Tools of Competitive Analysis for Internet Ventures: A Comparative Analysis of Merchandising and Service Providers of Health Care

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ABSTRACT

In the literature, the general framework of competitive forces has been used extensively to analyze industries in the traditional economy. More specifically, the model has been used to develop strategies for companies in various sectors. The general model can also be used to analyze the use of information technology to enhance competitive advantage.

This paper extends the conceptual model to the Internet environment. For concreteness, the concepts are examined in the context of the health care industry. In addition, a comparative analysis is performed to examine the similarities and differences in providing merchandise or services in cyberspace.

I. INTRODUCTION

One of the best-known frameworks for analyzing an industry lies in the competitive forces model (Porter, 1985). This model has been used to develop strategies for companies in various industries. The model can also be used to analyze the use of information technology to enhance competitive advantage (Bourke, 1994, p. 30).

This paper extends the conceptual model to the Internet environment. For concreteness, the concepts are examined in the context of the health care industry. In addition, a comparative analysis is performed to examine the similarities and differences in providing merchandise or services in cyberspace. The healthcare sector includes vendors of medical instrumentation and supplies; HMOs and other health plan providers; hospitals and nursing homes; home health care providers; medical laboratories; medical practice management companies; and medical product distributors. These vendors share common concerns as well as distinct competitive pressures.

With the rapid growth of the Internet, product differentiation, switching costs and information services are evolving swiftly. In this competitive milieu, brand identity is key to the success of a Web site.

Entry barriers are falling due to low capital requirements, difficulty in maintaining product differentiation, and easy access to distribution. Consequently, brand identity is increasingly important as Internet users and e-commerce expand.

Suppliers are subject to global competition, while buyers can easily obtain voluminous information about suppliers and inputs. In addition, technological innovation sometimes eliminates the need for an input or leads to attractive substitutes.

This paper examines these issues in detail and presents an analytic framework tailored to the Internet environment. In addition, the model is applied to a number of case studies in Web-based marketing for the healthcare sector.

II. COMPETITIVE ANALYSIS FOR EMERGING INDUSTRIES

The promise of Internet commerce for enhancing productivity and economic growth underscores the need for a systematic approach to competitive analysis. The general framework for competitive analysis may be tailored to young firms in emerging industries.

The framework for competitive analysis provides a systematic vehicle for scrutinizing an industry. For the sake of concreteness, the concepts are discussed in the context of virtual enterprises in the healthcare sector.

To position a company for strategic advantage, it is imperative to define its mission, opportunities, strengths, weaknesses and threats (MOSWT). These factors represent distinct concepts, yet they are highly interdependent. For instance, it is impossible to define the mission of a firm without considering its organizational capabilities as well as external opportunities and potential threats.

The environmental structure for an emerging industry consists of a variety of critical dimensions. Table 1 presents the environmental dimensions and their relevance to both realspace and cyberspace.

A standard tool for competitive analysis lies in the five factors model (Porter, 1985). In table 2, the factors are examined in the context of the Internet milieu. Subsequently, Table 3 presents the five factors as they present to drugstore.com, a merchandiser of pharmaceutical goods in cyberspace. A similar exhibit is provided for Healtheon, an online provider of healthcare services, in the next table.

In cyberspace, competitive strategies for merchandisers and services exhibit commonalties as well as differences. A list of similarities for the two types of vendors is displayed in Table 5. At least as important is the set of distinguishing characteristics, which is presented in Table 6.

The preceding framework provides a systematic framework for evaluating an industry, positioning a firm, and developing a competitive strategy. The discussion has focused on virtual ventures in the healthcare sector. However, the tools for competitive analysis are thoroughly general. They may be applied to any firm, whether in a mature or infant industry, located in realspace or cyberspace.

III. CONCLUSION

The Internet environment is the latest frontier for commerce and economic growth. In cyberspace, a number of factors resemble the milieu of traditional commerce, while other characteristics are distinct. Some salient points are as follows.

- The rapid growth of Internet commerce highlights the need for a systematic approach to competitive analysis and strategy formulation.
- Many concepts from realspace may be ported to e-space such as:
    - The decisiveness of branding for competitive advantage.
    - The shift from technology to customer needs as the focus of competition with the maturation of the industry.
    - The need for strategic partners for swift dominance in technology, distribution, and brand awareness.

- The consolidation of players and the quest for scale economies.
- A variety of factors differentiate competition in e-space as opposed to realspace.
  - Pace of innovation is faster, powered by new software technologies and steady hardware advances.
  - Global reach is immediate.
  - Start-up costs can be insignificant.
  - Marginal cost of incremental business is usually insignificant.
- A number of characteristics distinguish the marketing of goods vs. services in cyberspace.
  - Price competition is more severe for the merchandise segment.
  - Novelty and value are vital for merchandise customers.
  - Ability to provide trial samples is limited.
  - Network externalities are often indirect.

REFERENCES

Bourke, M.K. *Strategy and Architecture of Health Care Information Systems*. NY: Springer, 1994.

Porter, M.E. *Competitive Advantage*. NY: Free Press, 1985.

Table 1. Environmental structure for emerging industries: realspace vs. cyberspace.

Dimension	Realspace	Cyberspace
Technical uncertainty	Uncertainty about the product configuration which will dominate the market.	Informatic technologies are advancing swiftly on all fronts: software, hardware, networks, etc.
Strategic uncertainty	Unclear strategy due to sparse information on competitors, customers and industry structure.	Same as for realspace.
High initial cost but steep cost reduction	Small production volume and newness usually combine to produce high costs. However, a steep learning curve also exists.	Cost curve depends on the technologies used in the business.
Embryonic companies and spin-offs	Equity participation and rapid growth. Steady pace of innovations due to fluidity of technology and strategy.	Small firms are swift and efficient. After the embryonic stage, firms consolidate through M&A or alliances.
First time buyers	Reluctance to be the first buyer.	Product information is readily available, including price comparisons. Yet buyers are not easily convinced unless they can "touch" the product.
Short time horizon	Feverish pace to become market leader; poor planning and lack of "conventional wisdom".	Revenue models are unclear. Expenditures can be large but unsupported by revenues.
Subsidies	Beneficial but dependent on political climate.	Tax relief benefits Internet commerce.

Table 2. Major determinants of the five factors in cybersapce.

Factor	Major determinants	Internet environment
Rivalry	Industry Growth Fixed costs/value added Intermittent overcapacity Product differences Brand Identity Switching costs Concentration and balance Informational complexity Diversity of competitors Corporate stakes Exit barriers	The Internet sector is growing rapidly. Product differentiation, switching costs and information services are evolving swiftly. In this competitive milieu, brand identity is key to the success of a web site.
Entry barriers	Economies of scale Proprietary product differences Brand identity Switching cost Capital requirements Access to distribution Absolute cost advantages Proprietary learning curve Access to necessary inputs Proprietary low-cost product design Government policy Expected retaliation	Entry barriers are falling due to low capital requirements, difficulty in maintaining product differentiation, and easy access to distribution. Consequently, brand identity is increasingly important as Internet users and e-commerce expand.
Substitution threat	Relative price/performance of substitutes Switching costs Buyer propensity to substitute	Alternative media represent threats, e.g. text vs. audio vs. video. Ditto for alternative technologies, e.g. satellite vs. grounded transmission, infomediaries vs. personal software agents.
Supplier power	Differentiation of inputs Switching costs of suppliers and firms in the industry Presence of substitute inputs Supplier concentration Importance of volume to supplier Cost relative to total purchases in the industry Impact of inputs on cost or differentiation Threat of forward integration relative to threat of backward integration by firms in the industry	Suppliers are subject to global competition, while buyers can easily obtain voluminous information about suppliers and inputs. In addition, technological innovation sometimes eliminates the need for an input or leads to attractive substitutes.
Buyer power	Buyer leverage Buyer concentration versus firm concentration Buyer volume Buyer switching costs relative to firm	The Internet enables buyers to procure information about products, including features and prices

	switching costs Buyer information Ability to backward integrate Substitute products Pull-through Price sensitivity Price total purchase Product differences Brand identity Impact on quality performance Buyer profits Decision makers incentive	

Table 3. Major determinants of the five factors for drugstore.com.

Factor	Major determinants	Drugstore.com
Rivalry	Industry Growth Fixed costs/value added Intermittent overcapacity Product differences Brand Identity Switching costs Concentration and balance Informational complexity Diversity of competitors Corporate stakes Exit barriers	• Brand recognition, selection, convenience, price, web site performance and accessibility, customer service, quality of information services, reliability and speed of order shipment • Dependence on systems and operations vulnerable to unexpected problems • Intellectual property (patent, trademark, trade secret and copyright law and contractual restrictions to protect the proprietary aspects of our technology) • Use of Internet and growth of the online drugstore market • Tax benefits • Government regulation of the internet and data transmission over Internet • Financial resources • Technical resources • Marketing relationships with leading manufacturers and advertisers • Secured distribution channel • Large customer base • Competitors' alliances with each other • Diversity of competitors
Entry barriers	Economies of scale Proprietary product differences Brand identity Switching cost Capital requirements Access to distribution	• Limitations on traditional channels of distribution (inconvenience, narrow selection, limited information & communication, lack of privacy) • Government regulation 1. specific to pharmacies and the sale of the over-the-counter drugs.

	Absolute cost advantages Proprietary learning curve Access to necessary inputs Proprietary low-cost product design Government policy Expected retaliation	2. participation in developing a program, the Verified Internet Pharmacy Practice Sites (VIPPS) as a model for self-regulation for online pharmacies under the National Association of Boards of Pharmacy (NABP). 3. related to confidentiality of patient records, electronic access and storage at the federal and state levels of legislation. 4. subject to FDA regulation such as drug advertising and promotion. • Formation of strategic relationship (e.g. key relationship with portals, distributors and Amazon.com , and relationship in the healthcare industry, particularly in the areas of reimbursement and managed care) • Need to retain customers at a reasonable cost
Substitution threat	Relative price/performance of substitutes Switching costs Buyer propensity to substitute	• No threat in the foreseeable future. Substitution for drugs is not likely until ailments are eliminated through nanotechnology and biogenetics.
Supplier power	Differentiation of inputs Switching costs of suppliers and firms in the industry Presence of substitute inputs Supplier concentration Importance of volume to supplier Cost relative to total purchases in the industry Impact of inputs on cost or differentiation Threat of forward integration relative to threat of backward integration by firms in the industry	• Dependence on fulfillment partner • Need to retain experienced personnel and dependence on senior management • Dependence on pharmaceutical costs and pricing
Buyer power	Buyer leverage Buyer concentration versus firm concentration Buyer volume Buyer switching costs relative to firm switching costs Buyer information Ability to backward integrate Substitute products Pull-through Price sensitivity	• Dependence on the availability of reimbursement from third-party payors such as government health administration authorities, private health insurers, health maintenance organizations(HMOs), pharmacy benefit management companies(PBMs) and other cost to employer groups

	Price total purchase Product differences Brand identity Impact on quality performance Buyer profits Decision makers incentive	

Table 4. Major determinants of the five factors for Healtheon.

Factor	Major determinants	Healtheon
Rivalry	Industry Growth Fixed costs/value added Intermittent overcapacity Product differences Brand Identity Switching costs Concentration and balance Informational complexity Diversity of competitors Corporate stakes Exit barriers	• Proprietary technology • Growth of Internet commerce and functionality • Adoption of New technology or standard • Proper definition of new applications or services • Timely completion and introduction of new applications and services • Differentiation of new applications and service from those of the competitors • Market acceptance • Customer bases in the healthcare industry • Financial, technical, product development, marketing and other resources • Market recognition
Entry barriers	Economies of scale Proprietary product differences Brand identity Switching cost Capital requirements Access to distribution Absolute cost advantages Proprietary learning curve Access to necessary inputs Proprietary low-cost product design Government policy Expected retaliation	• Dependence of the adoption of Internet solutions by commercial users • Proprietary technology • Growth of Internet commerce and functionality • Need for reduced healthcare costs and improved quality of care • Dependence on strategic relationships • Security and network risks • Maintenance and enhancement of platform, applications and services • Management of newly acquired organizations and technologies • Change in the healthcare industry • Government regulation with respect to the Internet or other on-line services (such as user privacy, pricing, content, copyrights, distribution, and characteristics and quality of products and services) • Health Care Financing Administration guidelines for transmission of Medicare eligibility information over the Internet

		• Health Insurance Portability and Accountability Act of 1996 • Regulation of computer applications and software considered medical devices by the FDA
Substitution threat	Relative price/performance of substitutes Switching costs Buyer propensity to substitute	• In future, personal software will be able to compile information dynamically and conduct transactions as agents for users.
Supplier power	Differentiation of inputs Switching costs of suppliers and firms in the industry Presence of substitute inputs Supplier concentration Importance of volume to supplier Cost relative to total purchases in the industry Impact of inputs on cost or differentiation Threat of forward integration relative to threat of backward integration by firms in the industry	• Downstream expansion by informatic outsourcing firms is possible. • Horizontal expansion by large providers is possible, e.g. HMO chains or insurance firms.
Buyer power	Buyer leverage Buyer concentration versus firm concentration Buyer volume Buyer switching costs relative to firm switching costs Buyer information Ability to backward integrate Substitute products Pull-through Price sensitivity Price total purchase Product differences Brand identity Impact on quality performance Buyer profits Decision makers incentive	• Concentration of buyers. HMO's e.g. United HealthCare Corporation. Clinical laboratories e.g. SmithKline Beecham. Medical groups, e.g. Brown & Toland physician services organization. Preferred provider organizations (PPO), e.g. Beech Street Corporation.

Table 5. Similarities in competitive strategy between merchandise and service vendors in cyberspace.

<table>
<tr><th>Dimension</th><th colspan="2">Similarities</th></tr>
<tr><td>Availability</td><td colspan="2">Web site can be accessed 24 hours a day.</td></tr>
<tr><td>Convenience</td><td colspan="2">Customers can obtain information and shop at home, in offices or in transit.</td></tr>
<tr><td>Personalization</td><td>"Ask Your Pharmacist" and "Ask Your Beauty Expert" features can be viewed as customized services.</td><td>Internet platform is shared among collaborating firms, but tailored to fit clients' needs.</td></tr>
<tr><td>Reputation</td><td colspan="2">Reputation of the goods or services provided by the Web site encourages visits and purchases.</td></tr>
<tr><td>Safety</td><td colspan="2">Personal security and network security are key considerations for customers.</td></tr>
<tr><td>Scale of Virtual Network</td><td colspan="2">Advertising partners refer customers. Virtual communities such as chat rooms maintain customer loyalty.</td></tr>
<tr><td>Quality</td><td colspan="2">Quality of products as well as reliability of on-time delivery.</td></tr>
</table>

Table 6. Differences in competitive strategy between merchandise and service vendors in cyberspace.

Dimension	Drugstore.com	Healtheon
Price	Online customers are usually sensitive to price. They tend to travel online to seek lower prices.	Competing on price is not as effective in services as it is with products.
Convenience	Convenience in browsing and ordering is vital. Mechanism for returning unwanted merchandise is critical.	Convenience in obtaining service is vital, e.g. real-time streaming video.
Speed	Front office speed is vital: response to customer queries. Physical speed is key: swift delivery of goods to customers.	Back office responsiveness is key: speed of information exchange, transactions and work flows.
Novelty	Consumers desire the latest and best products for the price level.	Service provider attempts to standardize the technology, user interface, and delivery platform among the target group of customers. Latest information is critical: but novelty of the service offering is not decisive by itself.
Marketing	Ability for customers to sample the product is limited.	Vendor can often give free samples, e.g. old versions of documents, 30-day demo software, etc.
Distribution	Effective logistics are critical for retailers, wholesalers and manufacturers in both real and virtual space. Alliances with channel partners is a vital but risky factor.	Distribution is a secondary factor for many services in realspace. Ditto for cyberspace due to common access to Net.
Network effects	Network externalities tend to be indirect. E.g. numerous PC users imply larger market and faster innovation than Macintoshes, leading to lower cost and availability of applications.	Externalities are often direct. E.g. a software agent which can negotiate appointments for its owner is more useful if everybody else has copies.