the best-in-world knowledge sources (Quinn, 1999). This exemplifies a B2B IT innovation.

Despite the merits of outsourcing, *expectation shortfall* may occur at various stages of the outsourcing process (Taylor, 2006). “Expectation shortfall” in our paper is defined as the difference experienced (i.e., negative) between actual delivery and original expectation. It is also known as “unfulfilled expectations” (Freytag et al., 2012) or “disconfirmation of expectations” (Taylor, 2006) in other works.

1.2 Prevalence of expectation shortfall in highly specialized B2B IT innovation

Expectation shortfall is common in outsourcing activities (Mucisko and Lum, 2005; Freytag et al., 2012; Jørgensen, 2013). Seventy percent of the respondents in a survey by Deloitte Consulting expressed significant dissatisfaction with their outsourcing projects¹. Consequently, expectation shortfall results in renegotiation of the contracts or even the termination of collaboration at times. According to SAP INFO Solutions, four out of five business process outsourcing contracts inked today will need to be renegotiated within two years and twenty percent of all such contracts will collapse (Johnson, 2006).

We focus our research on addressing expectation shortfall in a specific context – highly specialized B2B IT innovation. In this context, clients require original initiatives for a special purpose (such as for the real-time financial transaction platform or high-performance computing machines for scientific calculation). These highly innovative outsourcing projects, different from ERP systems or other general IT outsourcing projects, aim to become the organization’s core competence in the future. Typically, there are no similar cases or existing IT products for reference. Hence, these projects

¹ Outsourcing, Today and Tomorrow: Insights from Deloitte’s 2012 global outsourcing and insourcing survey. Accessed on Apr 4, 2016. <http://www2.deloitte.com/content/dam/Deloitte/de/Documents/human-capital/Outsourcing-today-and-tomorrow.pdf>

require deep understanding of the clients' needs and frequent communication between clients and vendors are vital. The IT vendor, being a partner of the client, has to be deeply involved in the entire process of B2B IT innovation. Challenges come not only from the technical constraints, but also from the unfamiliarity with the domain knowledge. Predictably, the IT vendor has to devote plenty of time and effort to learn the domain they are serving.

Our focus on highly specialized B2B IT innovation drives us to ask the following research questions:

What leads to expectation shortfall in highly specialized B2B IT innovation?

How do organizations deal with expectation shortfall during the process of IT innovation?

The problems pertaining to highly specialized B2B IT innovation and outsourcing are an important niche research topic. This is because the activities during the development of the project tend to be far more complex (Howells, 1999; Tiwana, 2004). Although researchers and practitioners are eager to mitigate any potential negative outcomes of outsourcing (Brandes, 1997; Freytag et al., 2012; Jørgensen, 2013), most research has investigated this problem mainly from the client's perspective. Lee et al. (2000), for instance, examined how the clients utilized the strategies to maximize outsourcing returns. The objective of outsourcing was to self-maximize their internal resources without considering the vendor's situation (Rao et al., 1996). Hence, we are eager to embark on this less explored terrain (i.e., the vendor's perspective), recognizing that vendors do face much challenges and issues, often making sacrifices and suffering penalties in order to fulfil clients' requirements. In essence, our investigation from a vendor's perspective would be invaluable to help clients and vendors achieve a win-win situation ultimately (Lee, 1996).

2 Theoretical foundation

2.1 Expectation shortfall

Expectation shortfall is in part due to the nature of software engineering. Software consists of abstract sets of rules that govern the creation, transfer, and transformation of data and the development of a large software usually involves a group of people (Zmud, 1980). Given these attributes of software, the incapability of development management sometimes result in a nullification of past work, late deliveries, high development costs and eventually dissatisfaction from the clients (Zmud, 1980).

Expectation shortfall is also a result of the likely mismatch in profit motives between clients and vendors (Lee, 1996). Consequently, expectation shortfall causes delayed delivery of final product, lack of expected product competence, and even total failure of innovation (Freytag et al., 2012). Researchers and practitioners in the early 1990s contended that tight contracts are the only mechanism to ensure that the client can meet their outsourcing expectations (Lee, 1996). In other words, a tight contract is the key to a successful relationship while a loosely worded one is often a recipe for disaster (Rochester and Douglas, 1993; Fitzgerald and Willcocks, 1994). This line of thought is supported by Agency Theory (Eisenhardt, 1989). For example, in IT outsourcing, each party in the relationship has their own profit motive. There is a great probability that the agent (i.e., the vendor) will not act in the best interest of both parties (Eisenhardt, 1989). The principal (i.e., the client) cannot monitor the actions of the agent perfectly and without cost (Sappington, 1991).

After clients experience difficulties in effectively managing vendors, they start to realize the limitations of even a rather well-specified legal contracts; they soon seek and favour flexible relationships with their vendors based on mutual trust (Klepper, 1995). The nature of outsourcing evolves from a contractual relationship to a partnership-based relationship (Grover et al., 1996; Willcocks and Kern, 1998). This partnership between clients and vendors is often a key predictor of outsourcing success (Grover et al., 1996; Lee and Kim, 1999).

2.2 Major theories in outsourcing research

Aforementioned, highly specialized B2B IT innovation is facilitated by outsourcing. Hence, we decide to adopt the theories in outsourcing research as the foundation of our study. Previous literature has introduced several different theoretical models to explain outsourcing phenomena and guide the decision-making of outsourcing. There are mainly three camps of thoughts – namely, strategic management view, economic view and social view (Cheon et al., 1995; Lee et al., 2000). Each of these main views is briefly explained below.

Strategic management view is concerned with how organizations formulate and implement strategies in order to accomplish a desired performance goal (Lee et al., 2000). The view utilizes theories such as Resource Based View (Barney, 1996) and Resource Dependence Theory (Pfeffer and Salancik, 1978). Adopting this view, assessment of the capabilities and resources within the client organization and the outsourced vendor takes the central stage in the decision making process (Pfeffer and Salancik, 2003). Organizations try to gain competitive advantage through this process of acquiring and utilizing scarce and unique resources.

Economic view investigates the coordination and governance of economics agents in their transactions with one another (Lee et al., 2000). The main theories in this view are Transaction Cost Theory (Williamson and Masten, 1995) and Agency Theory (Eisenhardt, 1989). Adopting this view, client organizations are keenest to conduct business operations in the most efficient manner. Business tasks are outsourced to vendors which are specialized in that task and hence, can conduct the task in a much more efficient and effective manner, leading to higher productivity and competitive advantage.

Apart from strategic management view and economic view, other research has sought to explain the outsourcing relationships using a social viewpoint (Lee et al., 2000) with the utilization of Power Political Theory (Polsby, 1963) and Social Exchange Theory (Emerson, 1976). These theories are used to explain why organizations enter into a close relationship with their vendors (Teng et al., 1995). They try to understand the relationship as dynamic processes, as opposed to simply contractual bindings. This perspective focuses on the importance of trust and relationship between clients and vendors.

Our research is also highly related to the body of business process management (BPM) research. In a survey on BPM, process design, system configuration, process enactment and diagnosis have been identified as the key lifecycle stages of BPM (Van Der Aalst et al., 2003). Although these are the key stages, it would be beneficial to understand how the lifecycle events actually flow in different contexts. In addition, special attention (which is specific to the diagnosis stage) helps identify and improve on problems; hence, it is especially important because it will determine the success of the full process. In our study, we elucidate the flow which is relevant to the context of highly specialized B2B IT innovation, paying special attention to any problem that arises in the development process.

3 Methodology

3.1 Overview

In order to address our research questions, we carried out a revelatory case study (Yin, 2014). Noteworthy, a case study is particularly useful for examining processes (Orlikowski and Baroudi, 1991; Gephart Jr. and Rynes, 2004), which is in accordance with our objective. Also, a case study is highly suited to deal with difficult and complex research questions, making it more appropriate to examine the phenomenon by interpreting the shared or distinctive understanding among relevant stakeholders (Klein and Myers, 1999). In essence, we adopt the case study approach because it allows us to capture the rich details of highly specialized B2B IT innovation and focus on the dynamic nature of IT innovation process.

To validate our findings, we ensure triangulation of data, which is broadly defined as the combination of methodologies in the study of the same phenomenon (Denzin, 1978).² Triangulation may facilitate to uncover the deviant or off-quadrant dimension of a phenomenon (Jick, 1979). We conduct both interviews and focus groups to get a broader horizon of the phenomenon we are investigating and expect to generate different viewpoints so as to have a more comprehensive understanding of our research problem. In organizational research, the accuracy of judgements could be improved by collecting different kinds of data bearing on the same phenomenon. "Within-method" triangulation is adopted in our interview to cross-check the internal consistency or reliability (Jick, 1979).

3.2 Context

To address our research questions, several criteria form the basis of our case selection. First, the selected organization should be a producer of highly specialized B2B IT innovation. Second, the organization should be one of the leading companies in its industry so that ample insights can be gained. Third, the interviewees within the organization should have rich experience and be capable of sharing insights into the various projects or products. Based on these criteria, a UK based software producer "SoftwareCo" (pseudo name) was selected. The actual name of the organization and specific technologies have been disguised to protect the confidentiality of the organization.

SoftwareCo is a key firm in the group of companies controlled by the parent company based in United Kingdom. SoftwareCo has over 700 employees and produces integrative and highly specialized software products to be used in the financial industry. It is reported that this firm occupies over 40% market share, rendering it the leader in its industry. Clients of this vendor firm are distributed all around the world, including some local clients. Its organizational culture is heavily influenced by the West. For example, members in a project team could determine their working schedule as long as they could meet the deadline. The working environment is rather comfortable with amenities like swimming pools, gyms, and cafes.

The organization structure of SoftwareCo contains separate business units for each line of business (LOB). A LOB completely handles all design and development activities of a unique product, and has direct contact with the client. LOBs in general work independently. However, in situations where the same client is supplied with more than one product type during the same period, the LOB units will coordinate their business activities. In addition, SoftwareCo has a separate research and development division as well as other indirect service divisions (such as human resource management and finance). Top management, headed by the Chief Executive Officer, sets strategic directions in coordination with LOB key personnel, oversees the performance and set targets for each division. A typical structure of a LOB is shown in Figure 1.

² We followed the validation/replication in Yin (2014). We interviewed two other vendors and found similar pattern of results from these other vendors. However, after much contemplation, we felt a strong need to elaborate one case in great details so that readers will be more aware and knowledgeable about our findings.

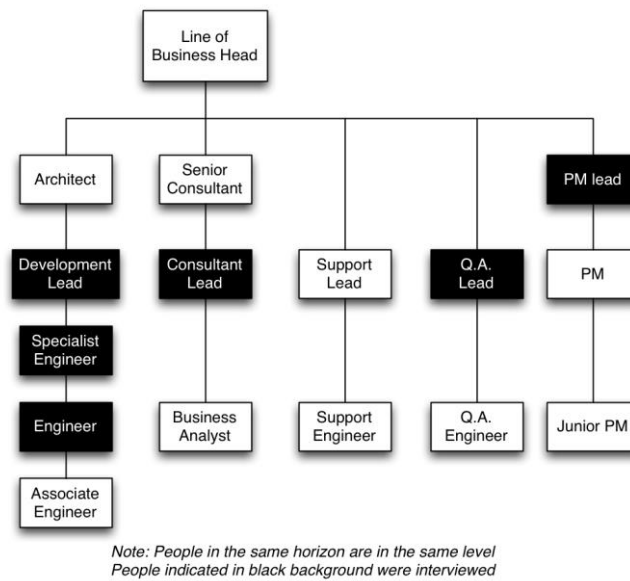


Figure 1. Structure of Line of Business in SoftwareCo.

| Company | Interviewees | Job Description |
|------------|----------------------------------|--|
| SoftwareCo | (A) Project Manager | Responsible for successful planning, initiation, execution and monitoring of the project until the closure of the project. |
| | (B) Consultant Business Analyst | Responsible for requirement gathering and requirement analysis of the software system provided to the consumer. Several junior business analysts work under the guidance of the consultant business analyst. |
| | (C) Quality Assurance Team Lead | Responsible for the design and development of the overall software product. Provides leadership and supervises several levels of software developers under this post. |
| | (D) Senior Development Team Lead | Responsible for the in-house quality assurance tasks of the software product. Provides leadership and supervises several levels of quality assurance engineers under this post. |
| | (E) Specialist Engineer | Responsible for the design and development of a specific sub area of the software product. Provides leadership and supervises several software developers under this post. |
| | (F) Senior Engineer | Responsible for the development of a specific sub area of the software product under the direct guidance of a specialist engineer. |

Table 1. Description of the interviewees in SoftwareCo.

4 Findings

Our main findings are twofold. Theoretically, we unravel a 2x2 matrix of different states of the outsourcing relationship. Furthermore, we also elucidate the dynamic and iterative nature of expectation shortfall in highly specialized B2B IT innovation. Practically, we investigate the strategies to deal with expectation shortfall in different situations. Our findings not only challenge the notion that strict contract is the dominant way governing the success of outsourcing relationships, but also enrich the partnership theory between clients and vendors. We next elaborate our findings.

4.1 Dynamic processes

The dynamic states in which the client and vendor will experience during the B2B IT innovation process are explained in this section. Figure 2 provides a visual representation of the stages.

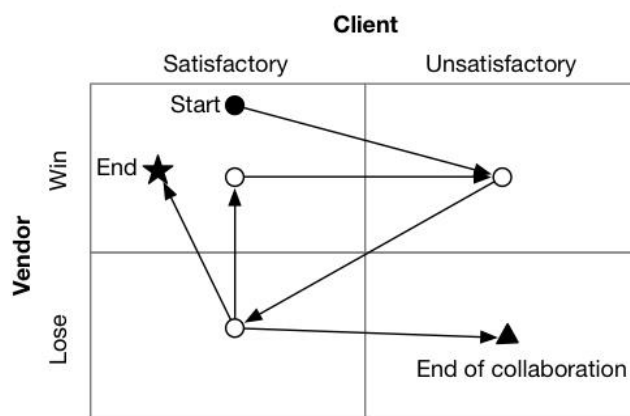


Figure 2. *Dynamic B2B Innovation Process*

We summarize the stages as follows:

- Initially, both client and vendor would be in a satisfied state. The vendor would be satisfied as the transaction has given way to new business opportunities while the client would be satisfied based on the future expectations that can be achieved through the innovative product.
- The project may not proceed smoothly due to the challenging innovative requirements; resulting in the client being dissatisfied with the project progress.
- With the notification of client dissatisfaction, the vendor would make an extra effort to attain the requirements of the client.
- If the extra effort is successful, it would ultimately lead to a satisfactory state for both parties. The cycle may repeat for long term projects.
- During the cycle, if the extra effort made by the vendor does not make a satisfactory progress, both parties will find themselves in a dissatisfactory situation. Ultimately, this may result in termination of the collaboration between the parties.

4.1.1 Honey-moon scenario

At the beginning of the outsourcing project, both parties are in a satisfactory state because the vendor wins the pitch, and the client finally chooses the most suitable one among all the IT vendors. In this stage, the vendor provides a draft implementation strategy of the system expected by the client. This may include a basic demo system such that the client could use to gain an initial perception of the system to be developed. The client is also initially satisfied with the forecasted financial

considerations as well as the forecasted development timeline of the system. However, both parties may not have signed any contract detailing terms and conditions (as the in-depth requirement gathering is not carried out yet but both have established a mutual understanding and binding agreement to conduct the project). Based on prior experience in similar projects, the vendor may over estimate their ability in delivering the project, within cost and within time. Often than not, highly specialized B2B IT innovation tends to be harder to implement than imagined.

The business analysis division will start conducting in-depth requirement gathering which will take several weeks or months due to the complex nature of the system. The requirement gathering will be done in sections, as each section has to subsequently seek approval from the client before implementation begins.

4.1.2 Win-unsatisfactory scenario

Due to the nature of intense innovation and the lack of strict and clear contractual terms on the deliverables, conflict may arise between the client and the vendor. The vendor may encounter unexpected product requirements by the client. As a result, the vendor may turn down some of these new requests. Compounding the problem, due to the innovative nature of the project, the vendor may not be able to meet the client's demanded quality and capability expectations in the initial stages. This may be attributed to the lack of knowledge in the context of operation of the client. Consequently, the client may get frustrated, arriving at a win-unsatisfactory stage of expectation shortfall.

4.1.3 Lose-satisfactory scenario

Lose-satisfactory scenario is the most common in expectation shortfall. The vendor chooses to compromise and meet the client's requirement first. This scenario is usually temporary and can be easily resolved through proactive communication initiated by the vendor. Despite the frequent occurrence of lose-satisfactory scenario, it is not likely to be the final state between the client and vendor.

“Yes, this scenario happens a lot. But as long as we clarify the client's requirements and deliver on-time what they need, we move on to the next stage. This is not a big deal... We might have suffered from the project sometimes but we are happy as long as the client writes the cheque.”

We unravel three possible motivations underlying vendor's self-sacrifice:

Client is priority: As the saying goes, “Customer is king”. Hence, the vendor will proactively make a move to placate and satisfy the client when a disagreement occurs. If the vendor ignores the client's dissatisfaction, it will eventually backfire when client and vendor engage in subsequent negotiation. In essence, putting client's interests above all is pertinent toward building a partnership-collaboration.

“Our client is not always easy to work with. Even if we were unhappy with their argument, we had to pretend to be happy. Anyway, client is the king. ... Usually we try to make clients happy first.”

Reputation building: In certain cases, the vendor will give up the short-term benefits in order to strategically pursue a long-term reputation. Reputation building is particularly critical when it is the first cooperation with a new client or when the client is a renowned establishment (which can lend credence to the vendor when it subsequently bids for other projects). Once reputation is established, the vendor can seek future collaboration with the same client as well as other new ones.

“We want to make a new client a long term one. We are expecting the next cooperation. Therefore, we spare no effort in getting them satisfied. ... Development doesn't take much time but maintenance takes several years.”

“We make sure the product is good enough and our innovation really realizes the client's blueprint even if it causes a significant rise in cost. ... We also did some projects for governments. If we make it, we can get priority for their other projects. If the government in one country adopts it, other countries will also consider us.”

4.1.4 Win-win scenario

Win-win scenario is the ultimate goal for both client and vendor during B2B IT innovation. Win-win scenario should not only be a temporary starting state during the innovation process, but more importantly, also the final state of a successful partnership.

“Win-win situation is common in business. We, as well as our clients, benefit from building a trustworthy relationship during our partnership. This is how we built our credibility in our industry.”

4.1.5 Lose-unsatisfactory scenario

Not all partnership will culminate in a win-win state, as some will land themselves in lose-unsatisfactory state. According to SoftwareCo, they will try all means to prevent lose-unsatisfactory scenario from happening. At the first hint of such a possibility, the company will take immediate actions and measures to rectify the situation.

“Usually the lose-unsatisfactory scenario won't happen since the vendor regards customers as king; most of the requirements could be satisfied at the price of sacrificing ourselves.”

However according to other informants, lose-unsatisfactory scenarios did happen in the past and brought the collaboration to an end, resulting in severe loss for both parties.

“There were instances where certain projects failed. The client was frustrated, and we were also frustrated with the situation as the company made a big loss. The client at times wanted to reconsider whether to continue with the business deal but impose penalties. Due to the nature of the product we supply, bad news spread to other potential future customers...”

The causes for these conflicts can be attributed to “pre-condition deficiency”, “niche and over-innovative requirement”, “requirements fluctuation”, and “value disagreement”. We elaborate each of these definitions and provide some sample quotations from the interviewees in Table 2.

| Factors | Definition | Quotation |
|---------------------------------------|--|--|
| Pre-condition deficiency | When the client fails to provide specific requirements, it is infeasible for the vendor to innovate with a vague and broad concept. | <i>"... (the lose-unsatisfactory scenario happened) because the client themselves don't know what they want. They ask for a system without a clear concept. They can't provide details regarding the systems..."</i> |
| Niche and over-innovative requirement | When the client requests for a niche product which may be too ambitious (and is drastically different from vendor's industrial experience), the vendor will suffer from negative return of investment. | <i>"That project was too new to us and it was different from the core products that we developed in the past. ... Actually we can anticipate the failure even in the very beginning when we decided to take on the project."</i> |
| Requirements fluctuation | When the client perpetually asks for drastic changes in requirements, the vendor has to adjust with extremely high cost. | <i>"They just changed their CEO! There was a sudden modification of their requirement."</i> |
| Value disagreement | When the client and the vendor disagree on the value/quality of what is delivered. | <i>"Customers thought our project didn't meet the requirement while we feel that those differences were just small bugs."</i> |

Table 2. Factors leading to the lose-unsatisfactory scenario.

4.2 Strategies

Over time, SoftwareCo has developed a standardized approach (Figure 3) to combat expectation shortfall. Like most vendors, they will spare no effort to meet the client's satisfaction when expectation shortfall occurs. From the following excerpt, it is evident that SoftwareCo develops their strategy based on past lessons learned (from both successful and unsuccessful partnerships).

"Based on both our successful and unsuccessful cases, we managed to seek a standardized approach in order to satisfy our client's requirements with minimum costs. We found this approach, or you may call it strategy, is quite effective in most of our projects."

Upon entering a binding agreement, a team of both business and technical development experts will visit the client to gather requirements of the outsourced project. The business analysis team will gather and document the relevant business logic, with materials provided by the client (such as documents on existing system and any relevant documents). Daily discussion sessions and meetings with the requirement analysis team take place. Noteworthy, the technical teams also have to attend the meeting in order to assess the feasibility of requirements and avoid the expectation shortfall in advance.

"Rather than making strict agreements, what we do is document the client needs as much as possible. Then we make every effort to meet in person, mostly by visiting the client location. We bear this extra cost in the initial stages so that the requirements are clear and specific. Of course later on the requirements may

change, but the impact will be less. In addition, we know who is accountable for the new changes. Also, we always have technical people in the discussions, so that business people can agree to only what is feasible.”

While gathering requirements, SoftwareCo usually holds several internal discussions as well as external communication to avert any misunderstanding or ambiguity. In cases of unclear requirements, business analysis team would communicate with the customer via video conference or email or meet in person. The project manager takes charge of the project process and the in-time delivery of certain modules during development.

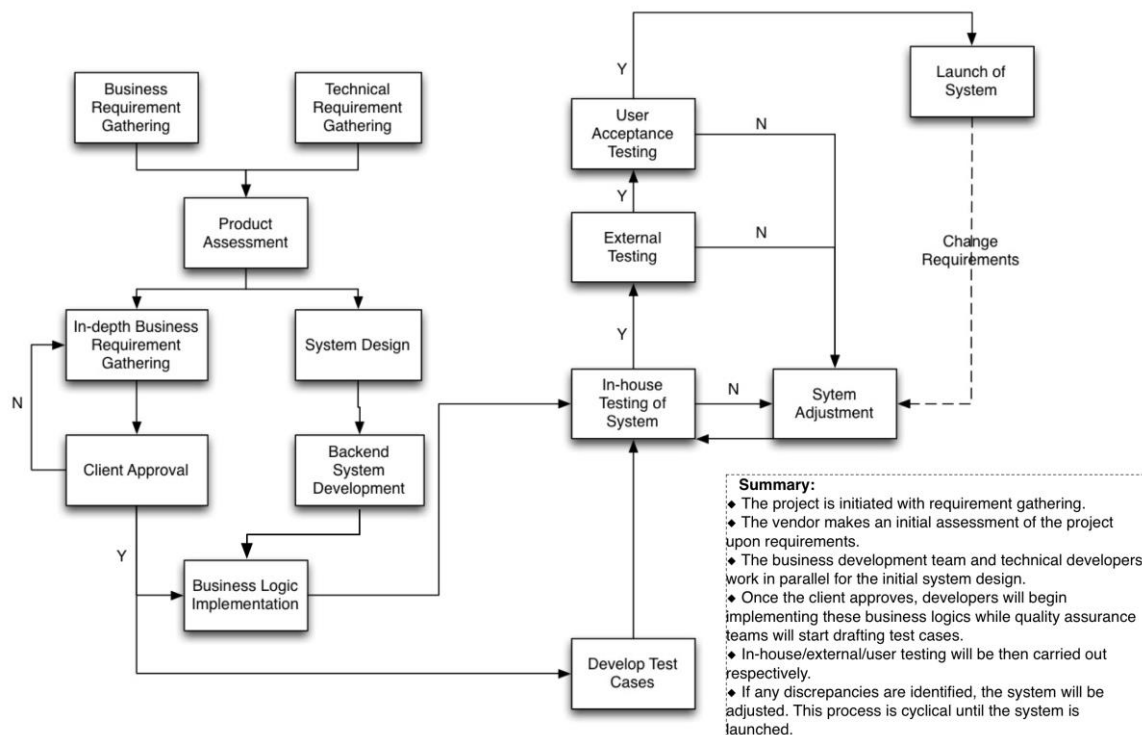


Figure 3. Strategies to tackle expectation shortfall

Noteworthy, SoftwareCo will always incorporate a “buffer time” in the working plan so as to handle unforeseen circumstances (such as expectation shortfall) and cater to changes.

“With experience, we know that there will be tough requirements with bottlenecks somewhere down the line. It is because the innovation required is complex. We need to meet millisecond efficiencies. So every time, we try to add a buffer to our time estimations, so we can meet the demands on time.”

Business analysis team presents finalized documents to the client to ensure the consistency of technical design and business requirements. Soon after the completion of the initial product analysis of a key section, the development team begins designing the technical system.

“Our documentation contains in depth details of the business logic and any update of the documentation is recorded with a strict version control system. The documentation usually contains several thousand pages and will undergo a time consuming iterative process until it reaches client’s final approval.”

4.3 Discussion

4.3.1 Dynamic nature of B2B IT innovation

While most previous literature addressed the issues of outsourcing from the client's perspective, we investigated it from the vendor's perspective. This is critical because the challenges and issues facing vendors often differ from those of clients. More importantly, it is the vendors that eventually bring about the fruition of the B2B IT innovation. Adopting the case study approach, we also manage to unravel the differences between B2B IT innovation and traditional IT outsourcing, as well as the scenarios of expectation shortfall, and the strategies to cope with it.

From our revelatory case study, we find that in a highly specialized B2B IT innovation, the vendor is less bound by strict contracts; instead, the vendor chooses to build a strong partnership with the client. From the gathering of business requirement to the design and implementation of the B2B IT innovation, the vendor is closely connected to the client. This is because the managers and analysts of the vendor are required to understand as much as possible the client's business model and requirements, so as to better exploit and integrate the vendor's capabilities. When the IT product is highly innovative, the client themselves are usually not too clear about the features and the feasibility of the IT product they wish to build. Hence, loose contracts give the vendor the liberty of innovation. Under such a circumstance, it is not the contract but the close partnership and reputation that often govern the success of the project.

Despite the vendor's and client's effort in close communication, we discover that expectation shortfall would still happen during the innovation process, in part due to the nature of software engineering (Zmud, 1980). It is almost impossible to avoid any dissatisfaction during the innovation process. An important takeaway for vendors is that, we are not advocating the total elimination of dissatisfaction (which is impossible in highly specialized B2B IT innovation); instead, we underscore the importance of accelerating the move toward the win-win scenario. Although a win-win scenario often characterizes the beginning of the partnership, no client and vendor can guarantee that it will always end likewise. We also synthesize the strategies to prevent expectation shortfall according to a successful leader in the industry. In particular, we highlight that the vendor has to play a very proactive role to move the scenario from a win-unsatisfactory scenario or a lose-satisfactory scenario to a win-win scenario. In doing so, the vendor will benefit in the long run (through gain in experience and reputation, which may eventually convert to monetary gains). We also acknowledge that expectation shortfall do sometimes culminate in the lose-unsatisfactory scenario, bringing great loss to both clients and vendors. We illuminate four plausible reasons underlying the failure in collaboration, namely pre-condition deficiency, niche and over-innovative requirement, requirement fluctuation, and value disagreement.

As we have found and discussed, vendors actively lead and try to maintain the partnership – a discovery which is not disclosed in prior studies of outsourcing (probably due to the focus on client's perspective). In essence, when the clients become dissatisfied, vendors' attempt to improve the situation is vital toward success; conversely, vendors' inaction would result in failure and termination of partnership.

4.3.2 Imbalanced level of optimism within a team

The lose-unsatisfactory scenario aroused our interest most. From the interviews, we gather that informants differ drastically in their opinions about this scenario. Evidently, the managers were more optimistic about the lose-unsatisfactory scenario (opining that it seldom occurs and the situation will improve), whereas the developers were more pessimistic about the scenario (complaining that it does happen and is a great loss).

We attribute this inconsistency of opinions to two factors: namely, different positions in the company and imperfect information among departments in an organization. First, it seems like the managers

tend to exhibit more optimism because literature has informed that the positive leadership is often correlated with employee engagement and performance, and it underscores the importance of optimism in the workplace (Greenberg and Arakawa, 2006). Second, imperfect information suggests that the developers see the situation from a lower, but more immediate contact, level (because the developers are usually the ones that have to contend with the users). The managers, however, view the entire situation at a higher level. So far, this issue has not drawn enough attention and future research is warranted.

5 Contributions and Conclusion

As a revelatory case study (Yin, 2014), we make some important theoretical and practical contributions.

First, different from prior work (Rochester and Douglas, 1993), we contend that highly specialized B2B IT innovation context differs from traditional IT outsourcing to warrant an investigation. In particular, as the innovation has the potential to become the core competence of both client and vendor, we proffer that trust-based partnership without a strict contract is critical.

Second, instead of adopting the client's perspective (Lowell, 1992; Sarshar and Pitt, 2009; Mani et al., 2013), our investigation (of expectation shortfall) from the vendor's perspective illuminates yet another important finding – the need for proactive actions by the vendors (Lee et al., 2000). This adds to past literature that fail to acknowledge that often than not, vendors see much value and are especially eager to ensure a continued collaboration. Indeed, to vendors, it is their source of revenue. Furthermore, we also discover a differing level of optimism within the vendor (i.e., the managers are optimistic about loss-unsatisfactory scenario but not the developers). Noteworthy, this finding is worthy of further pursuit, and is almost impossible to be unravelled if we do not adopt the vendor's perspective.

Third, we contribute to the literature by investigating the outcome of outsourcing projects from a dynamic process perspective. We articulate how movements among the four different scenarios are possible (at times cyclical) and vital, especially when dissatisfaction can never be entirely eliminated (and will always temporarily plague highly specialized B2B IT innovation). These temporary dissatisfactions can be combated with proactive strategies. In sum, this dynamic view brings us novel insights, which is otherwise impossible with a static view.

Fourth, apart from theoretical contributions, our research also has some practical implications for highly specialized B2B IT innovation, such as the real-time financial transaction platform and integrated healthcare analytics system. In these other contexts, practitioners should be cognizant that references are often minimal, and a tight contract would not help. Instead, they should anticipate dissatisfaction to prevail, but be undaunted. By appropriating the best strategies, they can quickly move toward a win-win scenario for both clients and vendors. With our revelation of the four plausible reasons (i.e., pre-condition deficiency, niche and over-innovative requirement, requirements fluctuation, and value disagreement) underlying lose-unsatisfactory scenario, practitioners can also better reflect on the likely causes so as to arrive at the best strategy that would alleviate the expectation shortfall in their B2B IT innovation.

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