E-BUSINESS INNOVATION IN MEETING INTERNET CHALLENGE

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Abstract

This paper presents the case study of innovations undertaken by a business-to-business application service provider in facing the challenge of Internet technologies. This firm services the highly competitive Australian travel industry. This industry sector has been characterised by fierce rivalry, low profit margin, low entry barriers for any would be competitor, high dependency on IT and thus being subjected to a continuous stream of alternate substitute threats which are constantly being fuelled by rapid advent in IT. In addition to this, this travel industry sector also has high consumer and supplier power. The outcome of these innovation journeys demonstrated that profitable business lies not in mere implementation of Internet technologies into the existing business product/service but in creating new poduct/service that satisfy the complex interdependent activities that occur in the changed business value chain caused by disruptive Internet technology whereby the immediate customer is not yet satisfied with the functionality of available products/services.

1. Introduction

This case study is part of a field research project involved the researcher in and around an ongoing organisation setting in order to gather original qualitative data on-site and study the phenomena in their real-life context using multiple sources of evidence [14]. This research study project used a clinical perspective of fieldwork research as described by Schein [11].

The case study firm, code named ServiceCo, provides both proprietary and open Internet based private networks to facilitate business transactions between buyers and suppliers in the airline, travel and freight industry. It provides its network subscribers with hardware, software, connection, access, and support services to conduct booking, reservation and travel related business transactions through specific Computerised Reservation System (CRS) and also its own on-line electronic business transactions systems. It has its root beginning in the 1960's, at the pioneering stage of the Australia computer service industry. This company has been providing Business to Business (B2B) application services in the travel industry using IT and its proprietary network technology solution long before the 1990's "dot-com" market hype and fascination about the web-based B2B services on the Internet. The travel industry sector is noted for its high dependency on the use of IT in automating its business processes since the early stage of commercial airline services.

INDUSTRY CHARACTERISTICS

A "five competitive forces" [9] analysis of the Australian travel industry reveals the following situations:

1) Degree of Rivalry: The travel industry is characterised by fierce competition and low margin. As at 30 June 1997, there were 3,266 businesses involved in the Australian travel agency services industry on top of many international airlines, hoteliers and tour operators servicing the industry [1]. There are currently four highly competitive Global Distribution Systems (i.e. ABACUS, AMADEUS, GALILEO & SABRE) operating in travel industry providing similar CRS services for booking airline, hotel accommodation and some on-land transportation services. This fierce degree of rivalry could be seen in the travel industry sector returning an average 2% margin on operating profit before tax [1].

2) Entry Barriers: The large number of airlines, tourism goods & services suppliers, and travel agencies in Australia reflects the already low level of entry barrier. The industry heavy use of IT, coupled with the recent advent in Internet based e-commerce technology with its standardised Web-based *Business to Consumer* (B2C)[i] and B2B interface component technology, could only mean that the industry entry barrier would drop even further. The occurrence of this critical event has attracted new industry participants entering from media, software and other technology companies. The scenario of new entrants coming into the industry has been observed as follows:

    i)   Entry of Microsoft, the world's largest software supplier for personal computers, into travel industry sector through its subsidiary, Expedia.Inc (see <www.expedia.com>).
    ii) Entry of Fairfax, a newspaper media group, into travel business on its <www.f2.com.au> Web site.
    iii) Entry of new "cyberagent" travel agencies offering virtual travel agency services using on-line B2C capabilities to compete with higher cost "brick and mortar" travel agency (for example:

<www.travel.com.au>; <www.webject.com.au>). These "cyberagents" offer convenient 24 hours by 7 days alternative travel booking services. In particular, Internet booking sites are capturing an increasing proportion of transactions where travel agents add little value, for example in the standard one way and return airline tickets from travel destination between point A to point B [2].

3) Threat of Substitute: Direct distribution represents a significant and growing proportion of activity in airline market segments. The advent of Internet based B2C and B2B technologies enable many airlines, suppliers, major travel agency group and a handful of "cyberagents" to establish Internet presence with cost effective technology driven solutions. This trend speeds up the current disintermediation process in the travel industry supply chain even faster.

4) Power of Suppliers: The travel industry suppliers, through the accreditation process, have the power to choose which agencies they will authorise to sell their services and of course, pay commissions [6]. In this industry the suppliers have the capacity to pay different commission rate for different distributor or agency. Suppliers are also showing a tendency to greater vertical integration and trend towards disintermediation. These could be observed in the introduction of e-ticketing and the growth of on-line distribution using Internet B2C and B2B technologies whereby the supplier such as airlines could offer their products or services directly to customers or specific distributors/retailers ([8], see also airlines website such as <www.qantas.com.au>; <www.ansett.com.au>; <www.virginblue.com.au> for their noted use of Internet based B2C and B2B technologies which allow both end user customer and travel agent to book flights and holiday packages).

5) Power of Users: The Australian travel consumers have become increasingly sophisticated and are well aware of the competitive nature of the travel market [5]. They are price sensitive and will move their business to whichever company that offers a cheaper deal. There is little customer loyalty to any travel agency or service company selling similar travel product.

In summary the Australian travel industry generally has characteristics of fierce competition with low profit margin, low entry barriers for any would be competitor, high dependency on IT and thus being subjected to a continuous stream of alternate substitute threats which are being constantly fuelled by rapid advent in IT, and high consumer and supplier power. Therefore in accordance with Porter's [9] "five competitive forces" analysis, the Australian travel industry sector is deemed to be an "unattractive industry" [4]. This is because the combined characters of these five forces[ii] on a specific industry would determine the ultimate profit potential the industry could afford for its participants [10].

However, the travel industry is serviced by complex interdependent network of industry participants such as airlines; wholesalers; consolidators; distributors; resellers and Computerised Reservation System (CRS) service providers. These interdependent network relationships are complex both in terms of customer, intermediary and supplier business relationship arrangements and collaborations, and the necessary computer network connectivity technological solutions needed for process automation to drive cost efficiency in business transaction. It is in these complex interdependent network relationships that ServiceCo managed to innovate with business and technology solutions that ensure its competitive advantages:

> "Such network of collaborating systems helps reduce costs, distribute and share resources, and generally give better customer services. A feature of such a network is that value is being created through information and knowledge. To the hotelier or airline it is not having an aircraft seat or hotel bed that is valuable, but the information about it and the ability to exploit it. Thus it was widely reported that, during the 1980s, American Airlines frequently made more money from its SABRE reservation systems, than it did from flying aircraft!" [13, p.4]

During 1980's to early 1990's period, the worldwide computer system networking technologies were still in a stage of evolution with many competing proprietary technology products. It has been stated that companies compete differently at different stages of a product or technology evolution cycle and it has been argued that when product or its underlying technology does not perform well enough to meet its immediate mainstream customers' need, competitive pressure would force the participants to compete and differentiate by developing highly interdependent proprietary products in order to achieve greater efficiency and effectiveness, therefore being an integrated company is critical to success at this stage of technology development in the industry in accordance with the competitive strategic view proposed by Christensen, Raynor and Verlinden [3]. Hence ServiceCo prospers as the most vertically integrated company in Australia that can provide comprehensive end-to-end system connectivity and business transaction processing services between the end user travel agency, airlines and suppliers through the CRS.

> *In our business, we provide a network; no one else could afford to do so. So our innovation if you like at that time is to build a private network which made it very cost effective for almost anyone to connect and do business electronically through private network.*
>
> *- CTO*

2. Threat Of Internet Technology

In the 1990's, the Internet technology has matured into a "early majority" stage of the innovation adoption lifecycle and its user base has reached a critical mass that make it possible for many companies to host e-commerce application services with cost efficiency in utillising standardised IP technology components and interfaces along the business value chain. As a result the profitability of many legacy systems that have been operating on ServiceCo's proprietary private network infrastructure are now being seriously challenged by the arrival of this new Internet based e-commerce technology into its marketplace.

3. Rethinking Business Value Chain

ServiceCo's management decided that its competitive advantage is no longer in having exclusive access to specific CRS but in extending its existing B2B services and embarking on innovation to bring out products/services that would meet the changing travel industry market needs within the new Internet era.

> *From a technical point of view, the sort of innovation we're always trying to do is using the technology to make it easier and cheaper for our customers to do business together. The big influence here, the big leader of change, is infact the technology through the Internet*

The immediate early reaction was a flurry of activities on investigating and implementing "Web-enabling" technologies in order to facilitate easy access to ServiceCo's products and services by travel agent users and suppliers operating over the Internet.

> *We had to make sure we had to deliver our services through that medium (Internet) as well as through our own private system.*
>
> *- Manager, IT*

ServiceCo's commerce department management initially responded with:

> *The Web is the future we will build a Web version of our current products.*
>
> *- Manager, e-commerce product*

3.1 WEB-IFY ACCESS TO E-COMMERCE SERVICES

Following this stratgegy ServiceCo management embarked on innovation journey to provide capability for users to access its proprietary e-commerce services through the Internet Web browser based technology. The process to web-ifgy access to its e-commerce services incorporates interdependent systems services and functionality that will grant end user access to ServiceCo's new or legacy B2B products/services across both its current proprietary private network and also for users coming from Internet web browser based access. The first release of this system consists a suite of products and services that provides basic functionality for ServiceCo's customers who choose to access its legacy B2B services via Internet. In addition to this this system continue to support those customers who still subscribed to ServiceCo's proprietary private network services. Within a short period of time, ServiceCo has successfully planned and launched its system on the Internet Web marketplace. It has gained its first strong foothold on the Internet front!

3.2 PURSUING WEB-PORTAL BUSINESS

In the later half of 1990's the meteoric rise of Web-Portal business such as Yahoo[iii] (see <www.yahoo.com>) has captured the fascination of many business leaders. ServiceCo management embolden by its initial success on the Internet front decided to jump aboard the latest Web-Portal bandwagon. ServiceCo undertook all the traditional product development processes to determine its product development needs. Consequently the scope of functionality for next system release was significant enlarged in order to build an all encompassing integrated Web-Portal business with syndicated partners coming from Advertisement, Employment and Media firms specialising in travel industry, and strategic partnership deals with other Web-Portal business.

> *The focus will be on rebuilding Access Tool to create a complete "one-stop-shop portal application" for the travel industry. The strength of Access Tool will be in providing a range of content, commerce and community tools that ensure that our site has a competitive advantage through depth of content for its users. To take advantage of a range of new opportunities, the platform will include numerous enhancements such as personalisation [iv], syndication [v] and content management [vi]. These will form the platform for future Web endeavours.*
>
> *- Manager, e-commerce product*

After spending significant amount of resources and months of development efforts, ServiceCo managed to complete the innovation and launched the new web-portal business system. However, by that time the market fascination with Web-Portal business had waned and the technology stock market bubble crashed. As a result ServiceCo management

found that the new system did not generate any significant new revenue especially on its much anticipated on-line Web-Portal advertisement revenue stream for the business. This is despite a large investment that had been spent on it and the significant increase in cost to market and operate the new Web-portal business system. However during the innovation journey ServiceCo has reaped some unexpected new profitable business product outcome.

4. Innovation Can Be Unexpected

ServiceCo managed their innovation quest through a series of projects and some of them had been run in parallel. In many of these projects, internal staff and external contractors hired were brought together within a project organisation umbrella as and when necessary. These people were formed into multiple interdependent project teams. Some members of the project team could belong to more than one project running concurrently. The managers of these projects facilitated information exchange among project members. All project members have full access to data, design and documentation available on ServiceCo's internal document file sharing system. It is in this fertile environment that new understanding and insights were gained. However, there are often unintended innovations occurring outside the normal project scope. The following is a typical example:

> When you think of the Web, it's always assumed that what you should do is make a nice graphical user interface, put a lot of pictures on it, and completely re-engineer the way it has been done. And that is happening but it's happening through the more normal planned processes. We architect, we research, we find out what people like, we build it in and that takes quite some time. And yet, in a very short space of time, we have innovative, technical people, contractors who say "We've fiddled on the weekend with ideas, and I can make this terminal-based system work as a web page." And the idea basically says "This would be very good because it gives them access through a cheap network but with a tool they're very familiar with"... Within a few months the entire ServiceCo's "Terminal-Web" service was completed. When you ask people, almost everyone we've shown that to in the travel business said, "Why would you want to do that? You've got the Web and all its riches. Why would you do a terminal over the Web? It doesn't make sense." And yet we never planned the product, it just grew out of air. Well, it's a good idea and customers love it. It's easy and they're familiar with it. And despite all the arguments against it, it works. And despite all the other content, it's still the most popular service we provide through our Internet site.
>
> - CTO

This example illustrated that although the customers' initial reaction to the unexpected innovative idea was negative, once the product was made available in the market, these customers soon came to love it and it has since been proven to be a profitable new business product line. From the investigation into ServiceCo's past innovation history and observations on its recent innovation quests, it is clear that there are two distinct organisational approaches to innovations processes operating within ServiceCo environment. One innovation approach is driven through a deliberate strategizing process while the other one occurs in an ad hoc manner amid a "controlled chaos" environment.

> You just got to allow, what I call, a circle of chaos surrounded by some control to allow the innovation to come without getting it out of control.
>
> - CTO

Thus ServiceCo management actively recognised this duality in the process of creating and managing innovation. It also recognised that there are many critical success factors involved and they are complex in nature as in their experience no one approach can guarantee the commercial success in undertaking the journey of creating an innovative product/service.

5. E-Business Model Re-Evaluation

The management reviews undertaken by ServiceCo on its Internet product/service ranges highlighted dissatisfaction with its initial approach on the "me-too" mentality in jumping onboard the Web-Portal bandwagon amid the "gold rush" period by most business to gain presence on the Web.

> The strategy was weak from the onset. You see, the Web-Portal was meant to be a revenue generator from advertising, which meant that ServiceCo was to become a media company, which was ridiculous. It was never going to work ...that people who were relying on advertising revenue on the Internet were not going to succeed.

At the same time the IT and other business managers also came to realise that the Internet technology introduce new possibilities in comparison to the traditional terminal-based networking technology. It requires manager to rethink where is the profit on the new business value chain and possibility for new business model.

> Okay, the terminal-based network is very efficient and very fast. In fact it is very slow to change. For that very reason, it might be very hard to learn but once you know it, it is very, very cheap and effective. So, that acts as

a kind of brake, and yet as the Internet cost becomes cheaper and you can do more interesting things that people never thought about before, there is more demand for it... Now things have developed so much ... We have to built it for the new systems and the new network driven point of view.

The arrival of Internet technology has upset the status quo on the travel industry business value chain. ServiceCo found itself no longer at the "centre of universe", it no longer can command the level of premium it can charge on its users for the service provided as now there is an increasingly stronger and cheaper competition force. The question is "Where can we capture profit in the new shaken up business value chain?" ServiceCo management undertook yet another series of workshops and discussion for the next product innovation direction to take its business forward. With the learnt experience, ServiceCo managers determined that they could obtain profit by combining a number of ServiceCo's products into a set of complex interdependent systems that would provide a unique integrated business value to the travel agencies and their suppliers. From its market research intelligence, ServiceCo managers believe that in the current travel industry reservation systems there is yet no coordinated system that can provide the travel consultant with an integrated trip centric view on all the various components of travel related bookings required for a traveller in embarking on his/her specific journey. The current industry scenario represents a vast collection of fragmented vendor specific solutions. Often the travel agent need to manually pierced together bits and pieces of booking records and manually coordinate all the details needed for any complex travelling trip.

As a business idea it's already an innovation as it takes us to the next stage of what we think our strategy should be which is to deliver a lot more business value to the agents by joining together a whole series of workflows and creating what, in Internet terms is called a "shopping basket". But in our traditional terms, it is called a Passenger Number Record, a typical booking record which has always been there, but hasn't been there to the extent for the disparate products that we currently support individually. So we've got an opportunity here to do something with the market that will find useful and are willing to pay us for. So that's the business innovation, the technical innovation is finding the right platform to develop that with and to do it as cost-effectively as possible.

- CTO

ServiceCo managementt sees big business growth potential in this new strategic vision to create a set of complex interdependent systems through an Integrator system that would provide a unique integrated business value in terms of an integrated PNR to the travel agencies and their suppliers.

There's a lot of rooms to grow, especially on the Integrator side because 85% of the bookings at the moment are going through the telephone.

- CEO

Following this strategic re-thinking to take into account the changed business model, ServiceCo refocuses its next innovation quest by re-combining their innovative product mixes and re-position its products and services to the market.

6. Discussion

It has been proposed that

The power to capture attractive profits will shift in the value chain to those activities where the immediate customer is not yet satisfied with the functionality of available products. It is in these stages that complex, interdependent integration occurs – activities that create steeper economies of scale and greater opportunities for differentiation [3, p. 53].

The significance of this observation could be seen in the example whereby the seemingly simple "Terminal Web" product has ended up to be a highly profitable business line. It is noted that Internet technology provided a relatively cheap network infrastructure whereby the Travel agencies are being freed from the relatively expensive chain of the old proprietary technologies that tied them into a dedicated terminal based service access from fixed location. However, many travel consultants have significant knowledge and expertise tie-in with the use of reservation services available through the terminal based interface and these features are not readily available in the new Web-based reservation systems introduced by some suppliers. The "Terminal Web" product satisfied this unmet need because it provides its users with a familiar terminal access based interface but running on the new Internet technology which allows its users to access specific legacy system wherever and whenever they could get access to the Internet. Thus the travel consultants could use the full features of reservation system services familiar to themselves efficiently without having to re-learn any new business process and user interface found on many of the new web based reservation systems being promoted by suppliers. Thus the amount of intangible knowledge capital associated with the user familiarity in use of legacy system to conduct travel agency business efficiently has proven to outweigh the seemingly richer graphic content of many new but unfamiliar Web-based travel product/service reservation systems. Similarly ServiceCo

managers have come realise that their business value is in creating new product/service that can satisfy immediate need of the travel agency for an integrated product booking capability in the Internet environment among the complex interdependent network relationships exist in the travel industry. The innovation experiences of ServiceCo in "Termial Web" product also demonstrated that customer and market research results may not necessary predict the success or otherwise on introduction of new or innovative product/service. Thus managers in undertaking innovation journey are urged to always keep an open mind and they may need to persist in pursuing new product innovation despite getting some initial negative market reactions [7]. This case study demonstrated that user intangible knowledge assets and its interaction with new technologies have significant influence over the outcome of an innovation.

7. Conclusion

This case study has shown that in creating and managing innovation, manager needs to recognise that the process of innovation and its critical success factors are many and they are complex in nature as no single approach can guarantee the commercial success of the innovative product. Significantly managers of innovation should accommodate a "managed chaos" phenomenon, whereby the organisation environment permits a circle of chaos surrounded by some managerial control in order to allow the innovation to come into fruition without letting it out of control. This case study has also demonstrated that profitable business lies not in mere implementation of any new technologies into the existing business product/service but in creating new poduct/service that satisfy the complex interdependent activities occur in the changed business value chain and business model.

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[i] B2C is defined as process and technology that would enable a business/organisation entity to conduct automated on-line transaction with its customer.

[ii] The five forces determine industry profitability because they influence the prices, costs, and required investment of firms in an industry – the elements of return on investment The strength of each of the five competitive forces is a function of *industry structure* [10].

[iii] The prediction then was that the Internet Web-portal business would eventually take over the traditional "brick and mortal" business as can be seen in the following hyped commentary in Business Week report: According to Jupiter Communications, the Web accounted for only $1.8 billion, or 1.2%, of the $156 billion spent on overall advertising last year. By 2002, Jupiter expects Web advertising to jump to $7.7 billion, or 4% of overall spending, as more Americans go online. But ads are only part of the story. A bigger game may be the $250 billion direct-marketing business and the virtually endless prospects for E-commerce. Web direct marketing is young but growing, with sales expected to rise from $190 million in 1998, to $353 million this year and $1.3 billion by 2002 [12].

[iv] Personalisation refers to a set of process and technology that would enable an organisation to target its message/product/service to specific user (or user group) of its system based on the user personal (or group) profile and past pattern of user interactions with the organisation and system usage.

[v] Syndication refers to business strategy, process and system integration works needed to ensure that the Web-portal could incorporate data and information provided by partner firms in presenting the required content within the Web-portal business branded image.

[vi] Content management refers to the system ability to identify, store and retrieve specific data, image, and reports in accordance with specific user request, business and system operational parameters.