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Hsiao Ruey-Lin

National University of Singapore

Thompson Teo

National University of Singapore

Jiang Li

National University of Singapore

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Limits to Electronic Sourcing Adoption in Chinese Healthcare Sector: A Contextualist Perspective

Hsiao Ruey-Lin
Department of Decision Sciences
NUS Business School
National University of Singapore
bizhr@nus.edu.sg

Thompson S. H. Teo
Department of Decision Sciences
NUS Business School
National University of Singapore
bizteosh@nus.edu.sg

Jiang Li
Department of Decision Sciences
NUS Business School
National University of Singapore
jiangli@nus.edu.sg

Abstract

The adoption of electronic sourcing promises to bring in free-market competition so as to achieve significant cost reduction. However, this promise has not been realized in the healthcare industry in China after years of e-sourcing adoption. Instead, adoption of e-sourcing has steadily increased the cost of pharmaceutical products that hospitals charged to patients. Our study indicates that this paradox was caused neither by the lack of market control mechanism nor the resistance to market process reengineering. Taking a contextualist perspective, this paper examines three embedded levels of context so as to appreciate the internalization problem underlying e-sourcing adoption in Chinese healthcare sector. The findings indicate that technology is unable to be internalized effectively if the alignment of context at three levels – societal (society), industrial (industry) and organizational (organization) – is not given due consideration during adoption and implementation.

Keywords: Case study, Electronic sourcing, Contextualist, Healthcare

1. Introduction

Centuries ago, Scottish economist Adam Smith advocated the idea of a free-market system. In his famous book, *Wealth of Nations*, Smith explained, a participant in the free-market “intends only his own gain, and he is in this, as in many other cases, led by *an invisible hand* to promote an end which was not part of his intention” (Copley and Sutherland, 1995). The greatest virtue of a free-market was that productive outcome arises as the unintended consequence of rational self-interest. His idea has been realized two centuries later, through the use of e-sourcing (electronic sourcing). By aggregating purchase volume, e-sourcing demonstrates its economic value through reverse auction enabled by information systems (Kaplan and Sawhney, 2000).

In China, a longstanding problem facing the government is that increasingly, citizens found the prices of medicine become increasingly unaffordable. In the search for a solution to this problem, the Chinese government was attracted by the free-market concept inherent in e-sourcing.

Consequently, e-sourcing was adopted for the healthcare industry in a number of cities, with the hope to reduce the medicine expenses. In one of the cities, hereafter called South City¹, the implementation of e-sourcing system was a great success; by the end of 2003, 94% of hospitals in South city had accepted the e-sourcing system provided by the government to procure pharmaceutical goods and other medical supplies. However, to the adopters' bewilderment, the cost of medicine in general had not decreased but actually increased substantially. The adoption of e-sourcing, which was meant to alleviate the overloaded social security system, paradoxically became its burden. In this research, we address this issue by examining technology internalization using a contextualist perspective (Kostova, 1999). By internalization, we mean how well adopters attach positive symbolic value (e.g. in terms of commitment, satisfaction and ownership of e-sourcing) to, and achieve effective exploitation of, e-sourcing. We ask: *How could a successful implemented system fail to be internalized by the recipient organization and result in counterproductive outcomes, in a given context?*

The objective of this paper is to explain the issue of internalization within technology adoption and to elaborate how the contextualist perspective can be employed to provide a viable alternative understanding of the outcome of e-sourcing adoption. We anchor our study in a field-based case study which analyzes e-sourcing adoption in China's healthcare sector. Theoretical and practical implications are discussed.

2. Theoretical Basis: A Contextualist Perspective

The current literature mainly examines e-sourcing adoption failure in terms of the lack of market control mechanisms and resistance to market process reengineering (e.g. Lee and Clark, 1997). For example, Aberdeen Group (2001) suggested e-sourcing implementation may be inhibited by insufficient technical functions, a lack of top management support, and resistance from the suppliers who participate in the online negotiation. Kambil and van Heck (1998) analyzed Dutch Flower auction and found that the lack of sound market control mechanism (such as fair information exchange and efficient transaction) affected usage and acceptance of the e-auction system. They observed that e-market system adoption altered the relative costs and benefits to actors, or the power of actors, leading to renegotiation of consensus. Unsuccessful renegotiation would inevitably lead to failed adoption. Thus, implementers should devise incentives and processes to facilitate consensus building. Lee and Clark (1997) examined four e-sourcing cases, in which two cases were successful and another two were failed. They suggested that the major inhibitors to e-sourcing failure include the fears toward transaction risks, the resistance to efficient market process reengineering, and the powerlessness to enforce changes in the market participants' sourcing methods.

Nevertheless, these analyses only explain how to ensure effective "implementation" of e-sourcing. They do not examine whether e-sourcing could be "internalized" by the recipient firm. Without attending to the internalization issue, we are unable to understand whether a successful e-sourcing adoption would eventually lead to anticipated benefits. Further, previous studies seem to focus mainly on system functions, control mechanisms, and organizational

¹ All the names of cities, organizations and institutions in this paper are pseudonyms as requested.

inertia. They pay scant attention to the “context” in which e-sourcing is adopted and the recipient firm is situated. This insensitivity to context may result in adopting an effective system in a completely inappropriate context.

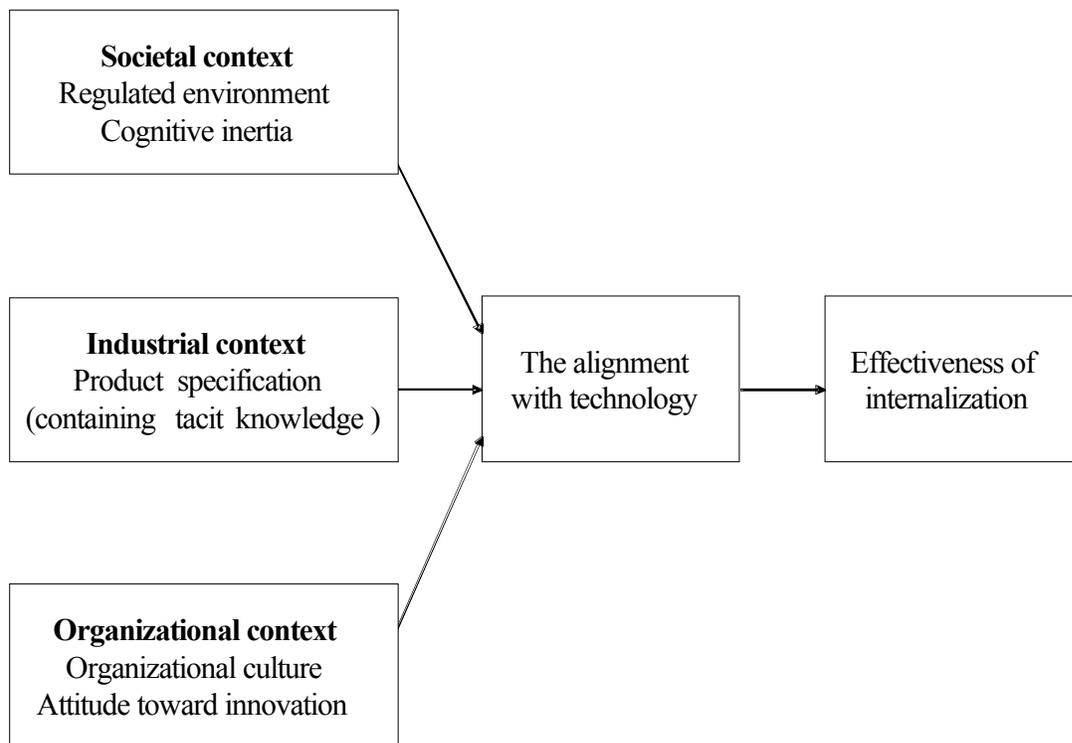
Therefore, we propose to analyze this issue through a contextualist perspective (cf. Kostova, 1999; Pettigrew, 1990, 1997). This perspective suggests that technology does not exist in a vacuum. When technology is adopted, the inscribed practices are also transferred to the recipient organization. Those practices may fit in some recipient organizations’ context but they may also become a disturbance in the situated context. The alignment of technology and context thus is an indicator of how likely a technology may be internalized by the recipient’s organization. For example, Kumar et al. (1998) found that, in Prato’s (Italy) textile industry, the online market was considered disruptive to the Prato merchants’ socio-cultural context where trustful relationships have been built through a close-knitted network. Similarly, Avgerou (2001) analyzed e-market adoption failure in the furniture industry of Cyprus in 1990s. The Cyprus government set out with the idea to adopt online market to facilitate flexible manufacturing. Avgerou (2001) found that the failure was not about technology or implementation method. For the small-and-medium-sized enterprises in Cyprus, the adoption of online market and flexible manufacturing systems would result in highly specialized business organizations. This would mean bringing in professional managers and re-structuring family-owned firms. It was considered inapplicable to the adopters because such a practice did not align with the socio-cultural context which has established in Cyprus over generations.

Technology is used by people who are situated in context at multiple levels, as Pettigrew (1990: 270) suggested. Kostova (1999: 311) extended this idea and examined how knowledge transfer is affected by three embedded contexts and resulted in two modes of outcome – i.e. implementation and internalization. The first mode of outcome refers to how effectively the recipient “implements” the practices (including the formal rules and systems), while the second mode is concerned with how well the practice is “internalized” and assimilated into the recipient’s context (e.g. commitment, satisfaction and ownership of the practice, leading to an effective exploitation of the transferred practice). According to Kostova (1999), the transfer of strategic practices (e.g. Total Quality Management or six-sigma discipline) could be examined through three embedded levels of context, with reference to social, organizational and relational context. Social context is related to regulatory, normative and cognitive characteristics of institutional environment. Organizational context refers to the environment which may be conducive or inhibiting to a firm’s ability to learn from previous mistakes and initiate changes, as well as to whether the transferred practice is compatible with the existing practices. Relational context refers to the recipient’s commitment, perceived identity and trust to the source. In short, these contexts contain a value system that influences people’s actions and results in two major outcomes of technology adoption – i.e. how effective the technology is implemented and how well the technology is internalized. Taking technology into consideration, DeSanctis and Poole (1994) further suggested that a technology contains both structural (including specific rules, resources and capabilities) as well as the contextual features (e.g. the goals, values and norms underlying a given set of structural features). Successful technology assimilation thus requires an alignment between technological structures and organizational context (Majchrzak et al. 2000).

Extending Kostova’s (1999) contextualist analysis, we investigate how well an e-market system

is aligned within three levels of context – society (societal), industry (industrial) and organization (organizational), as shown in Figure 1. (Note: Kostova’s social context can be more accurately described as “societal context”; the analysis of relational context is not applicable to our study, as we do not have a problem of headquarters-subsidiaries conflict; an analysis of industrial context – surrounding the issue enacted from pharmaceutical companies – is more appropriate in our study.) At the societal context, technology adoption needs to align with the institutional characteristics of a particular society. For Chinese healthcare sector, the institutional characteristics include its regulations of medical treatment processes, norms and cognitions of people towards the whole industry. At the industrial level, technology adoption needs to align with industrial dynamics – that is, the features, norms and values that are embedded in products, services and common practices. These industrial dynamics for the healthcare sourcing practices involve categories, quality and judging criteria of pharmaceuticals and other materials. At the organizational level, technology adoption needs to align with an organization’s attitude towards learning and change. In the healthcare industry, this relates to culture and attitudes of key players in the supply chain, including manufacturers, suppliers and hospitals. In the next section, we will explain how the contextualist analysis is employed to examine the difficulty of internalizing e-sourcing in Chinese healthcare sector.

Figure 1: A Contextualist Analysis of Technology Internalization (adapted from Kostova, 1999)



3. Research method

Case study method is used in this research. We follow Eisenhardt’s (1989) eight-step framework to conduct the case study, which include defining the research question(s), selecting case(s),

crafting instruments and protocols, collecting data, analyzing data, shaping theoretical logic and perspective, comparing with past literature and theoretical saturation. For research question, we aimed to identify contextual misalignment of e-sourcing and Chinese healthcare industry, and to explain its internalization problem. For case selection, we chose South City because it has the highest adoption rate and is often known as a model city in implementing e-sourcing in the healthcare industry. Five hospitals were selected for in-depth investigation, including two large, two medium and one small size hospitals.² We conducted fieldwork in South City from September to November in 2004. We interviewed five purchasing staff in each hospital as well as members of online auction appraisal committee (comprising of twelve medical doctors). Moreover, we interviewed officers from the Ministry of Health in South City, an institution which launched and supervised the e-sourcing project for pharmaceutical purchasing. To enrich our understanding of the pharmaceutical industry, we also visited a major multinational company (which has established its presence in China for more than ten years) and interviewed four strategic purchasing managers, in addition to four CEOs from domestic pharmaceutical companies. We also analyze archival documents from 2000 to 2003 in order to enrich our understanding of this industry.

For data collection, we collected and analyzed field data according to the contextualist lens at societal, industrial, and organizational level. We crafted our instruments by asking questions such as: How did regulations and policies in contemporary China affect hospital purchasing (societal level)? How did the use of e-sourcing method affect sourcing practices situated in healthcare sector (industrial level)? How did e-sourcing confirm or disturb hospital's purchasing practices (organizational level)? On this basis, we analyzed the failure of e-sourcing internalization with reference to how well the sourcing practices embedded in e-sourcing are aligned with the practices situated at the three different levels.

4. Research Findings: The Misalignment of Context in e-Sourcing Internalization

As a result of open market policy in China, medical expenses have risen significantly in the past few years. This led to an increase in medical expenditure in contemporary China. A major problem commonly perceived in China's healthcare sector was the unreasonable drug prices. Most Chinese citizens believed that such high prices reflect the lack of transparency in the healthcare sector. With the advent of electronic commerce at the end of last century, the Chinese government realized that e-sourcing may help to reduce prices by facilitating centralized pharmaceutical purchasing. Therefore, in 2000, through the advocacy of the National Economy Development Committee and the Ministry of Health, many cities began to form hospital consortiums and adopted e-sourcing in the hope of reducing the cost of medicine expenses.

South City was among the first in China to adopt e-sourcing for the healthcare sector. The council committee attempted to employ competitive bidding to purchase pharmaceutical products. The sourcing team needed to coordinate with three stakeholders: supervisors committee, appraisal committee and service provider. The supervisors committee consisted of governmental agencies (e.g. Ministry of Health, Pharmaceutical Administration, Price

² In China, the size of hospitals is defined by the number of beds. A hospital with more than 1,000 beds is defined as large and the one with less than 300 is known as small.

Administration, etc.) that define regulations and processes related to e-sourcing practice; the appraisal committee was constituted of medical doctors from twelve selected hospitals of the city, who were in charge of assessing suppliers and assigning the bids; the service provider was in charge of the functioning and maintenance of the e-sourcing system. In 2000, the South City's municipal government issued an administrative request and mandated large- and medium-sized hospitals to adopt e-sourcing for managing their spending. The implementation of e-sourcing was a great success; by the end of 2003, about 94% of pharmaceuticals of the city were purchased through e-sourcing.

The online negotiation was conducted according to the following steps. First, hospitals would report their purchase needs of pharmaceutical products. The sourcing team would then aggregate the demands according to different categories, quantity and quality, across more than 10,000 categories of pharmaceutical products. Next, suppliers were asked to provide their quality certifications, production capabilities, price per unit, and related information for RFQ (request for quotation). The sourcing team then assessed the suppliers' specification, conducted reverse auction, and awarded the contract.

The municipal government of South City was relatively satisfied with the e-sourcing implementation in terms of enhanced efficiency and transparency of procurement. However, the average price of pharmaceutical products actually arose and the total healthcare expenses in that city were also increased, as a doctor explained:

Although official statistics reported that drug prices had decreased substantially, the prices of some drugs have actually increased. For example, the price of Vitamin E Nicotinate Capsules went up 1.8 times to RMB 19.80 after the bidding. And in many cases, for the same drug, the price from hospitals which had used e-sourcing is usually much higher than that from drugstores which had not adopted e-sourcing. Another example: a kind of injection medicine is sold in drugstores at RMB 18.6, but in hospitals at RMB 112.7. A diabetes medicine is sold at RMB 9 in drugstores, but when it comes to hospitals, the price goes up to more than RMB 40. Examples of this kind are plenty.

Consequently, neither hospitals nor patients benefited from the e-sourcing method. The sourcing team was puzzled with the outcome and wondered what control mechanism could be brought in to facilitate e-sourcing so that healthcare cost could be reduced. The following subsections investigate misalignment of e-sourcing in three embedded contexts and explore why e-sourcing was not effectively internalized by South City.

Misalignment in the societal context: The e-sourcing system assumes a “free market” principle, which suggests open market participation, information transparency, and rational transaction. In a “free market” context, market participants are able to make purchasing or producing decision at their own will and on an economy or efficiency basis.

Nevertheless, such a “free market” context does not exist in Chinese healthcare industry. Although the Chinese government has tried to build hospitals into independent financial units, its

economic activities are highly regulated in terms of the incorporation of hospitals, the clinical charge for medical treatment, the selection of suppliers, and the choice of medicine. The profit structure of Chinese hospitals illustrated the characteristics of this regulated market. In China, there are three components of hospital revenue. The first is consultation fee, including the expense of diagnosis, medical checkup and hospitalization. This fee is maintained at a relatively low level as a result of government intervention. A standard baseline of hospital treatment fee is set by the central government. As most citizens are used to the clinical treatment fee, it is very difficult for hospitals to increase this fee (which was also a “politically-correct” concern). The second component is fee subsidized by the affiliated institutions; and the third component is from the sale of pharmaceutical products. In China, institutions such as the railway or post-office have their affiliated hospitals. However, Chinese government has begun to reduce the second component, which significantly shrinks the income of hospitals.

The central government required hospitals to become economically independent as a result of market economy policy. It was the first time in the modern Chinese history that hospitals must be self-sustainable financially. However, since it was not possible (politically) to increase the medical treatment fee, the revenue derived from pharmaceutical products became a main source of income for most hospitals. A hospital sourcing staff remarked:

It’s not in the benefit of hospitals to drive down the OTC (over-the-counter) drug prices. Hospitals are not allowed to decide selling prices. We sell at fixed rate, which is regulated. Therefore, we prefer the purchasing price to be high because that is the only way we can boost up profits. It also causes less public stir-up as most patients will accept the price as given.

The regulation in the healthcare industry in China also constrained the selection of suppliers. For example, strict supplier certification policy stipulated that suppliers’ R&D must be supervised, monitored and the pricing structure set by the Pharmaceutical Administration and the Price Administration. In this case, the “invisible hand” was no longer in the hand of the market, but in the hand of the local government. This ran counter to the “free-market” assumption embedded in e-sourcing. One manager from a large pharmaceutical company said:

Largely it’s the “public relationship” work to help us sell products. Without working on guanxi (relationship), pharmaceutical companies can hardly obtain approval from local agencies. As well, you also cannot sell your products at a profitable price range. Pharmaceutical companies need profits; hospitals need profits; and so do the local government. The local income tax depends heavily on pharmaceutical companies. Therefore, if our pharmaceutical products are approved, even at a higher price, everyone will be happy.

There was also a cognitive barrier to exploit e-sourcing fully. In its socialist policy, Chinese government had subsidized public medical expenses for at least forty years. Consequently, the perception that medical expenses “should” be paid by the government could not be changed easily. Since certain categories of pharmaceutical products are covered by the social security

(sponsored by local government fund), it encouraged people to buy pharmaceutical products from hospitals rather than from drugstores. (Note: citizens would not get refund if they brought medicine from drugstores.) Understandably, hospitals were willing to sell pharmaceutical products at higher prices so as to be self-sustainable. Both the hospital administrator and patients found this to be a good solution to their financial dilemma. Consequently, although the e-sourcing practice was adopted as a result of government push, the misalignment with China's societal contextual hampered its internalization. The "free-market" assumption of e-sourcing was in direct conflict with the highly regulated institutional environment in China.

Misalignment in the industrial context: E-sourcing assumes a rational model of transaction, which requires unambiguous purchase specification to serve as a basis for rational decisions. With the same benchmark criterion, buyer can make purchase decision by looking into a set of factors such price, product quality, delivery time, and service warranty. With the objective measures, adopters can also apply the transformational-bidding principle by assigning discrimination in certain criteria. For example, although a supplier may offer lower prices, its delivery charge and time-to-market may be higher. As a result, the supplier may still lose the bid.

However, in the healthcare industry, the specification of pharmaceutical products is not as explicit as the industrial commodities. First, pharmaceutical products involve a range of diverse categories. One hospital purchaser mentioned:

The purchase specification for drug is messily complex. In many cases, we use "box" as a purchase unit to procure syringe, in which we can never be sure how many syringes one box may contain. Sometimes a box consists of ten syringes, but other times there are twelve... And syringes are different in terms of lengths and diameters. These specifications are unstructured and change frequently. The e-sourcing system is less useful in this regard.

Second, the curative effect of pharmaceuticals is difficult to quantify and judge. Pharmaceutical purchasing is heavily related to a doctor's assessment of a patient's illness. Many drug products contain such tacit knowledge. As a result, the purchase requirement (RFP: Request for Proposal) of these drugs and related items could not be easily articulated and negotiated. One medical doctor noted:

Suppose you've got a cold. Some drugs can cure you in two days, while others may take weeks... Well, the latter drugs are cheaper, but you will recover later. And the later you're recovered, the later you can work and thus your income may suffer. Consider the loss. What's more, for children, you need to take more drugs to get recovered. But taking more drugs is definitely a bad thing for children. In some cases, if the cold is not cured in time, it may harm your respiratory tract. How can you calculate this cost?

The purchase of scalpel (for surgery) is another illustrative example. Scalpels are expensive items and are purchased (through leasing model) on a just-in-time basis. An inaccurate order of

scalpels may result in surgical difficulties (e.g. if the scalpel is too thin, it cannot cut through a patient's belly which is too fat). The sales representative has to personally visit the hospital and understand the situation to suggest a proper choice of scalpels. At times, the sales representative even has to stand beside the operating theater to facilitate the operation. (Note: these sales representatives are experienced medical doctors before leaving their medical profession.) One doctor recalled:

The sales who helps me with the scalpel was a surgeon...When we asked him to demonstrate the products, he took out one scalpel and began to explain to us how to use it—how to hold the scalpel, how to make a cut, which is explained in exhaustive detail, like a medical professor. We have to rely on this knowledge to purchase the correct scalpel because mostly our purchase depends on the patient's medical condition.

This explains why many doctors cast doubt on the fairness and reliability of centralized e-sourcing. Pharmaceutical purchase needs to involve different fields of expertise. It is not feasible to include experts from different medical profession in the appraisal committee. As a result, this makes the definition of sourcing requirement extremely difficult for the committee and frequently results in purchasing the wrong items at a higher price through e-sourcing. One hospital purchaser observed:

The appraisal committee makes many purchase decision based on subjective impression rather than objective measures. They choose a drug because it has better "supplier reputation" – because one brand is more well-received than the others. The decision is not based on how effective the drug is. The appraisal committee also doesn't have time to conduct on-site qualification. They rely singly on publicized reports. Needless to say, these reports are severely biased in China.

Misalignment in the organizational context: In this section, we analyze the organizational context by investigating the hospital's relationship with its suppliers (i.e. pharmaceutical companies). Organizational context refers to whether the organizational culture is "generally supportive of learning, change, and innovation" and the "compatibility between the values implied by the practice and the values underlying the organizational culture" (Kostova 1999: 317).

For e-sourcing practice, an important value proposition is the cost savings resulting from free-market competition. However, it is not the value that most Chinese hospitals behold, as one pharmaceutical marketer mentioned:

In fact, it's very difficult for a pharmaceutical manufacturer or supplier to promote its products. If your product is not listed in the categories which can be covered by the social security fund, you should quickly undertake some political lobby actions. You must go through the Price Administration, Pharmacy

Association, and Ministry of Health to promote your products. If you have no political influence at all, you are already going out on a limb before joining the e-bidding.

Therefore, most suppliers had more incentives to produce the approved categories of pharmaceutical products than investing in R&D for new drugs. As a result, most pharmaceutical manufacturers in China are relatively small and have little R&D competence. For the suppliers, e-bidding is just a cosmetic work for justifying which drugs to be sold. The adoption of e-sourcing is therefore ceremonial. One executive from a major pharmaceutical firm noted:

In China, real “new” pharmaceutical products are very few. Whenever a new drug is developed, a lot of companies will start to copy it, all with different quality. For example, you can see dozens of companies producing Cefradine (a kind of broad-spectrum antibiotic) in China, including capsules, tablets, granules...and each province or city normally will use its local brand. The local government often excludes outsiders, in spite that their products may produce better remedial effect. So you may find sometimes a particular type of drug produced by this company disappears all in a sudden in the city. It is because the government has closed the door for the outsider company.

Moreover, by colluding with hospitals, both sides can thrive in the market economy system and obtain higher profit margin. In these circumstances, neither hospitals nor suppliers have any incentives to develop an organizational culture that is supportive of learning and change toward the adoption of e-sourcing. One chief purchasing officer in a large hospital remarked:

In my view, e-sourcing is not a free market competition; it was manipulated by suppliers. Bigger suppliers collude with smaller ones. Big and small suppliers also collaborate with hospitals to influence the outcome of competitive bidding. For example, you could change the packaging and double the price. A vaccine supplier can produce 100 units per dose at the price of RMB 2.20. But they increase the price to RMB 20.00 only by changing its vaccine to 200 units per dose.

E-sourcing practices were also in conflict with the hospitals’ organizational culture. While e-sourcing practices could bring in competition and transparency, hospitals were more worried about the loss of incomes. A purchaser noted:

In Chinese healthcare sector, patients have little say in the drug price. The real buyer are the medical doctors. Doctors can decide what to buy and how many to buy. In China, doctors’ pay is miserable in comparison to the US. They also need to sustain their families and make a living. If the hospital is not profitable, everyone suffers. With the interest of patients in mind, the doctors will naturally prefer to prescribe drugs that generate more profit. E-sourcing will throw the

situation off balance.

5. Discussion and Conclusion

This paper analyzes the ineffective internalization of e-sourcing in the healthcare sector in China, from a contextualist perspective. Although the implementation of e-sourcing was successful, the internalization was regrettably ineffective. This failure must not be examined singly by market control mechanism, unfavorable adoption conditions, and organization inertia. More importantly, we also need analyze the misalignment stemmed from the societal, industrial and organizational context, as summarized in Table 1. As suggested by the findings, at the societal level, the “free market” assumption embedded in e-sourcing is misaligned with the regulated institutional environment in China; at the industrial level, the unambiguous product specification required by e-sourcing is misaligned with the pharmaceutical products imbued with tacit medical knowledge that characterizes the healthcare industry; at the organizational level, the prerequisite transparency demanded by e-sourcing is misaligned with the surviving strategy undertaken by hospitals and suppliers.

With a deeper understanding of context, we understand that e-sourcing is appropriated to fit in a regulated market. Although the outcome may not be favorable in terms of cost saving and efficiency gain, the new way of using e-sourcing nevertheless help hospitals and pharmaceutical companies survive in a market-oriented economy. From the contextulist analysis, we may observe an interesting ecological system within the Chinese healthcare sector. The patients pay a higher price for the medicine. This creates profits for hospitals and pharmaceutical companies. The patients can claim these expenses from the social security systems. However, this will increase the government’s financial burden. Thus, the local government replenishes its reserves by taxing the pharmaceutical companies. The pharmaceutical companies charge higher prices to regain profit. At the end, it is an equilibrium system. However, this is only our initial observation. More research works are required to understand better the economic impact of this situation.

Table 1. Misalignment of e-sourcing in three contexts

	Context assumed by e-sourcing	Chinese healthcare industry
Societal context	<ul style="list-style-type: none">Embedded in e-sourcing is a “free-market” assumption, which presumes open market participations, information transparency, and rational transaction.	<ul style="list-style-type: none">Regulated environment: The price structure of pharmaceutical products is highly regulated.Cognitive inertia: medical expenses should be subsidized by the government.

	Context assumed by e-sourcing	Chinese healthcare industry
Industrial context	<ul style="list-style-type: none"> Rational purchase decisions are based on unambiguous product specification. 	<ul style="list-style-type: none"> Pharmaceutical products are unstructured and contain rich tacit knowledge.
Organizational context	<ul style="list-style-type: none"> Greater economic value (cost and efficiency) is sustained by intensive market competition. This requires ongoing product innovation and streamlines ineffective processes within firms. 	<ul style="list-style-type: none"> The hospital's organizational culture is not conducive to introducing e-sourcing (which may affect its survival). The suppliers have more incentive to engage in political lobby rather than to bolster innovation, learning, and change. The buyers (hospitals) and suppliers (pharmaceutical companies) are encouraged by the social structure to collude and e-sourcing become an artifact to legitimate such collusion.

This study offers two key implications for research. First, it enriches our knowledge and understanding of technology internalization through analyzing three embedded levels of context. As most studies are concerned with technology implementation issues (e.g. Avgerou, 2001; Kambil and van Heck, 1998; Lee and Clark, 1997; Walsham and Barrett, 1999), this offers an initial analysis on the issue of technology internalization. Managerial incentives and market control mechanisms may enable successful implementation but may not be sufficient for exploiting the true value of technology. Without understanding the internalization issue, firms may adopt technology ceremonially. Eventually, technology use may merely become a disillusion to the adopter (Fichman, 1999). Additionally, this study builds on Kostova's (1999) framework on transnational technology (knowledge) transfer. Although Kostova's conceptual framework provides deep insights into analyzing cross-context technology transfer, this framework is not yet explored using qualitative methods to assess its applicability. This study provides a seminal attempt to elaborate Kostova's framework and suggests the importance of the contextualist perspective in future research on technology adoption and implementation.

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