SERVICE VALUE NETWORKS: VALUE, PERFORMANCE AND STRATEGY FOR THE SERVICES INDUSTRY

John HAMILTON

James Cook University, Cairns Australia 4870

John.Hamilton@jcu.edu.au

Abstract

Services may be investigated from many perspectives. They encapsulate over 65% of global business, yet many gaps in the services knowledge base exist – particularly from areas including information technology, operational, customer targeting, and services provision. This research investigates an emerging and truly disruptive business scenario – the service value network, from a marketing, an operations and services approach. The service value network is defined as the flexible, dynamic, delivery of a service, or product, by a business's coordinated value chains (supply chains and demand chains working in harmony), such that a value-adding, specific, service solution is effectively, and efficiently, delivered to the individual customer.

The 'physical and virtual service value network customer – business encounter model' is developed. Impediments to the development of a service value networks are investigated. Eight key areas related to website customer encounters are offered as investigation areas. The customer 'touch-points' across the virtual service encounter offers a raft of new research possibilities and possible new pathways to competitive advantage. Approaches to measure service network encounter effectors are explained. Current and future areas of business research are described. This paper frames the research agenda for service value networks.

Keywords: Service value networks, ***s***ervices, web services, value, network, virtual service encounter, balanced scorecard, customer performance

1. Introduction

The services industry provides services not goods (Hughes and Mitchell et al., 1993). This industry is moving towards globalization (Kathawala and Abdou, 2003). In 1870 the service sector employed slightly more than 20% of the U.S. workforce, whilst by 2002 it employed in approximately of 82% of the U.S. workforce, and 81% of the private sector GDP (US Bureau of Labor Statistics, 2002 and 2004). Services Management is a 'transfunctional' research area (Kamarkar, 2002). It covers areas including service quality (Chase and Aquilano et al., 1996), services encounters (Cook and Goh, et al., 1999), and service execution (Nie and Kellog 1999). Services operations management and services marketing provide other perspectives to services.

Definitions of service (and what constitutes a service) range from the narrow to the broad. In 1960 the Definitions Committee of the American

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Marketing Association (1960) defined services as: 'Activities, benefits, or satisfactions which are offered for sale, or are provided, in connection with the sale of goods'.

Examples of a service include: amusements, hotel service, electric service, transportation, the services of barber shops and beauty shops, repair and maintenance service, and the work of credit rating bureaus.

Judd (1964) and Rathmell (1974) promoted the service sector of the economy, and the true nature of services. Murdick and Render, et al., (1990) and Quinn and Baruch, et al., (1987) broadened services definitions to include all economic activities where output was not a physical product or construction, and was usually consumed when produced, and delivered as an intangible, added value to the customer - for example, travel comfort. Again services were redefined.

'Services are deeds, processes, and performances' (Zeithaml, Berry, et al., 1988), but they may also be tangible. Czinkota and Ronkainen, et al., (2005) split services into tangible areas involving:

1) people (fitness centres); or
2) possession processing (like freight transportation),

and intangible areas involving:

3) mental stimulus like (education and religion); and
4) information processing (like banking, data processing).

Often services are integrally enmeshed with manufactured goods, or to the delivering (or enabling) of goods. Thus the distinction between goods and services is imprecise, and no clear boundary between manufacturing and service firms exists (Berry and Parasuraman, 1991). According to Levitt (1972), 'There is no such thing as a service industry. There are only industries whose service components are greater or less than those of other industries. Everybody is in service.' Taken to its logical conclusion, it could be suggested that all manufacturing is indeed a service, as it delivers something!

Encyclopedias including Britannica, Columbia, Encarta; and dictionaries including Oxford and Macquarie, offer a range of definitions of service. To meet these diversities we follow Rust and Metters (1996) 'topologies' approach to group some of the complexities of services down onto models.

2. Service Typologies

From an operations and marketing perspective topology schemes for services have generally lacked empirically tested works. Empirical works (Verma and Boyer, 2000, Akkermans and Vos, 2003, Chen and Paulraj, 2004), offer some key exceptions, but overall empirical services related research is in its infancy. A topologies approach, based on recent service industry models identifies key knowledge gaps, and establishes possible empirical research areas.

3. Service Models

Figure 1 presents Rust and Metters (1996) view of services. They grouped service models as customer models (external) or service provider models (internal).

Each model was then segregated, as shown in Figure 1, into two of the three models:

1) 'customer behaviour models' - dynamic models of customer retention (like

loyalty) and stochastic models of customer behaviour (like satisfaction), and of customer behaviour (like churn rate or loss of a specific customer during a single service encounter);

2) service quality impact models' – aggregate models (like customer satisfaction effects) and disaggregated models (like financial impacts of a service component);

3) 'normative service models' – organizationally focused marketing models (like incentive schemes and trade-offs between satisfaction and productivity), and operations models (like queuing).

In 1999, Cook Goh and Chung developed the 'integrated schematic representation of services' matrix. Figure 2 displays this integrated services schematic.

They recognized that services could be split into marketing (product) or operations (process) orientations. They believed that in delivering a final 'customized' solution their remained a need to integrate and interact with both orientations. They suggested research in the 'interaction and integration' area may articulate strategies and tactics for improving services.

Roth and Menor (2003) delivered a further addition to the services topologies. Their 'service strategy triad' (displayed in Figure 3) separated the 'what', the 'how', and the 'who' of service encounters. It offered a new perspective

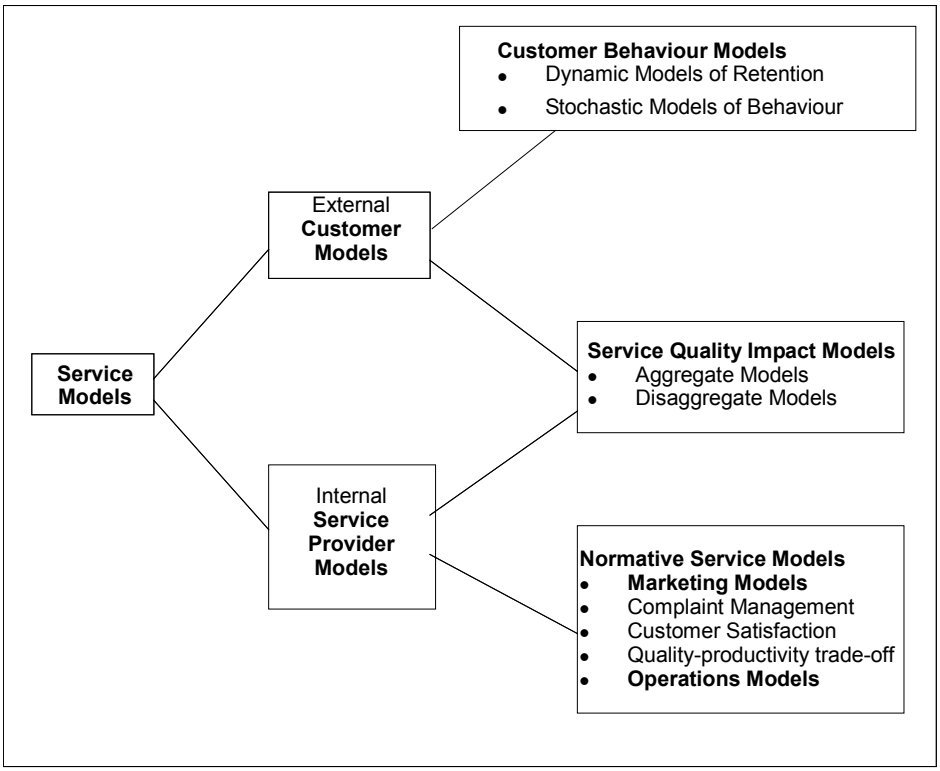

Figure 1 Mathematical models of service

to advance an understanding of services operations management. The 'who' was the right customers (and not just a customer segment). These targeted customers could be defined by techniques like Forrester's 'technographics', 'psychographics, and psychographic profiling groups of customers. The interpretation of such target markets provided a means to enhance both service and performance standards, and to allow the business to competitively align its chosen degree of customer targeting with its offered service products and delivery systems.

Roth and Menor operationally defined their 'service strategy triad' into 5 elements:

1) the supporting facilities (physical and structural resources);

2) the facilitating goods (materials and supplies that are consumed);

3) the facilitating information (supporting the explicit services);

4) the explicit services (customer experiential and sensual benefits);

5) the implicit services (psychological benefits).

They realized the total service concept by the customer, may differ from the service offered by the service provider. To overcome this, a feedback loop (execution, assessment of gaps, renewal) was proposed.

Roth and Menor's 'service delivery systems architecture' model, displayed in Figure 4, allows a framework to investigate three interrelated and dynamic components of service delivery systems:

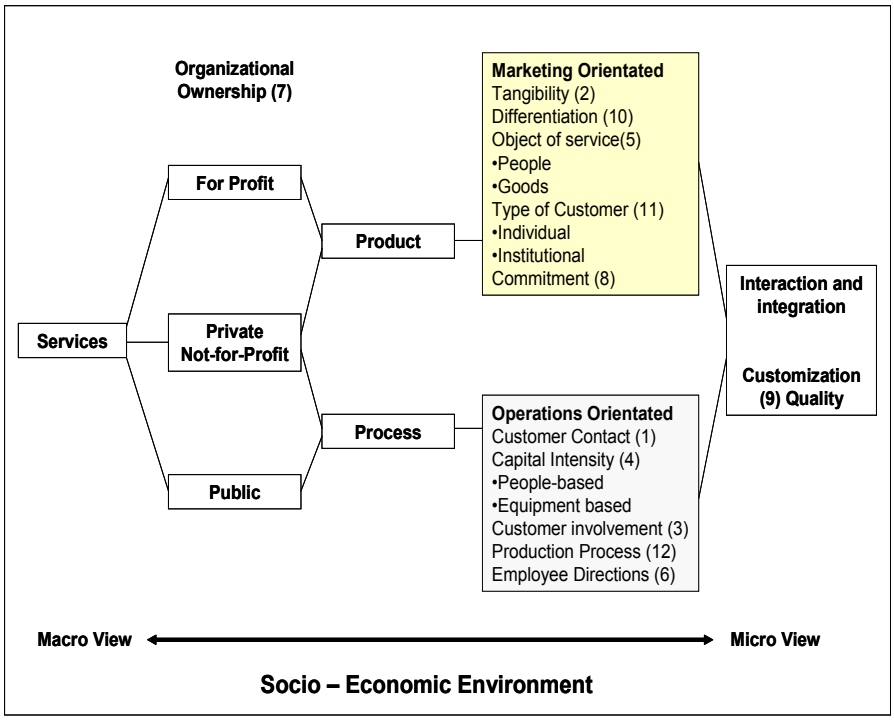

Figure 2 Integrated schematic of services

1) the strategic service design (portrayed as structural, infrastructural and integration, and based on choices between time-phased content portfolios of major supply;

2) the service delivery execution system (exemplified by programs, policies and behavioural aspects deliver complimentary areas of customer focus], possibly using balanced scorecard approaches;

3) the customer perceived value of the total service concept (intangibles and other effectiveness aspects of the service).

These features, delivered upstream by the external integration of the service supply chain, combined with the linked internal integration of the operational functional areas, and the adaptive mechanisms available to the intellectual capabilities provide new avenues to perceived customer value. Here the artificial learning and intelligence capabilities of the system, the fuzzy logic approaches to approximate answers, and the rapid absorption of skilled human capital talents may deliver targeted boundaries which offer enhanced potential to the service encounter. The assessment execution and renewal factors encountered define the potential effectiveness of the realized service encounter. These choices are the basis for forming competitive capabilities, in such strategic arenas as the internet, the manufacturing arena, internet marketing, and the services area.

The degree of service competitive capabilities such as consistent quality, supply chain management, convenience, accessibility to channels, customization, one-on-one

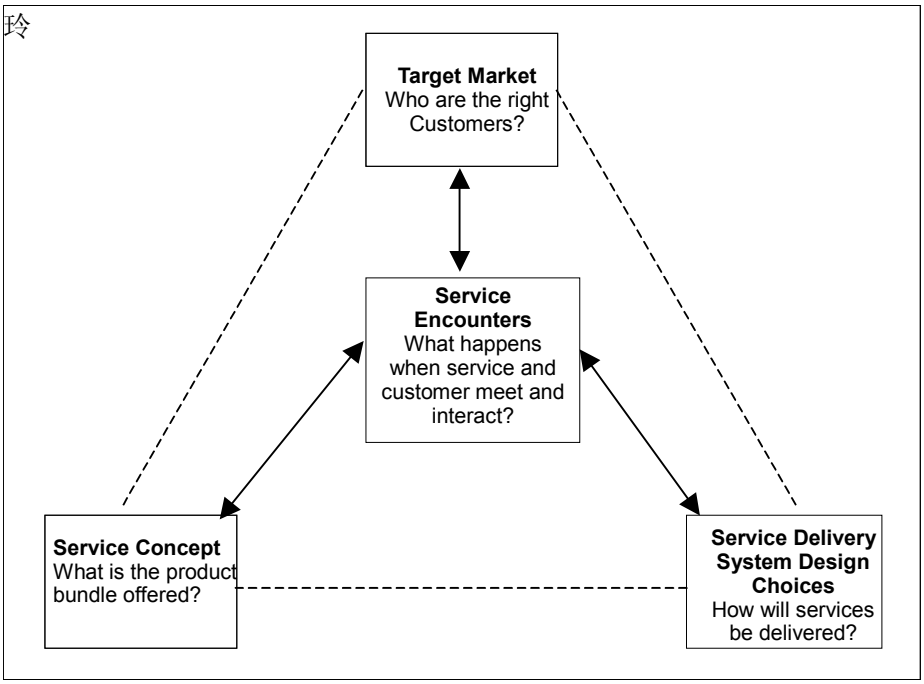

Figure 3 Service strategy triad

customerization, operational efficiency and low costs are used by customers to make choices among competitors.

The above models, when considered with other factors like customer demand-driven supply chains, the effect of the internet, business solutions, virtual service organizations and technology options, along with their interrelated, and interconnected links, can be drawn into a new topology model termed the 'service value network encounter model'.

4. Service Value Network Encounter Model

The 'service value network encounter model' offers the framework for a new research model. This model is displayed in Figure 5. The operational, services and customer strategies of the business are drawn together as interconnected data sharing models delivering unique customer services encounters – ones aiming to exceed customer expectations! This business system learns from its customer encounters, and improves its services database offerings ready for additional, or more specific, customer encounters.

This model meshes with:

1) earlier works above;
2) other works (Hoffman and Novak, 2000, Chen and Wells, 1999, Biocca and Li et al., 2002);
3) commercial services business solutions providers (Gartner, 2002, Comergent, 2003);

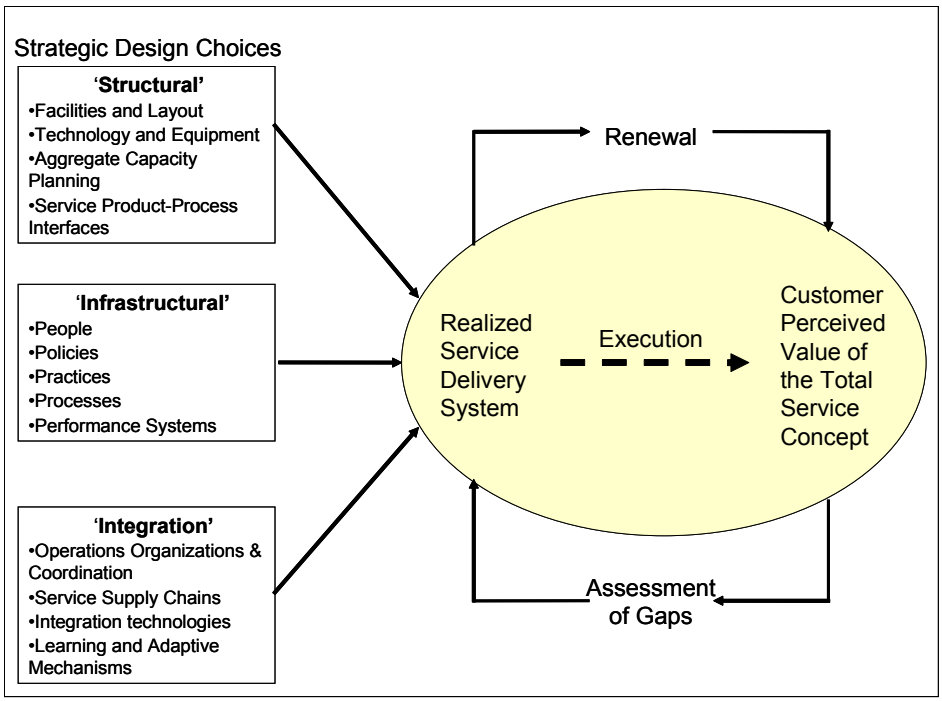

Figure 4 Service delivery systems architecture

4) software developers including Microsoft and IBM.

The 'operations concept model' component delivers the business's latest service value-chains, networked information systems, data storage and retrieval systems. It incorporates latest web metrics (Sterne, 2002), fuzzy logic (Louvieris and Driver, 2001) and artificial intelligence (Kemp and Schot et al., 1998) tools, to:

1) interrogate its internal and external databases;

2) sort and interpret available information;

3) deliver customized (or personalized) solutions capable of targeting perceived physical or virtual customer expectations.

This 'renewal' and learning networked system is very different to the normal 'rigid core component' experienced in normal website service offerings (Leonard-Barton, 1995). It also incorporate issues related to failures and recovery (Miller and Craighead et al., 2000). In short, the 'operations concept model' component delivers the 'how' to the service value encounter.

The 'services concept model' component is integrated with both the operations concept model and the customer targeted model and

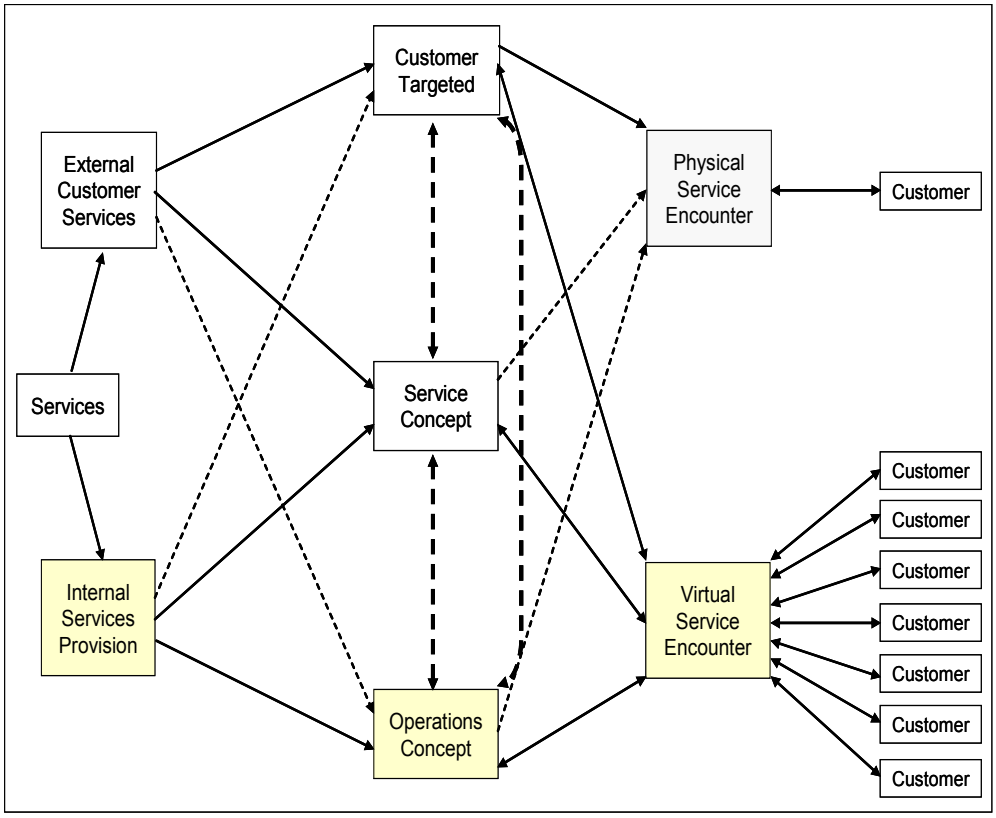

Figure 5 Physical & virtual service value network encounter model

delivers multi-dimensional information from the business and its value adding partners, in a quality manner, such that the greater the depth of information sought, the greater the quality, and the more realized (Mintzberg, 1978) is the customer's experience. In short, the 'services concept model' component delivers the 'what' to the service value encounter

The 'customer targeted model' component establishes a relationship to the service being offered in terms of its efficiency, relevance, scope and performance (Srinivasan and Jagannathan et al., 2002). This requires the cognition to recognize, and then target, the specific customer group. In some cases it allows for degrees of customization (or even one-on-one 'customerization'), of the customer service product. The understanding of the target market(s) remains an important consideration as it enables a viewpoint for new service development (Heskett and Sasser et al., 1990). In short, the 'customer targeted model' component delivers the 'what' appropriately targeted to the 'whom'.

These three component models and their downstream areas house much of the business's intellectual property. They remain integrally linked downstream via a modern 'service value network'. Downstream business supply chain partners, logistics support, peripheral partners and other external data sources are interconnected and interrogated across the business integrated IT networks. Here internal and external data, logistics, and the like are pooled, shared, cross-model, and then applied to provide new business systems learning, and new, improved, upstream customer solutions. The customer and the business network come together at the service encounter 'touch-point' Thus, the business aims to deliver the 'best', customer demand chain driven, customer value chain response, possible from the available value adding set of databases at its disposal.

The 'service encounter' has two components:

1) a 'physical' (tangible) encounter between the customer and a business contact person or persons;

2) a 'virtual' (intangible) encounter with and electronic based structure, which is often visually connected via its internal or external business website. In both cases information flows from customer to business and business responds sourcing relevant, allowable (non-sensitive), correct information.

Business then delivers customer requested, value chain sourced information (in a timely flow), across the service encounter interface and through to the customer. Chinese University of Hong Kong and National Sun Yat-Sen University research (Liang, 2003) indicates customers in the US buy using multiple channels - including stores, catalogues, and on-line activities. The service value network operates across both physical and information pathways and networks. It is a key part of the operations management equation. Such viewpoints support the physical and virtual service value encounter model. Sterne (2002), a world authority on web metrics, supports the notion that businesses offering both the physical and virtual encounter options tend, in the current market to be more successful, but that both models may also operate independently.

Businesses today are increasingly developing extensively networked on-line offerings, combined with high levels of interconnectivity

between partners, alliances, and associated value adding organizations. In addition, they are moving their supply chains into high-tech, networked, intelligent solutions – termed service value-chains (Barlow-Hills and Sarin, 2003). These service value-chains are networked and thus the service value network is a better terminology.

The 'service value network' may be defined as the flexible, dynamic, delivery of a service, or product, by a business's coordinated value chains (supply chains and demand chains working in harmony), such that a value-adding, specific, service solution is effectively, and efficiently, delivered to the individual customer in a physical or virtual manner.

In 2003, Australia's 'business to business' and 'business to consumer' e-commerce was valued at $11.3B (Di Gregorio and De Montis, 2003), and it was growing rapidly. It ranked 5th in the world regarding its potential to use the internet economy! At this time, thirty five percent of Australian businesses purchased on-line and eighty nine percent of Australian businesses were on-line. Australian businesses (with more than ten employees) recorded near ubiquitous internet adoption (Di Gregorio and De Montis, 2003). The internet has transformed

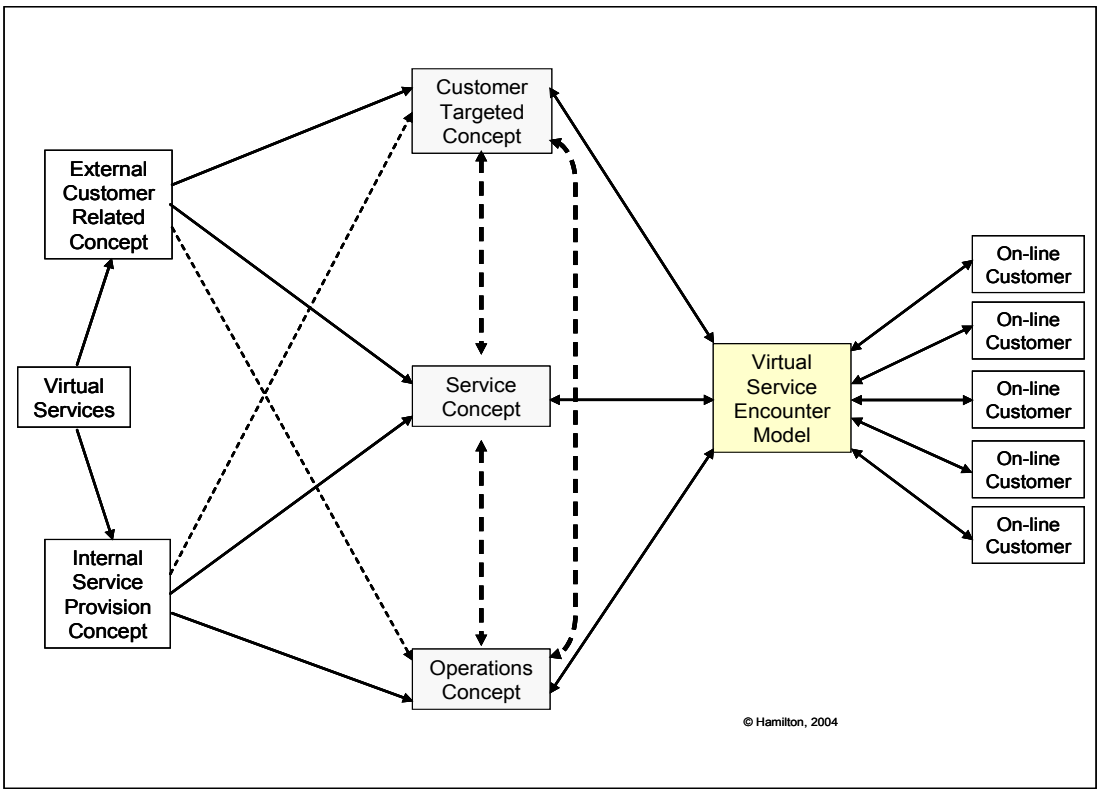

Figure 6 Virtual service value network encounter model

many of Australia's key business and agency functions including services delivery, customer relationship management, organizational administration, supply chain management and knowledge (or data) management. In January 2004 over forty six million web servers worldwide were globally connected to the internet, with ninety six percent connecting with the browser Internet Explorer. Thus, for many countries like Australia the opportunity remains to deliver high-value service offerings to virtual business customers.

The business website offers a range of customer 'touch-points'. These customer encounter points have several performance and value effector blocks. These are displayed in the 'virtual service encounter model', which is displayed in Figure 6. This e-service encounter environment presents several potential virtual customer services related weaknesses and several points of research including:

1) amplification effects;
2) e-services;
3) the web interface;
4) value chain modeling;
5) customer targeting;
6) information communication technologies;
7) bottleneck effects;
8) business strategies.

These factors are elaborated below.

4.1 Amplification Effects

The bullwhip effect is defined as the 'phenomenon where orders to the suppliers tend to have larger variances than sales to the buyer (demand distortion) and the distortion moves upstream in a amplified form (variance amplification) (Forrester, 1961, Akkermans and Vos, 2003). Lee and Padmanabhan et al., (1997) consider customer ordering as a lumpy occurrence to which the supplier responds. Schmenner (1995) theorized that fast, even-flow could explain productivity gains in manufacturing settings, and that even flows were achievable when the variability in supply chain was reduced. He also noted that tight quality control reduced negative amplification effects. Finch (2003) states; 'a key to eliminating the bullwhip effect and a key to any supply chain management effort is an increase in 'information' supplied by business to their suppliers'. Thus the upstream amplification (or bullwhip) effects may be reduced where a website delivers more efficient, more direct, targeted, more uniform, information access pathways between the service value network and the customer. Improved information flows - delivering manageable amounts of filtered most relevant information to the customer may deliver one solution.

4.2 E-Service Effects

Many market forces influence the development of the service value networks. There is an ever-present economic imperative to reduce IT costs, whilst increasing both the business value, and impact of this IT suite. Many businesses cannot afford high degrees of IT customization, and indeed this may not always be necessary – consider a mass user situation like on-line airline bookings. Hence size and capital remain limiting factors. Timelines to move to on-line service value network solutions also vary.

A true service value network integrates all

aspects of its business's service supply chain – internal and external in an intelligent, coordinate manner. It then interrogates the relevant data and delivers business-specific intelligence that matches the demands of the customer, again reducing inefficiencies. This area remains one with great scope for further research and development. Various third party logistics solutions have been developed to integrate these areas with those of other businesses, delivering new strategies, solutions and competitive advantage.

4.3 Website Effects

Incorporating software programs that query the available database information apparently 'intelligent' solutions to customer requests may be offered.

The intelligent website acts similarly to an intelligent, inquisitive, reasoned, language sensitive search engine, capable of taking in customer requests by voice, email, image, 'search-for ...', and the like. Artificial intelligence, knowledge management, and fuzzy logic principles are then applied to determine efficient, appropriate business-specific solutions.

The resulting 'intelligent' website processes may reduce the need to revisit and reinterrogate databases, and may reduce the non productive, time consuming, information seeking workload requirements on the service supply chains. Significant, tangible and intangible cost reductions (less non productive website activities) may be achievable. Less demands, per initiative, per customer, may reduce the information transmission strain across the global communications networks, and may reduce negative customer sentiment.

Such solutions may require the flat website encounter to move to a new three dimensional approaches (Microsoft, 2004).

4.4 Value Chain Modeling Effects

Value chain modeling (Bagchi and Gallego et al., 2003) has shown how changes in speed, responsiveness, and variability affect operational performance, and may enable the business to perform solutions scenario like financial impact assessment, cost-benefit analysis, and sensitivity analysis.

Vermijmeren (2003) suggests flexible, intelligent supply chain 'engines' may drive these dynamic supply chains, delivering value, in an efficient manner. Various third / fourth party logistics additions offer additional new strategic solutions, scope for competitive advantage, and scope for business development.

The incorporation of peripheral added value options may improve these offerings.

4.5 Customer Targeting Effects

When a customer encounters any aspect of a business a 'moment of truth' arises, and positive or negative impressions can be generated (Albrecht and Zemke, 1985). In highly customer responsive business systems, customer contact time may be lessened and sales opportunities may be enhanced. The customer may be an internal customer (working for the business, a participant in the upstream service value network, or and internal services participant in an area such as data processing, engineering, maintenance, accounting, after sales service (Davis and Aquilano et al., 2003), or an external customer (a consumer or one who interacts with and adds value to the business service value network. To service the virtual customer

complete, responsive, flexible, adaptive, service value networks often offer most desirable options.

Finch argues that delivering quality services involves assurance and empathy. However to deliver service quality across a website requires a broadening of the quality dimensions to encapsulate product and service and product dimensions. Thus the customer exhibits a multidimensional impact on the business website. Hence, the business must maximizing its virtual 'touch-point' appeal, and must develop its virtual management tools (and strategic metrics) set.

4.6 Communication and Information Technology Effects

In 2001, the five largest software providers: HP, IBM, Microsoft, Oracle, and Sun, along with a few new entrants, began promoting new standards, new web services platforms, and new activities environments. Since 1998 internet protocol version 6 (IPv6) software has been encapsulated into operating systems platforms (Comer, 2003). If adopted, IPv6 will allow marketers to segment a business's website customers using postcodes, geographical location, and phone numbers. Mobile devices, watches, and clothing, are now capable of housing customized information solutions for business.

Third party software operating on common platforms like Microsoft's '.Net', or IBM's WebSphere platforms may further enhance the virtual environment delivering savings for business measured as per initiative - lower 'human', and 'capital resource requirements'. In addition, new ways to interpret, interrogate and deliver customer requirements are unfolding, and highly intelligent, responsive websites are emerging. New business strategies, and the nuances of customer wants and needs are developing and will be incorporated into solutions. Working relationships - like 'e-customer relationship management', trust, loyalty, satisfaction, addressing the dynamics of the industry structure, and cultural fit will become just as important to the customer as the provider's portfolio. Currently latest computer application tools deliver low level solutions (not high levels of customization), and are best utilized for standard product type applications. Hence the development (and implementation) of highly customerized, and fully operational, service value networks is not yet a reality.

4.7 Bottleneck Effects

Bottlenecks occur when a limiting resource affects the output level of the entire system. The business-customer website encounter as shown in Figure 6, is one such bottleneck. Here, multiple customers search multiple supply chain data sources, for their individual needs, and business inefficiencies arise. Finch suggests bottlenecks may be considered as business constraints.

In the services industry, information is the key ingredient that moves. Some information may be physical in nature – like paperwork, whereas in the manufactured product situation, both information, and product move. In both cases information bottlenecks occur.

Efficient design of the website (with the use of appropriate technologies), may reduce customer cycle-time (customer website access time to source, retrieve and absorb desired

information) (Malcinski and Dominick et al., 2001, Cutler and Sterne, 2002), reduce bottlenecks, and possibly improve website effectiveness. Thus '**touch-point'** information trade-rates between the customer and the business service value network remain dependent variable areas that may be improved.

4.8 Business Strategies Effects

Businesses faced with tough competition are devoting greater resources to support their e-business initiatives (Bowman, 2001). Using tools defined by IBM and others these businesses can prioritize their financial and operational performances, and closely define their e-business and management strategies in multiple-customer environments. These strategies involve the development of semi-intelligent websites, and target delivering in four key areas related to the 'physical and virtual service encounter model' - these are the:

1) technical (operations model) factors – including communication channels; software and hardware; artificial intelligence; fuzzy logic methodologies; natural language interpretations; web metrics; website flows and information integration; presentation modes (3D screens); and telepresence;

2) business (service operations model) factors – including externals - supply chain partners; peripheral partners; logistics; and internals - business, management; marketing; operations; and strategies;

3) customers (customer targeting model) factors – grouped initially in technographic segments, then cyber-segmented further to eventually allow individual targeting;

4) revenue generator factors – including - sales, fees, charges, advertising, partnerships, and franchises.

5. Customer Business Encounter

The customer encounter may occur via three mechanisms – the business sales or front office person interacting with the virtual service encounter on behalf of a customer; the e-business client purchasing (or downloading) a service for resale (or to add value to the service and then resell); or the customer's direct on-line purchase (or download) of a service from the business.

To measure the performance of such encounters a structured equation modeling approach is used. Here comparisons between competing customer related approached may be compared and the effects of each approach measured.

The website encounter involves three key business performance areas – the customer targeting; the service related activities; and the operations related area including the IT, communications and operational features.

These business related blocks are modeled against the three customer related access blocks, and are compared under set environmental and strategic environments. Thus the structured equation modeling approach may be extended across these areas. In addition to performance other measures may be mapped. Thus a comprehensive picture of the website encounter, its 'touch-points', the service added-value delivered, the service quality and the like may be built-up. Thus the first comprehensive measure of service delivery across the virtual encounter of the website or mobile device may be established.

This work delivers the mechanism for the virtual service networks business model, and delivers the frameworks that may deliver a unique service solution. Thus, the business and its partners may understand, maintain and further develop their unique mix of competitive advantage features. The implementation of service value networks is highly complex, often unique, and disruptive in nature.

Each business and its alliance partners exhibit a unique mix of effectors and further research in this area is currently being pursued by the author on multiple fronts.

6. Strategic Model Checklist – Balanced Scorecard Approach

Service value networks, when drawn together, deliver a unique, balanced scorecard approach to strategic decision making. This analytic framework originally developed by Kaplan and Norton is displayed in Figure 7. It delivers the enabling basis from which business industry blocks, like individual pharmacies, may be translated into powerful service value network of 100 plus networked pharmacies. The business intelligence delivered by such a network, and its value adding systems are great.

The high-level strategies are articulated into specific, measurable performance parameters (Kaplan and Norton, 1996, Rohm, 2002). The customers must receive their expected outcomes, the business block must develop its skills (and knowledge), and provide improved solutions. The internal processes must meet all legislative and business specific requirements (like dispensing provisions). Finally, a set of financial outcomes (tangible and intangible) must be delivered. These financial outcomes, if correctly established, pursued and delivered allow the service value network to develop as a viable solution set. The business strategy subsets are broken down into objectives, measurements, targets and initiatives, as displayed in Figure 11, and their effect on overall vision and strategy is monitored. If necessary subset objective may also be further teased down into objective

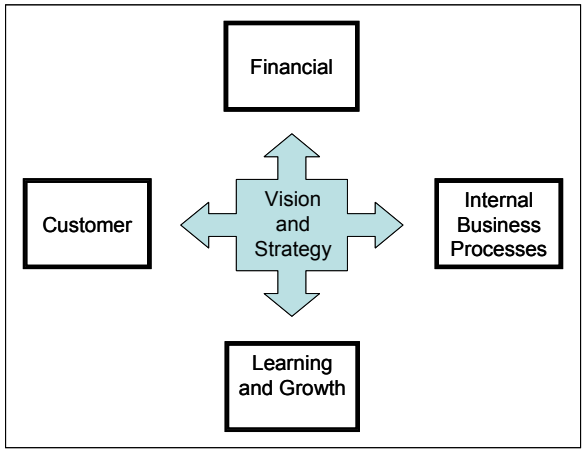

Figure 7 Balanced scorecard model

components, and even finer sets of measures may be developed.

This model delivers performance measures, allows high growth rates to be defined and targeted, differentiates competitive advantage, and delivers considerable measurable financial rewards. The business model has been established in one pharmacy, is being expanded to six pharmacies, and is fully scalable to incorporate over 100 pharmacies across the Australian continent. Revenue generation once fully operational, and Australia wide, is projected to be over $150M per annum (physical delivery), and over $100M per annum in internet sales (virtual delivery). A net national economic benefit exceeding $900M is projected.

The service value network may be implemented using a modified version of Rohm's nine step balanced scorecard strategy development cycle. This model is displayed in Figure 8. It begins with the development of the visionary strategy and a global business perspective. This visionary strategy is refined and developed, via a business plan, a vision/ mission top down approach and the researching of other models. A set of strategic objectives (focusing on delivering customer outcomes) is developed. These strategic objectives are then strategically mapped. Using a learning curve position/movement and knowledge approach, strategic objectives are quantified into performance based measures. These measures, in-turn, are tapped to deliver new initiatives, such as: targeting different customer groups; offering different products and services; increasing the product and service relevance; and the like. The selected pharmacy product and services mixes (to be marketed) are automated by incorporating a systems approach that allowed the efficient delivery of the internal processes (in a cascading series of process requirements). This ultimately delivers efficient,

Figure 8 Balanced scorecard – nine step strategy development cycle model

productive outcomes. Such business related outcomes provide relevant financial results including: increased customer numbers and new revenue streams; greater cultural understanding and improved community involvement; up-skilling of the operational staff and the business itself; enhanced local, regional and international focus; and the like.

When tangible and intangible balanced scorecard measures are assessed against previous strategies, new strategic improvements may be generated For example, joint cluster marketing; sharing of customer activities and feedback; incremental improvements in processes; disruptive (total new pathways) improvements in target marketing and approaches used; and new funding mechanisms may be operationalized.

A strategic nine step learning spiral and growth pattern emerges from the balanced scorecard 9 step model. The second learning cycle builds on the first learning cycle, and over-time, more complex, better targeted, multifaceted approaches to international education emerge. This growth and learning cycle is modeled in Figure 9.

The strategic components delivering the balanced scorecard outcome are displayed in Figure 10. Here specific performance measures may be identified and then tracked. For example, if the objective is to broaden the pharmacy revenue mix, all inputs related to this objective are drawn together into the required common process blocks that deliver this desired outcome. The relevant measures are then determined, delivered, and monitored.

Figure 11 considers the four balanced scorecard sectors as displayed in Figure 7 and links them within one scorecard. Using a procedure such as that outlined for Figure 8 above, and considering the relevant measures as developed via a Figure 10 approach, a series of achievable, measurable, targeted cost related initiatives can be developed to deliver this

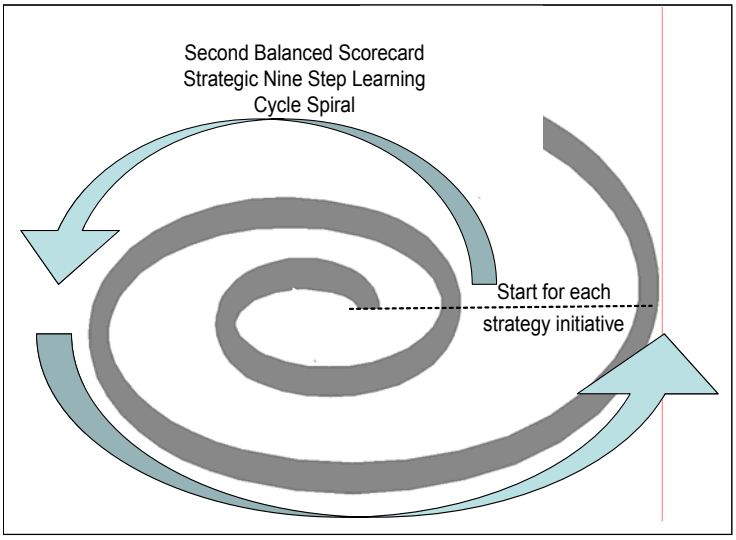

Figure 9 Balanced scorecard – nine step strategic learning spiral

specific part of the business strategy for the service value network.

The balanced scorecard model is a highly useful tool that can assist with the focusing, targeting and delivery of 'optimized' growth approaches for the pharmacy block. It delivers strategies which may ensure necessary financial rewards are deliverable.

7. Outcomes and Future Research

Service value networks research delivers a new customer touch-point measurement approach, one that targets delivering added value solutions. In addition, more efficient, and more effective service value network connections may be developed – ones incorporating fuzzy logic strategies to determine and deliver the service as a maximum value solution to the customer. Ultimately an optimizing, highly agile, flexible, service value network will unfold, and will deliver solutions at reduced financial commitment per virtual customer.

It is expected that the physical and virtual service value network model will operate in the same manner when applied to the movement of physical products or goods.

This model is currently under commercial development in the pharmaceuticals industry. It is delivering a new solution for the Pharmacy industry. All aspects of the business are networked, interlinked and modeled to deliver maximum performance. A balanced scorecard approach is being utilized to deliver the performance and value measures and strategy.

8. Conclusion

The 'physical and virtual service encounter model' provides a new perspective to the delivery of services. The service value network encounter takes a comprehensive view of all service related delivery areas. Research in these areas facilitates the measurement of performance related effectors. Hence the business, its alliance partners, peripheral partners and other associated contributors may

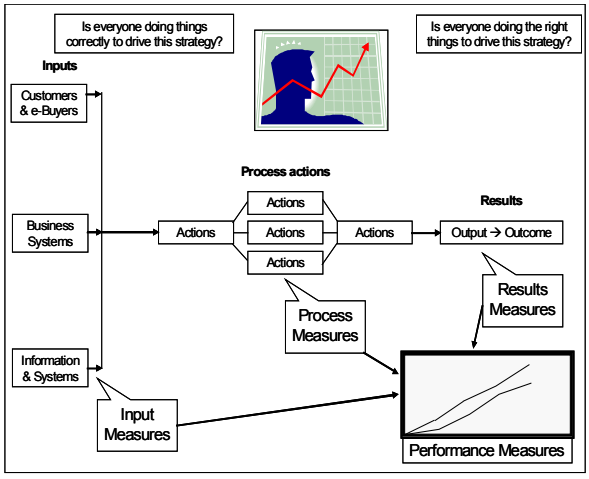

Figure 10 Balanced scorecard – strategic services components

attempt to close the gap that exists between 'business issues' like 'technology capabilities' and business strategies in the provider side.

The customer 'touch-point' interactions, or service encounters are complex, and many areas of research, development and idea creation may be applied to enhance the business's website competitiveness (Porter, 2001).

The service value networks approach allows unique business constructs to be developed. These constructs may be tested, grouped, and investigated to deliver an optimal solution for a service business – especially one operating in a virtual (or web or mobile) environment.

This model also has application to low-level service offering businesses (offering standard products or commodities). The same research methodology applies, but the complexities are less onerous.

The virtual service encounter, the business, its customer(s), strategy, performance, value, tangible and intangible costs and the like may all be investigated under the guise of this model. In addition, this approach applies to the emerging world of fully mobile office activities.

This paper delivers many related opportunities for research, measurement and business development. Scholars are encouraged to join in developing this emerging field of research and to further investigate the true nature and value of service value networks.

	Strategy to be achieved, and how?	How success measured and traced?	Performance expectation	Key action program required to achieve objectives
	Objective	**Measure**	**Target**	**Initiatives**
Financial	Broaden the revenue mix E-Pharmacy option Local delivery	Revenue mix	65% Std Pharmacy 24% New products, services & delivery 4% Upskilled staff 6% E-services 1% Information sharing	Classifying target users Channel marketing measures Fuzzy logic/ Artificial Intelligence measures Targeted sales focus, layout, quality & learning curve effects
Customer (Local Persons)	Customer targeting Customer recognition Customer value & performance Customer satisfaction	Customer evaluations Niche growth	'05/'06 – 200% '06/'07 – 300% '07/'08 – 1000%	Intelligent integrated database interpretation and support Customer intelligence support Knowledge and learning pathways Service value network delivery Value adds and peripheral alliances 24hr customer service/ connection
Regional and Internal Business	New products New services New access & deliveries Differentiation	% revenue new products & services % uptake % approval	'05/'06 – integrated regional approach, lead pharmacies '06 – additional pharmacies added	R&D – sourcing markets Dynamic website Targeted mailing of doctors and other suppliers sourced Direct marketing
Learning and Growth	New strategic skills Learning curve	Training delivered Understanding & knowledge growth	100% to all pharmacies Well informed - all participants and leadership (100%)	Customer ed. & training Customer lifestyle support Customer expected benefits exceeded Regional and national knowledge library

Figure 11 Pharmacy network scorecard

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John Hamilton is an inNovative, and active, industrial solutions researcher. He has a science, engineering, environmental and management background. He has devised and developed new systems/processes for vulcanisable plastics, tobacco, plastics, abalone aquaculture, sapphire mining, ICT and e-learning, e-business and radio broadcasting. His current research lies in the service value networks encompassing the demand and supply chain arena, logistics, web site design, web metrics, database design, active learning, techNographics and other customer related issues. He is developing 'whole-of-region' marketing solutions for international students. He is actively inVolved with sustainable, new-techNology business solutions, and commercialization projects, particularly inVolving the virtual marketspace. He has produced over twenty publications in refereed journals and conference proceedings during the past three years.