The Coevolution of firm’s Business Model and Enterprise Information System Adoption

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ABSTRACT:

Coevolution studies are aiming to explain how firms transitioned to be better “adapted” or “selected” by revealing dynamic and ecological causal relationships among multiple entities. Firm level’s variables have high impacts on firms’ transition. However, there is limit understanding of intra-firm’s coevolutionary process. This study is aiming to reveal two of the important firm level variables’ coevolutionary process: firm’s business model transition and their Enterprise Information System (EIS) adoption. Moreover, via this longitudinal field study and the rich contextual data, it explains the underlining mechanisms of each “variation-selection-retention” (VSR) evolutionary steps and the causal relationships in between the two entities.

Keywords: Coevolution; Evolutionary approach; Business model; Innovation adoption; Information system;

INTRODUCTION

Coevolution studies have gained attentions in organizational theory and strategic management domains. Coevolutionary processes reveal dynamic and ecological causal relationships among multiple entities (Lewin, Long, & Carroll, 1999). These processes are aiming to explain how firms transitioned to be better adapted or selected which release the pressure from the core “adaptive-selective” arguments in organisational theory and strategic management domain. For example, Burgelman (2002) investigates how firm’s capabilities coevolved with the firm’s industrial segments; Lewin et al. (1999) reveal the organizational forms and external environment coevolutionary relationships; and Pacheco, York, and Hargrave (2014) reveal the coevolutionary relationships between industries and social movements. However, there is little study revealing firm level’s entities’ coevolutionary process. Firm level’s variables have been studied as one of the most important aspects of organizational transitions and decision making. For example, Deutsch (2005) argues that corporate board have strong impacts on firms’ strategic decision making (Boyd, 1995; Fama & Jensen, 1983; Hoskisson, Castleton, & Withers, 2009); Chuttur (2009) uses TAM framework to test employees and
decision makers’ impact on firms’ information system adoption. This paper is aiming to reveal a coevolutionary process between two of the most important firm level variables: business model transition and Enterprise Information System (EIS) adoption. The difficulty of gaining access to observe firm’s coevolutionary process is one of the reasons for this gap existing in literature. Through this ethnographic longitudinal study, we provide a complete and rich contextual evidence of the business transition and EIS adoption coevolution within the focal firm.

Business model has been recognized as heart of business activities by practitioners and gained lots of attentions by scholars, even it is loose defined in strategy academic domain. In this paper, we are not going to argue for the definition but adopt Johnson, Christensen, and Kagermann (2008)’s definition of business model as four interlocking elements: customer value proposition (CVP), profit formula, key resources and key processes.

In this innovation and technology developed rapidly era, firms’ innovation and technology adoption become an important issue which decides firms’ survival (March, 1991). Enterprise Information System (EIS) is one of the most widely applied managerial practice innovation in firms. It extended from Enterprise Resource Planning (ERP) system which is implemented to enhance the internal functions of business, such as supply chain management, human resource management and customer relationship management. During last five years, EIS had a significant development from a single firm’s internal management system to a customer focused open platform which allows firms collaborate with other business and interacts with their customers on one platform (Parker & Van Alstyne, 2014).

This study is aiming to contribute to literature from three aspects. Firstly, it reveals a coevolutionary process of business model transition and EIS adoption decision making. Secondly, it uses ethnographic longitudinal contextual data to explain underlining causal mechanisms in this dynamic process. Thirdly, it contributes to strategic management literature by showing evidence of how this focal firm’s business model evolution is a realized process rather than an intended process.

CONCEPTUAL FRAMEWORK
Beyond the central “adaptive-selective” debate in strategic management and organizational theory management paradigm (Baum & Oliver, 1996; Lewin & Volberda, 2003), evolutionary perspective provide an opportunity to reveal the underlining process and reason of the process of firms become well adapted (Geels, 2002; Lewin & Koza, 2001; McKelvey, 1997). The fundamental process is via different entities creation (variation); the well adapted entities selected (selection) which is due to selective pressures; and these selected entities stably retained over time (retention). This evolutionary perspective has been studied in many topics and in different levels. For example, Klepper (2002) emphasized industry’s evolutionary process due to new entered diversified firms and these firms’ variated capability and characters. At firm level, Peeters, Massini, and Lewin (2014) use two in-depth case studies revealed how firms’ absorptive capacity routines evolved and influenced firms’ innovation adoption. At network level, Steier and Greenwood (2000) reported a newly created firm’s financial network evolutionary process and in this process result in an entrepreneurial context.

Co-evolutionary ideas are extended from evolutionary studies. It shows in one environment there are many participants evolve together and interactively impact others evolutionary process (Burgelman, 1990; McKelvey, 1997; Murmann, Aldrich, Levinthal, & Winter, 2003). These participants can from different levels and the co-evolution can happen in different levels’ environments (Burgelman, 1991). For example, Eisenhardt and Galunic (2000) studied two same level’s business units coevolves in the same firm. Burgelman (2002) investigated how firm’s capabilities coevolved with the firm’s industrial segments.

A coevolutionary relationship required to include two types of causal relationships (Murmann, 2013). The first type is in each of the participants, there are causal relationships among Variation-Selection-Retention (VSR) evolutionary process. The second type is causal relationships between a pair of participants’ VSR evolutionary process. This study follows Murmann (2013) coevolutionary framework and develop my own framework (Fig 1). Firstly, it records the process of the firm’s business model evolved from conventional to platform business model. Platform business model is a customer orientated and internet based multiple business collaborated business model (Parker & Van Alstyne, 2014). Secondly, it includes the evolutionary process of firm’s EIS adoption decisions. Both
of the entities’ evolutionary processes are following “variation-selection-retention” (VSR) fundamental model. Thirdly, it also shows the causal relationships between these two entities and explains the underlying mechanisms. For example, when firm’s EIS adoption decision went through the variation and selected by the firm’s decision makers, the selection becomes a trigger of the firm’s business model’s variation.

[Insert Figure 1 About Here]

METHODOLOGY

This study is a longitudinal field study. I deeply involved in this focal company’s information system adoption and business model coevolutionary process, from the pre-start stage’s situation interpretations until the current ongoing project. I observed and record most of the related formal and informal discussions between the firm’s decision makers and employees and totally 21 company’s weekly meetings from the end of November 2015 to the end of June 2016. I did totally 20 interviews with 15 key people in different stages to obtained better understanding of their personal interpretations and opinions. For example, I formally interviewed the owner 3 times. The first time was at the pre-EIS adoption stage as the original status. I obtained his interpretations of environment which include their competitors’ evolution, technology development and his firm’s situation. The second formal interview was at this firm’s business model selection step. I obtained understanding of how the firm decision makers evaluate their business model elements and their current capabilities to make the selection decision. The third interview was at the firm’s EIS adoption stage. The owner reviewed how he realized the EIS requirements from his company’s employees and customers and followed this trend to set up the EIS adoption decision. I also had continually discussions with other managers and some employees to obtain their different opinions and interpretations in different stages. The new hired IT manager who was the leader of this EIS adoption project. I paid more attention on his opinions and also aware his network change via firm’s EIS adoption decision evolved.

All of the interviews and observations have been recorded and transcribed during the meetings or after. The original language applied in interview was Mandarin. The original transcription was in Chinese as
well. All of them were translated into English afterwards. By considering the different language and culture, I add notes for some of the quotes to assist readers to obtain better understanding of the language behind meanings.

THE CASE

ZH real estate company (ZH) is a private owned Chinese company which is funded in 2006. Their main business scope includes: Residential sales, Residential property management, Commercial and Industrial sales and leasing, Commercial and Retail property management Project management, and Stock property transfer. This company grows from a 20 employees’ small company to 165 employees’ medium size company. Their current average monthly turnover is more than 3 million RMB. Their housing stock level maintained at 2000 to 3000 properties. During last five years, the company’s annual profit has 20%-30% stable increase in each year. In Beijing, currently there are totally 21 qualified real estate agent companies. In 2013, this company became to one of the leading firms in this industry and become to a member of Beijing Real Estate Broker Trade Association.

Since 2013, Chinese government release a set of policies to encourage internet based E-business. The number of the related policy increases in each year. There are many firms start to invest in E-business related projects. But there are also many firms rejected to follow this trend. Based on this context, I started my pervious study which is investigating firms’ EIS adoption decision making process. For this purpose I interviewed 23 firms’ CEO, board directors, firm owners and some strategic decision makers from September to December 2015. ZH was one of them

ZH was firstly approached in November of 2015. I interviewed the firm’s owner in their head office which located in Beijing Central Business District (CBD). After the first visit, the owner started to change his opinions to EIS and positively seek advices from me. Then I worked with them an independent advisor. This is how I obtained the access to observe the coevolution process of this company’s information system investment strategy and business model.

Original situation and environment
During the first interview, the owner and I discussed the current new movement in real estate industry. A couple of leading firms started to develop their own online platforms or collaborate with social media platforms to generate their platform business model. This platform business model has gained lots of attention in both of industrial and scholarly domain. Compare with conventional business model, platform business model is an internet based opened platform which allows other product or service providers and customers interact with each other (Rai & Tang, 2014). In literature, there are comparison of the conventional and platform business models (Doz & Kosonen, 2010) and demonstrate that two advantages the platform business model (Sharma & Sheth, 2004): providing customers a scene marketing platform by collaborate with other providers; increases the volume and stickiness of their customers. Additionally, by applying big data technology, firms will be able to obtain more customer related information via the platform to analyse their further requirements and behaviour habits. These analyse will facilitate firm’s precise marketing which increase firm’s sales efficient and volume without increase marketing cost.

The owner of ZH also recognized this movement. But in this first interview, he explained his interpretations and showed his doubt of the meaning and advantage of adopting a platform business model and EIS. By his words: “During last a couple of months, there are several EIS firms and online platform providers came to us and discussed information system adoption and platform collaboration issues with us. However, I do not have a clear idea regard to how to implement it and where we are going to be. At the moment, on the one hand, SF (the first online real estate platform provider in Beijing) as a professional real-estate online platform provider starts to occupy the offline market by opening stores. On the other hands, there are traditional real estate agent firms are developing online platform or collaborate whit large social platform to occupy the online market, such as IJ (one of the China leading real estate brokers firms) and LJ (China largest real estate brokerage agency firm).”

Based on his observation and limited EIS knowledge as he did not have any related pervious experience, he does not believe that this movement will be a main trend in this industry. Furthermore, he analysed his firm’s competitive advantages and resources and then decided to refuse benchmarking with his competitors by adopting EIS in his firm. He said:
“In this CBD area, we are the top one (real-estate broker business)... Other firms cannot compete with us in this region. ..I do not consider to join them and cooperate with them to take lots of risks… I saw them throwing too much money on it (platform development or EIS adoption). SF spent 60 millions (RMB) in last a couple of months. Even this money is from the small shareholders, though their board will not allow them to keep doing it. That is why they are now forced to develop more and more offline stores. Only the offline stores can bring real profit.”

Another reason for him to refuse EIS adoption is that he realized his firm lack related knowledge to support them adopt advanced IT innovation. he said in one of our chatting: “My people are all experts in real-estate business, but no one can clearly explain to me how to adopt or develop information platform and how this platform can help us extend our business or generate profit. Literature explains this situation as firm’s knowledge space decides firm’s opportunity space (Dagnino, 2003). Once the firm’s knowledge space expanded, the firm will be able to obtain more visible opportunities.

**EIS adoption decision caused Business model variation**

In this stage, ZH decided not to take any action to benchmark with their competitors by adopting information system or develop platform business. However, as they observed other firms’ movement, the firm owner and managers all felt the competitive pressure and believed that ZH also need to have some actions to maintain their competitive advantages. Literature explains firms competitive advantages have many types, such as the firm's cost structure, product offerings, distribution network and customer support (Grant, 1991). The resource-based theory further explains firm’s resources which are rare, valuable and inimitable will allow firms generate competitive advantages (Peteraf, 1993). After the decision makers evaluate their firms’ resources which is able to maintain their competitive advantages, they realized there are variated business model they can generate.

The owner said: “To observe this (movement), all my managers came to ask me what we should do (to deal with our competitor’s movement). I told them I do not want to take any action immediately and I want to wait for one more year to see what will happen. I believe that there is no any company can do this like keep throwing this much money in a very risky issue (online platform development)… There
will be many companies die out very quickly… There are many ways we can go, such as currently I am considering to using bank capital leverage to upgrade my properties' quality, increase the number of our stores and extend our size, cooperate with tourism online platform to provide holiday accommodation, etc. All of them have better promised return than the IT and online platform investment…”

Once the owner discussed his business model variation options with one of his manager who worked with him since the firm established. He said to the manager: “There are many things we can do but I don’t know where we should start.” The manager provided some variation options based on his evaluation of their firm’s competitive resources. He said: “We have many long-term cooperated partners. They worked as our sub firms. If we can select of them and acquire them may extend our profit stream, reduce our cost and also develop our eco-environment.”

**Business model selection**

The business model selection process was start from business model’s primary element - the customer value proposition (CVP), and then considered how other three elements can fit the CVP. The other three elements are firm’s key resource, key processes and profit formula (Johnson et al., 2008). In Johnson et al. (2008) definition, the CVP include targeting customers, providing customer satisfied products and services, and designing customer preferred business transaction processes. The profit formula is include firm’s revenue model, cost structure, margin model and resource velocity. The key processes are the rules, metrics, and norms that make the profitable delivery of the CVP repeatable and scalable. The key resources are required to deliver the CVP profitable.

Under ZH’s original business model, they pursue their on hand properties as their key resources but lack considering their customers’ all-around requirements. In this business model variation process, they start from redefine their CVP. The firm’s decision makers analysed and compared their target customer groups and their requirements. Then they also carefully evaluated their resources and capabilities, such as managers and employee’s knowledge and skills, their partners and properties. The firm’s strategy setup routine and principle are also involved as key processes in this business model.
selection process. In the end, they selected their new business model which is focus on their redefined target customers and improve their service level to satisfy these customers’ all-around requirements.

**Redefine CVP:**

In the following weekly meeting, the owner brought the topic about “what are our customers want”. The owner said: “During the long time, all of (real-estate) broker companies like us believe the property is the key resource in big cities as we believe here is always requirement more than demand. However, practically we are all clear that not all of the properties are popular. To get our customers preferred properties are the most profitable business.”

Regarding this topic, one of the managers said: “During the long time, we occupied CBD area. The young businessman is one of our main customer groups. They prefer high quality rental service, such as very neat and modern apartments, and high quality furniture and appliances.” Another manager continually said: “That’s correct. They are our most profitable customers and main customer group. In my experience dealing with these customers, they prefer lots of rental related services as well, such as easy accessed and high quality customer services, home moving assistant and even housekeeping services.”

**Key resources and key processes evaluation**

Based on the discussion about the redefined CVP, the managers continually discussed how to develop and aggregate their firm’s key resource and processes to achieve these customers’ requirements.

One of the managers said: “In Beijing there is no any company focus on high quality properties rental service. We should develop our brand reputation as a high quality rental service provider to match our targeted customers. If there is a customer has these requirements, we will be his or her only one provider.” Another manager evaluated their firm’s current resources: “Actually, we are providing these services by our long term cooperated partners. We have our housekeeping, maintenance and moving service providers. If our customer asks, we provide them services.” Another manager compared this quality improvement business model with other variation options and said: “A couple of
years ago we thought about open more stores to extend our business regional scope. But we did not do it because we do not have advantage allow us to compete with other firms in other areas. I agree to focus on our strength business and continually improve it.”

In the end, the owner shared his opinion regarding the evaluation of their current resources: “This is exactly what I want. We already have lots of resources in our hands. We should optimize them to generate more profit but not invest in a new thing with lots of uncertainties and we do not understand much.” Then he further explained his principle of the new business model selection as the key process. He said: “I think in this stage I would prefer something has low risks and be able to generate value immediately.”

Based on the company’s current resource, process and redefined CVP, they setup their new business model which is focus on high quality rental service development. The owner concluded as: “As we observed the new business model generate in our industry, we should actively do something to maintain our position. In our next step, we will aggregate and optimize our resources to upgrade our service. I believe that there are many traditional things will never be forgotten, such as the mouth-to-mouth reputation. This kind of information distribution method has very high efficient and the sales based on it have high success rate.”

**Selected business model caused IT investment strategy variation**

In the following weeks, the main topics and projects in this firm were all about properties and services quality improvement. On the one hand, the firm took the bank’s capital leverage offer and selected some of their properties to renovate and upgrade these apartments. On the other hand, regarding the service quality improvement, the first issue is to find a very easy accessed and customers preferred communication method. Officially, the firm suggested the brokers use phone call, message or email to contact with their customers. However, more and more brokers and customers are all preferred to communicate via “Wechat” (One of the most popular social communication smart phone APP in Asia).

In one of the managers meetings, managers discussed the Wechat usage’s advantages and disadvantages. There are some concerns raised, for example one of the managers said: “This is not a
reliable and professional way to deal with our customers’ business issues via personal wechat account.”

However, one of the senior brokers challenged both of the method, he said: “The customers’ information and requirements should feedback to our company rather than a signal broker. We could optimized locate our resources to efficiently resolve customers’ questions or satisfy their requirements. If we want to improve our service quality, we cannot just keep using this one-to-one communication method. The service quality will all depend on the signal broker’s capability but not our company’s capability.”

In the end, the owner started to consider a new communication method for their customers and brokers. He said: “We spend a lot to cover our brokers’ phone cost. But if all of them and the customers prefer to use internet based communication methods, maybe we should do something which will benefit both of us and the customers.”

In order to get some neutral and reliable suggestions, the owner asked one of his relative who works in an EIS company as a consultant. She brought lot of up-to-date information and especially introduced enterprise internal management system (ERP), Customer Relationship Management (CRM), and the tools can be used to communicate with customers, such as Enterprise official web portal, and wechat official account development. Furthermore, the consultant also introduced to the owner and their senior managers some advanced technologies regarding customers’ connection and interact with customers. The owner show lots of interest when they discuss about using advanced big data analysis technology to track customers’ behaviour and generate precision making for firms.

The owner said: “This is a new knowledge for me and it makes sense how EIS can generate real value for firms. Before, I only heard about how firms distribute information via internet. I am not fully convinced, as at least I believe in our industry the information distribution is not a key issue.”

This knowledge diffusion largely extends ZH’s knowledge space. The owner of ZH changed his opinions toward to the EIS investment. However there are still many options available for him and need to be selected.

**IT investment strategy selection**
From the discussion with the consultant, the owner got more detailed information regarding what current technology can do and how they work. In order to select the most suitable solution, he considered through all main processes in his firm. But he still wants to focus on his original purpose which is aiming to have a customers preferred communication method.

After another discussion with consultant, he decided to develop an official account on wechat platform. It will be used to release the latest available properties information to customers, obtain and acknowledge customers’ requirements and making transactions via the wechat account. The owner explained: “I think this is our best first step on EIS adoption. It is based on both of our brokers’ and our customers’ requirements. As we don’t have any experience, I think we are better to start from the basic level.” Based on this decision, the consultant also suggested an internal bottom level EIS system adoption. These bottom level modules mainly include the Property Management, Customer Management, Employee Management, Contract Management, Service Order Management. These models will be used to record and track their main business activities and interacted with the wechat official account.

Based on ZH’s first IT investment decision, the consultant deeply investigated the company’s current management processes. She interviewed 4 regional managers, some department managers, salesman and administrators. She submitted a new system’s blueprint to the company and confirmed with all related managers and the owner in two weeks.

In early of April, the company signed information system adoption contract with the consultant’s company. They defined this project’s scope which includes the customers’ mobile APP, Salesman’s mobile APP and the company internal management bottom level’s modules.

CONCLUSION

Business model as one of the key contexts of organization has been studied in organization management and strategy paradigm based on “adaptive and selective” debate. However, how business model evolved, especially in this innovation and technology develop rapidly era and technology adoption becomes a key issue of firm’s survival, has not been fully discussed. This deep field study
reveals a real-estate Chinese firm’s business model and EIS (Enterprise Information System) adoption coevolutionary process.

This study is aiming to contribute to literature from three aspects. Firstly, it reveals a coevolutionary process of business model transition and EIS adoption decision making. Secondly, it uses ethnographic longitudinal contextual data to explain underlining causal mechanisms in this dynamic process. Thirdly, it contributes to strategic management literature by showing evidence of how this focal firm’s business model evolution is a realized process rather than an intended process.
REFERENCES


Figure 1

One step of coevolutionary process