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A comparison of e-business models from a value chain perspective

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Abstract

Purpose – This paper sets out to identify key success criteria for e-business and consider emergent models which integrate the most value-adding characteristics in response to the requirements of both consumers and business organisations.

Design/methodology/approach – In assessing differing models of B2C/C2C, the paper uses an adapted evaluation framework which brings together key factors identified from the literature. A Likert scale exercise undertaken enables the authors to subsequently rank models.

Findings – Analysis of the results from the differing models identifies 14 primary success factors from which the paper develops a modified ontology of e-business. This is attributed to the evolving role of internet communities and social networking; the impact of "mobbing" and demand aggregation on rate of growth; and the effects of the "long tail" in differentiating markets into high-diversity short-run products.

Research limitations/implications – It is recognised that the scoring exercise is based on a limited range of exemplars for each e-model, which are ranked by a relatively small panel of experts. The expertise of those participating may also have constrained the validity of the results. However, there is significant consistency between the responses from each, indicating that the results are not unrealistic.

Originality/value – The paper discusses e-business from a differing view to existing literature, which considers emergent trends such as the effects of the "long tail" and "mobbing" in isolation, rather than focusing on a discussion of value chain factors *per se*. The authors develop a modified ontology of e-business based on a practical analysis of e-business exemplars rather than comparative studies based solely on literature reviews.

Keywords E-business, Electronic commerce, E-models, Value chain, B2C, C2C

Paper type Research paper

1. Introduction

The mass proliferation of the internet and its rapid growth has allowed businesses to expand into e-based outlets, notionally opening out their markets and enhancing their operations (Kärkkäinen and Holmström, 2002; Wagner *et al.*, 2003). Continuous innovations in business models, processes and e-services are perceived to be central to success. Given increasingly saturated economic markets, one of the innovative business approaches is to identify "loose bricks" (Hamel and Prahalad, 2005, p. 155). However, what is less clear is the extent to which these business-to-customer (B2C) approaches offer sustainable advantages and are complementary to existing business models, and which elements are the most critical to success.

In considering the significance of customer demand and behaviour in an increasingly integrated market, and the rapid growth in e/mobile media, customer-to-customer (C2C)

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and B2C models are examined and analysed/critiqued from a value chain perspective; here, factors evident within and external to Porter's value chain are considered. Given that relationships are being redefined between both consumers and organisations via consumer-driven developments in e-commerce channels, this also raises the question as to "where C2C and B2C e-businesses meet?"

Previous studies (Timmers, 1998; Weill and Vitale, 2001; Rappa, 2007; Smith and Chaffey, 2005) categorise e-business models from different perspectives. However, few have considered further linkages between these models, and therefore fail to consider new adaptations. Given the increasing fierce competition in e-markets, it is necessary to identify key success factors that optimise emerging e-business models and enable shortcuts to achieving competitive advantage. This paper will attempt to fill this research gap by proposing a modified ontology of e-business based on an evaluation of existing forms and the identification of key success criteria. Building on the basis of existing theories – particularly of the value chain – it considers both consumer purchase behaviour/expectations and operational requirements in a digital era.

The paper sets out to identify key success criteria based on evaluating the effectiveness of differing existing forms of e-business, and the efficiency with which they utilise their resources. As such, it considers emergent models, which integrate the most value-adding characteristics, in response to the requirements of both consumers and business organisations. Note that the paper does not consider those e-models having no financial transactions or not-for-profit sectors.

The paper contains the following sections. First, it explores the emergence of differing e-business models identified in "Literature review". It discusses and combines distinctive perspectives on e-business in order to define a more complete point of view, which takes account of ever-changing factors inter, intra and extra an e-business. Second, the paper describes the research approach adopted and its rationale. Third, it discusses an adapted evaluation framework used to assess the effectiveness of the various e-business models considered. The results of the assessment are subsequently presented and explained. Fourth, the paper discusses findings in relation to the literature review, where key success factors are identified and the modified e-business ontology described earlier is introduced.

2. Literature review

Internet start-ups have received particular criticism following the collapse of the "dot com" boom in the early 2000s. However, this appears to have been based on a lack of sufficient focus on profitability and return (fuelled by over-ambitious growth projections), and over-inflated valuation of and market speculation on the novelty of concepts, rather than consideration of more traditional business success factors.

What is clear, however, is that a new generation of web users is emerging, with new "ethics of openness", participation and interactivity to workplaces, communities and markets. Almost 90 per cent of western teenagers have access to the web, with potentially as great a penetration in Asia. According to a recent Forrester survey, 52 per cent of Europeans regularly spend time online, the average being 15 hours per week (Forrester, 2006).

As the web becomes more ubiquitous, diffusion within older generations is growing, with a current 70 per cent penetration within First-World economies, and 15-20 per cent within developing countries; projections are that 30 per cent of the global population (or two billion users) will have access to the web and potential exposure to e-commerce by 2010 (Computer Industry Almanac Inc. (CIA), 2007) (see Figure 1). "Rather than

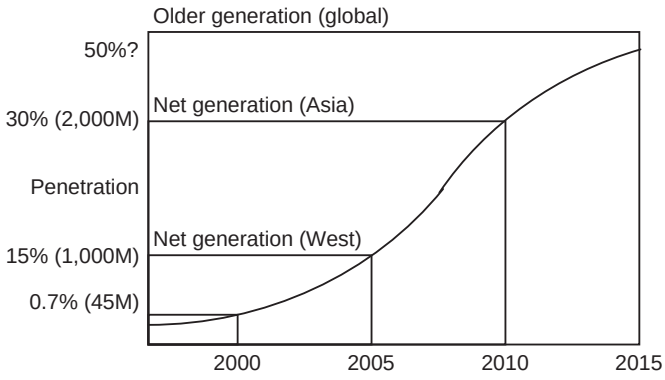


Figure 1.
Growth of web users

passive recipients of mass consumer culture, these users spend time searching, scrutinising, collaborating and organising information" (Tapscott and Williams, 2007, p. 47).

It is therefore timely to revisit the approaches by which e-businesses are categorised, developed and tested. Porter's value chain model assumes a traditional "bricks and mortar" competitive advantage stems from the collection of discrete activities a business performs, which can be divided into two groups: support activities and primary activities. Each of these activities can contribute to a firm's relative cost position and create a basis for differentiation (Porter, 1985).

However, given an integrated global market, especially the marketplace of e-commerce, the classic value chain is being replaced with a "highly fluid value network" (Smith and Chaffey, 2005, p. 74), in which cooperative companies become actors undertaking different activities of the old value chain. This "non-linear value network" speeds up information transfer between partners and enables organisations to modify their products and services in responding to customer demands. As such, it is not possible to review an e-business proposition without considering the entirety of these operations and transactions (Caputo *et al.*, 2005). Similarly, it is not possible to review effectiveness without considering Porter's five forces as shown in Figure 2, and discussed later in the analysis.

Based on an analysis of value chain elements, Timmers (1998) has proposed 11 e-business models, which he subsequently categorises by degree of innovation and level of functional integration.

However, Barnes and Hinton (2007) argue such descriptive models including Rappa's (2007) nine models and Weill and Vitale's (2001) "atomic" e-business models, make it difficult to identify new models that emerge continuously.

In defining an appropriate framework within which to consider B2C/C2C, the work of a number of authors is reviewed. Timmers (1999), for example, defines an e-business model as an architecture for product, service and information flows, including a description of the various business actors and their roles; the potential benefits for the various actors; and the various sources and revenues. In contrast, Slywotzky (1996) looks at the totality of how a firm selects its customers; defines and differentiates its offerings; defines the tasks it will perform and those it will outsource; and how configures its resources, approaches the market, creates utility for its customers and captures profits.

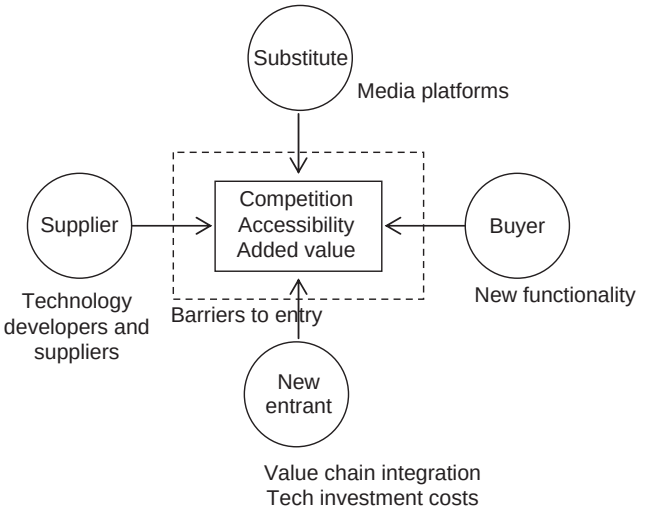


Figure 2.
Five forces for e-business

Perhaps more significantly, Rappa (2007) defines the e-business model in its most basic sense, as a method of doing business by which a company can sustain itself by generating revenue. He identifies how a firm makes money by specifying where it is positioned in the value chain.

Anderson (2007) has already identified that the future of business does not lie in the high-volume end of a traditional demand curve, but in the endless long tail of that same curve. Given the huge opportunities offered by the internet, he suggests that it necessitates the development of innovative models of e-commerce to meet what consumers want and how they want to get it.

In considering existing v. innovative e-business models, Gordijn and Akkermans (2006) consider the changed distribution of activities over the differing actors and the emergence of new partnerships, enabled by new "out of the box" technologies. This value chain de-construction and re-construction is based on the identification of new elements within Porter's value chain, with new combinations of interaction patterns, many influenced by emergent models of social networking and C2C activity. In many ways, these changes are reinforced by the growing distinction between digital/virtual and physical offerings (Gordijn and Akkermans, 2006; Silver, 2007).

At the same time, following the 2001 "dot com" crisis, there is an awareness that the models used for projecting revenues at that time are not realistic, focusing on curiosity rather than assessing consumer value; other non-value metrics are equally significant, e.g. hit rates, page-views, subscriptions and market share potential (Gordijn and Akkermans, 2006). Porter (2001), in his paper on internet strategy, goes on to suggest that many e-enterprises therefore show artificial "profits", whereas such firms ought to be able to create real economic value, thus justifying the levels of venture capital (Silver, 2007).

As such, key factors are likely to be the development of sustainable competitive advantage and the emergence of industry infrastructure (Porter, 2001; McIvor and McHugh, 2000). In Porter's analysis, partnering models necessitate "product standardisation", which depress profitability, therefore favouring vertical value chain integration approaches. Interestingly, in a counter-argument, Ticoll (1999)

suggests that the choice between one large v. many small companies is actually determined by transaction cost, driven down by the decrease in costs associated with the internet and competing providers.

In a further study, Anderson (2007) also points to the emergence of differing economic models, not all based on cost, with particular emphasis placed on personal exposure and reputation enhancement driving consumer choice; the latter being particularly relevant to the emergence of social networks.

Given that relationships are being continuously redefined between consumers, facilitators and suppliers (as shown in Table III), are there potential new models of e-business emerging/yet to emerge? The authors contend that since 1999 additional models have emerged based on B2C and C2C adaptations of social network models, marking a transition into non-monetary value systems. This segregation in the market creates new opportunities within which businesses ought to create new B2C value chain adaptations.

In an attempt to evaluate this, the authors undertake a comparison of various models derived from the literature, incorporating recent hybrid adaptations where these are considered sufficiently distinctive. The relative merits and demerits of each of these – both existing and new – are evaluated in the analysis. The adaptation of an evaluation framework and the research approach undertaken are discussed in the following section.

3. Research methodology

Re-analysing and interpreting existing theories and frameworks can result in the discovery of unanticipated links, as advocated by Saunders *et al.* (2007). A number of other researchers have used a similar approach. Gruen *et al.* (2005), for example, develop a model based on the motivation, opportunity and ability theory to interpret levels of C2C know-how exchange. Joyce and Winch (2004) provide a framework drawn from existing and emergent theories to connect e-business and traditional strategy in order to evaluate e-business models. In the paper of Dubosson-Torbay *et al.* (2001), the authors discuss e-business models, their classification and measurements based on previous literature. Osterwalder and Pigneur (2002) introduce an e-business model ontology following an extensive literature review. All above studies show successful examples using secondary data and pave the path for the approach of this paper.

In analysing the drivers of success associated with e-business models, a number of differing techniques and frameworks are apparent, some of which has already been described within "Literature review", although each considers similar factors. Tapscott *et al.* (2000), for example, uses a value map approach, whereas Gordijn and Akkermans (2001) adopt an economic transaction approach, which illustrates what is offered by one actor to another and what is expected in return. In contrast, Timmers (1999) adopts a tabular approach which reviews functions (and the extent of functional integration) against consumer expectations and perceptions of innovation. Silver (2007) adopts a similar method, reviewing the e-business's "demonstrable economic justifications", and evaluations of its market potential, the "elegance" of the concept, and the firm's previous experience against its ability to generate revenue, and hence justify its investor's expectations. The former approaches are useful, contributing to the derivation of a typology of B2C and C2C e-business approaches within the value chain, whereas the latter methods provide a means for determining the business value of each, particularly where there is increasing separation between content development, context provision and value chain services.

An independent panel of staff from the University's Design Enterprise Unit, who are familiar with developing and implementing e-commerce applications, were invited to participate in a Likert scale rating exercise. The panel were invited to identify archetypes for each model, and each of the factors identified subsequently rated against the scale to arrive at a category and total score. Subjectivity has been minimised by adopting a variation on the Delphi approach, in which each expert has scored examples independently, the results being aggregated to normalise the data and eliminate individual biases.

3.1 The development of a framework

Key factors identified from the literature review in (Timmers, 1999; Osterwalder and Pigneur, 2002; Silver, 2007) are compared in Table I, where each study provides a differing perspective on e-business. The intention here is to define a framework to determine those elements most appropriate in describing and evaluating differing B2C/C2C models.

The parameters proposed variously by Timmers (1999), Osterwalder and Pigneur (2002) and Silver (2007) can be categorised into six common groupings. These comprise:

(1) innovation/ability factors (Timmers, Osterwalder and Pigneur);

(2) valuation/value proposition (Osterwalder and Pigneur, and Silver);

(3) market environment (Timmers);

(4) infrastructure (Osterwalder and Pigneur);

(5) consumer factors/interaction patterns; and

(6) economic justification and financials.

The grouping of consumer factors (Timmers), interaction pattern (Osterwalder and Pigneur) or economic justification (Silver) is based on buying behaviour, service provision, branding and reputation. The financials are regarded either as revenue models (Timmers), financial income and cost/benefit (Osterwalder and Pigneur) or capital requirements (Silver).

As highlighted in "Literature review", the need for continuous differentiation and innovation is key to success. Silver (2007), for example, points to three factors, which include problem size (the number of potential consumers multiplied by the price they are prepared to pay), elegance (proprietary, difficult to replicate and first-to-market) and experience (previous management of launches and business operation) as key determinants. He goes on to consider return-on-investment and the economic case for such operations, particularly given the still high levels of risk and uncertainty within immature markets and channels. Here Silver advocates minimising capital requirements by: increasing float as either pre-payments raised from customers before delivery and/or credit from vendors; increasing the number of channels through which aggregated revenues may be generated; and enhancing membership via participative activities and updates. Whilst Silver's evaluation forms the basis for assessing the effectiveness of the various e-models – particularly in terms of the size of market, the elegance of the solution, its economic justification and its use of capital, each in the proportions shown in Table II – the derivation of each of these is based on consideration of each of those factors appearing in Table I.

Factors	Timmers (1999)		Osterwalder and Pigneur (2002)		Silver (2007)	
Competitive advantage	Innovation factors	✓				
Prior launch experience					Valuation (including ability)	✓
Prior operational experience						✓
Compatability (with existing business)		✓	Degree of innovation (including capacity, value proposition)	✓		
Scaleability		✓		✓		
Imitability (ease or replication)				✓		✓
Pre-launch visibility/awareness						✓
Protectability						✓
Unique features (scarcity)		✓		✓		
First-to-market						✓
Value added				✓		✓
Market/niche size (potential customers)				✓		✓
Market acceptance (growth potential)	Environment	✓	Market opportunity			
Market uncertainty		✓				
Market competition/concentration		✓				
Regulatory barriers					Economic justification	✓
Cultural factors		✓				
Internationalisation		✓				
Degree of functional integration		✓	Infrastructure management	✓		
Technical and regulatory infrastructure		✓		✓		
Resources/assets				✓		
Activities				✓		
Partner network				✓		
Unit volumes						
Signal-to-noise ratio						
Reliance on post-filtering, e.g. reviews						
Socialisation	Consumer factors		Buying behaviour			
Convenience		✓				
Range		✓				
Availability		✓				
Price		✓				✓
Demographic buying power			Interaction pattern (serving, branding, feel)	✓		
Custom requirements		✓		✓		✓
Speed of response		✓		✓		

(*continued*)

Table I.
E-business factors discussed in various studies

Factors	Timmers (1999)		Osterwalder and Pigneur (2002)		Silver (2007)	
Service-level interaction		✓		✓		
Opportunities for enhanced membership						✓
Transaction security		✓		✓		
Ease of purchase		✓		✓		
Delivery uncertainty		✓		✓		
Quality		✓		✓		
Readily communicable message						✓
Mass advertising				✓		✓
Third-party advertising	Revenue models	✓				
Sales commission		✓				
Direct sales		✓				
Cross sales						
Purchase commission		✓				
Subscription		✓				
Listing fee		✓				
Sale of customer data to third party		✓				
Payment and delivery transaction fees						
Reliance on venture investment			Financials		Capital requirement	
Ability to generate float						✓
No. of revenue channels						✓
Revenue income				✓		
Costs				✓		
Profitability				✓		✓

Table I.

Note: Checked boxes show those factors discussed in the cited studies

	Contribution to effectiveness (%)
Evaluation = problem size × elegance × experience	60
Demonstrable economic justification	16
Capital requirements	24
Total	100

Table II.
Calculation of effectiveness

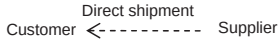
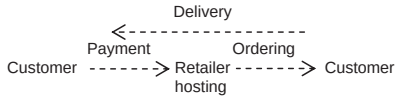
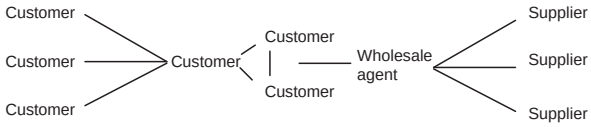
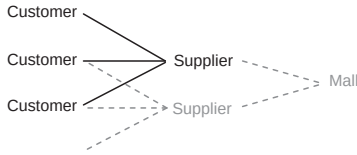
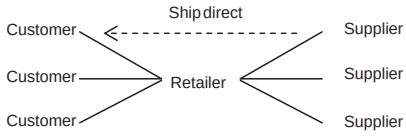
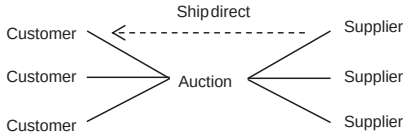
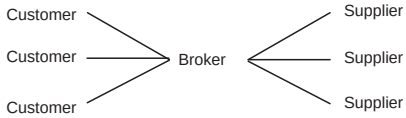
4. Analysis of the results

The various e-business models categorised by Timmers (1999) may be extended by considering each in terms of its network of relationships, and are represented in Table III. The differing models are subsequently assessed using the adapted framework shown in Table II. The final scores are shown as a percentage of the maximum attainable in ranked order in Figure 3, based on the effectiveness of the model in exploiting e-capability. The results are based on the Likert scoring exercise, described earlier; the values shown in Figure 3 represent means to eliminate bias.

The ranking can perhaps best be understood by undertaking an analysis of Porter's "five forces" as applied to each of these e-models. Collating each of the

principle forces, it is possible to determine key factors, which differentiate each of these offerings and contribute to their success scores.

For example, it is apparent from these scores that operations designed for physical environments, such as the high street, are not readily transferred to a virtual

E-business model	Network relationships	Example(s)
Trust services		Paypal
Value chain service provider		UPS
Value chain integrator		DPI vision
Third-party procurer (aggregation)		E-buyer
E-shop/e-malls		Tesco.com Scaleexpress.com E-bay shop E-bazaar
E-catalogue		Amazon.com Napster.com/ iTube
Auction engines		E-bay
Third-party market place (sourcing)		GoCompare.com

(*continued*)

Table III.
Categorisation of e-business

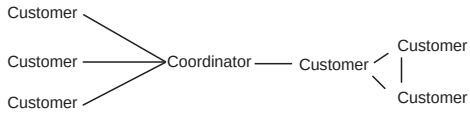
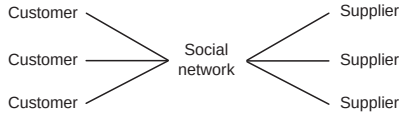
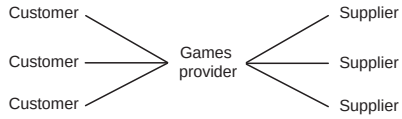
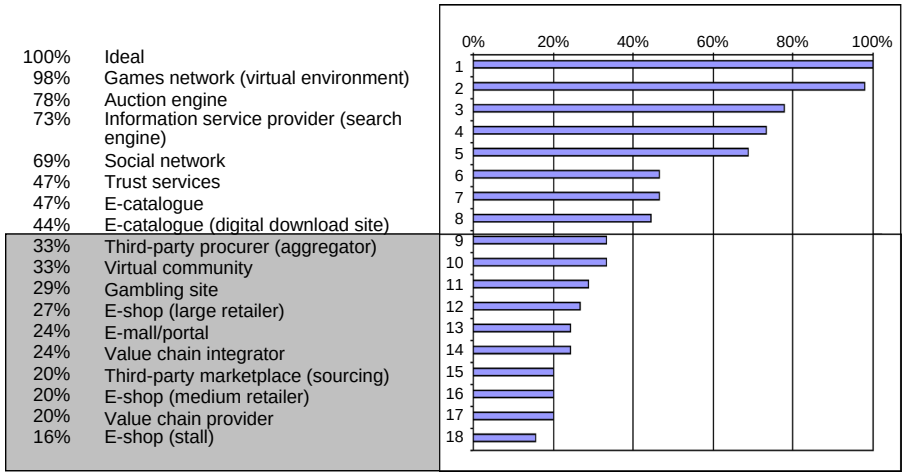
E-business model	Network relationships	Example(s)
Information service provider (search engine)		Google.com
Virtual community		Enthusiast
Social network		YouTube
Games network		Second World Bingo.com

Table III.

environment, and do not offer the benefits typically associated with e-initiatives. In reverse rank order:

E-stalls/e-stores (16-27 per cent) provide scaleable online shop-based services, either as an individual store or clustered mall with common transaction processes. Whilst offering increased virtual footfall, competition is also greater and is no longer proximity based. Higher stock turnaround can lead to reduced inventory holding, particularly where larger sites can hold out for 60-day payment terms, thus easing cashflow and float. However, many stores, including supermarkets, run virtual and physical stores in parallel and are reliant on dedicated order "picking and packing" operations for e-customers which add cost. This is particularly true for multiple low value products such as fresh food, which is uneconomic to ship directly, and must therefore be picked at store from stock. Here, forecast variation has a considerable impact, resulting in either stock-outs or wastage, and loss of profit margin. E-stores are also highly reliant on trust services, particularly in credit transactions, and the activities value chain service providers, which reduce margins still further. Successful stores are therefore likely to be confined to either specialist outlets capable of charging a premium, and thus operating in the long tail of the inverse Pareto model in Figure 4. Competition comes from both high street retailers focusing on one-to-one customer experience, and from e-catalogues offering discount pricing, the latter preventing e-stores from moving up the long tail. Particular barriers to entry relate to site hosting and maintenance, and perhaps more critically, market visibility.



Notes: >40% high effectiveness; <40% low effectiveness

Figure 3.
Ranking in order of commercial effectiveness

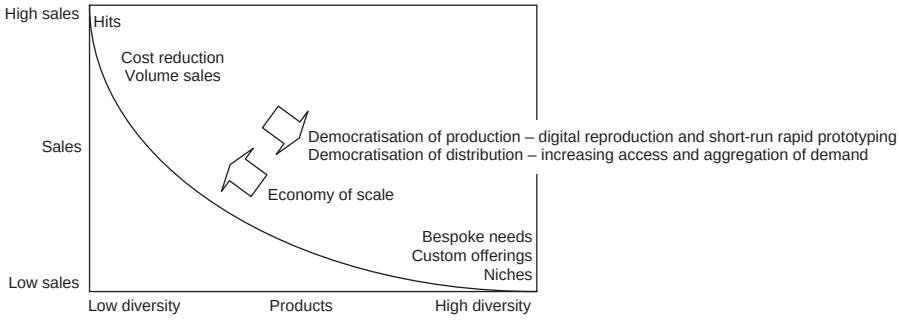


Figure 4.
The "long tail"

Value chain providers (20 per cent) typified by courier services and marketing activities, but with the exception of e-payment services – specialise in supplying a particular function within the value chain on a fee basis. Such services are reliant on providing both geographic infrastructure and/or access to partner networks, and service innovation, particularly in terms of delivery, traceability and monitoring. As quality is key, profit margins are likely to be reinvested in developing additional services (see value chain integrators).

Third-party marketplaces (20 per cent) provide comparison and brokerage services matching requirements to capabilities and capacities, and to some extent may aggregate demand (although this model is evaluated separately). The range of possible revenues is broader – covering transaction fees, supplier memberships and advertising – but margins modest as there is significant competition within the sector (or "over-grazing") and few barriers to entry. Consumers also tend to be price-driven and as such are fickle, and wary of levels of potential "insider trading" associated with some sites.

Value chain integrators (24 per cent) enable the integration of business operations – providing for example: network hosting, e-marketing and warehousing and logistical

management. As with value chain providers, much of their competitive advantage is based on the level of infrastructure offered, and its leverage across the supply sequence. Whilst it is possible to develop highly efficient services, much of this activity conforms to more traditional business models, and as such, the potential for innovation and leverage is not present, such models scoring poorly on protectability/replicability, tolerance of premium prices, capital requirements (and lack of float generation).

Gambling sites (29 per cent) claim in many instances to be social networks, but in reality companies adopting this model are extending their physical business processes – be the betting or social games such as "bingo". Whilst the lack of premises reduces costs considerably, marketing expenditure is considerably higher, offsetting physical proximity with brand value. As with e-supermarkets, there are high levels of competition, forcing sites to adjust their payout balances. Tighter regulation is likely to reduce margins further, forcing such models to increase their reliance on cross-sales and the development of ever more elaborate games, which offer greater rewards.

Virtual communities (33 per cent) cater for community interest groups. They provide highly focused niche user information, but tend to be of limited use to users outside of these sub-groups. Content is largely user generated and freely shared within the group, aggregating over time. There is no guarantee of accuracy and, as with sites such as "Wikipedia" coverage is preferred over reliability, and are self-regulating, typically filtered by user reviews (Tapscott and Williams, 2007). However, as they lack dedicated administration, sites may be abused, and piracy and viruses are commonplace. Such sites also lack a clear business model or means of exploiting this content, particularly as users respond negatively to inappropriate advertising. As the niches tend to be small – tending to the right-hand side of Figure 4 – user details and consumption behaviours are of little use to other content or network providers.

Third-party procurers/e-aggregators (33 per cent) undertake buying on behalf of communities, sourcing products and aggregating demand to secure economies of scale from suppliers. The model applies "power of the buyer" in negotiating a purchase discount, the level of which is dependent on the size of the order placed; this in turn is dependent on how long customers are prepared to wait as order levels ramp up. Choice is also limited to the most requested items, restricting the variety of goods/brands on offer, and effectively pushing demand to the left of the "long tail" in Figures 5 and 6. The model is potentially powerful, as the virtual footfall offered by the internet

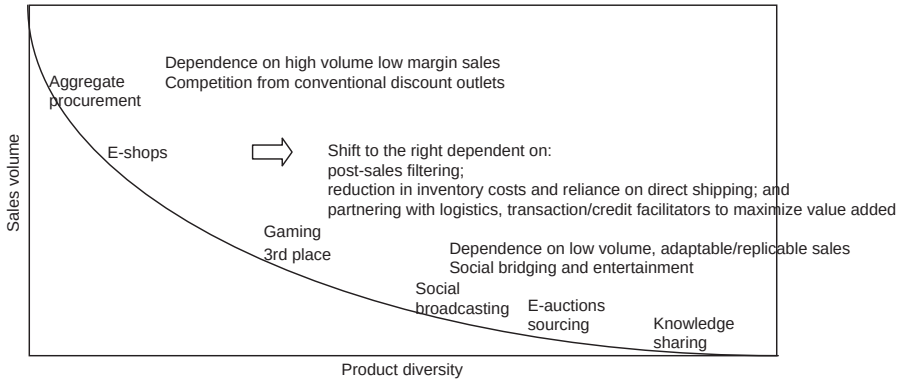


Figure 5.
A redefined model of the "long tail"

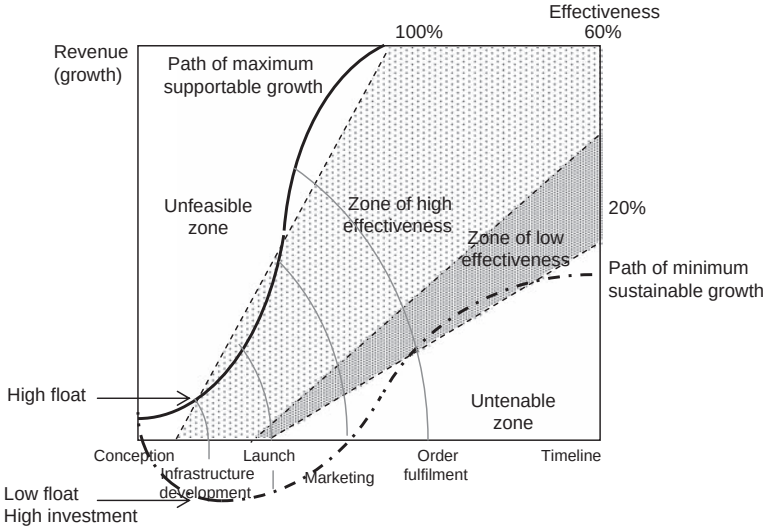


Figure 6.
A "S" curve of growth

significantly increases the numbers of customers available. However, all users of such sites are price-driven and therefore lack loyalty, especially given increasing levels of competition from other e-procurers, and from e-catalogues and discount wholesalers who offer such goods for immediate delivery. The model also offers lower profit margins per item than other models, and therefore increases the necessity of larger orders.

E-catalogues (47 per cent) offer more diverse ranges than e-aggregators and provide greater integration of purchasing logistics. The scale of catalogue operations enables direct shipment from suppliers to customers, and therefore offers zero inventory. In terms of digital content, publishing and short-run products, this also suggests the use of "production on demand" and access to niche suppliers. There are, however, significant levels of competition, forcing e-catalogues into one of the two strategies – commoditisation or niche satisfaction (i.e. economies of scale or bespoke offerings).

Trust services (47 per cent) offer a range of secure transactions, typified by Paypal and its debit transfer service. This capitalises on significant levels of concern regarding, for example, internet fraud, and offers considerable scope for extension into credit facilities. Such services offer the opportunity to charge higher margins than conventional debit services, whilst simultaneously generating a substantial database of online consumer purchasing behaviours. There are few negatives; however, the model can be replicated by the larger banks with strong brand profiles, although "Paypal", for example, has achieved a brand omnipresence that may be difficult to surpass. In addition, this model focuses on a single element of the e-value chain and therefore cannot achieve the leverage possible in others.

Social networks (69 per cent) provide self-segmenting niches with high aggregation and appeal to differing social groups. This can result in what Silver (2007) refers to as a "mobbing" effect, where significant numbers of users are drawn to a site. Such behaviour provides an ideal opportunity to license databases of such subscribers to content/network providers – adding significantly to the value of the proposition – particularly where these reflect new and emergent consumer groups. It has been

referred to the use of post-filters to overcome the high levels of noise associated with such phenomenon including the use of hit rates, reviews and ratings. Despite some strong subscription models – such as Facebook – many are weaker, with revenue streams unclear in many cases, with a reliance on membership fees, cross-selling and advertising. However, a key asset is consumer generated content, particularly where this is traded for personal exposure, as in YouTube broadcasts. This interaction can be fuelled by downloadable open source tools and environments, which may themselves become income generating commodities (see games networks). However, such sites are reliant on good reputation management (see also auction sites) and subject to regulation, particularly where content censorship is an issue.

Search engines (73 per cent) to some extent also exhibit "mobbing" effects – evident in Google – fuelled by "word-of-mouth" perceptions as to which are the most effective search tool. Income streams are more diverse, particularly in terms of the compilation and licensing of subscriber databases to third-party content and network providers. Other incomes include advertising and the influencing of search rankings; however, such bias in results can have negative drawbacks in user perceptions of effectiveness, and there is considerable growth potential in the development of more efficient search algorithms, which provide more accurately targeted results.

Directory services, whilst strictly third-party marketplaces, could also come under this heading. A key opportunity here is a development of a model, which provides real-time brokerage, matching requirements to capabilities and availability, particularly if this were to include user content such as recommendations (e.g. Hotelconnect.co.uk). Such a site ideally caters for as diverse a range of services as possible, typically with small scale/local suppliers, exploiting the longer end of the Pareto tail in Figure 4.

Online auction sites (78 per cent) again exploit product diversity, particularly where scarcity is transformed into premium value. A "mobbing" effect is also evident in a number of these sites, fed by the potentially addictive nature of much of this activity. Again, revenue streams are multiple, ranging from listing fees and commissions on sales through to the licensing of subscriber details to content/network providers. As with other models, trust is a key issue, particularly where the buyer has no knowledge of the seller or prior inspection of the goods, and where there is no means of recompensing payment. Here, the use of secure payment transactions is key (notably e-Bay now owns Paypal) as is reputation management (where trust is assured by feedback on the seller's reputation).

Games networks (98 per cent) – exemplified by Second World – yet again demonstrate strong mobbing effects as per social networks. Here, the potential for licensing subscriber details to content/network providers represents perhaps greatest asset value. Nonetheless, access to user generated content and perhaps the highest levels of e-participation, provide major revenue streams, particularly when coupled with possibilities for social bridging. As with online auctioning, many of the activities – such as game play – offer immediate gratification and are potentially addictive. However, as with auctioned items, there is an expectation of a constant turnaround in games and environments, and success is therefore dependent on continuous innovation.

5. Discussion of findings

In attempting to understand the underlying behaviours, two over-arching principles are evident. The first is the effect of Anderson's "long tail", illustrated in Figures 4 and 5, in increasing diversity and access. The second is rate of growth, as shown in the "S-curve" in Figure 6, and its impact on "mobbing" and demand aggregation.

From Figure 5, it is clear that particular attributes associated with the right hand side of the "long tail" include diverse custom market with high margins/commission; exploits access to self-nicheing subscribers, enhanced by social bridging; reliance on user generated content; sale of subscriber details to content/network providers; and high self-regulation.

Similarly, consideration of the growth S-curve in Figure 6 suggests that higher value models ("high effectiveness" in the figure) are likely to occur where mobbing behaviour is evident, bringing with it high value subscriber bases, which may be sold on to potential content/network providers. Higher value models are likely to be identified where asset value is greater than transaction value; and where high demand value and visibility enable the setting of *de facto* standard and hence higher attraction/retention rates. These models necessitate high word-of-mouth and viral marketing, and continuous development to enhance experience. Assuming a brand lifespan two to three years, successful models are therefore likely to be subject to high levels of imitation and work-around.

At the other extreme (the "low effectiveness" region in Figure 6) – characterised perhaps by e-shops, e-supermarkets, gambling sites and third-party aggregators – low growth is likely to result in lower value subscriber bases, which have little intrinsic value. Other traits include low visibility; transaction value being greater than asset value; returns exceeding 30 per cent per annum to support venture capital investment; and brand lifespan of more than three years to enable breakeven.

Silver's focus, and that of many other authors, e.g. Porter (1979), is on first-to-market, high value e-enterprises which demonstrate the "mobbing" effect, as shown as the upper left adoption curve in Figure 6. In reality, the vast majority of B2Cs operate against the lower right "S" curve (i.e. at <40 per cent effectiveness against Silver's success criteria); this applies particularly to those with little USP, single revenue streams, limited funding availability and more cautious take-up or lower growth aspirations. How might these firms define defensible niches and sustain their operations?

Taking the key features in each figure, respectively, the five identified at the bottom right of the long tail and the six "high effectiveness" of the S-curve, and combining these with the parameters shown in Table I, it is possible to identify 14 success factors. These comprise:

(1) a diverse custom market with high margins/commission;

(2) access to self-nicheing subscribers, enhanced by social bridging;

(3) high word-of-mouth and viral marketing;

(4) high growth (mobbing effect) resulting in a higher value subscriber base attractive to potential content/network providers;

(5) high demand value and visibility, leading to the establishment of a *de facto* standard and hence higher attraction/retention rates;

(6) the sale of subscriber details to content/network providers;

(7) high float generation (level of upfront payment) minimising capital requirements;

(8) user generated content;

(9) a strong value chain proposition;

(10) the ability to produce on demand;

(11) an asset value greater than transaction value;

(12) continuous development to enhance experience;

(13) high self-regulation; and

(14) a brand lifespan of at least two to three years, with early-stage protection to limit imitation and work-around.

These success factors inform a range of next generation concepts, shown in Table IV. It is the authors' contention that it ought to be possible to develop successful concepts, which capitalise on these emergent trends and further developments in value chain provision, using the criteria in the previous paragraph as a brief against which to optimise business models. This will be explored in a future paper.

6. Conclusions

Ticoll (1999) suggests that for many consumers the choice between buying from large v. many small companies is determined by transaction cost – continuously driven down by the decrease in costs associated with the internet and competing value chain service providers. A focus on transaction cost alone will therefore inevitably lead to the consolidation and eventual monopolisation of delivery services, pushing out smaller operations.

At the same time, Anderson's "long tail" in Figures 5 and 6 – associated with increasing concentration on the larger number of niche and bespoke consumer needs – suggests an increasingly significant role for "on demand" production and supply technologies, and for those e-operations that bring virtual communities together, enable self-nicheing, identify needs and opportunities and facilitate access to goods and services which satisfy these.

An analysis of Porter's (1979) "five forces" in the context of the "long tail" explains the range of new markets and potential offerings made possible by the reach and logistical capabilities afforded by the internet.

Whilst this approach is sustainable, it is not sufficiently efficient to warrant significant investment or stimulate high levels of growth. The latter is based on developing high visibility models, which demonstrate the mobbing effects shown in Figure 5. However, it is critical to recognise that such lifecycles are typically short and that the continuous evolution of user experience and innovation in the delivery of this are key factors.

Having drawn these conclusions, there are, however, clear limitations in the study. The results are based on Likert scores of limited examples representing each e-model, which a relatively small panel of experts has recommended and ranked. Further

User content generation	Open source virtual environments for social bridging
	Subscription and discretionary payments (tips); user ratings
	Facilitation for larger corporations
Value chain provision	Facilitation of brand awareness raising
	Servicing production on demand for communities
	Servicing production on demand for specialist markets

Table IV.
Next generation trends in e-business

research may repeat this evaluation across a wider and more informed sample of the various e-models for greater validity.

Whilst the evaluation framework adopted is derived from Silver (2007), its attributes correlate more closely to those proposed by other key authors in the field, including Timmers (1999), Dubosson-Torbay *et al.* (2001) and Osterwalder and Pigneur (2002).

The paper contributes to existing e-business literature in developing a modified ontology of e-business and using this to identify key success criteria. Second, it is based on a practical evaluation of e-business exemplars, which adds insight to comparative studies based solely on literature reviews. A third contribution is its consideration of emergent phenomena such as the effect of the "long tail" and "mobbing", rather than focusing on discussion of value chain factors *per se*.

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