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# Strategy Scenario Selection in the Competition of Mobile Ecosystems

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## Abstract

Competition in the mobile market is centered on platforms, or operating systems, for smartphones. The current competition and market structure of the global mobile market has shifted to a competition among ecosystems that utilize the same mobile operating systems of the platform operators. This paper aims to answer those questions. The direction of competition in the smartphone industry is traced. This study tries to list the selectable strategy options for each major ecosystem. Then the strategy options for each ecosystem are tested in terms of their desirability from the viewpoint of industry experts. Finally, this study tries to put the puzzle together based on the most desirable strategy options for each ecosystem.

## 1. Introduction

It is generally known that mobile ecosystems consist of content, platforms, networks and devices (C-P-N-D). Before the smartphone era, network operators were at the center of these ecosystems, and they usually controlled the mobile market comprehensively. However, after the advent of smartphones, the paradigm shifted and platform carriers emerged at the center. Platform carriers provide the operating systems for smartphones and manage mobile ecosystems. Along with these operating systems, the phases of competition have changed.

The pattern of competition in mobile markets has also changed. Competition is now centered on platforms, or operating systems, for smartphones. The scope of competition also extends to the global market rather than merely regional markets. Thus, the current competition and market structure of the global mobile market has shifted to the competition among ecosystems that utilize the same mobile operating systems of the platform operators.

The interesting issues in this market are: who will win this competition, which factors will determine the winners, and which direction is the competition moving in?

This paper aims to answer those questions. First of all, the direction of the competition in the smartphone industry is traced. This study also tries to list the selectable strategy options for each major ecosystem. Then the strategy options for each ecosystem are tested in terms of their desirability from the viewpoint of industry experts. Finally, this study tries to put the puzzle together based on the most desirable strategy options for each ecosystem.

## 2. Theoretical Backgrounds: Ecosystems and Corporate Relationships

This study is essentially based on the perspective of business ecosystems. Moore (1993) argues that in a business ecosystem, companies co-evolve capabilities around a new innovation. They work cooperatively and competitively to support new products, satisfy customer needs, and eventually incorporate the next round of innovations (Moore, 1993). In a later article, Moore (1996) explains that a business ecosystem is an economic community

supported by a foundation of interacting organizations and individuals – the organisms of the business world (Moore, 1996). In this article, interaction within a business ecosystem is highlighted.

Regarding the characteristics of ecosystems, business ecosystems are extended systems of mutually supportive organizations; these organizations are communities of customers, suppliers, lead producers, other stakeholders, financing groups, trade associations, standard bodies, labor unions, governmental and quasigovernmental institutions, and other interested parties. These communities come together in a partially intentional, highly self-organizing, and even somewhat accidental manner. (Moore, 1998). This emphasizes decentralized decision-making and self-organization.

As is also well known, the evolutionary stages of a business ecosystem follow in this order: birth, expansion, leadership, and self-renewal (Moore, 1993).

In the strategy study, several studies have been done on the relationship between companies with a terminology of strategic network. There are various studies on corporate relationships. The types of corporate relationships are joint ventures (Harrigan, 1985; Kogut, 1988), strategic blocks (Nohria & Garcia-Pont, 1991), strategic supply networks (Dyer & Singh, 1998; Jarillo, 1988), learning in alliance (Hamel, Doz, & Prahalad, 1989), interfirm trust (Gulati, 1995; Zaheer & Venkatraman, 1995), and network resources (Gulati, 1999).

After 2000, studies on business ecosystems moved toward the topic of ecosystem health. Iansiti & Levien (2004) propose data sources to measure the healthiness of an ecosystem such as productivity, robustness, and niche creation (Iansiti & Levien, 2004). Later, Iansiti & Richards (2006) modify the measurement rubric; they include robustness, productivity, innovation and niche creation (Iansiti & Richards, 2006). Since 2005, the IT ecosystem has undergone a rapid series of innovations. Platform diversity and creative new business models are the key characteristics.

There are some trials to explain strategic positioning in an ecosystem as well as the dynamics of ecosystems (Chang & Kim, 2010; Kim & Chang, 2011).

This study proposes selectable strategy options for each ecosystem, based on the ecosystem's strategic actions and decisions. Those strategy options are tested by industry experts in terms of the probability of selection. Based on the probability of strategy selection for each major smartphone ecosystem, most possible strategy scenarios are identified. From a couple of the most possible completion scenarios, the big picture on the future of competition with respect to smartphone ecosystems is drawn.

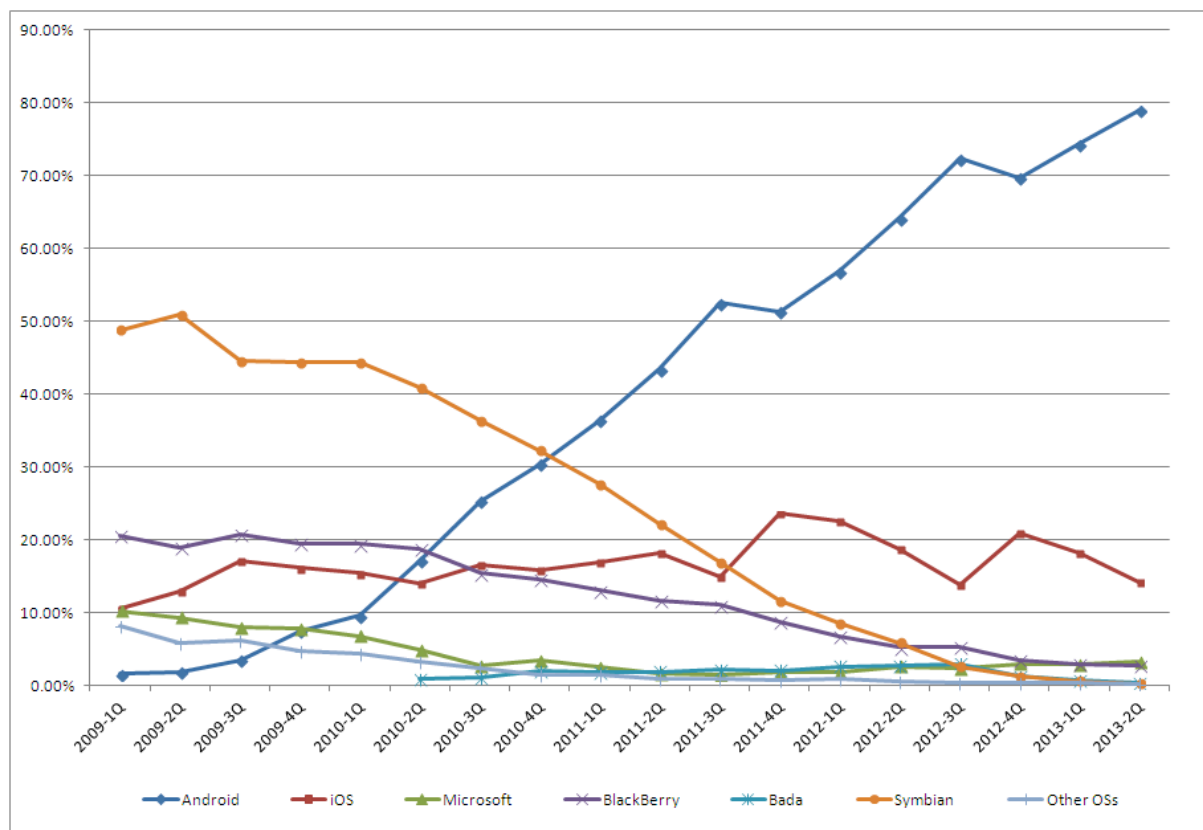
### **3. Competition Status among Mobile Ecosystems**

Mobile ecosystems are typically composed of contents-platform-network-device (C-P-N-D). Before the advent of smartphones, each platform was managed by telecom operators which had telecom networks and contents, which were also selected and determined by telecom operators.

The start of the smartphone was Symbian, Ltd. which was established jointly by handset manufacturers, such as Psion, Nokia, Ericsson, Motorola and so on in June, 1998. Psion developed EPOC which was the basis for Symbian operating systems (OS). Then Blackberry of Research in Motion (RIM), i-OS of Apple, Android of Google, Windows Mobile of Microsoft and Bada of Samsung Electronics were released to the open to market. There is now competition among major smartphone ecosystems.

By the fourth quarter of 2010 Symbian of Nokia had major market shares worldwide, and Android of Google had higher market shares than Symbian since 2011. In the second quarter of 2012, 78.95% of smartphones sold were handsets with built-in Android. Next to

Android, Apple's i-OS had 14.16% and Windows Mobile, Blackberry, Bada and Symbian had only about 7% of the market share.



**Figure 1. Trends of Market Shares of Smartphone OSs**

#### 4. Issues of Competition in Mobile Ecosystems

There are several major issues which affect the competition of mobile ecosystems.

##### 4.1 Google's merge with Motorola Mobility

Google merged with Motorola Mobility by paying 12.5 billion dollars. This merge was evaluated as a convergence of hardware and software by acquiring the brand of Motorola, experts, and production lines as a production structure. By this merge, Google acquired 17,000 patents which Motorola held.

Through this merge, Google is expected to have a better position in the patent battle against Microsoft. Android was operated by several manufacturers, such as Samsung, Motorola, HTC and so on, while Apple produces smartphones as well as i-OS. By this merge, the competitiveness of Android is expected to be enforced. U.S. and the south Americas which are one of the main markets of Apple are also the main market of Motorola's. So Motorola's market penetration of smartphones in the North American market is expected to increase.

Manufacturers which operate the Android OS have worried about the merge of Google with Motorola. They are worried that Motorola could be the major producer of the Android OS and they also might change to other platforms. If Motorola is supported strongly from Google, Android manufacturers could resist.

In the long run, smartphone manufacturers are expected to escape from the reliance on Android and to develop their own OS and contents. Google has to stress their priority on

keeping partnerships with Android open source policy and manufacturers.

#### 4.2 Nokia's slump

Nokia, which has been in the first position in the mobile phone market worldwide since 1998, is in trouble. Samsung Electronics overtook first position in the worldwide mobile phone market since the first quarter of 2011. The reasons for Nokia's slump were that Symbian has the shortcoming of slowness compared to Android, while Android has the strong points of openness and expandability. According to Gartner, while the Symbian OS had the first position in the world mobile device market with a market share of 37.5% in 2010, in 2015 the market share of the Symbian OS is expected to decrease to 0.1%.

Nokia announced that they would take Windows as their OS instead of Symbian and they expect a new startup in the smartphone market. Nokia would fight against Android of Google and i-OS of Apple with Windows phone. However, it is curious that Windows phone can extend their markets in the battle of Android and i-OS which have higher market shares.

Nokia announced to produce Microsoft's Windows phone. Microsoft's marketplace provides application and contents, and Microsoft's Bing is built in as a search engine. Nokia announced to utilize Symbian as a franchise platform to use with payment of license fee.

#### 4.3 Patent battle

The patent battle between Samsung and Apple started from Apple appeals against Samsung Galaxy tab 10.1. It is a fight against Samsung which is the leading company in the Android team. Samsung and Apple are fighting in about twenty patent appeals in nine countries. Samsung is preparing an appeal to halt the sales of i-Phone 5 in Europe, the U.S. and Australia.

Samsung has 100 thousand U.S. patents, 30 thousand of which are related to the telecom industry. Apple is hard to produce mobile phones without the patents of Samsung because Apple has fewer patents than Samsung does. Apple merged with Fingerworks in 2005 in order to obtain high-end multi-touch technology. In 2009 Apple acquired Nortel's patents with 4.5 billion dollars. The patent battle is expected to continue.

Samsung Electronics concluded a patent cross-license contract with Microsoft on September 28, 2011. Through this contract Microsoft is provided with royalties on smartphone and tablet PC's based on Samsung's Android and patent usage rights related to telecom technology. Samsung also uses various source patents related to OS technology.

Samsung has many telecom patents and Microsoft has many patents of OS's, such as application programs and contents. Two companies are able to develop Windows phone 7.5 Mango or Samsung tablet PC applied Windows 8 together. Responding to Google's merge with Motorola, Samsung's strategy is to build multiple OS's as well as Android.

Microsoft argued that Google's Android cheated their technology without permission and received royalties from smartphone manufacturers who applied Android. Samsung is expected to pay Microsoft less than five dollars which was the amount of royalty Samsung paid to HTC. Because Samsung pays royalties to Microsoft, other manufacturers are also expected to get requests of royalties from Microsoft. This contract is expected that the features of Microsoft's Windows7 would be enforced with telecom patent of Samsung. Samsung made a patent cross-usage contract with IBM on February 2011. Microsoft enforced their telecom patent through an alliance with Nokia which has 9,000 patents.

Google is preparing for a patent battle by merging with other companies and buying patents. In July 2011 Google acquired patents related to software programming, memory, micro-processing from IBM through buying 1,030 patents, and in August Google bought 1,023 patents from IBM. By merging with Motorola, Google is preparing for by obtaining

large scale patents as well as obtaining 17,000 patents. It seems for attacking competitors, such as Apple and Microsoft who would attack about Android OS.

The reason why companies are trying to obtain patents is that the battle against the anti-Apple group, such as Samsung, Microsoft, Nokia, and Google is fierce. It is impossible to develop all patents for new products and the patent battle is related with initiative in the market. It will be even more important to respond against patent attack in the future.

#### 4.4 Apple without Steve Jobs

Steve Jobs resigned as Apple CEO on August 24, 2011. Tim Cook, COO took the CEO position. Even though the Apple stock price was down by 7% after Jobs' resignation, according to a survey, most customers would buy Apple products after Jobs' resignation. According to Change Wave's survey on September 6 to 12, 2011 from 2,297 respondents, 89% respondents answered "No effect" which is no influence on their purchasing Apple product after Steve Jobs' resignation. "Less Likely" is only 4%. Every time Steve Jobs left his office due to his health, Cook took over the routine management of Apple. Because there were not any big problems at those times, customers' worry on operating Apple was decreased.

Even though Steve Jobs resigned as the CEO of Apple, trust of the new CEO and management wiped out customers' worries. However, when Steve Jobs passed away on September 5, 2011, worry on the future of Apple increased. Steve Jobs' innovative and creative ideas made several products, such as the iPhone, the iPod, and the iPad. In particular, the iPhone opened the era of the smartphone and was another success story for Apple. Because Apple relied on Steve Jobs so much, Apple lost the powerful forces for Apple's growth. This will affect the sales of IT products for Apple.

Steve Jobs' absence is expected to affect the global IT industry in which there is fierce competition among Apple, Samsung Electronics, Google, and Microsoft, and will also affect the market power of Apple in terms of the smartphone market.

### 5. Major Issues of Competition in Smartphone Ecosystems

#### 5.1 Google-Android: How to utilize Motorola

**Issue:** How Google utilizes Motorola in the Android group is the most critical issue for participants in the Android ecosystem to develop their strategy.

##### **Strategic alternatives**

- Alternative 1: Strategy to increase Motorola's portion as a major smartphone manufacturer in the Android ecosystem (Motorola-centered strategy)
- Alternative 2: Strategy to differentiate Motorola from participants in the Android ecosystem (Regional differentiation strategy)
- Alternative 3: Strategy to let Motorola be. No intervention on the competition among manufacturers (Neutral strategy)

#### 5.2 Apple-i-OS: How open i-OS

**Issue:** As the competition is fierce in the global smartphone market, how can Apple keep their ecosystem closed? How can Apple open their ecosystem toward app-developers and telecom carriers?

### **Strategic alternatives**

- Alternative 1: Strategy to keep their ecosystem closed as usual (Keep closeness strategy)
- Alternative 2: Strategy to open their ecosystem for global competition in some amount (Half-openness strategy)
- Alternative 3: Strategy to open their ecosystem totally as Android ecosystem (Full openness strategy)

### 5.3 Samsung-Bada: How to utilize Bada OS

**Issue:** As Google merges with Motorola, Samsung feels concerned as a major handset manufacturer. In order to respond, how Samsung utilizes the Bada OS they developed is important for Samsung's strategy.

### **Strategic alternatives**

- Alternative 1: Strategy to utilize the Bada OS actively in order to respond to the market as a platform operator and manufacturer (Bada-centered strategy)
- Alternative 2: Strategy to utilize the Bada OS as a negotiation card with Google (Negotiation enforce strategy)
- Alternative 3: Strategy to focus on only handset manufacturing with giving up the Bada OS (Handset focus strategy)

### 5.4 Microsoft-Windows Mobile: How to respond to the market. Alone, Alliance or Merge

**Issue:** As the Windows Mobile OS is still staggering, Microsoft is considering alliances with manufacturers, strategic alliances or M&A. How Microsoft sets their strategy to diffuse Windows Mobile is the most important issue for Microsoft.

### **Strategic alternatives**

- Alternative 1: Strategy to respond to the market alone by improving features as before (Self-responding strategy)
- Alternative 2: Strategy to promote Windows Mobile through loose alliances with manufacturers such as Nokia or Samsung (Passive alliance strategy)
- Alternative 3: Strategy to promote Windows Mobile by merging manufacturers, such as Nokia (Active merge strategy)

### 5.5 Nokia-Symbian: How to deal with Symbian

**Issue:** As Symbian's market power is decreased, Nokia has to determine how to deal with Symbian.

### **Strategic alternatives**

- Alternative 1: Strategy to keep Symbian as its OS with continually improving features (Symbian-centered strategy)
- Alternative 2: Strategy to utilize both Symbian and Android as its OS (Multiple OS strategy)
- Alternative 3: Strategy to focus on Android by giving up Symbian and staying as a handset manufacturer (Handset-focused strategy)

## 6. Selection of Strategies for each Ecosystem

Regarding strategies for each ecosystem, survey responders were asked to answer one question for each ecosystem. Participants were university students who were taking a class on ICT. 48 students participated in the survey. Probabilities of each strategy for each ecosystem are shown in Table 1.

**Table 1. Possibilities of Selection Strategies**

Smartphone ecosystem: Strategic issue	Alternative	Probability
Google-Android: How to utilize Motorola	Motorola-centered strategy	36.67%
	Regional differentiation strategy	34.48%
	Neutral strategy	25.42%
	Others	3.44%
Apple-i-OS: How open i-OS	Keep closeness strategy	55.21%
	Half-openness strategy	24.27%
	Full openness strategy	20.10%
	Others	0.42%
Samsung-Bada: How to utilize Bada OS	Bada-centered strategy	31.38%
	Negotiation enforce strategy	43.89%
	Handset focus strategy	21.81%
	Others	2.91%
Microsoft-Windows Mobile: How to respond to the market. Alone, Alliance or Merge	Self-responding strategy	21.56%
	Passive alliance strategy	39.79%
	Active merge strategy	34.17%
	Others	4.48%
Nokia-Symbian: How to deal with Symbian	Symbian-centered strategy	23.75%
	Multiple OS strategy	41.15%
	Handset-focused strategy	31.35%
	Others	3.75%

Among the strategic alternatives for each ecosystem, major alternatives which have answered most are shown in Table 2.

**Table 2. Major Strategic Alternatives for Each Ecosystem**

Smartphone ecosystem	Strategic alternative	Description of strategic alternative	Probability
Android (Google)	Motorola-centered strategy	Strategy to increase Motorola's portion as a major smartphone manufacturer in the Android ecosystem	36.67%
	Regional differentiation strategy	Strategy to differentiate Motorola from participants in the Android ecosystem	34.48%
i-OS (Apple)	Keep closeness strategy	Strategy to keep their ecosystem closed as usual	55.21%
Bada (Samsung)	Negotiation enforce strategy	Strategy to utilize Bada OS as a negotiation card with Google	43.89%



Windows Mobile (Microsoft)	Passive alliance strategy	Strategy to promote Windows Mobile through loosely alliances with manufacturers such as Nokia or Samsung	39.79%
	Active merge strategy	Strategy to promote Windows Mobile through merging manufacturers, such as Nokia actively	34.17%
Symbian (Nokia)	Multiple OS strategy	Strategy to utilize both Symbian and Android as its OS	41.15%

Except for Apple, most ecosystems are expected to respond passively in some period instead of pursuing radical changes in the current market structure. In the case of Apple, they keep their own strategy. That is, Apple keeps their strategy of being Apple-centered. Apple seems to try to keep their high-end market instead of expanding their market territory toward an ordinary market.

Google is expected to increase Motorola's portion as a handset manufacturer in the Android ecosystem or to induce manufacturers toward regional differentiation.

Samsung might try to expand the market share of the Bada OS, but that is only for negotiation with Google. Samsung utilizes Bada as a negotiation tool.

Microsoft is expected to respond passively and actively. Either way, Microsoft is expected to try an alliance strategy through alliances with manufacturers or M&A.

Nokia is also expected to have both Symbian and Android as its platform.

## 7. Estimation of Competition in Smartphone Ecosystems in Future

In order to identify implications on smartphone ecosystems, this study derives the plausible scenario based on the survey answers. This study summarizes the most selectable strategy alternative for each ecosystem, finds out the core company which influences the selection of strategies, and finally estimates the future status of competition in the smartphone ecosystems.

### Assumptions for setting scenarios

Apple will use a strategy to keep their current market position by focusing on the high-end market as before.

Samsung will be affected by Google's strategy selection in terms of the strategy regarding the Bada OS. That is, Samsung's Bada OS strategy is dependent on Google's strategy selection with Motorola.

Microsoft will respond to the market either passively or actively with alliances with manufacturers (alliance or M&A).

Nokia is expected to try to utilize a strategy on Symbian by changing their market situation.

### Variables for setting scenarios

Google's strategy selection: How to utilize Motorola

Scenario 1: Strategy to increase Motorola's portion as a major smartphone manufacturer in the Android ecosystem (Motorola-centered strategy)

Scenario 2: Strategy to differentiate Motorola from participants in the Android ecosystem

(Regional differentiation strategy)

### **Scenario 1: Google take Motorola-centered strategy**

Samsung will also promote the Bada OS and respond to a Google-Motorola-centered Android ecosystem as well as an Apple i-OS ecosystem. In this case, an alliance between Microsoft and Nokia will be considered more actively.

In the end, in the market four big ecosystems will fight each other among Android (Google-Motorola), i-OS (Apple), Bada (Samsung) and Windows Mobile / Symbian (Microsoft and Nokia)

### **Scenario 2: Google utilize Motorola passively**

Even though Google utilizes Motorola, Google will keep balanced among manufacturers. It could be regional differentiation.

Samsung will also focus on Android, even though it will promote the Bada OS in some sense.

Microsoft and Nokia will consider a strategic alliance. However, the strength is less than in scenario 1.

In the end, even though Android (Google-Motorola), i-OS (Apple), Bada (Samsung), Windows Mobile (Microsoft), and Symbian (Nokia) are fighting each other, the competition is not a full-scale competition. They might focus on their own differentiated markets. It could be regional differentiation. In this case, the market has one big ecosystem of Android, two middle ecosystems of i-OS and Blackberry and three minor ecosystems of Bada, Windows Mobile, and Symbian.

### **References**

- Chang, S.-G., & Kim, J. K. (2010). The Emergence of Global Media Ecosystem and Korea's Strategic Positioning. *Telecommunications Review*, 20(1), 56-70.
- Dyer, J., & Singh, H. (1998). The relational view: Cooperative strategies and sources of interorganizational competitive advantage. *Academy of Management Review*, 23(4), 660-679.
- Gulati, R. (1995). Social structure and alliance formation pattern: A longitudinal analysis. *Administrative Science Quarterly*, 40, 619-642.
- Gulati, R. (1999). Network location and learning: The influence of network resources and firm capabilities on alliance formation. *Strategic Management Journal*, 20(5), 397-420.
- Hamel, G., Doz, Y. L., & Prahalad, C. K. (1989). Collaborate with your competitors - and win. *Harvard Business Review*, 67(1), 133-139.
- Harrigan, K. R. (1985). *Strategies for Joint Ventures*. Lexington, MA: Lexington Books.
- Iansiti, M., & Levien, R. (2004). Strategy as Ecology. *Harvard Business Review*, 82(3), 68-78.
- Iansiti, M., & Richards, G. L. (2006). The Information Technology Ecosystem: Structure, Health, and Performance. *The Antitrust Bulletin*, 51(1), 77-110.
- Jarillo, J. C. (1988). On strategic networks. *Strategic Management Journal*, 9(1), 31-41.
- Kim, J. K., & Chang, S.-G. (2011). Typology Classification and Evolutionary Dynamics of Smartphone Ecosystems. *Telecommunications Review*, 21(1), 14-25.
- Kogut, B. (1988). Joint Ventures: Theoretical and empirical perspectives. *Strategic Management Journal*, 9(4), 319-332.
- Moore, J. F. (1993). Predators and Prey: A New Ecology of Competition. *Harvard Business Review*, 71(3), 75-86.
- Moore, J. F. (1996). *The Death of Competition: Leadership and Strategy in the Age of Business Ecosystems*. New York, NY: HarperBusiness.

- Moore, J. F. (1998). The Rise of a New Corporate Form. *Washington Quarterly*, 21(1), 167-181.
- Nohria, N., & Carcia-Pont, C. (1991). Global strategic linkages and industry structure. *Strategic Management Journal*, 12(:Summer Special Issue), 105-124.
- Zaheer, A., & Venkatraman, N. (1995). Relational governance as an interorganizational strategy: An empirical test of the role of trust in economic exchange. *Strategic Management Journal*, 16(5), 373-392.