Association for Information Systems
AIS Electronic Library (AISeL)

ACIS 2005 Proceedings | Australasian (ACIS)

December 2005

Technology and structure - explaining the consequences of infusion of the Information Systems in the Stockbroking Sector

Hosein Gharavi
Edith Cowan University

Peter Love
Edith Cowan University

Roger Sor
Edith Cowan University

Technology and Structure – Explaining the consequences of infusion of the Information Systems in the stockbroking sector

Hosein Gharavi
Roger M. D. Sor
Peter E. D. Love

School of Management Information Systems
Edith Cowan University
Perth, Western Australia
Email: h.gharavi@ecu.edu.au
r.sor@ecu.edu.au
p.love@ecu.edu.au

Abstract

The current dominant theory concerning the diffusion of innovation (DOI) was proposed by Rogers (1995). Its ontological basis is Social Constructivism (SC). This paper suggests that SC leads to explanations that are not valid in some industry environments. This paper further suggests that these limitations can be overcome by adopting a Critical Realist ontology (CR). Social constructivism does not allow for the possibility that external forces can determine how a business operates but lead one to believe that that management, independent of these external forces, determines the structure and mode of operation of its business. Research was conducted into the uptake of the IS-enabled listing, sales and clearance systems and the resultant structural changes in the stockbroking sector of the finance industry. It was found that, in this industry-sector, government and professional and regulatory bodies have had an overwhelming influence on the form of, extent and the technological requirements that stockbrokers needed to adopt should they wish to operate in the sector. It was also observed that these regulatory bodies affected the extent to which the firms could use the Internet to transform the business and the procedures firms could use. In addition the compulsory use of the trading systems imposed on the then present and prospective brokers acted as a barrier to entry thus maintaining a balance based on the predefined criteria designed and implemented by the sector's regulatory bodies. The paper disputes the condition, stated by Rogers(1983), that technology adoption can be examined independently of the role of these important external impositions. Hence a critical realist lens was employed as an underlying philosophy to help explain the observed technology adoptions. The benefits of such a philosophical grounding are highlighted.

Keywords*: Infusion of innovation, Ontology, Critical realism, Social constructivism, Stock broking, Industry-level analysis*

INTRODUCTION

This paper arose out of the need to investigate a perceived difficulty with the ontological approach that had been widely used in mainstream Diffusion of Innovation (DOI) studies. Initially the authors intended to apply Rogers' (1983, 1995) DOI theory to explain how members of the stock broking sector of the finance industry took up technological innovations. As the research proceeded the observations increasingly contradicted what DOI predicted should have been observed. These discrepancies were attributed to the ontological lens that DOI had been based on. Upon further study of the DOI, it became apparent that the theory employed a social constructivist ontological lens. Applied to DOI, Social Constructivism suggests that the perceptions of management about an innovation are the main factors that determine whether or not an innovation is adopted. Management arrived at this decision after scanning the environment. Based on the firm's unique endowments and the activities of immediate competitors, management would plan and implement the uptake of an innovation as a tool to further strengthen their competitive advantage or simply be allowed to survive (Porter, 2001). Given that ones ontology is equivalent to ones axiomatic basis, (the filter through which one views the world), the ontological assumptions of the DOI could not fully address the dynamics of the stock broking sector. This prompted a rethink of the ontological lens. It was also noticed that the sector posit characteristics that flow from critical realist ontology.

Lawson (1997) proposed Critical Realism as a philosophical environment within which to develop an explanation for the overwhelming influence of rigid structures and their effect in steering the direction of growth and diversification. The deep structures and mechanisms that make up the world are thus the primary focus of such an ontology. Critical Realism leads to a, so-called, depth realism that proposes that "the world is composed

not only of events and our experience or impression of them, but also of (irreducible) structures and mechanisms, powers and tendencies, etc. that, although not directly observable, nevertheless underlie actual events that we experience and govern or produce them (Lawson, 1997: 8). With this approach in mind the analysis of the uptake of innovation in the stock broking sector pointed to a rather different set of factors that acting singularly or in concert influence the growth and differentiation of brokers in the sector. Computerisation of the trade and sales and the uptake of the Internet in marketing and delivery of customer service have changed the mode of operations - administration and trading- of the brokers. The regulatory bodies mandated that brokers implement a series of technologically facilitated revolutionary-changes. These changes rationalised the trading system and provide a centralised clearance platform under the supervision of the Australian Stock Exchange (ASX) and other regulatory agencies. Adoption of the regulatory changes was compulsory for all brokers. Since there is only one sanctioned platform from which to operate, the way each broker processes transactions and interacts with the ASX is identical to other brokers, regardless of their size or the niche they service. While the regulations determined the macro (industry) structure the brokers were free to choose the niche they wished to service, the services they wanted to offer and the manner in which they wanted to carry out this function.

Taking the theory and ontology into consideration, the explanation of the sector's dynamics encompasses firstly the concept of infusion and secondly an overarching study of the sector's structure, the strength of the regulatory bodies in enforcing the structure and the influence it exerts on the composition of the sector. Essentially the main theme of the research is to ask, "When there is overwhelming rigid regulatory control, how is differentiation possible? To achieve this two questions are asked:

1. At what point in the uptake of the Internet and related technologies (the innovation being researched) do firms make further, related strategic changes?

The above question explores the nature of the uptake of innovation (sequential and/or parallel) and at which points in the evolution of the sector, did brokers aim for change and differentiation. Clearly these decisions are not independent but they do indicate different degrees of freedom in different parts of the organisation and the various options might appear viable at different stages in the development/implementation of the mandated changes. This is further complemented with the question below that explores whether such a trend repeats itself thus allowing the creation of a reliable predictive framework.

2. Does the cycle of change repeat itself when a new wave of change is introduced?

Finally this approach is compared and contrasted with the findings relating to the processes leading to the infusion of the innovative technology and the effect on the resultant managerial practices.

CRITICAL GROUNDING OF THE RESEARCH

Diffusion is a special type of communication concerned with the spread of messages that are perceived as new ideas. Rogers (1983) defines diffusion as the process by which an innovation is communicated through certain channels over time among the members of a social system. Rogers (1983) also states that diffusion patterns are influenced by characteristics specific to the innovation and the adopter as well as being influenced by opinion leaders. In addition this theory states that individuals who are predisposed to being innovative will adopt an innovation earlier than those who are less predisposed. At one extreme of the distribution are the Innovators. Innovators are the risk takers and pioneers who adopt an innovation very early in the diffusion process. At the other extreme are the Laggards who resist adopting an innovation until rather late in the diffusion process, if ever.

The traditional approach to DOI sees diffusion as a decision to use a certain technological or managerial innovation in a given organizational and/or industrial context (Mustonen-Ollila and Lyytinen, 2004). This decision implies that there is an observable intention to use the innovation based on what other firms have done and have in turn succeeded in doing. This implies that most firms learn of an innovation from sources external to the organisation and it is then diffused sequentially and in parallel (depending on type of the innovation and the time-frame in which adoption take place) amongst firms, based on size and power relations in the industry. This traditional approach to uptake was later challenged by the theory of Disruptive Innovation (Christensen, et al 1998), where, change was seen as an overwhelming transformatory force resulting in the uptake of technology, limited only by the resources each firm faced. Similar to Christensen, et al (1998), Mustonen-Ollila et.al. (2004) showed that, in IS-based adoption, companies prefer to adopt an externally-furnished innovation "only if it fits well with an identified problem and there were no internal resources to address the need of the firm" (Mustonen-Ollila et.al, 2004: 43). Therefore the process of adoption is a function of an individual firm's strategic choice made in conjunction with a variety of internally and externally-driven sources. In this proposed approach similar to an institutional approach to change (Baum, 1996a, 1996b, 1997; Boone et al., 1995; Haunschild and Miner, 1997) it is posited that the diffusion of ICT is affected by several factors acting both singularly and in concert, including the extant technology, the introduction of the innovative technology and the structure and coordination mechanisms within the industry (Crowston, et. al, 2001).

The approaches mentioned above, were similar in that they all were constructivist ontologically, focusing on firm-level (micro) levels of analysis (Mustonen-Ollila, 2004). These approaches did not explain the uptake in the case where the intention is driven solely by compulsory regulatory pressures. In virtually none of the studies mentioned earlier, did the authors propose a solution for the situation where there is an over-arching regulatory push.

The point that this paper wishes to make is that; the alternative approach to DOI is an overarching theoretical proposition where the process of uptake of innovation is composed of an uptake of IS-based change at both the macro and the micro levels of analysis. Having these two levels present is indeed of the greatest importance since as the findings indicated, external structures and the individual brokers have a dialectic relationship (Archer, 1995) i.e. one cannot be analysed without the other. In order to further highlight the difference with the mainstream DOI theory, the term "Infusion of Innovation (IOI)" was adopted to shift the emphasis away from communication as the main influencer of change. IOI refers to a more general, dialectic, overarching nature of the uptake of innovation, rather than, the micro-focused approach of DOI. Infusion of innovation relies heavily on the role played by the institutionalisation of standards and norms and the direct role institutional structures play in influencing the direction of change. The concept of an institution has a broad definition. It refers to authoritative, established, rule-like procedures in society, with a self-sustaining character. At the same time, in this study, IOI results in the process of institutionalisation being limited to areas where brokers are in direct contact with the governing bodies of the sector and so dealing with the clearance of trades and ownership. However as far as the contact with the customer, marketing, customer care and niche-based differentiation is concerned, after abiding by the general trading laws, brokers are allowed to strategically place themselves within niches they can serve and thereby differentiate themselves from their immediate competitors.

This approach was applied to the stock broking sector of the finance industry. This industry is technologically intensive and the changes were, and are mandated by its regulatory bodies. The structures observed were developed to conform to the rules and regulations imposed by these regulatory bodies on sector members. By focusing on the outcomes it was possible to highlight the part played by the dialectical interplay of macro and micro forces on industry structure and the internal functioning of individual firms. Bourdieu (1989) summarised this scenario when he said (paraphrasing) practices are not objectively driven, nor are they the product of freewill as put forward by the structural constructivist school of thought.

METHODOLOGY

Utilising semi-structured interviews, participants were encouraged to speak openly about their experiences in the industry since the advent of the Internet. A total of 50 participants were interviewed as table 1 (below) indicates. The transcripts were gathered and coded in accordance to the principles outlined by Glaser *et.al.* (1967) and Corbin *et.al.* (1990). These principles advocate an iterative approach to collecting data. Each of the brokerages involved in this study were thus regarded as separate cases and the findings of interviews from one brokerage would directly influence the interviews and research approach of the brokerage next in line. The data gathered was later analysed and evaluated in accordance to the principles set forth by Miles et.al (1984) and Klein et al (1999). This included approaching a new independent set of participants (my evaluators) that were asked to corroborate the findings. The composition of the participants can be seen in table 1.

Firms	Type	Director	Senior trader	Senior trade manager	Technology Manager	Audit Manager	Senior sales and customer service manager	Broker	Market research specialist	Total
A	F/s	✓	✓✓	✓	✓✓	✓	✓	✓✓✓✓	✓	13
B	Ind/SME	✓	✓	✓	✓	✓	✓	✓✓	✓	9
C	Discount		✓	✓✓	✓		✓✓	✓✓✓	✓✓✓	12
D	Online		✓	✓✓	✓✓		✓✓	✓✓✓	✓	11
E	The governing body of the sector				✓		✓		✓	3
F	The regulatory body of the sector					✓			✓	2
G	Online trading brokerage- Trading arm of one of Australia's main banks- Not directly taken part in this research									
H	Online trading brokerage- Trading arm of one of Australia's main banks- Not directly taken part in this research									
I	Online trading brokerage- Trading arm of one of Australia's main banks- Not directly taken part in this research									
Total Participants										**50**

Table 1: Composition of the participants

The interviewees were selected from each type of broker operating in the sector. Firm "A" was a traditional brokerage house with a number of brokerage offices all across Australia. It is one of the oldest brokerage franchises in the country. Firm "B" was the oldest independent brokerage in Western Australia with a well known area expertise in mining and minerals sector. This brokerage had experimented with a diverse range of structural options and when analysed in this research was in he process of total diversification. Firm "C" is the discount broking arm of a major bank in Australia. It started out as a boutique broker working in collaboration with a well-known American entity. It catered to customers with high trading margins. Since the dissolution of the partnership, Firm "C" although retaining a small number of its old customers, is focusing on discount brokering. Finally Firm "D" was one of the main independent online entities that, because of intense competition with banks, entering into online brokering had implemented a so called reverse-strategy of integrating components of traditional brokerage model in its customer care strategies.

PROFILE OF THE AUSTRALIAN STOCK BROKERS

In the past, floor-traded markets were typically established by the broking community, and it is the brokers who continued to own and operate them. Transactions were conducted face to face, and this was a fundamental determinant of the culture of those exchanges. This physical limitation of a trading floor underpinned the exclusive concepts of limited access, membership and control through mutual ownership. Technology changed all that. Introduction of a computerised trading system (SEATS) meant that the trading could be executed from afar and the physical dimensions of a trading floor became redundant, Access was increased; transparency was improved through making visible all bids and offers for all securities, which encouraged pricing spreads to shrink to within a few cents; and all market participants were treated with equality of access. The computerisation meant that there was a reduction in the number of floor traders and the staff required to transact and register daily trades. At the same time imposition of CHESS membership (ASX's Clearing House Electronic Sub-Register System which provides the central register for electronic transfer of share ownership) provided the possibility for each broker to trade without relying on wholesale stock traders. This reduction in staff and a relative autonomy of brokers in dealing with customers without total reliance on bigger traders meant brokers had the choice of either trading in their own right or become an affiliate of a larger dealer. Being independent meant focusing on a small niche and evolving into an entity fully equipped to serve that specific niche. On the other hand becoming an affiliate meant joining bigger entities and in doing so, gaining access to far more information and potential customers, with lesser autonomy (Aitken *et.al* 2000).

As far as regulating this new technology-enhanced trading and clearance systems, the market was jointly regulated by the ASX as the market-based supervisor alongside the Australian Securities and Investment Commission (ASIC) as the government-sanctioned corporate regulator. Enhancing the continuous conduct and electronic surveillance of the market, consulting closely with market participants on issues is the part that ASX plays in the co-regulation. ASIC compliments this by with its mandate for sanction across the broader corporate sector, to have powers of enforcement that ASX does not have. The main tools are the 'business rules' that regulate the participation of brokers in the marketplace, and the 'listing rules', that regulate the participation of listed companies.

FINDINGS

Brokers had noticed that clients seeking assistance with lower-end transactions or smaller portfolios are now able to access less costly self-service options that bypass brokers. With a more narrowly defined base of clients seeking counsel on larger purchases, brokers see the Internet as a tool that can significantly enhance productivity. Participating full service brokers also pointed out that most clients - and certainly the most attractive ones — will continue to seek broker input (i.e., the human touch, counsel, personalization, and concierge services) for important financial decisions regardless of online alternatives. Brokers perceive that they will retain profitable, advice seeking customers, as less profitable, do-it-yourself customers move to the Internet. The next two subsections outline the responses of the brokers based on their relative age and history in the sector.

Reaction of the newcomers to the Internet

The Internet became a very attractive trading and transaction option for many clients. These clients fall into two market niches. Firstly those seeking the independence to make their own decisions and secondly those for whom the transaction costs and the cost of the various contractual agreements with the traditional brokerages were a major obstacle. The online brokers were able to bring costs down and instil the belief that, as everything was becoming internet-driven; investing was turning into a mainstream activity that can be performed independently, using only a personal computer. The most prominent companies that were created with the purpose of satisfying

the needs of this market niche or switched their traditional focus towards these goals were e-brokers such as firm "D" and its main competitors; Firms "G" and "H" which are the trading arms of two large Australian banks that started operations after the introduction of the e-brokerage model.

The principles behind the operations of online brokerages are different from those of their traditional counterparts; online brokers offer none or very limited investment advice. This strategy is attractive for investors seeking independence or trying to avoid high transaction and maintenance costs. Most online brokers provide research resources to their subscribers and premium clients; however this is sourced from third-parties. Clearly these third party specialists can provide a better, more efficient research resource and at a lower cost than if each broker tried to provide it internally. Even so providing this resource increases the transaction costs. Some firms took the opportunity to specialise in the gathering and dissemination of information, thereby creating a market niche of firms to which other firms outsourced their research requirements. In addition, the rise of the online brokerage also meant these brokers had to develop a different transaction fee structure. While most of them offered discounted fees for basic transactions, compared to full-service traditional companies, an additional fee was charged for each additional service provided. As the trader from firm "D" mentioned;

"During the bull market of the early to mid 1990s- before the Asian crisis and our own economic problems, independent investing through online brokerages was highly profitable because people who engaged in it often did not follow the same guidelines on evaluating risk associated with certain stocks and made their decisions based on the expected returns".

Online entities were also able to offer real time services. This ability was highly appealing to many individuals investing for short term gains and when they traded stocks which were highly sensitive to slight fluctuations in stock prices. However, even though many companies claim that trades are finalized within one minute after placing an order, in reality this time often increases due to limitations imposed by technology (e.g. heavy traffic to the broker's site can slow down the execution of orders), and at the same time the back office of the brokerage was influenced by extensive regulatory mechanisms. This means that although the sales part of the transaction is fast, clearance through the CHESS demands the same amount of time as other clearance systems being used elsewhere. Therefore the notion of introducing the technology as a mean to further enhance the efficiency of the working of the brokerage must be questioned. Most active investors, however, are able to overcome this obstacle by placing stop and limit orders to ensure the execution of a trade at the optimum price and speed.

One of the implications of the Internet-only strategy adopted by brokers is related to the fact that there is a low entry barrier for brokers deciding to adopt this strategy .Most online brokers lost their ability to differentiate themselves from their competitors: any innovation adopted by one broker was easily imitated by their competitors. This lack of differentiation meant that investors often chose their broker based on stories in the media and the opinions of other investors. This was backed by the senior trader at firm "D" (an e-brokerage):

"There are just too many online brokers and I am sure as time goes by the Firms "G", "H" and "I" will swallow most of them up. The interesting thing was the winner in this confusion was and is the old brokerage house….many people are going back to them because they are getting sick of the sub-standard service some online brokers are providing them"

Because many of these the smaller businesses are not profitable they were bought up or merged with larger concerns. this created a situation very like exists in many industries where a few large firms dominate and where there are some smaller firms which have found a niche within which they can differentiate themselves from the rest of the sector and so survive and even become profitable.

Incumbents' reaction to change

Primarily, as the e-brokers grew and attracted customers from all niches, full-service traditional investment companies also suffered heavy losses; however, the traditional brokers certainly did not go out of business, since the proliferation of the e-brokerage meant that the competition for clients now shifted between the e-brokers themselves rather than with the traditional brokerages. The director of Firm "B" also pointed to this reality;

"The newcomers ruled the financial market for nearly two years: their growth rates were very high, their advertising campaigns tried to reach potential clients through all media available, and they were seemingly on the road to profitability".

The market segment of clients attracted to e-brokers were investors interested in short-term investing, frequent trading, and independent decision making. In addition the majority of these investors did not appreciate the risks involved At the same time, their full service brick and mortar competitors, such as firms "A" and "E", focused on their traditional area – managing wealth for long-term financial security of their clients, as the senior trader in firm "A" attests;

"That is why even one high-wealth client returning to them (the full service brokers) after a disappointing experience elsewhere may be worth ten clients with a lower asset base served by an online brokerage. Consequently, this movement back to the traditional investment companies will facilitate the stabilization of the traditional investment companies. It also turned the balance of power in their favour".

The proliferation of online brokers and competition amongst existing online brokerages also resulted in some brokers reverting to their previous business model. Online brokers were putting a lot of effort into keeping their client base and starting to revert to providing services that have been making their traditional competitors successful for many years. In fact, Firm "F" (a competitor of Firm "D") seems to be moving away from its current "online investment company" image and closer to its existing competency; i.e. providing information whilst keeping the online characteristics of the firm.

AN ANALYSIS OF THE STRATEGIC DIFFERENTIATION STRATEGIES

The first research question presented earlier in the paper, asked: at what point do brokers make strategic changes to the overall industry-imposed systems? The interviews revealed that the bulk of the compulsory changes imposed were in the back-office affecting the buying, selling and clearance processes and in particular imposing deadlines on transaction times. This is also where the bulk of the technical and legal restrictions are applied. In this regard all brokers are essentially identical. As a result the only way brokers could evolve was in the front office where they interacted with clients. While a broking firm can be viewed as consisting of two sections, they are not independent. The back office sets limits/boundaries with in which the front office must operate. Front-office operations include initiating and negotiating buying and selling, customer service, branding and other customer-focused operation.

As far as the front office of the operations are concerned, there are two main groups of brokers: full service (advisory) stock brokers and non-advisory stock brokers. Full service brokers offer advice on buying and selling shares make recommendations and provide research. In addition their services may be personalised and they may offer tax and other financial services. As a result clients generally pay a high brokerage fee to buy and sell shares. Non-advisory brokers, on the other hand offer no recommendations or advice regarding the appropriateness of an investor's decision; consequently their brokerage fees tend to be lower than that of a full service stockbroker. Non-advisory stock brokers can either operate only on the phone or via the Internet. These choices are symbols of the strategic differentiation in light of the overwhelming rules and limited resources that each brokerage posses. The participating brokerages in turn reacted based on their own constraints;

- In the case of firm "A" the differentiation and internal adaptation was based on reinforcing its reputation as full-service brokerage. It achieved this by providing a customised service by offering a Managed Portfolio Services (MPS). This was also used as 'hidden' tool to lock in the clients into a contractual agreement with firm "A" where the broker became the sole provider of trade services for the client for an agreed period of time.

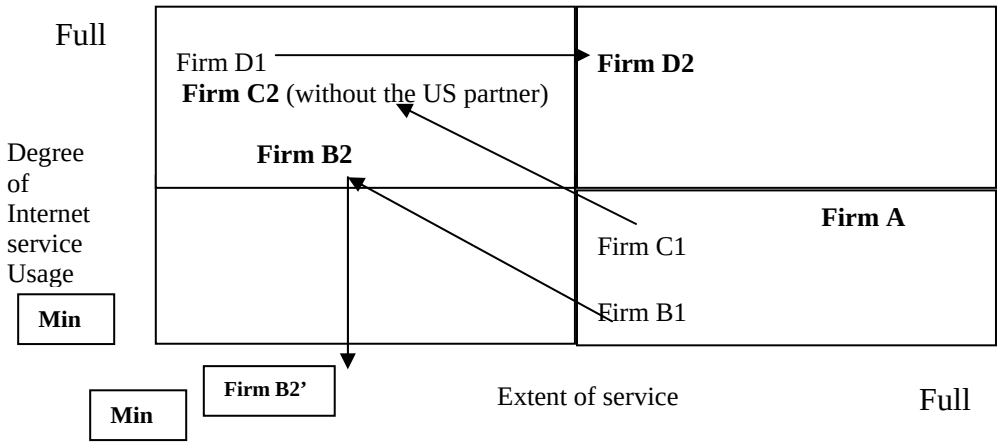
- Firm "B" was not associated with any other brokerage. It was a full-service provider that because of its smaller size could not compete with bigger entities in the sector and so was hurt more than any other broker. Firm "B" first differentiated itself from the other firms with an experiment in discount broking. However once this option was seen as unsuccessful the company went through a radical transformation inline with its change in management strategy. They transformed themselves into an information provider with a very small trading arm only used for special high roller clients or foreign investors.

- Firm "C", by relying on its size and global reach achieved through a strategic partnership, entered the Australian market as a full-service provider. The Internet and competition with other Australian brokerage houses forced Firm "C" to focus on the high end of the market by offering a series of Gold signature accounts with trades starting at $100,000 and increasing from there. Firm "C" also entered into a partnership with firm "B". Problems with Firm "C" 's US operations resulted in Firm B breaking their partnership. However Firm "B"'s Australian partner resumed activity in the sector. They kept the brand name, scaled down the service and started a discount service for the account holders in its banking operation.

- Finally, firm "D"- one of the pioneers of online trading -was hit hard with competition from Firms "G" "H" and "I". Since it did not have a strategic partner such as a big bank to support it through a difficult period it was taken over by an information provider group that is well known as one of the main market research firms. Firm "D" still keeps its identity, name and autonomous operations. However the strategic takeover by the market research firm, meant, firm "D" can offer full service advice whilst still keeping the transaction and customer service online, thus creating a hybrid model of broking in Australia.

The strategic responses of the brokers can be represented in a 2x2 matrix (see Figure 1) In this matrix on the horizontal axis the extent of service refers to the two possible options of either being a full service stock broker or being a total e-broker acting as mere transaction platform for the stock traders. On the vertical axis the degree

of the Internet usage refers to the structure of the organisation being a click, brick or a brick and click organisation. Each of the quadrants indicates a possible strategic choice with regard to the extent of service versus the degree of the integration of the Internet in the daily operations of the brokers.



Note:
Firm1- is the original niche position of the brokerage prior to Internet-enabled change, whereas **Firm2** is the new or post-Internet niche position.

Figure1 Differentiation framework of the participants

Except for brokers like Firm "B" that totally diversify their operations and move away from brokering transactions totally or nearly totally, brokers have four possible choices. In some cases the strategic partnership with a bank or other international financial institutions means that at any one time brokers can in fact occupy more than one quadrant thus indicating a strategic approach based on a multiple niche presence. The movements in the above matrix indicate that the brokers interviewed reacted differently to the regulatory structures in the sector. Some focused on providing further customised advice; others opted for market or co-alliances. Each of the options was in line with the available resources and most importantly of all, the type of niche (needing information or just a trade platform) they served (by becoming full-service, discount or online brokerage).

Focus on advice

The cornerstone of the traditional investment business is offering personalized advice. This strategy is implemented via a staff of financial advisors. In contrast, online brokers pass the decision making power to their customers. During the bull market, when most stocks were consistently going up, everyone felt fully capable of investing without advisors; however, the bear market made many investors apprehensive of investing in general. The director of firm "D", one of the pioneers of online trading outlined the importance of focusing on advice as a rational for the change in his company's strategy:

"Under these circumstances, online investment companies simply have no choice but to consider offering advice to their clients. The main problem is, however, that they had to find a synergy between their independent investing model and the advice-based strategy of traditional brokerages. A good example of a company that is working hard on solving this problem is Firm "D" was considered one of the biggest business success stories of the last decade, and now it is trying to maintain its momentum and develop some innovative strategies. "Firm D's real bet – where it thinks the bulk of its future growth will come from – will be a radical new approach to winning and keeping business. Firm "D" is gearing up to jump into the advice business. The new director of the company who founded his firm on the principle that it would never tell customers what stocks to buy, is about to start, well, telling customers what stocks to buy."

The company still holds on to this principle. According to the Firm "D" respondent, the feature of this company that investor's value most is "unbiased advice that is free from any potential conflict of interest." But even adopting this strategy, Firm "D" puts a different twist to it. Instead of offering advice to customers of its online brokerage, Firm "D" is starting to use a sophisticated technology that is capable of screening stocks and devising filters for suggested portfolios. This will eliminate the necessity to offer commission-based advice, an approach

rejected by Firm "D". On the other hand, this technology still has to prove itself as a valuable analytical tool capable of replacing the human element in analysing investment options, as a trader from firm "D" points out;.

"Focus on providing advice will help online brokerages find a way to solve another problem online brokerages face. Usually, once a client's net worth exceeds a six-figure barrier, he starts considering getting advice on how to manage his money due to the potential extent of losses that can be incurred without professional management".

Participating traders from firm "D" also observed that companies like Firm "D" tried to avoid this issue for some time

"…. historically these customers have been devilishly hard to service without an army of stockbrokers or a research staff. Many customers gravitate to a broker not because they have no investment ideas of their own but because they like having someone to bounce their ideas off."

This strategy was one of the reasons why pure online brokerages lost a lot of their clients – those who started investing with relatively small amounts of money and made a lot during the bull market; these clients tend to require at least some advisory services. Now online brokerages will have to decide how they can make advisory services cost-effective and consistent with their business models. The demands placed on the broker of the future will be more diverse, in that the client of the future will seek expert trading advice, service, support and emotional support of a higher standard than that which is currently available. The quality of the service will depend on the ability of the broking firm to use their software infrastructure and knowledge base to meet the several needs of their clients; investment advice, administrative services and emotional support (Porter, 2001).

Co-alliances

Co-alliance models are shared partnerships with each partner bringing approximately equal amounts of commitment to the virtual organisation to form a consortium. The composition of the consortium may change in response to market opportunities or the core competencies of each member. Focus can be on specific functions, such as collaborative design or engineering, or in providing virtual support with a virtual team of consultants. In the case of the brokers in Australia an alliance of brokers, tax specialists and back-office operators have started a discount service. This is further reinforced with appropriate and reliable information. Firm "A" has banked on the studies that have proved most of the information available on the net being unreliable. It therefore has used the Internet to provide its brand of information based on the research carried out by its market researchers in time to make an investment decision. In most cases clients receive email alerts notifying them about the new news letter or get an emergency email message telling them about a sudden change in the market and how it will affect their shares if they have invested in them. Firm "A" has also devised a special customer service program called MPS. This service in intended to provide a "one-stop" solution for firm "A" clients. This means firm "A" becomes a total service provider that ranges from initial information seeking by the client to archiving and trade documentation kept by the broker.

Market alliance

The strategy of diversification was utilised by nearly all the online brokerages. The most prominent example of this strategy is Firm "C"; which in Australia is the brokerage arm of a bank and in turn declared its goal of becoming a one-stop solution for its customers. This move helps firm "C" to remain in business: while its brokerage division is losing money. The bank remains profitable and helps finance the other divisions. Tying the online banking operations with brokerage generates 36% of the firm's revenue. Besides offering banking services, the company added "asset management services, Web-based advice, and brick-and-mortar branches. Customers would like to have their transactions simplified – which means, consolidated with one provider. Traditional companies have been providing these services for decades: an investor could use his or her account to trade, to write cheques or buy a variety of packages designed by the company to maximize the returns. Until recently, only a few online brokerages offered anything beyond plain basic services; now they do understand that in order to keep their customers and raise the exit barriers, they have to be versatile and accommodate all the needs their customers may have. Analysts say that the current economy "pressures online firms to seek out fee-generating non-brokerage business, including banking, mortgage lending, and financial planning, from their existing affluent customers." This trend is popular in Australia where the banks are entering into the sector. Integrating banking and brokerage services in a truly synergistic manner is, however, fraught with operational and organizational difficulties. Fortunately internet technology does make an integrated offering possible.

The second research question asked whether the cycle of change would repeat itself, should a new wave of change be introduced. The evaluators when corroborating the statements made by the participants mentioned the possibility of introduction of a whole new sales and trading system into Australia within two to three years. This system is said to be linking major financial markets thus allowing individuals to buy and sell shares across national borders. The evaluation group also mentioned that there is a dilemma amongst the governing bodies in

that imposition of the new system and its resultant "globalisation" would dilute the power of the present regulatory bodies and there needs to be a new check and balance system designed to maintain the national regulatory mechanisms of the Australian market.

CONCLUSION

Critical realism provides a specific guidance as to technology representation. Under this approach technology and its associated human elements can be seen as a structure (although few definitions of "structure" within critical realism include any reference to material objects). Under this view a technologically based system can be seen as a particular structure encompassing, not just the hardware, but also the many internal and complex relationships between the external service providers, users, owners and partners etc. This structure can both constrain and enable agency action.

The brokers interviewed described a decision making system where the firm's choice of a new system and managerial practice is not solely the domain of management. In the stock broking sector there are a number of national and international governing bodies, each exerting a specific set of rules and regulations in terms of sales and clearance of industry services. Each of the governing bodies constitutes a regulatory level depending on the operations of the brokerages they control. At each level of governance, the laws and regulations imposed by the governing bodies act as normative and professional boundaries. Thus in order to remain in the industry, each agent has to abide by particular rules and regulations. They do not have the option of being selective in their membership or adherence to a select of number of regulations. They have to become members and hence have to abide by all the requirements of the regulatory bodies in its entirety. However within these boundaries once the overall rules and regulations are adhered to, each agents is allowed to differentiate itself from its immediate competitors. The extent of differentiation is however different across governing bodies, sectors and industries.

The above points to the inadequacy of the social constructivist tradition evident within traditional diffusion of innovation (DOI) theory. The role that rules and regulations play and the extent to which strategic differentiation based on the available resources is allowed has not been dealt with fully in this approach. Consequently, it is proposed that the sequential approach to diffusion as advocated by Rogers (1995) is only limited to setting of the industry's rules and normative boundaries. This would explain professional or legal restrictions, how they are selected, imposed and monitored across the sector; however it does not explain the process of strategic choice. The critical realism assumption in this approach agrees with the notion that human actors or agents are both enabled and constrained by structures, yet these structures are the result of previous actions by agents. Structural properties of a social system consist of the rules and resources that human agents use in their everyday interaction. These rules and resources mediate human action, while at the same time they are reaffirmed through being used by human actors or agents. This by no means refutes the traditional DOI in its entirety. Rather, it is proposed that in case of industries characterised as being highly regulated, another perspective, such as critical realism is a far more valid lens.

REFERENCE:

Aitken, M. J., Muthusamy, J., and Wong, K. L. (2000). *The Impact of Broker's Recommendations: Australian Evidence*.

Archer, M. (1995). *Realist Social Theory: The Morphogenetic Approach*. Cambridge: Cambridge University Press.

Baum, J. A. C., and Haveman, H. A. (1997). Love thy neighbor? Differentiation and agglomeration in the Manhattan Hotel industry, 1898-1990. *Administrative Science Quarterly, 42*(2), 304.

Baum, J. A. C., and Korn, H. J. (1996). Competitive dynamics of interfirm rivalry. *Academy of Management Journal, 39*(2), 255-291.

Baum, J. A. C., and Singh, J. V. (1996). Dynamics of Organizational Response to Competition. *Social Forces, 74*(4), 1261-1297.

Boone, C., and Van Witteloostujin, A. (1995). Industrial Organisations and Organisational Ecology: The Potential for Cross-Fertilisation. *Organization Studies, 16*(2), 265-298.

Bourdieu, P. (1977). *Outline of Theory of Practice*. London: Cambridge University press.

Bourdieu, P. (1989). *In Other Words: Essays Towards A reflexive Sociology*. Cambridge: Polity Press.

Christensen, C., and Armstrong, E. A. (1998). Disruptive Technologies: A Credible Threat to Leading Programs in Continuing Medical Education. *The Journal of Continuing Education in Health Professions, 18*, 69-80.

Corbin, J., and Strauss, A. (1990). Grounded Theory Research: Procedures, Canons, and Evaluative Criteria. *Qualitative Sociology, 13*(1), 3-21.

Crowston, K., Sawyer, S., and Wigand, R. (2001). Investigating the interplay between structure and information and communications technology in the real estate industry. *Information Technology & People, 14*(2), 163 - 183.

Glaser, B., and Strauss, A. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Chicago: Aldine Publishing Company.

Haunschild, P. R., and Miner, A. S. (1997). Modes of interorganizational imitation: the effects of outcome salience and uncertainty. *Administrative Science Quarterly, 42*, 472-500.

Klein, H. K., and Myers, M. D. (1999). A Set of Principles for Conducting And Evaluating Interpretive Field Studies In Evaluating Interpretive Field Studies In Information Systems. *MIS Quarterly, 23*(1, March), 67-94.

Lawson, T. (1996). *Economics and Reality. Economics as Social Theory*. London: Routledge.

Miles, M. B., and Huberman, A. M. (1984). *Qualitative Data Analysis: A Sourcebook of New Methods*. Newbury Park, CA: Sage Publications.

Mustonen-Ollila, E. (2004). *IS Process Innovation Unlearning in Organisations.* Paper presented at the Proceedings of the Twelfth European Conference on Information Systems, Turku, Finland.

Mustonen-Ollila, E., and Lyyntinen, K. (2004). How organizations adopt IS Process Innovations: A longitudinal Study. *European Journal of Information Systems, 13*(1), 35-51.

Porter, M. E. (2001). Strategy and the Internet. *Harvard Business Review, 79*(3), 63-78.

Rogers, E. M. (1983). *Diffusion of innovations* (3rd ed.). New York: The Free Press.

Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York: The Free Press.

COPYRIGHT