

Cisco versus Dell in the Networking Equipment Market

Economics of Competitive Strategy

Management 385 - 03225

Scott (Jason) Walker

Kenneth Sandberg

Diana Vasquez

Cesar Galvan

1. Background

Cisco, the global networking equipment leader, has recently started to face a new kind of competitor for its network switch products: Dell Corporation.

Network switches are becoming a commodity product. The technology and the protocols in this market are well understood. Dell, which has been very effective in moving into markets that are becoming commodities, has just entered this segment of the network gear market offering products that are more than 50% cheaper than Cisco's offerings. Cisco derives 42% of its revenues from this line of products. Dell has historically been very successful in managing all aspects of a product from customer and vendor relationships, costs, service, channels, and supply chain management. For example, Dell is best known for challenging well-established competitors in the PC market, such as HP and Compaq, both of whom are suffering greatly as a result of Dell's unique and aggressive approach to markets and the competition.

This paper will examine Cisco's possible responses to Dell's entry in the switch market in the context of the competitive landscape and each company's general strategy.

2. Networking Industry Overview

The key competitors in the networking industry are Cisco Systems, Lucent Technologies, Northern Telecom (Nortel), Bay Networks (now part of Nortel) and 3Com. Also, new competitors specializing in specific niches of the industry are emerging, such as Juniper Networks, which provides next generation backbone routers specifically designed for service providers. See Exhibit A for a graphical depiction of the Networking Industry.

Threat of new entrants: MODERATE

Customers of the computer networking industry are seeking access to information in order to set higher standards of efficiency and profitability, allowing them to make higher profits. Seamless transmission of data and voice is important to the customer base, requiring competitors to offer broad-based networking products. While the technology for switches and newer networking technology is fairly advanced, it would not be overly difficult for another firm to enter this market, especially through acquisition. Larger high-tech companies may also enter relying on their strengths in brand name recognition, technological knowledge and capabilities and a strong financial background. However, there are some advantages to economies of both scale and scope that Cisco has created, primarily through acquisition, which would be difficult for other firms to compete with. Operationally, the manufacturing operations required for a new entrant may be daunting, but the threat of firms with well-developed manufacturing operations entering this market is a real one.

Threat from Substitutes: LOW

There are very few competing technologies that compare to today's more advanced hubs, routers, and switches. These items are a necessary piece of modern network infrastructure. The rapid pace of technology development in this industry, for instance, accounts for a new generation of backbone routers and switches that are based on fiber optics, thus, creating a new segment called optical networking, that can be a threat for traditional products.

Input Supplier Power: LOW

Many of the input supplies for networking equipment have become commoditized and can be purchased from a large number of different suppliers at the lowest cost. Being undifferentiated, these inputs from one supplier can easily be replaced by goods from another supplier. Relevant inputs to this industry include a highly skilled workforce and some critical components. Some competitors, such as Cisco Systems, have been very successful in integrating its suppliers into its own value chain, thus reducing the power of suppliers to a minimum.

Buyer Power: MODERATE - HIGH

Although Cisco is the dominant player in the equipment market, there are other firms that produce very similar products, which may be viable substitutes for Cisco's products. The target market for the networking industry is large enterprises, service providers (SPs), and – to a smaller extent – small to medium sized businesses. Organizations using higher-margin networking products are large corporations, government agencies, and educational institutions with complex networking requirements. This segment of customers is likely to gain some bargaining power because of its size and the amounts of the products required by them.

Industry Rivalry: HIGH

This market is increasingly becoming one where differentiation is not important and buyer power is growing, as discussed above. Consequently, firms in this industry are compelled to compete on price, and market share is likely to remain fairly stable, absent new entrants or M&A activity. Further, high growth and profitability lead to intense competition. Competitive pressures are reinforced by globalization and the growing strength of both domestic and international competitors.

Complementary Products: MANY

The impact of complementarities on this industry is very important. All products and services that increase Internet or internal company network traffic serve to increase demand to the networking equipment market exponentially, due to network effects. In this light, e-commerce, new software, personal computers, Internet service provider (ISP) accounts, etc., are all important complementarities for this industry. Data, voice and video traffic over the Internet is increasing at a high growth rate, since many companies are offering services such as Internet access, hosting, extranets, e-mails, and so on. In 2000, 275 million people were connected to the Internet and by 2005, this figure is expected to increase to more than 1 billion.

Additionally, end users are driving industry competitors to provide a full range of services as well as a high level of customization. The ability to create a total system that enables the customer to access information and enhances their ability to facilitate their own business and communication processes with their vendors and customers will be a key success factor. Also, the selling process has become more complex as technology has developed, turning it into a highly value added service where a company cannot rely solely on “selling the box”, so offering consulting services must be a critical element of the selling strategy.

3. Individual firm strategies

This section will examine the overall strategies of Cisco and Dell in order to better understand the similarities and differences between the firms. The analysis will employ the “Strategy Diamond” framework to look at the arenas, vehicles, differentiators, staging, and economic logic of each firm. A graphical representation of this framework with the elements presented in the following discussion can be found in Exhibit B.

3.1. Cisco Systems

Arenas

- Product categories. Cisco’s products span the entire spectrum of IP based networking, which includes the following products and technical areas: switches, routers (LAN/WAN), wireless access networking devices, voice over IP,

remote access, optical, storage networking, and networking software. Cisco also generates service revenues through limited consulting, installation, and service contracts.

- Market segments. Cisco primarily targets medium to large businesses and segments these customers further by identifying whether they are enterprise (corporate ex. Shell) or service provider (ex. Yahoo!). In addition, these segments are managed by geographic region and by channel (Direct, Tier 1 – Large Integrators, and Tier 2 – Distributors/VARS. Approximately 70% of Cisco’s sales are Direct and Tier 1.
- Geographic areas. Cisco sells its products world wide through a combination of a direct sales force, partners, and distributors. Approximately 50% of sales are derived in the US, and 40% in Europe.
- Core technologies. Cisco leverages the Internet to generate and create sales, maintain relationships, and lower costs. Over 95% of Cisco’s sales are booked on the Internet.
- Value-creation stages. Cisco adds value by acquiring (30%) and developing (70%) reliable leading edge products in the networking arena and then pushing these products efficiently into the market place.

Vehicles

Cisco was founded in 1984. It has generated large amounts of cash flow through its operations for most of its existence and it has used this cash flow and a richly priced stock to fund growth through acquisitions and internal development. Cisco’s acquisition strategy includes the placement of investments (seed money) into companies with promising technologies/products and to get board representation on these companies. In addition to this approach, Cisco targets high growth market segments and breakaway technologies as identifiers for targeted investment.

Cisco leverages the power of contract manufacturing for 95% of its operations to keep costs low (head count, investment, and overhead). The added advantage in this approach is that Cisco can easily scale up or down as the needs of the market changes.

Differentiators

One of the primary differentiators for Cisco is offering a complete line of networking equipment that can be thoroughly integrated and customized to a customer’s needs (some products have 1000s of possible configurations). In addition, Cisco places a great level of importance on maintaining customer relationships and it does this by maintaining sizable sales and support groups.

Cisco does not compete primarily on price, but instead competes on reliability (very important in an Internet-based environment), quality, and customer service. This approach has allowed Cisco to capture the bulk of the router market (85%).

Staging

Cisco has expanded rapidly in its 18 years of operations. It initially focused on the router market and it acquired technologies and development resources to fill out its product line. Cisco has changed its focus over the past couple of years as the market has matured to develop more of its products inside the organization (leveraging its extensive base of skilled engineers) and to acquire less.

As the company has grown, it opened sales offices in every continent (except Antarctica ☺), but it has maintained its focus on medium to large companies. Cisco has not developed a retail presence, and it is not expected that this avenue will be targeted in the near future. Cisco exports most of its products from the US into other markets.

As the complexity and number of its products multiplied, Cisco moved to utilizing contract manufacturing. It has become a sales and marketing, and a research and development organization.

Economic Logic

Compared to most technology companies in the 'valley', Cisco maintains an atmosphere of frugality, but it is not necessarily a low cost provider. However, Cisco maintains its returns by charging premium prices. Even after the dot-bomb explosion, Cisco was able to maintain its gross margin of 65% by offering high-end customizable premium products and unmatched customer service (granted, sales did fall by 30% but they have been recovering over the past couple of quarters).

3.2. Dell Corporation

Arenas

- Product categories. Dell's products include desktop and notebook computers, network servers, workstation products and storage products. Dell also has service revenues through consulting, installation, Internet access, systems integration and web hosting. In 2001, desktop sales represented 49% of revenues, notebook sales 27%, enterprise systems 17% and sales outside core computer business 7%.
- Market segments. Business segments include international, consumer, small business, health care, government, education and enterprise. 70% of Dell's revenues come from government and large businesses.

- Geographic areas. Dell sells its products in 170 countries through offices in 34 countries. It has manufacturing facilities in US, Brazil, Ireland, Malaysia and China. More than 70% of sales come from North and South America, 22% from Europe and 7% from Asia.
- Core technologies. Dell uses the Internet as a main vehicle to reach its customers. Dell generates 50% of its sales over the Internet.
- Value-creation stages. Dell adds value to its business by its direct model: made-to-order products at the lowest price.

Vehicles

Dell was founded in 1984. Since the beginning of its operations, Dell has grown internally. For example, every time Dell expanded to a new market, it opened new manufacturing facilities instead of acquiring existing ones. It was easier for Dell to develop the direct model from a new facility than implementing it into an existing manufacturing.

Dell also uses alliances with some dominant suppliers (e.g. Intel). Dell deals directly with a few main suppliers on a global basis in order to get advantages from its direct model. The direct model requires suppliers to be aligned with Dell's production in order to get just in time inventory.

On the other hand, Dell as a strategy to enter new markets or businesses has not frequently used acquisitions. Dell has been more actively investing in new companies. Through Dell Ventures for example, Dell has been participating in new technologies and business models, that can benefit Dell's existing business and that can help the company to become a premier Internet infrastructure company. However, Dell recently has announced a more active role in looking for potential acquisitions to grow in the data networking, storage and services businesses.

Differentiators

Customer service is one of the main differentiators of Dell. The Company designs and customizes products and services to the requirements of its customers, and sells an extensive selection of peripheral hardware, including handheld products and computing software. Dell customers cannot only purchase on line, but also get on-line technical support. Dell offers customers customized "Premier Pages", that allow them to make purchases from the company's own Intranet. Indeed, Dell has been developing new sites to provide better customer service (i.e. Dell Talk, an online c2c discussion forum).

Second, the direct model allows Dell to take advantage of operating efficiencies. Build to order processes mean lower inventories, which translate to lower costs and higher margins. Having direct customer feedback allows Dell to offer the latest technologies and improve product quality faster. Indeed, Dell has low working capital needs derived from managing efficiently receivables and payables.

Staging

Dell has expanded rapidly in its 18 years of operations. It started by targeting small business in the US. However, its strategy changed to target large businesses as the company grew and acquired name recognition. Dell also followed a globalization strategy. Dell expanded internationally following three steps. First, Dell established a regional manufacturing facility. Second, Dell established a distribution network in order to expand its name. Finally, it put in place the direct model.

Currently, Dell is expanding its business model to become a premier Internet infrastructure company. It is investing in companies focused on data transfer and storage, Internet services, b2b and b2c online commerce and Internet access and content.

Economic Logic

- Low prices. According to its COO – Kevin Rollins, Dell enters to markets that are starting to commoditize. As a result of this, it can offers customers products at a price lower than that of competitors.
- Low cost manufacturer. Efficiency in its operations (as a result of direct model) allows Dell to be profitable even though offering lowest prices.

4. Situation Analysis

Cisco faces a situation similar to the one faced by large steel mills in the past (see Exhibit C). The steel industry retreated because margins were not high enough on low value products. The mini-mills refined their processes and techniques and managed to produce better higher-grade products over time. The larger mills opted to give up each segment of the market to better focus on the higher margin products. In a matter of 15 years, the mini-mills had the capability to manufacture just about everything within the industry, albeit with lower cost and better quality. In short, the traditional steel industry gave up almost the whole market because it opted to do nothing.

A more current example of this situation is that of Intel and Advanced Micro Devices (AMD). When AMD entered the market, it focused on providing low-end processors, and had every economic incentive to begin moving into the larger-margin, higher-end products that Intel had been producing. Intel has been aware of AMD as a potential competitor in the high-margin market, and they have aggressively fought AMD on lower-end processors with constant investment and new products to keep AMD from moving up the value chain. AMD has slowly progressed up the value chain, but does not dominate the market in any particular segment. It is still a formidable competitor and Intel has to constantly re-invest.

In the case of the network switches industry, Dell is entering the market at the low end, but it is conceivable, even likely, that they will begin to move into higher-margin products as soon as they can develop, manufacture, and sell these products economically.

Cisco has a number of important advantages that they can leverage to slow down or arrest Dell's entry. First, Cisco has a sizeable research and development arm that is constantly innovating to develop newer, better products and technology. In contrast, Dell does not have such a resource. In order to obtain the necessary R&D to compete on an even footing with Cisco, Dell would most likely have to acquire a smaller firm with the technology. Second, Cisco has a huge installed base of large enterprise customers already in place. Cisco's expenses to retain these customers are less than Dell's costs to obtain and then keep these new customers. Third, in the higher-margin products, customization is extremely critical to the more profitable customers. Although Dell has mastered mass-production of customized PCs, the switch and router markets are different in that much of the technology is not "plug-and-play". That is, the technology necessary to customize the more advanced products is proprietary in nature. This is a significant advantage for Cisco. Finally, Cisco is able to offer more complete solutions to its customers, integrating hardware, software, and services. These direct complementary products are critical to enterprise customers for establishing and maintaining their immense networks. This need creates a form of lock-in for the high-dollar customers, many of which belong to Cisco already. In contrast, Dell does not have the infrastructure in place to offer these services, nor does it have the technology to develop software solutions. All of these sizeable challenges will at least slow Dell's movement up the value chain, and if properly exploited, they may enable Cisco to maintain a strong competitive advantage.

5. Cisco Systems' alternative scenarios to face new competition

As competition increases in the network switches industry and Dell becomes a threat for Cisco Systems (initially in the low-end market), Cisco should take one or several of the following actions:

- Leap frog – implement new technology and processes
- Joint venture / alliances / acquisitions
- New "greenfield" approach that doesn't leave the company married to older technologies
- Wait for a better response
- Leverage capital to effectively kill them (Cisco has \$22b cash vs Dell's \$4b)
- New initiatives for business creation

- Identify new customers and target them

Our group recommends that Cisco pursue the first two actions mentioned above. Cisco should try to maintain its leadership position in the network switch market by continuing to implement new technologies and processes. Cisco has an advantage in this area through its R&D capabilities. Cisco should maintain its R&D investments in order to keep developing new technologies that Dell cannot match (Dell has no R&D capabilities). Also, Cisco should continue to pursue its M&A strategy as a way to acquire new technologies and to expand to new markets. Even though Dell already announced its intention to be more active in acquisitions as a way to enter to new markets (specifically in networking and services), it will take some time for Dell to gain the efficiencies derived from this process.

Our second recommendation for Cisco is to form an alliance with IBM to cooperate in specific markets (as described below).

Send a Signal to Dell via Cooperation with IBM – Dell’s primary competitor

To counter-act Dell, Cisco should pursue a storage technology and services agreement with IBM, Dell’s largest competitor. Cisco has been actively pursuing technology in storage area networks (high speed routers and switches) and IBM is a leading storage systems provider (without routing technology), which competes aggressively against EMC, Dell’s primary partner in the storage arena. Cisco and IBM could leverage their products strengths to more tightly integrate Cisco’s storage routing technology with IBM’s storage arrays to provide a superior product offering in contrast to Dell’s and EMC’s offerings (currently, IBM is beating EMC in the market place with superior products at better prices).

In addition to the agreement in storage technology, Cisco and IBM should cooperate in providing integrated network services solutions to large and medium sized enterprise customers. Both firms currently provide such services currently, but the added benefit of a joint services solution in the networking arena should help Cisco sell more products and provide IBM with greater access to Cisco’s extensive customer base. In contrast to this, Dell has been trying to enter the services market and this action by Cisco and IBM (one of Dell’s strongest competitor in this arena) should pre-empt Dell’s potential success, at great cost.

By forming an alliance with IBM to cooperate in certain areas, Cisco can clearly signal to Dell that it will punish any encroachment into Cisco’s core bread and butter products very aggressively. It is expected that this approach will send a strong warning to Dell and also help Cisco keep its focus on premium products at premium prices while avoiding the cost of

having to compete on price on lower end products. (Note: Cisco does not currently serve the very low end of the networking market - e.g. selling hubs or catering to small businesses)

6. Conclusions

- Cisco's strategy is focused more on product development. R&D investments and acquisitions of new technologies have allowed Cisco to be the leader in the network switches market (by providing leading edge technologies) and to compete in margins (by charging premium prices).
- Dell, on the other hand, has weaker R&D capabilities. Dell competes in markets that are beginning to be commoditized. In these markets, Dell can get advantages over competitors due to the efficiencies derived from its direct model. This strategy has allowed Dell's to compete on volume rather than in margins.
- Dell's attempt to participate in the network switches markets follows its recent interest in networking products (storage and servers products) and consulting services. This move is the result of signals of saturation of the PC market in US and interest in moving to higher margins products.
- Cisco has a technological advantage over Dell in the network switch market, an advantage that we find it difficult for Dell to overcome in the short term.
- Cisco should send a signal to Dell that it will punish any encroachment into Cisco's core bread and butter products. This signal should be sent by cooperating with IBM, Dell's largest competitor.
- Signaling by Cisco rather than initiating a price war or by introducing low value hubs and bottom-end switches to compete with Dell will assist Cisco in maintaining its strategy and image of a premium product company.
- If signaling does not work and Dell attempts to move up the value chain, Cisco will need to re-evaluate its strategy and approach to the market.

Exhibit A:

Networking industry

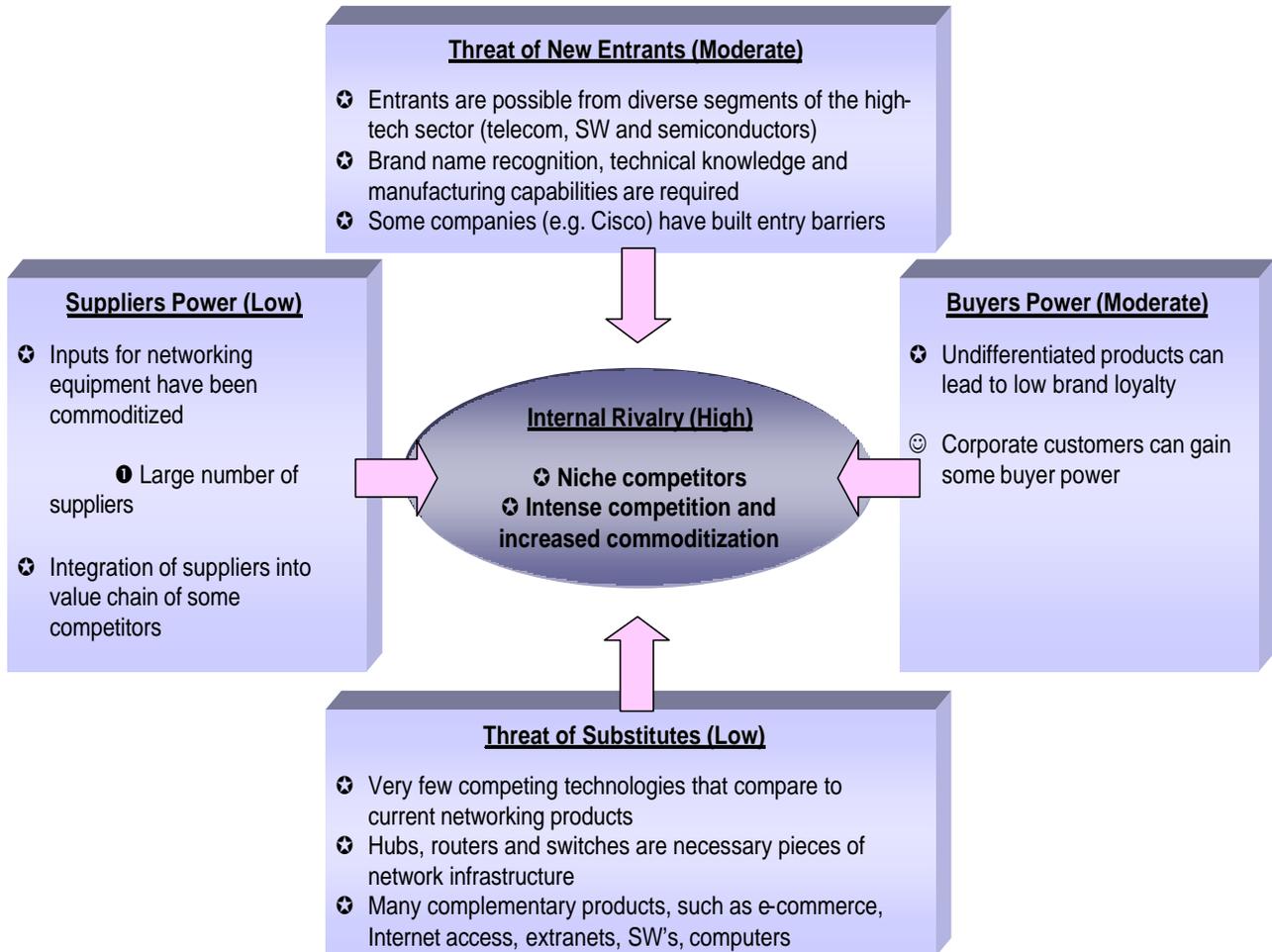


Exhibit B:

The Five Major Elements of Strategy
Framework developed by Professor James W. Fredrickson

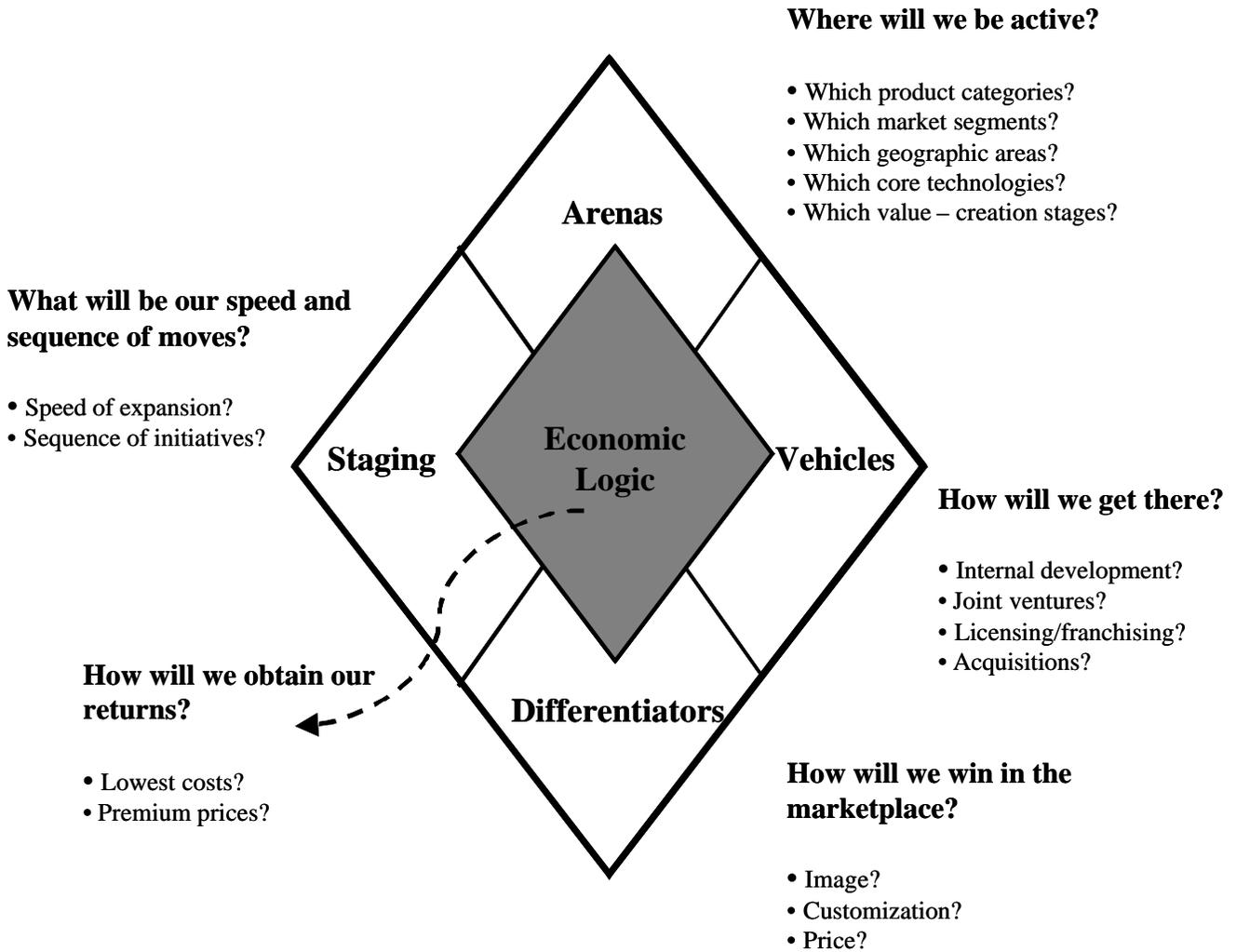


Exhibit C:

