STRATEGIC ANALYSIS OF A NETWORK MANAGEMENT SOFTWARE FIRM

by

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PROJECT SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF BUSINESS ADMINISTRATION

In the
Faculty
of
Business Administration

Executive MBA Program

SIMON FRASER UNIVERSITY

Summer 2006

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Date Approved: August 11, 2006

ABSTRACT

This paper analyzes NetGenie Inc. (NGI), a company that develops and sells network management and assurance software, to determine a way to improve its performance since projected sales growth has not been met. The company's approach is examined to determine if the company meets the criteria of strategic fit. An industry analysis as well as an industry value chain analysis is conducted to identify key success factors in the network management industry. The identified key success factors are used to measure NGI's performance against two primary competitors in order to identify threats and opportunities that NGI faces. This competitive analysis is, in turn, applied to craft a new strategy. In order to assess the feasibility of the proposed strategy, NGI's internal capabilities are analyzed to identify gaps that would prevent implementation of the proposed strategy and to determine if and how the gaps can be closed. Finally, detailed recommendations regarding the proposed strategy are presented in an attempt to resolve NGI's performance issues.

DEDICATION

I would like to dedicate this project to Shakeel Velji who supported me with his love and inspiration throughout the program.

I would like to dedicate this project to my brother, Yong-Wook Song, who made this achievement possible by his financial support.

ACKNOWLEDGEMENTS

I would like to thank all employees at NGI, especially my boss, Wendy van Donkelaar, who have supported my educational efforts with patience and confidence.

I would like to thank Dr. Neil R. Abramson for his guidance and feedback, which enabled me to complete this project with expected quality

I would like to thank Dr. Ed Bukszar for sharing his knowledge and expertise in strategy and for improving the quality of the project as a second reader.

I would like to thank all Simon Fraser University personnel including 2004 EMBA cohorts, academic faculty and non-academic staff for their contribution towards my successful completion of the Masters program.

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GLOSSARY

CIO	Abbreviation – Chief Information Officer.
CRM	Abbreviation – Customer Relationship Management.
ERP	Abbreviation – Enterprise Resource Planning.
HIPAA	The Health Insurance Portability and Accountability Act; The first comprehensive Federal legislation implemented to protect the privacy of patients and personal health information.
IP VPN	Abbreviation – Internet Protocol Virtual Private Network.
IT	Abbreviation – Information Technology.
KSF	Abbreviation – Key Success Factors.
R&D	Abbreviation – Research and Development.
SANs/NAS	Abbreviation – Storage Area Network/Network Attached Storage.
Sarbanes-Oxley Act	The Sarbanes-Oxley Act covers issues such as establishing a public company accounting oversight board, auditor independence, corporate responsibility and enhanced financial disclosure. It was designed to review the dated legislative audit requirements.
Second-Tier Product	Products that are embedded to support primary products.
SoIP	Abbreviation – Storage over Internet Protocol.
Triple Play	A three-way service bundle of VoIP services, broadband Internet and cable television/video-on-demand.
VoIP	Abbreviation – Voice over Internet Protocol, The technology used to transmit voice conversations over a data network using the Internet Protocol.
W/LAN	Abbreviation – Wide Area Network/Local Area Network.

1 INTRODUCTION

The rationale of this paper is to analyze the reasons underlying NetGenie's poor performance, and to propose an improved strategy based on the strengths and opportunities identified in this analysis.

1.1 NetGenie, Inc. 2000 - 2006

NetGenie Inc. (NGI, the company) is a U.S. multinational firm located operationally in Vancouver, Canada. Established in 2000, NetGenie Inc. develops and sells network diagnostic software for testing quality and conditions of the end-to-end Internet Protocol (IP) network path. Resembling the postal system, the Internet Protocol is the method by which data is sent from one computer to another on the web, allowing users to address a package and mail it. With the tremendously increasing amount of internet usage and web-based applications, the importance of reliable, fast travel on the internet is increasing. The network diagnostic software marketed by NGI provides proactive information to the user regarding network congestion, problems ("accidents") on the network, the quality of the network, and optimal routing through the network.

Over the past 10 years, IP networks have become one of the most critical infrastructure components for organizations that rely on the network to run their day-to-day business operations. In addition, network-dependent applications such as Voice over Internet Protocol (VoIP) are gaining popularity, placing high demands on the network. Therefore, the ability to handle higher volumes at an acceptable level of quality is becoming more crucial and many organizations are turning to solutions that provide better monitoring and proactive management of the network.

NGI's mission is to improve customers' network performance for maximum business efficiency. In order to maximize returns on investment in networked infrastructure, NGI offers its primary product called MagicNet. MagicNet is a solution designed to reduce the time required to discover and resolve networked application performance faults. The networked application performance faults occur when any web-based software application fails due to network performance problems. For example, users often experience difficulty logging into online banking due to problems and/or congestion on the network. Without knowing where they reside, it becomes very difficult to resolve these problems within a short period of time. MagicNet is designed to find the location of the problems as well as the type of problems. Not only does it identify and isolate the faults, MagicNet is unique in its ability to diagnose the entire end-to-end path of an application and travels within both corporate enterprise networks and on remote customer networks. NGI boasts that MagicNet is the only software on the market that can address all three critical steps. The three steps, which can make a difference in the move towards true IP convergence for all types of applications, are:

- Proactively assess a network before an application is put into production;
- Reactively respond to a user complaint and identify the problem; and
- Discover problems with routinely scheduled health checks before they impact the applications and ultimately the users.

NGI is privately controlled and owned by founders, several investors, and employees through shares and options. There are currently 50 employees in Canada and the US working for NGI. The organization is further discussed in the Chapter 2. Throughout 2002 and 2003, the company completed its first round of financing to raise USD $9.2 million and has plans to initiate the second round of financing sometime in 2006.

1.2 Problems Facing NGI

Despite the competitive advantage its innovative technology affords, NGI is underperforming. As of 2005, NGI had achieved merely 0.25 percent of the total market share, diminutive when compared to its primary competitors NetIQ and Viola who own 0.5 percent of the market share each. Although sales growth has been positive over the past three years, it is nowhere near initial projections in 2002. Table 1.1 illustrates the difference between projected Sales and Net Income and what has actually occurred during the last five years for the company. By the year 2007, the company will have reached only 12 percent of expected sales.

Table 1-1 NGI 2003 – 2007 Sales and Net Income Projection vs. Actual

US $million		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Sales	Projection	$2.30	$16.30	$37.60	$56.10	$75.50
	Actual	$1.00	$1.00	$3.20	$4.40	$9.00
Net Income (After Tax)	Projection	($3.40)	($1.50)	$1.30	$3.00	$5.30
	Actual	($3.90)	($2.90)	($2.10)	($1.10)	$0.00

By the author

Over the past years, management has attempted to identify reasons for the sluggish growth. Results of an investigation in early 2005 concluded that NGI had been overlooking its real target market. The company had been marketing their products towards Enterprise customers who rely on networking for internal day-to-day business operations, but was realising more value in Network Dependent Vendors (NDV). Eighty percent of the time when a NDV customer experiences a problem with their application, the blame falls on the NDV's application, despite the fault being with the customer's network. This creates a need for NDV to demonstrate in a timely fashion that the problem resides within the customer's network rather than their own application. Reducing unnecessary support costs and keeping the customer satisfied create more demand for a solution that detects and prevents network problems from NDV customers than from Enterprise customers. NGI also blames the characteristics of standard network management software that proactively monitors and manages user networks, rather than repair critical

problems. This software's vitamin-like attribute (monitoring the health of the network continuously on a daily basis) instead of a pain killer (using the software to repair critical problems) has made customers more price-sensitive and makes the company's differentiation strategy extremely challenging to implement. Mainly, management criticized the poor performance of its sales and marketing team and as a result, a few key sales personnel have been recently terminated.

At the start of this year, management crafted its vision and short-term strategic goals as follows:

Vision: To become the defacto standard for Application Assurance

Strategic Goals: Achieve USD $11 million in sales and establish repeatable sales models in the following key markets: Infrastructure vendors, Network equipment manufacturers and Network dependent VAR's, Super Regional VAR's, Named small and medium carriers and Named enterprise accounts.

So far, NGI has achieved USD $0.5 million in the first 40 days of the current year. With several large deals over USD $1 million in the pipeline, management believes that the sales target of USD $11 million can be met. However, without firm commitments from prospects, management's confidence should not be overly optimistic. Management would be wise to note the sales team's propensity for over-promising as indicated by their past performance. NGI has developed a novel sales model and is in the process of refining it. The successful achievement of the target sales figure will determine whether the developed sales model works well or not.

The CEO's criteria of success are solely based on sales over the next three years. To reach the specified targets, sales need to grow by nearly 100 percent each year, hence reaching USD $9 million in fiscal year 2007 (from April 2006 to March 2007), USD $18 million in fiscal

year 2008, and so on. The company is not concerned with profit margin growth and believes that gross revenues are the most appropriate indicator of performance at this stage. NGI is just looking to break even in 2007 and maintain a positive profit margin afterwards. Subsequently, NGI plans to notably increase its sales force in order to meet the target revenue, regardless of profit margins. If the sales target is satisfied, the company's performance will be considered successful by top management and in turn, may be placed on the market for acquisition by a larger firm. Therefore, the key objective of this analysis is to determine the weaknesses of its current strategy and to formulate a strategy that accelerates NGI's sales growth, and eventually attract bigger firms.

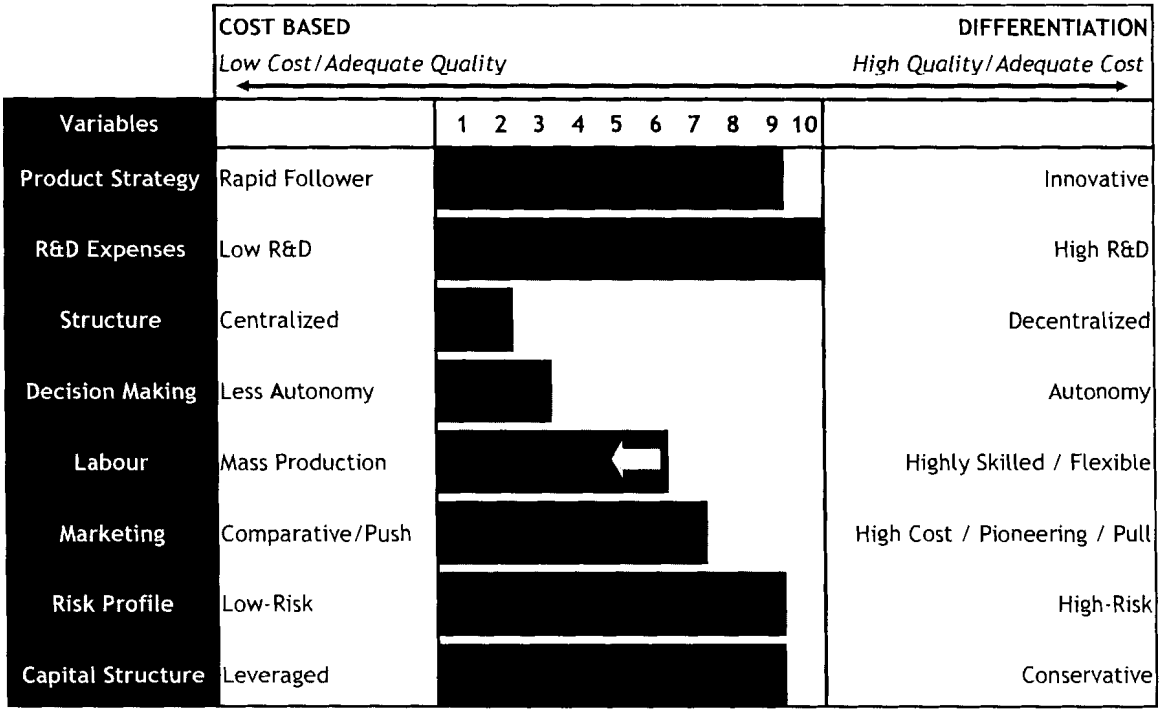
1.3 Current Strategy

NGI's primary competitive advantage is the ability to offer a differentiated product from competitors. NGI positions MagicNet as a solution that delivers high financial returns relative to cost. It competes primarily based on relative value to the customer and ease of use, rather than price. The first step of this analysis is to identify any weaknesses in NGI's strategy using Michael Porter's Competitive Advantage model.[1] This model helps identify whether key business areas such as product strategy, structure, labour, and marketing fit into NGI's strategy. If there are variables that are present on the other side of the continuum, they represent weak areas that potentially force a firm to be "stuck in the middle", indicating an ineffective strategy.

As displayed in figure 1-1 (page 6), the overall strategic fit of NGI appears to be aligned with its differentiation strategy with the exception of two key areas: structure and decision making. These two areas are Cost Based Strategy related and display the weaknesses of the firm. A brief assessment of these variables is discussed in the following section in order to understand the strengths and weaknesses of NGI.

[1] Michael E. Porter, *Competitive Advantage: Creating and Sustaining Superior Performance*, (New York: Free Press, 1980)

Figure 1-1 NGI Strategy Diagram



Adapted from Bukszar class notes (2006)

1.3.1 Innovative Product Strategy

NGI has a very transparent product strategy. NGI's continuous innovation enables it to offer a product which clearly differentiates itself from competitors'. The following briefly describes NGI's innovative approach.

The starting point for most network-related software is an assessment of the current state of the network. Invariably this involves network performance measurement, which provides an assessment of the key metrics of the network and leads to analysis that proactively or reactively deals with problems. Each product in the network software industry employs some form of performance measurement. These range from full end-to-end evaluations of networks to detailed analyzers of traffic at specific points on a network, which can be categorized into four major approaches: simulators, standards-based data collectors, packet analyzers, and remote "monitor the web" tools. MagicNet's approach, a mathematical solution to the challenges of network

measurement, deviates from the aforementioned methods. NGI uses an active, real-time, and agent-less approach which offers multiple technical competitive advantages such as clear view of the entire network, easy implementation, fast and clear actionable information, and broad applicability. NGI's most recent innovation includes MagicNet VoIP for the IP telephony market where performance management and voice quality solutions offer significant opportunities.

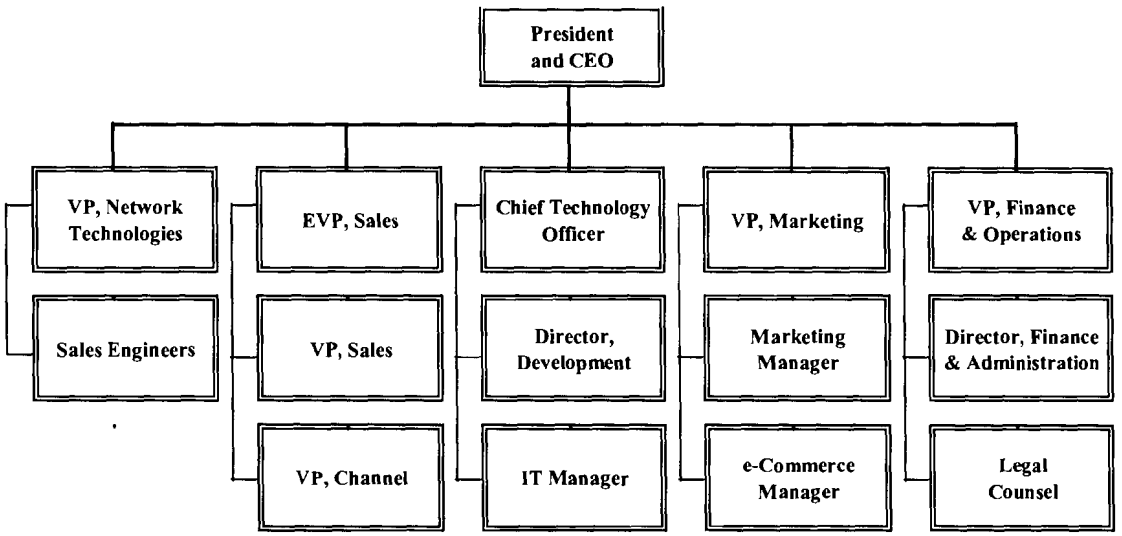
In summary, NGI is an innovator rather than a follower with respect to product strategy. As a result, product differentiation strategy is one of NGI's key strengths.

1.3.2 Centralized Structure and Less Autonomy in Decision Making

NGI has a relatively centralized structure as demonstrated in figure 1.2 (page 8). Most of the functional teams reside in Vancouver and a handful of sales personnel reside across several States in the US, where they work out of their homes. All of the departments are, therefore, centralized in Vancouver with responsibilities and decisions being driven from a centralized management team. As a company with a "start-up" background and heritage, the CEO participates in the majority of operations and ultimately makes the big decisions.

NGI's centralized structure creates less autonomy in decision making (quite common for tech start-ups in early stages). Although there is some degree of flexibility on the departmental level (Sales, Marketing, R&D, and Finance & Operations), key decisions related to the Company's strategic planning as well as Human Resources planning are made by the CEO and functional Vice Presidents (Sales, Marketing, Technology and Finance and Operations). These strategic decisions are usually in regards to product direction, market positioning, target customers, Human Resource decisions and so forth. Each department is allowed to take different methodologies or steps to execute the defined strategies or decisions to some extent, but senior management closely monitors the process and outcomes.

Figure 1-2 NGI Organization Chart



By the author

This contributes to increased efficiency around the organization to a certain extent because reaction to market changes and other forces can be swift without a convoluted bureaucratic process. In addition, this is effective for maintaining the tight control desired by the CEO given the immature stage of the company. Conversely, the resulting problem is a loss of creativity and empowerment resulting in over reliance on senior management. The dependence on senior management has also created an undesirable culture in the company where employees do not take full accountability. Rather than being able to make a decision on trivial matters, employees often involve one of the VPs. In addition, without independence in jobs, the Company faces a high turnover problem with its highly skilled labour force. Attracting new highly skilled workers is also a hard task due to the lack of autonomy in the company's structure. The high turnover problem has not been a huge issue for the company (about 10 percent every year which is moderate) in the past, however, the company is having difficulties attracting highly skilled labour. This can be seen in a recent attempt to hire a new Executive Vice President of Sales where NGI interviewed several candidates who were very competent, but failed to recruit them. The candidates preferred a working environment where they are given sufficient freedom to make

their own decisions. As this problem of attracting good talent continues in conjunction with highly skilled labour leaving the firm, the company will be left with only low quality labour without decision-making skills.

In summary, NGI has a centralized structure and non-autonomous decision making which does not support its differentiation strategy. These cost-based related variables especially affect NGI's labour, driving out flexible employees and leaving only employees who are expensive, but are not necessarily flexible.

1.3.3 High R&D Expenses and Highly Skilled Labour

NGI is an R&D intensive organization. Product Management and Research and Development are very large and distributed organizations within the company. The primary objective of the research and development unit is to generate new intellectual property and translate it into customer value by incorporating it into NGI's products. To achieve this objective, NGI has been hiring and retaining people with proven track records and ongoing excellence in performance. NGI primarily hired people with whom one or more members of the existing team had past experience working in companies such as IBM, Microsoft, Sun Microsystems, Silicon Graphics, Oracle, Texas Instruments, MacDonald Dettwiler, Nortel, and Crystal Decisions who have a strong reputation for their R&D/Sales employees' skill sets.

Consequently, NGI has high R&D expenses. Developers are some of the highest paid employees in the company excluding management. A starting salary for a Developer is approximately USD $80,000 compared to a starting salary of USD $40,000 to USD $60,000 for other department personnel. The average for research and development spending as a percentage of sales is approximately 13.5 percent in the software industry. Overall, NGI is investing approximately 30 percent of net sales in R&D in order to maintain their product enhancements and competitiveness.

In addition to the expensive R&D labour, the company also offers relatively high compensation to attract highly skilled labour in other areas. As of January 2006, the average annual salary of employees is $98,500 in US dollars (dividing total salary costs over the average of the last four quarters by total headcount). Like any software firm, people are the company's biggest asset; hence it seems inevitable for NGI to adopt a highly skilled labour strategy.

This strategy allows the company to maintain a strong R&D team who are able to execute the company's innovative product strategy. However, the centralized structure and top-down decision making has had some negative influence on the quality of the labour. Some of the highly skilled and flexible labour, especially in the sales team, have left the company with the frustration of not being able to make a decision without the CEO's consent, leaving only workers who have the technical knowledge, but are unable to take on full accountability. Without being able to retain and attract labour that is not only technically competent, but also has high-level thinking, the company is wasting its money on the wrong people.

Briefly, NGI has high R&D expenses and highly skilled resources to some extent, aligning with its differentiation strategy. At the very least, trying to hire only the best in the industry has been NGI's intention, however, NGI's centralized structure is forcing its labour to shift to the left (cost-based) side.

1.3.4 Pull Marketing

NGI focuses on both business awareness and technical awareness. With respect to the business awareness, NGI has employed the pull strategy by creating broad-based IT media communications and sales collateral deliverables. NGI has enlisted the services of a leading public relations firm to build early market awareness through the construction of a comprehensive public relations strategy that entails conducting media training, and executing tours with network software analysts from IDC, EMA, Meta Group, Forrester Research, Giga Information Group,

and Burton Group. Sales and marketing spending over the last four quarters was over 50 percent of total operating costs (56 percent, 55 percent, 60 percent, and 58 percent), which exhibits the importance of its marketing strategy.

In order to build awareness and validation, NGI has adopted a strategy of partnering with major North America University network providers in order to establish technical credibility. The providers use MagicNet to conduct testing, measurement, and diagnosis of their cross-country high-speed (gigabit) network. NGI publicizes the results of the experience through seminars and workshops attended by industry and academic leaders. Leveraging industry experts' credibility to provide technical references and support product branding efforts for use in sales and marketing programs demonstrates the push strategy to some degree.

NGI employs both a direct sales model and a leveraged lead generation and sales model. Under the direct sales model, sales representatives paired up with systems engineers target potential customers in selected regions. NGI also uses network consultants to introduce MagicNet to potential customers (the consultant's clients) efficiently and convincingly. Again, some degree of the push strategy is present while the pull strategy is primarily employed.

In conclusion, NGI's marketing strategy is primarily "pull" with some components of "push". This strategy is in line with NGI's differentiation strategy and works fairly well. The difficulty in lead generation and in converting prospects to revenue in the past mainly owes to the wrong target market segmentation (i.e. Enterprise customers) and the ineffective sales force.

1.3.5 High Risk Profile

NGI has several risks and weaknesses. Its market share is small due to the lack of brand recognition within the target segments and has a limited geographical reach. Threats from new competitors using similar technologies also exist. There is a risk of uncontrolled growth

weakening sustainability. NGI has plans to mitigate the risks by employing effective public relations, patenting core technologies, and actively sourcing acquisitions or forming alliances with market players selling complementary products.

Given the high competition, vigorous entrants to the market, and NGI's aggressive approach to sales and marketing, NGI definitely has a high-risk profile.

1.3.6 Conservative Capital-Structure

NGI's capital structure is conservative with minimal debt. All of the funding was raised through shares (series A preferred shares) and convertible warrants. The company has an employee stock option program and employees own the company's common shares. As of December 31, 2006, the debt ratio (Long Term Debt/Capital Stock) is 6 percent. Like many other software companies, the principal source of funding for NGI is its operating cash flow. NGI has very little debt, which provides the stability needed to survive a potential industry downturn and fund aggressive research and development. NGI's conservative capital structure fits neatly to its differentiation strategy.

1.3.7 Summary

Most key business variables are aligned with NGI's differentiation strategy. However, there are several weak areas that are shifting variables to the middle of the continuum. Its centralized structure and too much dependence on senior management are recruiting and retaining non-risk takers who are content with being told what to do without any real autonomy. The company is not getting value for the big salaries paid to these employees. NGI needs to improve some aspects of its strategy in order to avoid the "stuck in the middle" syndrome.

In order to determine a better strategy, the following Chapter 2 outlines the state of the Network Management industry, determines key success factors through the application of

Porter's Five Forces Analysis and Industry Value Chain Analysis, and proposes a revised strategy in order for NGI to gain more market share and increase its revenue.

Chapter 3 analyzes the capability of NGI to execute the proposed strategy and outlines any areas where operational and structural changes are required to proceed with the recommended course. This analysis focuses on the firm's existing management preferences, organizational capabilities and resources in the context of the key successes factors and proposal put forth in Chapter 2.

Chapter 4 is comprised of the specific recommendations to facilitate the execution of the strategic proposal and is followed by Appendices of supporting financial information as well as the reference bibliography.

2 EXTERNAL ANALYSIS OF NETWORK MANAGEMENT INDUSTRY

2.1 Five Forces Industry Analysis

Companies in the network management industry make products for performance, fault, and/or availability management, and overall network assurance. Network assurance is an effort to guarantee that the underlying network can support end-to-end commitments of an application performance on the Internet Protocol network. Network availability management applications enhance the network maintenance and optimization capabilities of IT organizations by giving their staff visibility and access into the past, current, and future performance of network infrastructure. They include network assurance (network fault and service-level management and enhanced service-level management) and network control (network traffic testing, management, and analysis).

The current (2005) size of the industry exhibited in revenue is USD $1.94 billion, a 41.6 percent increase from USD $1.37 billion in 2002. It is expected to grow to USD $2.45 billion in 2009 at a steady compound annual growth rate (CAGR) of 5.5 percent as per IDC[2]. The five primary players of the industry are IBM, Network General, Agilent, HP, and Micromuse whose market shares are 20 percent, 11 percent, 9 percent, 8 percent, and 8 percent respectively. Seventeen mid-sized network management firms such as Concord, Lucent, CA, and Nortel Networks make up another 38 percent. With its current market share of 0.25 percent, NGI

[2] IDC is the global provider of market intelligence, advisory services, and events for the information technology and telecommunications industries.
V.W. Lui, *Worldwide Network Availability 2005-2009 Forecast and Analysis*, (Framingham, MA: IDC, 2005).

belongs to the "other" category of six percent, which is comprised of various (more than 20) small firms that focus on developing and selling only network management software.

Considering the above industry size, Michael Porter's Five Force Industry Analysis[3] technique is adopted in the following analysis of the network management software industry. This technique models the extent an industry is influenced by five forces that act upon it: Barriers to Entry, Buyer Power, Supplier Power, Threat of Substitutes and the Degree of Rivalry. Managers utilize this model to understand the external forces working on an industry, allowing them to form their strategy in the context of the environment the firm operates in, and identifying the factors that provide a firm with the best competitive advantage. The weaker the five forces acting on the industry, the greater the potential profitability is for firms operating in the industry.

Figure 2.1 (page 16) provides a diagram illustrating the Five Forces of the Network Management industry. Barriers to Entry, Buyer Power, Supplier Power, and Threat of Substitutes, are discussed in the next section for the purpose of identifying key success factors that will be utilized in the comparison of NGI to its competitors, followed by a value chain analysis. The final force, Degree of Rivalry, is examined in the competitive analysis, section 2-4.

2.1.1 Threat of Entry – High

The threat of entry determines how easy or difficult it is for new entrants to enter the market and the effects on competition. Industries usually possess characteristics that protect incumbents by inhibiting additional rivals from entering the market. These barriers to entry are important as they reduce the number of new firms entering the market and enable incumbents to maintain a level of profit. The threat of entry in the network management industry is high due to the following reasons.

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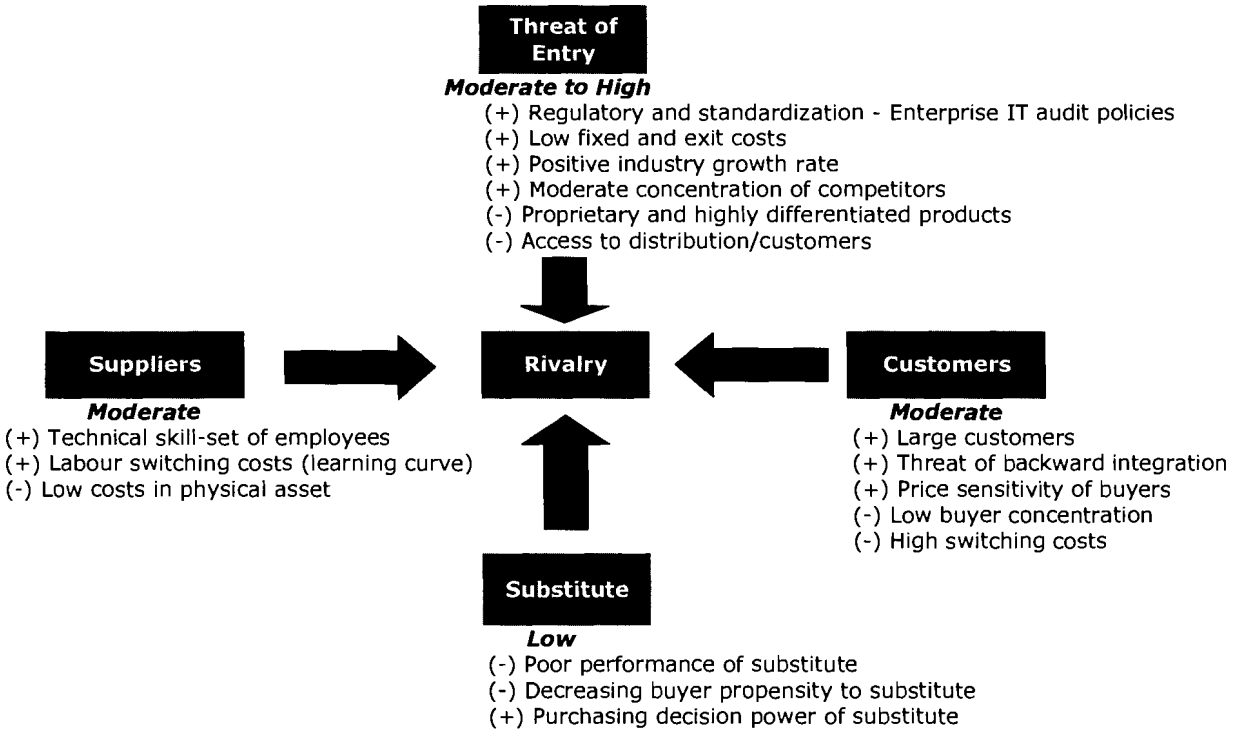
[3] Michael E. Porter, *Competitive Advantage: Creating and Sustaining Superior Performance*, (New York: Free Press, 1980)

Figure 2-1 Five Force Industry Diagram – Network Management Software



Adapted from Michael E. Porter (1979)

2.1.1.1 Changes in regulation and standardization (+)

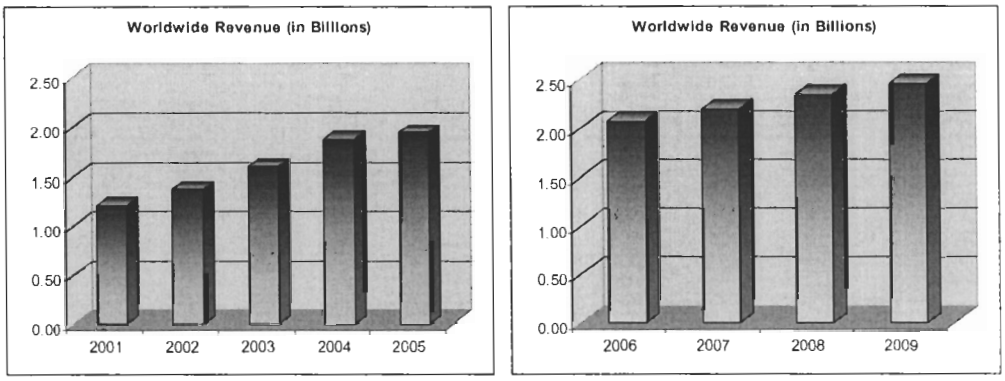
IT operation control policies (HIPAA, Sarbanes-Oxley Act, etc.) are accelerating the IT investment in network management products. The policies require firms to have a tight control around the network as well as better visibility in the network.

This creates importance for a product that incorporates "real-time" provisioning, monitoring, reporting, fault, performance, and troubleshooting technologies. In addition, liaising network problems to applications performance and business process objectives are critical in providing transparency to IT management. This helps IT organizations reduce compliance costs and shorten mean time to repair (MTTR).

2.1.1.2 Low fixed and exit costs (+)

The minimal initial investment and low fixed costs as noted previously, permits new entrants into the industry with relative ease. This lowers the entry barrier and increases the threat of new entrants resulting competition. Exit costs for a failed firm are relatively small, confined to human development effort and any marketing or sales activities. No large physical capital expenditure such as equipment and real estate is required, making it relatively easy for a firm to simply end development of a failed product and move on to other markets.

Figure 2-2 Worldwide Network Management Industry Revenue



By the author based on the information provided by IDC (2005)

2.1.1.3 Positive industry growth rate (+)

There has been a positive trend in the industry growth rate over the past five years. The industry growth rate averages 12.7 percent, which is well above the inflation rate of 3.4 percent (2005 average). The positive trend in the growth rate increases the threat of entry as the demand and potential profits attract new firms. It is also forecasted that the positive trend (CAGR of 5.5 percent - likely above the inflation rate which fluctuated between 1.4 percent and 3.6 percent for the past six years) would continue for the next five years as per IDC's estimates and projections. Figure 2-2 displays the industry worldwide revenue for the past five years as well as projections for the next four years.

2.1.1.4 Moderate concentration of competitors (+)

The industry is fragmented into clusters of smaller companies in network management which control over 40 percent of the market, and take in under USD $100M in annual revenues (most are well under that). The other end of the network management market is populated with a couple of giants, HP and IBM, who offer a framework dealing with all aspects of an enterprise including management of critical business applications, network infrastructure, and performance. Despite their sizes, IBM and HP currently hold only 20 and 8 percent of the market respectively. The Herfindhal Index[4] of the Network Management Software industry based on 2004 is equal to 882.08.[5]

This moderate concentration level indicates moderate rivalry (Less than 600 is considered high rivalry with low concentration, 1,000 – 1,800 is considered concentrated, or low rivalry, and above 1,800 is considered highly concentrated, with very low rivalry), which increases the threat of entry.

However, a shift to increase the current concentration level is expected in the next couple of years as businesses look to cut IT costs and the number of suppliers with which they work with. This creates opportunities for the big technology companies to expand into network areas (vertical integration), or offer more types of products within their second-tier product categories. At the same time, this increases the pressure on smaller companies who are less competitive.

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[4] United States Department of Justice, "The Herfindahl-Hirschman Index", http://www.usdoj.gov./atr/public/testimony/hhi.htm.
The Herfindahl Index is a simple equation that measures the concentration of competition in an industry. The index equation is HI = 10,000 x (The sum of (the square of each firm's market share)).

[5] HI = 10,000 ((0.196)2 + (0.112)2 + (0.085)2 + (0.084)2 + (0.078)2 + (0.051)2 + (0.05)2 + (0.042)2 + (0.037)2 + (0.036)2 + (0.027)2 + (0.027)2 + (0.026)2 + (0.023)2 + (0.02)2 + (0.011)2 + (0.008)2 + (0.006)2 + (0.005)2 + (0.005)2 + (0.005)2 + (0.005)2 + [(0.063)2] = 882.08
The numbers are based on 2005 IDC figures. The remaining 6% market share was divided amongst 20 assumed companies each with a market share of 0.3%, a figure less than the last company in the data set. This approximation is indicated in the equation by a [ ]. Attributing this 6% "Other" to a single "niche products" entity results in a HI value of 1.98, which is minimal for the purpose of the analysis.

2.1.1.5 Proprietary products (-)

There is a clear presence of patents in the industry as intellectual properties are the crucial assets of any software industry. The legal constraints to entry created by the government constitute a high barrier to entry. However, the evolving hardware architecture consequently forces firms to continuously make changes to their existing technologies. This erodes the barrier to some extent because an incumbent's product, unless constantly changed to adapt to emerging technology becomes obsolete (loses its competitive advantage – entry barrier) and any new entrant with a new technology can enter the market. Furthermore, there is still room to implement more intelligence (i.e. capability to directly link a network problem at the device level to application performance) in existing software, which permits the entry of firms that modify existing technology.

In summary, there are proprietary product differences creating barriers to entry in the industry to some extent, but the barrier is not strong enough to block new entrants who have different (even slightly) technologies. This means that it is critical for the incumbents to continuously innovate in search of new technology that provides more control and visibility of the network.

2.1.1.6 Highly differentiated products (-)

The starting point for most network management software is an assessment of the current state of the network. Commonly, this involves network performance measurement, which provides an assessment of key metrics of the network and leads to an analysis that proactively or reactively deals with problems. However, forms of the network performance measurement employed by each product range from full end-to-end evaluations of network to detailed analyzers of traffic at specific points on a network. Even the approach to network performance measurement varies according to the product, reinforcing the idea of uniqueness among products.

As firms are able to differentiate their products and services (maintenance, implementation service, and training), the barriers to entry are decreased to some degree.

2.1.1.7 Relatively difficult access to distribution and customers (-)

Distribution channels in the industry can be categorized into direct, indirect (resellers, system integrators, and original equipment manufacturers), and managed service providers. "Direct" refers to sales of products to customers directly using a company's own sales force without any third party involved, whereas the "indirect" refers to sales to end-users through a third party. While resellers, system integrators, and OEMs (original equipment manufacturers) all involve a third party, the sales methodology varies. Resellers buy products from firms and sell them to end-users without modifying the products. OEMs purchase products from firms, modify them, and sell them under their own names. A company that specializes in building complete systems using various products from different manufacturers is referred as a "system integrator". These indirect channels, if well managed, can provide expanded market share in existing markets, open new markets and be cost effective without a large investment. The challenge in building a successful indirect sales channel strategy is to develop a process that will assist in managing the indirect channels to ensure long-term success. The process involves many elements, but an effective indirect sales channel strategy should include a few key elements. It is important for firms to clearly define roles of a channel team and define capabilities of partners to ensure they are able to bring values to the firm as well as to work with the sales team. Partner selection process to identify and qualify the correct partners with careful criteria and competency requirements is also critical. Finally, service providers are companies that manage information technology services for other companies through the internet.

The direct channel creates a barrier to entry because buyers are more likely to make a conscious choice based on brand identity and may be reluctant to purchase products from a new

entrant which has not established its market presence. On the other hand, the indirect channel is receptive to new products. Firms in the indirect channel facilitate new entrants in establishing strategic partnerships by embedding entrants' new technology into products and brands that are already broadly deployed.

Therefore, if a brand identity cannot be obtained easily, establishing as many strategic partnerships as possible with renowned resellers is a key to alleviate the threat from new entrants for a firm like NGI.

2.1.1.8 Overall Key Success Factors for Entry Threats

After analyzing the first force, three clear KSFs can be derived. As IT compliances and off-shoring practices are becoming prevalent, a real-time and proactive network management product which can shorten repair times (decreasing the network management costs), and can provide tight control and clear visibility of the network is critical. Furthermore, firms need to continuously innovate and tailor products according to market needs. Therefore, the following two KSFs can be obtained:

a) Real-time and proactive network management solution that provides clear visibility of the network.

b) Ability to innovate and adapt new technology according to changing market needs.

In addition to the above KSFs, the firms need to identify global and regional indirect channel (OEMs, resellers, system integrators) relationships for both enterprise and network dependent vendor opportunities in order to gain access to distribution and customers. Thus, it can be concluded that the third KSF is as follows:

c) The number of current strategic alliances with renowned partners and the ability to quickly form exclusive relationships with new partners in order to penetrate the market.

2.1.2 Bargaining Power of Customers – Moderate to High

The power of buyers is the impact that customers have on an industry and is an important force as it affects the price, hence a firm's profitability. Customers who use a network management application can be segmented into Enterprise, Network Dependent Vendor (NDV), and Consultants and Integrators whose characteristics are described as follows:

Enterprise Customers have a degree of dependence on IP network (LANs and WANs). They have a supply of external network capacity with a service level agreement (SLA). Concerns of Enterprise Customers are customer focused operations, data storage and redundancy, and security. Their future network investments include VoIP, IP VPN, SoIP, W/LAN, and converged data requirements. Examples of these customers are FedEx, Telus, Electronic Arts, and the United States Department of Defence in addition to many other enterprises.

A Network Dependent Vendor (NDV) can be characterized as having a high, or critical, reliance on networks to deploy applications and services to their customers and end users. NDVs are companies providing enterprise products such as ERP, CRM, SANs/NAS. They have remote deployment capabilities for network management (e.g. behind their customer's firewall) and detailed report generation which aids users' accounting and customer support systems both economically and organizationally. They require compatibility and inter-operability to handle messaging and exporting data to other business applications and systems. Examples of these customers are Oracle, salesforce.com, Pivotal, IBM, Microsoft, et cetera.

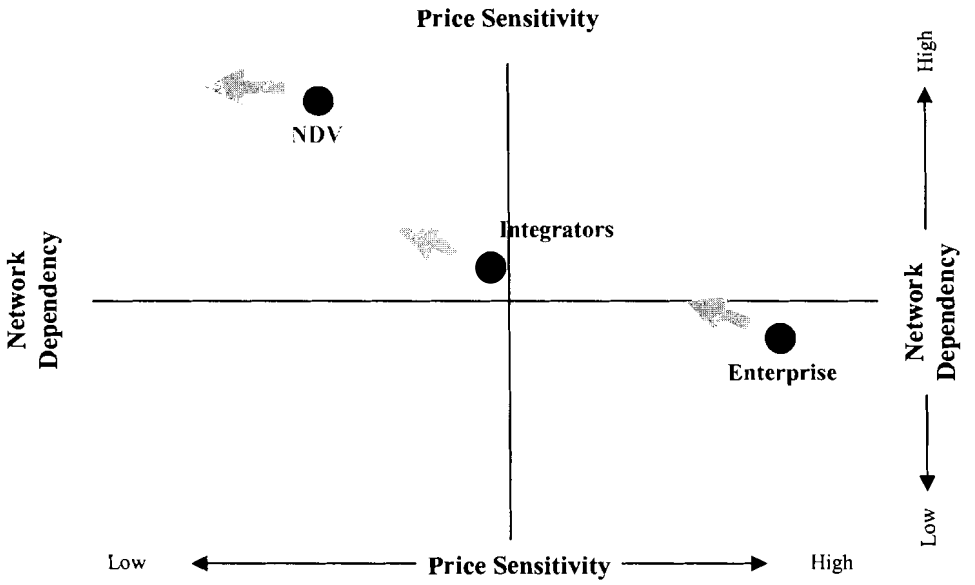
Consultants and Integrators require a software toolset for network diagnosis, analysis, and pre-deployment testing applicable to laptop installation (mobile/lightweight). They provide training and support for deployment and use of network management tools, and require detailed report generation for analysis and modelling for consultations.

The figure 2-3 (page 24) presents each segment's positioning based on two characteristics: price-sensitivity and network dependency. All three segments are trending towards higher network dependency and lower price-sensitivity due to the increase of current and future applications' dependence on the network. The customers have little choice but to acquire a network assurance application. Currently, the segment that is not as price-sensitive and is greatly dependent on the network is the NDV. In addition, as displayed in figure 2-4 (page 25), the Enterprise Customer segment accounts for the biggest slice of the pie at 46 percent, or USD $888 million in revenues[6] in the year 2005. IDC forecasts that by the year 2009, the NDV segment will expand to 42 percent, becoming the biggest segment of all, due to the increasing emergence of technologies that are network dependent such as VoIP, Video over IP, and wireless mobile technology.

Initially, NGI's management primarily targeted Enterprise Customers with complex, mission-critical networks because of the 46 percent market share and belief that these customers would provide more opportunities in the future. In early 2005, NGI realized that its product could offer more value to the NDV segment whose products critically depend on reliable network performance in order to support their customers. As vendors dependant on emerging VoIP technology increase, MagicNet's value propositions are much more convincing to NDVs than to Enterprise Customers. In addition, Enterprise Customers are generally the purchasing decision makers and may be hesitant to buy a product that threatens their own job, which is not the case with NDVs.

[6] V.W. Lui, *Worldwide Network Availability 2005-2009 Forecast and Analysis*, (Framingham, MA: IDC, 2005).

Figure 2-3 Customer Positioning Diagram

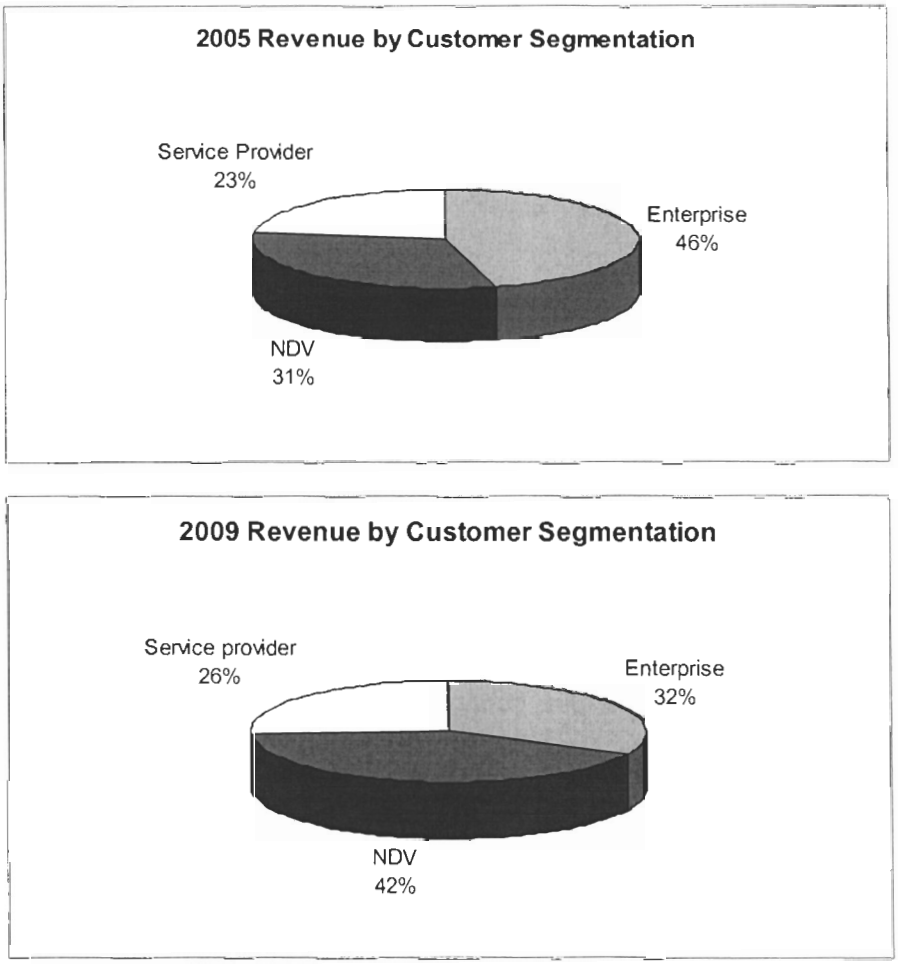


By the author

As a result, NGI's main market focus is now Network Dependent Vendors who require compatibility and inter-operability to handle messaging and exportation of data to other business applications and systems. NDVs desire clear visibility into their networks as well as their customers' networks. Detailed reporting capabilities to present network faults to customers are also important.

NGI also continuously targets a small number of named Enterprise Customers. Tighter controls to be compliant with IT operational control policies and visibility of their networks in order to reduce costs are important to the Enterprise segment. Therefore, the following analysis is based on two market segments; Network Dependent Vendors and Enterprise Customers who are significant to NGI.

Figure 2-4 Network Management Industry Revenue by Customer Segmentation



By the author based on the information provided by IDC (2005)

2.1.2.1 Large customers (+)

In the network management industry, about seventy percent of customers are large firms with over 1,000 employees and with complex networks. The remaining thirty percent of customers are smaller firms or consultants with less complex network infrastructure. The large customers have considerably stronger bargaining power over network management software firms due to the volume of products purchased and ongoing maintenance required. Once a deal is made and a steady relationship is established, the customers are unlikely to change firms due to the relatively high switching costs (see 2.1.2.5). In this respect, firms that establish customer

loyalty definitely benefit from the high switching costs. Sometimes customers exercise their power during the maintenance renewal (once a year) by threatening to switch to other vendors if the service is not improved. Therefore, in addition to founding customer loyalty, it is also critical for the network management software firms to continuously offer exceptional customer service. Examples of exceptional service are prompt response times and solution implementation (i.e. 24/7 availability of technical support), courteous and friendly support personnel, and on-going upgrades to enhance products with new additional features.

2.1.2.2 Increasing threat of backward integration (+)

There is a threat of backward integration with the growing bargaining power of big technology customers. There has been an increased propensity for integrated tools with large technology enterprises. To cut IT costs and the number of suppliers, enterprises are expanding into new areas or offering more types of products. An example is Cisco Systems, a traditional network equipment firm, which had previously relied on a network management application vendor. Cisco recently introduced its own network management tool, Network Application Performance Analysis suite in December 2005.

Firms in the network management industry can lessen this integration threat by forming strategic alliances with large technology enterprises. The partnerships can be mutually beneficial so that the necessity of developing own network management applications for the technology enterprise is eliminated. Network management software can be used in conjunction with the partner's own network equipment, and also can be developed for other companies specific network equipment. For example, a firm can enter into an agreement with Cisco Systems that sees the firm's software application embedded into Cisco's network equipment. The firm can earn royalty revenue from Cisco and gain a reputation from the partnership, while Cisco gains a competitive advantage through product differentiation.

2.1.2.3 Price-sensitive customers (+)

Network management has traditionally been reactive. In other words, products that proactively manage networks are not mandatory. The term "vitamin" (vs. "pain killer" for other software applications such as ERP, MicroSoft Office, etc.) is a simple metaphor that describes network management products. When users feel that network performance is slow, they have several options. They can reboot the computer or change the network connection. They can also change configuration settings of the network connection assuming that they have extensive knowledge of the network and IP settings. Simply, as most of users would do, they can do nothing and wait until the network congestion clears itself and the performance resumes. This means that many network users do not feel the necessity of the products unless their dependence on the network (i.e. VoIP users) is significant or they cannot afford to lose time in waiting or fixing the problem (i.e. technical support of NDV).

Therefore, in contrast to other applications such as ERP or CRM, buyers of network management software are relatively price-sensitive, making the demand elastic, which increases the bargaining power of customers to some extent. This is especially true with Enterprise Customers. However, NDV customers are not too price-sensitive as a speedy and reliable network is a key indicator of their product performance as well as customer satisfaction. Generally, the NDV segment is willing to pay more for an application that enables them to achieve the aforementioned objectives.

To cope with price sensitivity, firms in the industry can adopt a cost-based strategy offering products at substantially low prices. However, cost-based strategy is risky in the software industry where it is hard to imitate others' technologies due to IP protection. Thus it is important for firms to continuously innovate and spend on R&D, resulting in the differentiation strategy. In addition, the sensitivity is relative to other software applications. The price sensitivity is not a big enough factor for most of firms to adopt a cost-based strategy.

Therefore, it is important for firms in the network management industry to identify and target the market segmentation where the need for proactive and continuous management of the network is critical. Another key success factor is that firms need to develop products which include features (i.e. voice capability) that are essential to managing applications that rely on the network.

2.1.2.4 Low concentration of customers (-)

The buyer concentration in the industry is low, which decreases their bargaining power. Any firms that depend on network are buyers (and potential buyers) of the industry. The buyers are extremely fragmented. Although firms target only Enterprise and NDV segments, the number of buyers in these segments is quite substantial.

2.1.2.5 High switching costs (-)

Customers' switching costs are relatively high, ensuing low bargaining power to some extent. The switching costs include the learning curve customers require to master a new program as well as the deployment time. In addition to the time and resources, switching also increases the risk of instability in the customer's network (i.e. application not working as expected causing slower performance).

As noted previously, establishing customer loyalty and maintaining the relationship with good customer service increases the customers' switching costs even further.

2.1.2.6 Overall Key Success Factors in Customer Power

The analysis of the second force identified the following three KSFs in addition to the ability to quickly form exclusive partnerships (KSF c)).

d) Ability to identify and target market segments that are not price-sensitive.

e) Generate client loyalty by providing excellent customer service (technical support).

f) Product features specially designed for applications that are heavily dependent on the network.

2.1.3 Bargaining Power of Suppliers – Moderate

Suppliers, if powerful, can exert an influence on an industry to capture some of the industry's profits. Thus, it is important to consider the power of suppliers in order to determine the attractiveness of the industry.

2.1.3.1 Technical skill-set of employees (+)

The labour is highly concentrated in the industry, increasing the bargaining power of suppliers. The concentration arises from the shortage of R&D labour with specific knowledge related to networking. The concentration is somewhat weakening due to globalization, as firms are able to recruit R&D resources from other regions.

Regardless of the increasing R&D labour, it is imperative for firms to retain highly skilled employees by keeping them motivated and content.

2.1.3.2 Relatively high labour switching costs (+)

Firms' costs to switch employees are relatively high, giving the labour force extra bargaining power. The switching costs are time and resources spent recruiting skilled R&D labour (relatively longer recruiting duration due to supplier concentration discussed above) and the employee learning curve (time required for the new labour to get up to speed and start adding value).

Therefore, it is critical for firms to retain skilled and motivated employees.

2.1.3.3 Low costs in physical asset (-)

Different from manufacturing or retailing, the network management industry (software) does not depend on physical inputs or location based differentiation. Products are not generally reliant on inputs from sources other than employees, and thus physical location is not a key factor in the success of firms in the industry.

2.1.3.4 Overall Key Success Factors in Supplier Power

After analyzing the third force, one clear KSF can be derived. As firms in the industry greatly rely on their labour to develop products, it is critical to hire and retain employees with specialized knowledge and skill sets.

g) Ability to retain highly skilled human capital by displaying appreciation through compensation.

2.1.4 Threats of Substitutes – Low

The threat of substitutes refers to how easily a product or service can be replaced, and the impact it has on the industry through price competition. As more substitutes become available, demand becomes more elastic. Therefore, a close substitute constrains the ability of firms in the industry to raise prices, lowering profitability.

Two substitutes for network management software are network managers and "doing nothing", both traditional approaches to network management. As discussed previously, many companies forego fast and reliable network performance by choosing not to purchase the products. First, it is because quick network performance is not critical to business operations and network problems often resolve themselves. Second, network managers reside to fix network problems. Network managers use traditional methods (i.e. using a different connection, rebooting servers, changing configuration of network connections, etc.), which takes much longer than

using network management software (i.e. eight hours vs. five minutes). However, with the increasing importance of a dependable network (due to VoIP, video conferencing over IP, increasing mobile technology, etc), the threat of substitution is diminishing.

2.1.4.1 Poor performance of substitute (-)

The poor performance of traditional substitutes is decreasing the threat. As more network dependent technologies such as VoIP emerge, it is expected that substitutes will fade away and customers will depend on network management software to maintain profitability.

Therefore, it is important for firms in the industry to target markets with network dependent technologies.

2.1.4.2 Decreasing buyer propensity to substitute (-)

Traditionally, buyers had a tendency of not using network performance products. However, proliferating network usages are modifying the buyer's behaviour (i.e. realizing the importance of rapid and consistent network performance) and decreasing the threats of substitutes.

2.1.4.3 Purchasing decision power of substitute (+)

Network managers are one of the substitutes that have considerable influence on the purchasing of network management products, especially with the Enterprise Customer segment. In most cases, they make the final decision. Conversely, network management products are a huge threat to network managers who traditionally spend most of their time troubleshooting and diagnosing the network. With implementation of the product, the job of the network manager may possibly be eliminated. This creates a principal-agent problem. Purchasing and implementing the network management products reduces the time and resources spent diagnosing the network, which translates into huge savings. However, in the name of self-interest, network managers

prefer to keep their jobs and maintain their status as network experts. In summary, the network manager's influence in the purchase of network management products increases the power of substitution.

Because of the above reason, it is easier for firms in the industry to target Network Dependent Vendors, where a technical support manager or product management has more influence on purchases rather than the network managers. In addition, this reinforces the finding that firms must identify and target customers who have applications that are closely tied to network performance and thus, cannot afford to lose time trying to isolate a problem on the network.

2.1.4.4 Overall Key Success Factors for Substitution

Substitution is generally not a major concern for the network management industry as network dependent technologies such as VoIP emerge. As customers adapt these technologies, they will not be able to rely on the traditional reactive approach to managing their network. The firms should be able to target customers who depend heavily on these technologies, and aggressively market the importance of proactive network management. This analysis of the fifth force supports and confirms the importance of KSFs that were identified in the previous discussion of four forces.

Overall, the network management industry is moderately attractive. The threat of new entrants is relatively high, representing part of the industry's unattractiveness. However, the increasing demand instigated by IT audit policies and globalization enlarges the economic rents (profits) making the industry attractive. Bargaining powers of both customers and suppliers exist to some extent, but are not strong enough to make the industry unattractive. In addition, the trend towards globalization (i.e. easier access to labour) and changing buyer behaviour (i.e. increasing dependency on networks) reduces bargaining powers, hence increasing the attractiveness of the

industry. Finally, the increasing usage of technologies reliant on fast networks is altering the buyer's traditional propensity (i.e. choosing not to use the network performance products), reducing the threat from substitutes. These factors combined make the industry attractive.

2.1.5 Summary of Key Success Factors from Industry Analysis

Despite its attractiveness, firms still face several issues of increasing entry threats, emerging technologies, and the rising threat of backward integrations. The seven key success factors identified determine a network management firm's ability to cope with numerous threats, as well as benefit from increasing demand and technology changes. Table 2.1 shows such KSFs as well as their estimated percentages ranking relative importance.

Table 2-1 KSFs and Relative Importance

	Key Success Factors	Relative Importance
1	Real-time and proactive network management solution which provides clear visibility to the network.	20%
2	Ability to innovate and adapt new technology according to the changing market needs.	12%
3	Product features specially designed for applications that are heavily dependent on the network.	20%
4	The number of current strategic alliances with renowned partners and ability to quickly form the exclusive relationships with new partners.	20%
5	Ability to identify and target the market segments that are not price-sensitive.	6%
6	Generate loyalty in the customer by providing excellent customer service (sales and technical support).	12%
7	Ability to retain highly skilled human capital by displaying appreciation through compensation and recruitment activities.	10%
	Total	**100%**

By the author

The estimated percentages displayed in table 2-1 indicating the relative importance of the KSFs are based on feedback from key decision makers at NGI. The results display products that are real-time, proactive and that have special features supporting network dependent applications

and strategic relationships with partners (resellers, OEMs, value-added resellers, etc.). Although some segments of the market are price-sensitive, this is not what drives it. As reliance on networks increases and firms target the correct market, customers will be prepared to pay more for products that provide an accurate, timely diagnosis and clear visibility of the network. In addition, it is important for firms to differentiate their products by keeping up with emerging technology and by adding features that other competitors do not offer.

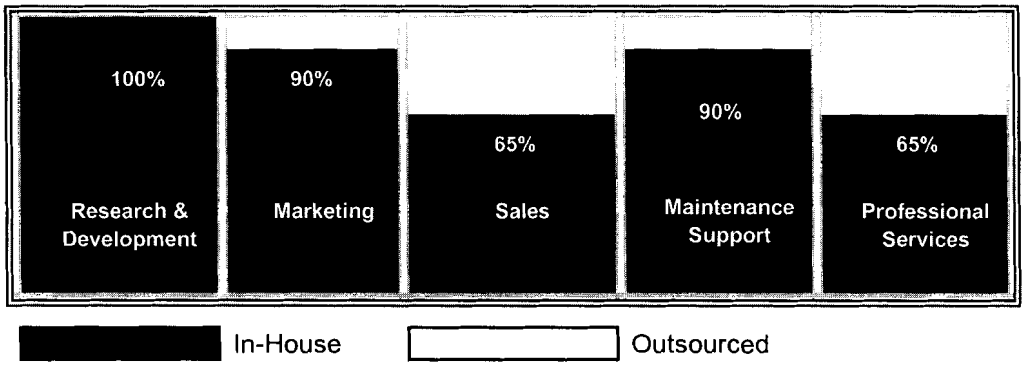
From the analysis above, it can be inferred that strong marketing strategies with an emphasis on market research identifying the correct target and potential partners, in conjunction with differentiated and enhanced products to increase sales volumes are the solution to success. In addition, successful sales execution based on the defined marketing strategies is critical to the success of firms in the network management industry.

2.2 Industry Value Chain Analysis

This section presents the industry value chain by discussing all activities performed in the network management industry. By considering relationships between value chain activities and the seven KSFs, key activities that create competitive advantages in the industry can be identified.

The industry value chain for the network management software industry is composed of five primary activities: Research and Development of Products (Network Management Software), Marketing, Sales, Maintenance Support (Technical Support), and Professional Services. Figure 2-5 (page 35) illustrates these five areas and the non-filled squares present outsourced portions.

Figure 2-5 Industry Value Chain for Network Management Industry



By the author

2.2.1 Product Research and Development

The value chain begins with Product Research and Development where new intellectual property is generated and translated into customer value by incorporation into new or existing products. This activity ties to KSFs number one, two and three outlined in table 2-1. It is critical for firms to quickly develop products that are capable of meeting customers' requirements, and that distinguish themselves from competitors' offerings by providing superior performance. In this respect, continuous communication and feedback between sales and research also plays a key role in conveying customers' expectations to development.

As is common in the software industry, most firms in network management maintain R&D internally. This is due mainly to the highly proprietary and secretive nature of technologies each firm owns and/or uses. In addition, research and development is a key activity and has a 52 percent success contribution as demonstrated in the KSF table. As a result, most firms create benchmarks for key activities to ensure competent performance in each area. The number of patent applications per year, number of technical glitches resolved and remaining in a product and their severity level, the number of patches released for each version of product, and the period between product releases are examples of measurements used to gauge how well R&D functions within a firm.

2.2.1.1 Overall Key Success Factors for Research and Development:

The analysis of R&D in the industry value chain re-emphasizes the importance of being able to quickly develop products that meet customers' requirements, as well as distinguishing itself from competitors' offerings by providing superior performance that entails clear visibility of the network and reliable diagnostic results. Therefore, R&D ties into KSFs one, two and three identified previously in the industry analysis.

2.2.2 Marketing

This activity is related to KSFs two, four and five in table 2-1. First-rate marketing should be up to date with shifting technology and market needs, and should identify the market segments where firms can add most value. In addition, it should be able to convert this information into viable business strategies that can be conveyed to other areas of the value chain, such as sales and research. Therefore, marketing is another key activity in the industry.

Marketing in the network management industry takes several routes to generate business. Utilizing a Customer Relationship Management (CRM) vehicle to conduct direct marketing activities, most firms employ customer databases and prospects to generate business. Direct marketing activities involve contacting customers by means of on-site visits, calls, or e-mails. These efforts are reinforced by periodic marketing campaigns, such as monthly newsletters via e-mail or direct mailings. Firms commonly attend conferences or road shows to make initial contact with potential clients and partners. E-commerce via a web site is another marketing tool that provides information and generates leads. Finally, it is especially crucial for firms in the industry (in any software industry) to put efforts into forming partnerships with resellers, network equipment vendors who can incorporate network management software into their equipment, and any other software companies whose products complement network management software. An example would be a company that develops a VoIP application.

The giant players in the network management industry, namely HP and IBM, offer various comprehensive products and primarily depend on their in-house marketing departments. This lowers marketing costs by sharing resources across various product lines. From time to time, they utilize outsourcing in order to penetrate new, unfamiliar geographical territory where they lack marketing expertise. Interestingly, other network management firms also rely on internal marketing groups despite their limited number of product lines. This can be explained by the fact that most of them are "start-up" firms. Their small sizes (less than USD $100M in annual revenue – in fact, many firms have less than USD $10M) in combination with emergent industry characteristics oblige them to control costs and focus on marketing efforts internally. In addition, it is convenient for firms to keep marketing in-house as these activities (i.e. product roadmap, branding, pricing, distribution, etc.) are so closely tied into the firms' overall strategy.

2.2.2.1 Overall Key Success Factors for Marketing

The KSFs in marketing include the ability to accurately gauge and convey market needs to R&D, the ability to identify and target lucrative market segments with the right promotional messages, and the ability to identify appropriate channel partners in order to gain repute and easier access to the market and convey this information to sales. These KSFs tie into numbers two, four and five in table 2-1.

2.2.3 Sales – Direct and Indirect

Selling is another key activity of the industry and relates to KSFs four and six in table 2-1. The sales function plays a very crucial role in the value chain as it determines whether a firm can increase revenue or not. Despite the firm's technological advantage in its product, other value chain activities become meaningless if sales cannot perform.

The network management industry has three main sales channels: direct, indirect (resellers, system integrators, and OEMs), and managed service providers (definitions of these are

explained in section, 2-1-1-4, Threat of Entry). While the direct sales model still dominates the industry as shown in table 2-2, selling through indirect channels is an increasing trend to some extent. Leveraging a prominent partner's product and branding to gain trust from customers makes the indirect channel particularly effective for start-up firms.

Table 2-2 Network Management Industry Revenue by Sales Channel

	2004	2005	2006	2007	2008	2009
Direct	52	50	49	50	48	50
Indirect (resellers, system integrators, OEMs)	37	38	40	40	42	39
Managed service providers	11	12	11	10	10	11

By the author based on the information provided by IDC (2005)

2.2.3.1 Overall Key Success Factors for Sales

The examination of sales reveals the KSF as the ability to form as many strategic alliances with partners as possible. This gives the company wider access to customers, distribution, and helps achieve market awareness in a reasonably short time. This confirms KSF number four in table 2-1.

2.2.4 Technical Support

This activity is clearly related to KSF number six in table 2-1. In the network management industry, Technical support plays a key role in a customer's purchasing decision (this is typical in the software industry) as well as in customer retention. The ability to provide quality (professionalism, product knowledge, and courtesy) and responsive service adds tremendous value to the company. In addition, technical support is a revenue stream which represents more than 30 percent ~ 50 percent of total revenue depending on the firm, thus another critical piece of the value chain.

Technical support is provided through a mixture of phone, e-mail, web conference and remote access to the customer's computer, making physical and geographical constraints (other than time zone issue) non- issues. In summary, the importance of quality control and the absence of geographical constraints stipulate in-house technical support. There are a few firms who choose to outsource support service in order to benefit from low-cost offshore alternatives, and to accommodate worldwide calls in different time zones.

2.2.4.1 Overall Key Success Factors for Technical Support

The key success factors in technical support are the ability to generate loyalty and retention in existing customers, and to achieve broader market awareness through referrals. Loyalty can be achieved by anticipating what customers want, providing excellent service, and by satisfying their needs. This is a clear repetition of KSF number six in table 2-1.

2.2.5 Professional Services

Professional services offers network assessments, customized consulting, and web based consulting in order to meet customers' business needs in a flexible and cost effective manner. This activity is merely related to KSF six in table 2-1, but professional services plays an important role in extracting the last bit of value from the value chain in order to generate revenue from consulting services as well as to establish a leading reputation in the industry. Therefore, one more KSF can be drawn from this activity area as follows:

h) Capability to provide knowledgeable and experienced consultants to customers.

Due to fragmented buyers (network owners and those wanting to purchase network performance tools are buyers), many firms in the network management industry rely on third parties to provide implementation and training services to remote customers. So far, North America (53 percent revenues are from North America relative to total worldwide revenue in

2004 and 2005 as per IDC[7]) has had the largest number of customers. With an increasing amount of customers in the rest of the world, it is expected that outsourcing of professional services will increase to some extent.

2.2.5.1 Overall Key Success Factors for Professional Services

The analysis of professional services draws out one additional KSF- the ability to provide knowledgeable consulting and training services to clients. This is not as important as other KSFs, but it can bring a significant amount of value to the company.

2.3 Summary of Key Success Factors from Industry Analysis and Value Chain Analysis

Based on the Five Forces analysis and assessment of the industry value chain, the important key success factors have been identified and summarized as follows:

a) Real-time and proactive network management solutions that provide clear visibility of the network as identified in both industry analysis and industry value chain analysis.

b) Ability to innovate and adapt new technology according to changing market needs as identified in both industry analysis and industry value chain analysis.

c) Product features specially designed for applications that are heavily dependent on the network as identified in the industry analysis.

d) The number of current strategic alliances with renowned partners and the ability to quickly form exclusive relationships with new partners as identified in both industry analysis and industry value chain analysis.

[7] V.W. Lui, *Worldwide Network Availability 2005-2009 Forecast and Analysis*, (Framingham, MA: IDC, 2005).

e) Ability to identify and target market segments that are not price-sensitive as identified in the industry analysis.

f) Generate loyalty in the customer by providing excellent customer service (Sales and Technical Support) as identified in both industry analysis and industry value chain analysis.

g) Ability to retain highly skilled human capital by displaying appreciation through compensation as identified in the industry analysis.

h) Capability to provide knowledgeable and experienced consultants to customers as identified in the industry value chain analysis.

Based on the industry analysis as well as the industry value chain analysis above, table 2-3 (page 42) exhibits a model to show the quantifiable relationship between the KSFs and value chain activities. The percentages in table 2-3 represent the KSF's ranking according to the relative importance of each value chain activity. For example, the KSF "Real-time and proactive network management solution which provides clear visibility of the network" contributes to success by 19 percent. In addition, this percentage completely depends on R&D activity in the value chain. Essentially, table 2-3 is the benchmark that will be used to score NGI against its competitors in the next section of this document.

Table 2-3 Contribution of Value Chain Activities to the Key Success Factors

		Value Chain						
		R&D	Marketing	Sales	Technical Support	Professional Services	Support (HR, Finance, etc)	TOTAL
Key Success Factors								
1	Real-time and proactive network management solution which provides clear visibility to the network.	19%						19%
2	Ability to innovate and adapt new technology according to the changing market needs.	6%	4%					10%
3	Product features specially designed for applications that are heavily dependent on the network.	19%						19%
4	The number of current strategic alliances with renowned partners and ability to quickly form the exclusive relationships with new partners.		5%	14%				19%
5	Ability to identify and target the market segments that are not price-sensitive.		4%	2%				6%
6	Generate loyalty in the customer by providing excellent customer service (sales and technical support).			5%	5%	2%		12%
7	Ability to retain highly skilled human capital by displaying appreciation through compensation and recruitment activities.						8%	8%
8	Capability to provide knowledgeable and experienced consultants to customers					7%		7%
	TOTAL	44%	13%	21%	5%	9%	8%	**100%**

By the author

2.4 Analysis of NGI vs. Key Competitors

This section analyzes NGI against its two primary competitors, NetIQ and Viola, in order to identify threats and opportunities for the firm. NGI considers them main competitors as they provide similar products and solutions to the market. Their products continuously monitor and manage the performance, responsiveness, and availability of network infrastructure. Their key messages include providing continuous performance, availability, call quality monitoring, and automated problem resolution. Pricing of the products is also comparable; about USD$15,000 for

one user license and between USD$100,000 and USD$500,000 for multiple user licenses for an enterprise customer. Most importantly, they develop and actively market the new technology, voice capability, to target the new converging market, VoIP, and both of their approaches provide visibility to third party networks including customers and suppliers.

On the other hand, IBM and HP use a "standards-based data collection and event correlation engines" approach. This approach considerably differs from NetIQ that uses a "simulators" approach and NGI and Viola that use an "active and agent-less" approach. A key weakness to IBM and HP's approach is that their products give the full visibility solely to devices users own. Even with some of weaknesses in their products, IBM and HP own the biggest market share. This is contributed by their size, brands and much larger accesses to the distribution. Also, it is because the market is still accustomed to the traditional approach to network management and has not apprehended necessities to access third party networks, to fix network problems rapidly, and to continuously monitor networks. With the converging network market trend, it is a matter of time that the proactive approach to the network management would be adapted. With these reasons, this analysis focuses on NetIQ and Viola.

2.4.1 Competitor 1 – NetIQ

NetIQ is the 22nd largest network management firm with an overall market share of approximately 0.5 percent. Founded in 1995, NetIQ is headquartered in San Jose, California and has over 900 employees worldwide (including Europe and Asia). Their products are sold through direct sales and indirect channels, including resellers, system integrators and original equipment manufacturers. It has more than 3,000 enterprise customers and over 60,000 customers spanning small, medium to large enterprises and service providers. Since its Initial Public Offering in July 1999, the company has been listed on the Nasdaq exchange (NTIQ) and its current stock price is about USD $12.00.

NetIQ's strategy since inception has clearly been differentiation. Although its core technology has not changed much, NetIQ continuously invests in R&D and updates their service offerings. In addition to network performance management, NetIQ also focuses on security management solutions. As a result, the company primarily targets Enterprise customers with IT organizations whose objective is to deliver a high level of services while ensuring policy compliance, minimizing security vulnerabilities and enhancing IT staff efficiency. Recently, the company has been showing signs of expanding its market to other segments, namely NDVs, and actively investing in technology relating to VoIP.

Since NetIQ's inception in 1995, the company has focused on forming various strategic alliances with partners. For example, the company's development team has worked with Compaq's development team to fully integrate NetIQ applications with Compaq ProLiant server platforms in Windows environments. With Compaq ProLiant servers leading the worldwide market share of Microsoft Windows NT and Windows 2000 server deployments, NetIQ optimized its product to enhance the critical technology differentiator that Compaq delivers to ProLiant customers. Customers have responded by choosing NetIQ to manage ProLiant server environments, further extending the benefits of Compaq Intelligent Manageability tools and industry-leading ProLiant reliability and availability. In addition to the partnership with Compaq, NetIQ is also partnered with a number of software industry leaders such as Microsoft, Cisco, Dell, IBM, Nortel, and so on.

NetIQ's product, Vivinet Assessor, which is a direct competitive product of NetMagic, helps to determine how well VoIP works on a network prior to deployment. The product provides good measurements and consistent values of what is expected. It also has a nice interface making the product more user-friendly. On the other hand, it does not have diagnostic tools and requires end agents. Vivinet Assessor mimics the real application traffic that concerns a customer and reports potential congestion of the network, which is then used to schedule future trips of the

application. However, action cannot be taken to fix a problem, as it does not pinpoint the exact cause and location of the problem. In addition, the mimicking requires a remote agent, which often interferes with real user traffic causing an even more congested network. The product is complicated and often requires Professional Services for deployment and only network managers or administrators with network knowledge can perform an interpretation. It can be argued that this is the reason why network managers from the Enterprise Customers segment prefer NetIQ to other products such as NetMagic that can be used by anyone with limited network knowledge.

NetIQ has been generating over USD $200 million in sales over the past three years. This is primarily due to its broad partnerships and its excellence in sales execution. The company spends over 50 percent of it revenue dollars on Sales and Marketing while R&D spending is only about 23 percent, lower than NGI's R&D spending. Furthermore, the company has a solid customer base with high loyalty as indicated by its maintenance revenue growth. In the year 2005, license revenue decreased by 11 percent compared to the year 2004 while maintenance revenue increased by 10 percent. In perspective, NetIQ's maintenance revenue makes up close to 50% of its total revenue. This signifies two important points for NGI. NetIQ is slowing down sales of new licenses, primarily due to slower growth and market saturation of the Enterprise segment, but successfully renewing annual maintenance with its customers, confirming strong loyalty. The decrease in license sales may also indicate the declining popularity of NetIQ's products, which is good news for NGI. On the other hand, the bad news is that NGI needs to penetrate NetIQ's solid customer base to order to obtain additional market share, especially in the Enterprise segment.

2.4.2 Competitor 2 – Viola

Established in 1998 in Israel, Viola Networks Ltd. (formerly Omegon, Attune Networks Ltd.) is headquartered in Yokneam, Israel and has about 40 employees worldwide. Viola is a

privately held company, with offices in United States, Canada and Israel. Along with NGI, Viola belongs to the six percent "other" category and has just over 0.3 percent of the market share, slightly higher than NGI's.

Viola has also adopted a differentiation strategy with its main focus being the VoIP segment. Recently, it has decreased product prices by offering a discount of over 40 percent to first time buyers in an attempt to gain more market share. Due to limited information, it is unknown how successful this shift to a cost-based strategy was, but NGI speculates that Viola did not achieve its objective given that the company went through another venture capital financing round raising USD $11 million shortly after.

The company has attempted to develop many alliances with partners, mainly voice solutions provider. Other than obtaining a Cisco compatible logo with the development of interoperable NetAlly with Cisco products in 2003, the company's partners are relatively small in size and significance. On the other hand, Viola's partners are spread around the world, including many countries in Europe and Asia, illustrating the company's active endeavour in seeking out partners.

Viola's product, NetAlly RealTime, provides a tool for pre-service network readiness assessment, post deployment voice quality and VoIP capacity management, as well as on-demand network troubleshooting, as required by real-time VoIP applications. NetAlly is unique in the marketplace as a single software system that addresses the entire VoIP management lifecycle. However, it requires an agent on the client-side which generates synthetic traffic, hence it is intrusive. In addition, its measurements are unreliable and it does not provide any diagnostics.

NGI believes that Viola has a lower sales volume. Profit margins are also estimated to be lower than NGI due to the lower prices charged to its customers. However, the company has a big

presence in Europe and Asia due to the geographical location of its headquarters. Viola is more focused on defining its target segmentation and marketing.

2.4.3 Competitor Capability Comparison on Key Success Factors

Based on the identified Key Success Factors and the above assessment of current competitor performance, a matrix has been developed identifying each firm's capability to deliver against the KSFs. Table 2-4 (page 48) indicates the capabilities of each company with respect to the Key Success Factors. Each firm is graded based on a scale of one to five, one being poor and five being excellent. The table also displays the weighted grade for each company which was obtained by multiplying each grade by its corresponding contribution factor according to table 2-1 (page 33).

The first three key success factors measure the product and technology of each firm. NGI scored high in these due to NetMagic's technology advantage in comparison to Vivinet Assessor and NetAlly. Vivinet Assessor and NetAlly require agents and simulated traffic, often causing more congestion in the network and simply forecast future trips rather than providing an analytical report of a problem. Viola's NetAlly is especially weak in KSF one due to the lack of consistent measurements and real time monitoring.

The ability to form strategic alliances score was generated primarily from the number of each firm's partners and how significant the partners are in the industry. NetIQ scored very high in this KSF because the company not only has over 300 partners worldwide, but also developed exclusive relationships with prominent companies such as Microsoft, IBM and so on. In addition, their partnerships extend from resellers to original equipment manufacturers (OEM) and system integrators. NGI is very poor in this area due to its limited number of partnerships. In addition, it also lacks depth in the few relationships it fosters. Most partners are simple resellers rather than

technology partners who add-on, bundle, host, recommend, or embed NGI's product with their own products and often add much more value.

Table 2-4 Competitor Capabilities on Key Success Factors

		Grade (1-Poor, 5-Excellent)			Weighted Grade (Possible 5)		
	Key Success Factors	NetIQ	Viola	NGI	NetIQ	Viola	NGI
1	Real-time and proactive network management solution which provides clear visibility to the network.	4.00	3.00	5.00	0.76	0.57	0.95
2	Ability to innovate and adapt new technology according to the changing market needs.	3.00	3.00	4.00	0.30	0.30	0.40
3	Product features specially designed for applications that are heavily dependent on the network.	3.00	4.00	4.00	0.57	0.76	0.76
4	The number of current strategic alliances with renowned partners and ability to quickly form the exclusive relationships with new partners.	5.00	3.00	3.00	0.95	0.57	0.57
5	Ability to identify and target the market segments that are not price-sensitive.	4.00	4.00	3.00	0.24	0.24	0.18
6	Generate loyalty in the customer by providing excellent customer service (sales and technical support).	4.00	2.00	3.00	0.48	0.24	0.36
7	Ability to retain highly skilled human capital by displaying appreciation through compensation and recruitment activities.	4.00	3.00	2.00	0.32	0.24	0.16
8	Capability to provide knowledgeable and experienced consultants to customers	4.00	2.00	3.00	0.28	0.14	0.21
	Total	31.00	24.00	27.00	3.90	3.06	3.59

By the author

Both NetIQ and Viola scored higher in the ability to identify the right target market. Although NetIQ targets Enterprise Customers who are price-sensitive due to IT budget cuts, it was able to acquire a substantial amount of Enterprise customers by also focusing on the security management of networks. Since its formation, Viola has been focusing on the VoIP segment that is not price-sensitive and is also heavily dependent on networks. NGI has been unclear about its target market, not knowing exactly whom and how to target as demonstrated by the recent shift of its target market and its poor sales execution.

It is also important to generate customer loyalty to retain existing customers and acquire new ones through word of mouth. NetIQ fares very well in this as proved by its high maintenance renewal rate and by several awards presented to the company for outstanding customer service. With more than 100 engineers, NetIQ is reputed to hire exceptional support staff and to provide continuous internal, instructor-led product training and external, instructor-led and self-study courses that focus on technology that is used with its products. Viola has some challenges in this KSF, mainly due to the absence of a support model. Viola does not provide on-going technical support and its main service emphasis centres on the deployment of its product. This may be a good strategy to earn short-term license revenues, but the poor customer service jeopardizes customer retention in the long run; especially when NetAlly has the known issue of generating inconsistent measurements. NGI recognizes the importance of maintenance services and has a support model in place. However, the absence of "24-7-365" (24 hours a day, seven days a week and 365 days a year) support and a lack of feedback mechanisms such as customer surveys make it more difficult for NGI to obtain and preserve customer loyalty.

Like many other software companies, all three firms appreciate the importance of human capital and endeavour to recruit highly skilled employees and retain them by offering high compensation. NetIQ scores higher in this KSF as it provides additional compensations such as a retirement plan and a bonus program which is not offered by the other two firms. In addition,

NetIQ has a decentralized structure in contrast to NGI, resulting in a more autonomous culture throughout the company. As discussed previously, NGI's dependent culture weakens the ability to retain highly skilled labour.

In the professional services capability KSF, both NetIQ and NGI score high with their experienced and knowledgeable professional services organizations. However, NetIQ scores higher than NGI because it has a much stronger capability to market and sell its consulting services, as indicated by its professional services revenue representing 10 percent of total revenue, much higher than NGI's two percent. This can be argued by the fact that NetIQ's product is much more complex, requiring an expert to install the program. In any case, the truth is that NGI is not properly leveraging one of its core competencies, professional service, to generate higher revenues.

2.5 Opportunities and Threats

Based on competitors' performance and competencies identified in section 2-4, it may be concluded that NGI is considered the second best company among three firms due to its product and technology strengths. On the other hand, it is clear that NGI is considerably weaker in KSFs four, five, six and seven. The pre-eminent threat is in strategic alliances. Despite some shortcomings in its products, NetIQ was able to acquire a much bigger market share, outperforming NGI in developing a globally known brand via partnerships.

The second major threat is in marketing and segmentation. With the right marketing messages to its target Enterprise Customers and its additional focus on security management, NetIQ achieved a larger market share over NGI. Even Viola, although it scored lower than NGI overall, has remained focused on the VoIP segment, resisting the temptation to be everything to everyone, resulting in a bigger market share. In addition, many customers think of Viola more

than NGI when considering VoIP network applications, a key factor in its ability to gain market recognition and share.

The third threat lies in the ability to retain highly skilled human capital by not only showing appreciation through compensation, but also empowering its employees. NGI especially lacks in the latter due to its centralized structure that has created a culture where employees are unable to take accountability and are dependant on senior management for decision making. In the long run, the company is left with and will recruit only non-risk takers who are creatively passive. This is hardly getting value for the big salaries being paid out.

Finally, the weakness in generating customer loyalty via Sales and Technical Support functions is a threat to NGI. This entails sales force effectiveness, a strong support model as well as constant revamping of the model based on feedback provided by customers. NetIQ's solid and large installed customer base has enabled them to achieve revenue growth, especially in the maintenance sector.

The largest opportunity facing NGI is the fact that it has the best product offering in the industry at the moment. NetMagic does not require intrusive access to network devices, does not use agents, and does not require the interpretation of data by a network expert. It can assess the network very directly from the application's viewpoint. And it allows the user to assess networks anywhere in the world regardless of intervening traffic, at any time of the day or night without adding material load. NGI needs to leverage this product superiority as its key selling point to the market, and target NetIQ and Viola's customers and prospects, especially the ones in the NDV and VoIP segments.

2.6 Strategic Alternative

Based on the analysis of the KSFs and the resulting opportunity and threats, NGI should continuously adopt the differentiation strategy. Viola's brief cost-based strategy did not succeed and the same strategy would likely put NGI in a more "stuck in the middle" position, making NGI even more ineffective. NetIQ's better-fitted differentiation strategy in conjunction with strong partnerships and successful sales and marketing execution would enable them to gain market share and achieve higher sales growth, which are the decision criteria of NGI's senior management. The following suggests a summary of the suggested strategy and its strategic recommendations:

a) **Invest in forming various strategic partnerships in order to gain brand recognition and to penetrate to the market faster and easier:** First of all, NGI needs to increase its indirect sales force in order to broaden and deepen its current, limited partnerships. The company, especially, needs to invest in technology partnerships with traditional network equipment industry firms (e.g. Cisco, Juniper, Lucent, UTstarcom, Huawei, ZTE, Extreme Networks) as well as wireless and triple-play firms (e.g., Ericsson, Ciena, Alcatel, Fujitsu) in order to gain reputation in the industry.

b) **Improve weak marketing efforts to target the right segment and to deliver the right messages to the segment:** In addition, the company needs to focus on targeting the weaknesses in the products of its key competitors, NetIQ and Viola, through advertising and direct marketing activities. As mentioned previously, NGI has recently altered its target market segment from Enterprise Customers to NDVs after recognizing that it can add more value to the latter than the former. This was a good first step to improve its weak marketing efforts. However, there are many more steps for the company to take. The company should develop the right marketing messages to target the NDV segment in addition to raising awareness of the company in key regions (primarily North America),

and the weaknesses in key competitors' products. These steps also call for a better process set-up in Sales and Marketing areas, a continuous and effective communication between Sales and Marketing, a development of a sales training process, an active utilization of the CRM system and so on.

c) **Endeavour to change the company culture by decentralizing the structure and distributing autonomy throughout the company in order to retain truly highly skilled employees, to force employees to take accountability and to expel non-risk takers who do not add value to the company:** NGI should invest in changing the culture of the organization. The current reliant culture is primarily due to the CEO's tendency to control the operation as well as an absence of the Human Resource function. The HR function is currently outsourced fully to a few companies and a contractor for recruitment and other HR activities (such as performance review and training).

d) **Enhance the current support model for both Technical Support and Sales teams in order to generate raving customers:** The company needs to better understand what it is that satisfies customers and what should be improved. The first step is to measure how satisfied NGI's current customers are in order to develop a better support model rather than being content with the current maintenance renewal rate. Customer satisfaction should be measured on a regular basis, at least once a quarter. If results indicate the need for the increased availability of customer support, NGI should consider hiring graveyard support personnel or on-call support personnel to offer the "24-7-365" support model. If the results identify a weakness in support personnel's knowledge, NGI should invest in training them.

3 ANALYSIS OF INTERNAL ENVIRONMENT AND CAPABILITIES

Chapter 2 focused on the Key Success Factors in the Network Management industry and proposed a Sales, Marketing, Human Resources, and support strategy designed to acquire more market share and accelerate the revenue growth of NGI.

In order to implement the strategic recommendations proposed in the previous section, namely investment in strategic partnerships, focused marketing efforts, shakedown of the company's culture to encourage accountability, and enhancement of the support model, it is essential that NGI has the capabilities and resources to fully apply the alternative. This chapter will examine the company in terms of its management preferences, organizational and resource capabilities.

3.1 Analysis of Management Preferences

In order to determine if the proposed strategy is in line with the strategic preferences of key decision makers in NGI, it is crucial to scrutinize the following three aspects of management's preferences. This analysis is followed by a summary of identified gaps and ways to close them.

3.1.1 Decision Criteria

As discussed earlier in this paper, the decision criterion that NGI's senior management uses to support or reject a strategy is sales growth. Profit growth is not a major consideration at this stage and the revenue growth is considered more critical because the cost of developing the product is sunk and it is crucial for the firm to sell in order to survive. In addition, management's

ultimate goal is to sell the company. For a software company, it is quite common that revenue growth without much emphasis on its profitability is a key indicator to drive up the sale price. NGI also has a unique patented technology to attract a buyer. If a strategy facilitates achievement of the desired sales growth, the strategy complies with the decision criteria. The senior management also showed support by investing up to USD $500,000 in order to implement the proposed strategy, but this requires NGI to advance the additional debt from a venture capital firm or to initiate the second round of financing from investors. This leads to financial questions on whether the return on investment makes sense and how much of an impact on sales growth the proposed strategy can attain. If the financials, which will be conducted later in this document, look attractive, management will certainly be in favour of supporting and implementing the strategic alternative. In addition, NGI's current financial situation should be closely examined to determine if the additional cash injection is inevitable. This analysis will be conducted in the financial resources section.

The continuous adoption of the differentiation strategy is also in line with management preference. Management has strong belief in NGI's unique technology and believes that NGI should never give up its core competency: the ability to innovate and to develop a differentiated product. NGI's R&D performs three main activities: Research, Development and Quality Assurance. The product development starts with the research team which identifies market needs in conjunction with emerging technologies, transforms the information and the idea into a concrete concept, and passes the information to the development team. The development team, in turn, converts the proof of concept into requirements and design, and constructs and releases a product. During the construction and release process, the QA team conducts several tests to ensure the product's valid performance. NGI performs these activities extremely well as a result of its competent people with extensive knowledge and experience and its on-going efforts to innovate the technology and the process. The intellectual property developed in the past five

years (16 patents in multiple global jurisdictions as of December 2005) and its unique technology (active, real-time and agent-less approach) provides evidence of this competency, which clearly differentiates NGI's product position from its competitors. Even if the previous analysis proposed the cost-based strategy, the chance of management accepting the proposed strategy would have been extremely slim.

3.1.2 Capabilities and Mind-Sets

The company's executive team is comprised of seven individuals who have been involved in the events of growing a small company and subsequently selling it, and have a combined level of high-tech experience encompassing more than 112 years. They retain a vast knowledge, and experience of the technology industry that can be used to give direction to NGI. The CEO and three co-founders, Vice President of Network Technologies, Chief Technology Officer, and Chief Scientist, started the business together and have extensive knowledge and experience in network technology. In brief, they are the core of NGI's distinctive technology. However, their background is mostly in R&D, and not in marketing, sales and operations. They all became senior managers through experience and are not familiar with the business concepts of strategy, market segmentation, and human resources management. They have been successful entrepreneurs using their "gut" feelings and have not fully realized the importance of structured business practices by developing and executing a strategy.

As the company expanded, NGI hired three additional management personnel, Vice Presidents for Sales, Marketing, and Finance and Operations and started to have a better understanding of the market, focused on specific market segments. However, the company has not been able to obtain expertise in Sales and Marketing. In conjunction with other performance issues, the leadership of the Executive VP of Sales was held responsible. He lacked a clear vision of the sales team and forwent the importance of the sales process as well as sales metrics and

forecasting. In addition, he failed to convey a vision and concentrated on short-term revenue generation without maintaining its focus. His key focus was direct sales, completely overlooking the indirect sales strategy.

The VP of Marketing is also responsible to some extent as he was unable to translate marketing strategies into sales execution, and lacked in communicating the right marketing messages both internally and externally. He disregarded the indirect channel strategy, even though his extensive experience in partnering strategy with his previous firm had grown revenue by more than ten times in five years. Initially, he argued that NGI's high price point per unit made focusing on the direct sales model a better choice, but he now concurs with the proposed strategy. In addition, there is a disconnection between the marketing strategy and the sales execution. One example is the "cold call" lead source. Marketing is investing in programs like trade shows and analyst tours, but leads are mainly being generated from cold calls. Better communication between Sales and Marketing could have achieved a more consistent strategy towards targeting the right market, right messaging and the company's image. In addition, it would have achieved direct market lead generation from Marketing to Sales. Both of them did not recognize the importance of having a process in place and enforcing the process, resulting in the absolute underutilization of the company's CRM system.

NGI has recently terminated the EVP of Sales and is in the process of finding a replacement. In addition, NGI has recently appointed one sales personnel as the Vice President of Channel Sales in order to initiate the partnering strategy. However, one person is not sufficient to actively execute the strategy, and the appointed person is too inexperienced for the position, given his lack of knowledge and understanding of indirect sales. He is no more than an account manager who maintains existing relationships with a few resellers.

Until the company is able to find a couple of senior managers capable of understanding and executing the proposed strategy, having been given the authority commensurate with the responsibility by the CEO, the first critical weakness and a gap can be identified as a lack of Marketing and Indirect Sales knowledge and experience. The senior management of the company is aware of this critical weakness and is willing to make any necessary changes to achieve successful results. Senior management also feels that the company is at a stage where a drastic change is required to revamp the organization. Otherwise, they are concerned that NGI will continuously exhibit low performance. This weakness directly impacts the KSFs of partnering strategy, generation of customer loyalty and target market segmentation.

Another critical weakness which negatively impacts the culture of the organization is the CEO's propensity to control all areas of the business and in turn to meddle. With an entrepreneurial mind-set combined with his temperamental and dominant personality, he often has difficulties empowering and motivating others. As a result, almost all of business decisions are made by him and there is a lack of autonomy within the organization. Employees, including senior managers, are often interrupted by him when making decisions, leading to a loss of stimulation and interest in their work. This issue directly impacts the KSF number seven, and also influences all other KSFs as well as the company's capability to thrive.

These skill gaps can be closed, as the key decision makers are willing to make an investment to address the weakness. The senior management has recognized the detrimental issues with the former EVP of Sales and has a good idea of what qualities, knowledge and experience to look for in a new EVP of Sales. The VP of Marketing acknowledges the flaws in his team's strategies and tactics and is endeavouring to address them. The management is also willing to replace the current VP of Channel Sales and hire additional resources to form an Indirect Sales team.

One component of the proposal is the culture change needed to retain highly skilled human capital and to force out non-risk takers. The biggest gap in this area has more to do with managements' mind-sets rather than their capabilities, especially the CEO. The CEO of the company is likely to have a difficult time relinquishing his control. However, he, along with the other senior managers, has been seeing the negative impacts of a centralized culture, especially in the sales area where ineffectiveness is becoming more prevalent. Therefore, he is open to start making the necessary changes in order to retain highly skilled employees and to create a culture where everyone is responsible for their own actions.

One important step to close the gap is for management to change their mind-set and to start trusting their employees. There may be errors along the way, but management should hold the employees responsible, by measurement through a performance management system and awarding with a bonus system, rather than fixing the errors for them. One way to aid in changing their attitude is to enrol them in leadership courses with a special emphasis on employee empowerment and on changing management styles. Alternatively, NGI should consider hiring in-house Human Resources personnel who can steer the culture change. Furthermore, NGI can implement an award system that focuses on employee accountability in concurrence with excellent performance. NGI should also implement a tool that measures culture change and employee satisfaction.

Another component of the proposal is to measure customer satisfaction and to enhance the support model to increase customer loyalty. This is probably easiest to implement from management capability and perspective. Both VP of Marketing and Finance and Operations have experience implementing customer satisfaction surveys and management is eager to do anything to make customers happy.

3.1.3 Summary of Management Preference Gap Analysis

Based on the analysis of the above management preferences with respect to their decision criteria, capabilities and mind-sets, two major gaps are identified.

- Deficiency in Sales and Marketing expertise
- Tendency of micro-managing employees and taking away autonomy

However, these gaps can be closed by the following actions:

- Successful completion in hiring a new Executive Vice President of Sales who has knowledge and experience in closing the current gaps. - The individual should carry out the right vision to sales representatives and establish expectations to increase sales force effectiveness. He or she should maintain NGI's focus and be the driver behind any changes necessary to institute processes required in Sales and Marketing. The person should also close the gap between Marketing and Sales. This person should have a relevant track record and his or her performance should be monitored until it is clear that s/he is executing the strategy effectively.
- Replacement of the current Vice President of Channel Sales and additional hires in the indirect sales force – The new VP of Channel sales should be an individual with extensive knowledge and experience in the partnering strategy. It would be more beneficial if the individual already has several established relationships with big network equipment firms. The additional hires that would form the indirect sales team should manage each sector; explicitly original equipment manufacturers, system integrators, and value-added resellers.
- Transformation of management's mind-sets to initiate culture change to the point where management trusts and empowers the employees and where employees are

held responsible – The management should appreciate the negative impacts of the current culture and endeavour to release control. This can be achieved by an effective reporting system that enables management to intervene when necessary and in turn gives them some comfort during the changeover period. Therefore, it is recommended that NGI bring in a full-time in-house HR personnel or consultant who can drive the change and establish the needed culture.

3.2 Organizational Capability Analysis

This section evaluates the current NGI organization with respect to its culture, systems and structure. This analysis identifies gaps that need to be bridged in order to successfully implement the proposed strategy.

3.2.1 Cultural Influences and Capabilities

The strength that helps implement the proposal is the current employees' loyalty towards the company. Most employees have been with the firm for a long time and are given a considerable number of options. They truly desire success for the firm because they have been emotionally involved from when it was founded. Monetary considerations also motivate them as they hope to make a substantial profit by exercising their options. This indicates that the employees would be willing to accept changes to the culture if senor management communicates an adequate explanation on why the change is inevitable.

In addition, the company's small size contributes to its strength and synergy between departments and employees. Communication between departments and throughout the company is fairly easy in this family-like environment, which helps expedite the change process. It is also easier for senior management to hold a company wide meeting in order to convey the new vision.

On the other hand, there are several cultural tendencies that pose a gap with the proposed strategy. First of all, the ability and desire to move quickly is not facilitated by the current culture. The majority of employees are not accustomed to working under pressure, and have a propensity for not taking deadlines seriously. This is caused by a lack of a planning and process combined with a shortage of enforcement, absence of a performance appraisal system, and pressure to abide by established processes throughout the company. Too many exceptions are accepted. Furthermore, an absence of metrics to measure the company's performance and an individual assessment plan to evaluate employees vastly contributes to this undesired culture. These system issues are further discussed in the next section.

The second characteristic is caused by the aforementioned micro-management mind-set. Consequently, employees tend to avoid responsibility as they do not feel empowered and they do not feel a sense of full ownership of their jobs.

Another characteristic of the company which makes the proposal challenging is a resistance to change. Many employees do not demonstrate the ability to deal with significant change. There have been several occasions of employee complaints when a new process to be followed is implemented. The resistance makes enforcement difficult and ends up creating too many exceptions. Once again, this points to the first and second attributes of the centralized company culture adding more obstacles.

3.2.2 Systems

NGI has a key system in place to support the proposed strategy, a Customer Relationship Management system that was implemented last year. The system's primary objectives are to track customer activity, to develop relationships with customers, and to record billing information. It is comprised of features such as Account and Contact Information, Opportunity Management, Contract Management (which is used by a License Administration and Technical Support team),

Document Management, and Reports. The tool is flexible, user-friendly and suitable for the company.

On the other hand, there are a couple of weaknesses, not related to the system itself, but to processes around the system. They are sales processes and methodologies, sales metrics and sales training. The sales process needs to be remapped out in more detail and enforced. The sales metrics using reporting tools should be enhanced to provide more accurate forecasting. Sales people need to receive better training on the system as there are still a few personnel who rely on an Office Administrator to input their data.

Another area that is important in implementing the proposed strategy is an incentive and performance system. Currently there is no bonus award in place to motivate employees. Without incentives, employees are unlikely to be motivated to follow through with the changes. The absence of a bonus in conjunction with a lack of a performance plan and assessment leads to the poor performance of employees and compounds the frustration of good performers who will eventually resign. As a result, employees are desensitized to the consequences of poor performance. However, the bonus award will be difficult for the company to implement given the current deficit and rapid cash burn rate without sharp revenue growth in the next couple of quarters. With possible additional funding from investors, the company may be able to implement a small bonus award in combination with public recognition by senior management.

Furthermore, the company's sales commission plan suitably exhibits this lack of penalty for poor performance. An individual's quota is not defined and there is no floor to initiate commissions. A flat 10 percent of commission on any new sale is given to sales reps without any further criteria. In other words, even if a sales representative achieves only one deal throughout the quarter, he or she still earns commission on the deal. With the overall high basic salary (USD $90,000 compared to USD $70,000 - $80,000 from other software companies), he or she becomes

comfortable with the small commission. There is no price to be paid for poor performance and no upside to exceed a quota. The higher salary in combination with the absence of any upside in the commission structure was originally designed by the CEO whose intention was to attract sales reps with good quality. However, the result was attracting people who are non-risk takers and who have less desire to drive sales growth.

The above mentioned lack of accountability due to the culture, and the absence of effective performance and compensation systems and sales processes create a vicious cycle. For example, a sales process to follow through from a lead to an opportunity and to a deal is in place. While a sales representative is working through by taking the formal process (i.e. preparation of an account plan and documentation of each stage to the CRM system) and is in process of making a deal, the CEO jumps in as he feels that the sales rep may not successfully complete the deal. After explaining the background to the CEO, the sales rep does not feel as accountable to the deal any more as the CEO is now part of the process. In addition, thinking that the CEO knows everything about the deal now, the sales rep immediately ceases to take the formal sales process, leaving no document trail. The deal does not follow through and the outcome is not necessarily blamed on the sales rep. This repeats on several occasions and there is no assessment plan to measure the individual's performance. The individual does not apprehend that he or she may be a poor performer and becomes insensitive to negative results. The only punishment is that he or she does not earn any commission. The individual also becomes more and more dependent on management. On the operations side, due to incomplete information in the CRM system, the company is unable to produce reliable metrics and in turn is unable to accurately forecast future outcomes.

However, since these have been already identified by the company, the gap is considered relatively small. One thing for the company to consider upon improving the sales process and methodology is to answer fundamental questions such as "What are the objectives of the sales

process (i.e. not only to make more sales, but also to build relationships, to foster a positive image of NGI and to gain more market awareness)?" Also important is to establish key messages that make NGI's sales force unique (i.e. NGI does not sell by convincing and conquering resistance, but sells by empowering buyers to solve problems and gain competitive advantage).

3.2.3 Structure

The NGI organization chart is shown in section 1 (Figure 1-2 on page 8). The company is structured in a manner that centralizes all functions under the CEO. This centralized structure makes the execution of the proposed strategy somewhat easier as communication would be fairly simple. However, there is a gap identified to implement the proposed strategy of changing the culture.

There is currently no designated Human Resources function at NGI, which makes changing the culture and initializing performance and incentive systems a challenge. VP of Finance and Operations who already has various other duties and does not have sufficient time is currently managing the HR function. The company is utilizing an external HR consultant who works remotely and mainly spends time on recruiting activities. The company's rationale behind this is to save costs by utilizing this resource only when required. This would work well once a proper system is in place, but until then, it would be more beneficial and cheaper for the company to bring in-house HR personnel. This individual should be given sufficient authority and autonomy to drive the substantial organizational changes. This position can be a six-month contract if the company is conscious of costs. The individual should focus on developing core values, cultivating a new culture, setting up a structured performance plan, developing a new commission structure, and instituting metrics such as an employee satisfaction survey.

3.2.4 Summary of Organization Gap Analysis and Bridging

Decentralizing the structure and distributing autonomy throughout the company in order to retain highly skilled employees, to force employees to take accountability and to expel non-risk takers who do not add value to the company, requires some organizational changes to be effectively implemented. The most significant change is a cultural one where strong resistance from employees is anticipated. In order to close the gap identified, the following actions are recommended.

- The company should establish a vision and core values that incorporate the new desired culture. The new culture of emphasizing accountability, promoting good performance, creating a sense of urgency and thriving in making necessary changes will enhance the organization by enforcing an effective sales force and promoting a highly-performed environment. Leveraging a marketing resource, NGI can design an artefact (i.e. calendar, mouse pad, etc.) that lists the vision and core values and distribute it to employees to signify the change. The senior management of the company should promote the new culture and motivate the rest of the employees in the organization by clearly explaining why the change is required and how the firm can benefit from it.

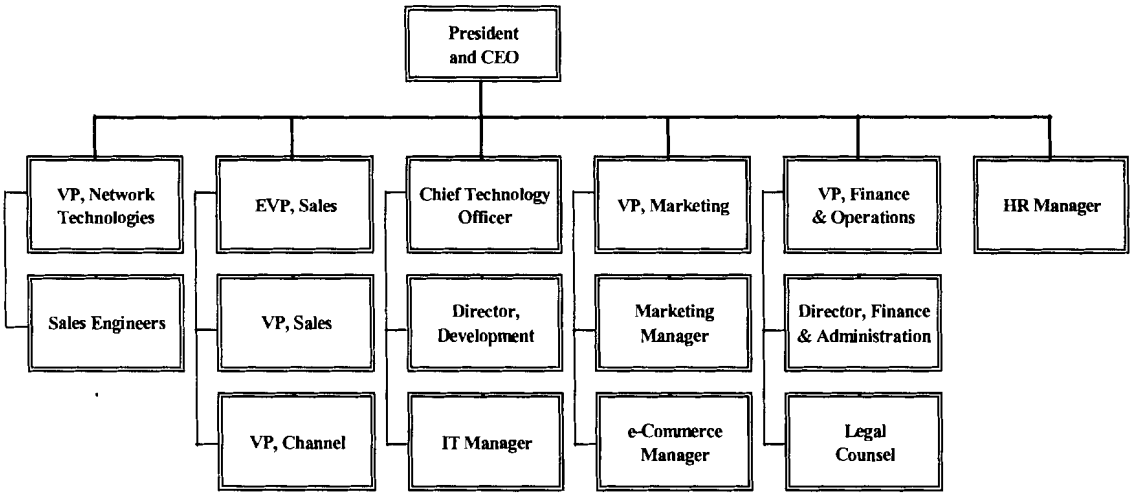
- Eventually, those employees who continue to resist to the change need to be reassigned or eliminated. This is necessary to reduce peer mind poisoning and other unhealthy activities such as power struggles. It is also important that the elimination is done, if possible, all at the same time to lessen fear among employees. The fear that others could be next can paralyze the organization over time.

- The company should enhance and enforce sales processes to utilize the current Customer Relationship Management system.

- It is recommended to employ Human Resources personnel with previous experience in forming and changing a corporate culture. Figure 3-1 highlights the change that would be required. The change pertains to placement of an in-house Human Resources Manager who reports directly to the CEO and works with other VP's in developing a desirable company culture as well as various performance and compensation systems.

- With the new HR manager, the company should develop an incentive system that matches employees' performance.

Figure 3-1 New NGI Organizational Chart Highlighting Human Resources



By the author

3.3 Resource Analysis

The final section of the internal analysis is designed to identify what resources are available to the company, what resources are required to support the proposal and what gaps exist between the two.

3.3.1 Human Resource Requirements

The good news is that NGI has most of the resources necessary to achieve the targets of the proposal. Although the company's marketing efforts have been scattered and there has been an absence of effective communication between Sales and Marketing, the marketing team has the ability to implement the strategy to improve weak promotional efforts, to target the right segment, and to deliver the right messages to the segment. Marketing can also conduct research to gather information on potential partners for Sales to approach.

The Technical Support team also has sufficient capabilities to examine the current support model and attitude to please customers no matter what it takes. This allows implementation of the fourth recommendation of enhancing the current support model to increase customer loyalty.

However, NGI needs additional resources in order to effectively execute the proposed strategy, particularly in forming various strategic partnerships to increase indirect sales channel efforts. Firstly, NGI needs to fill the current vacant position, EVP of Sales, as soon as possible in order to implement the proposed sales and marketing strategy. This senior leader should be able to express the right vision to the sales representatives and establish expectations to increase sales force effectiveness. The leader should have an extensive background in developing an effective sales methodology and in successfully managing both direct and indirect channels. The leader will ideally have a background in Marketing, enabling liaisons with the VP of Marketing and improving the weak communication channels between Sales and Marketing. An additional resource required is the creation of a Channel Sales team comprised of two resources: the VP of Channel Sales and the Director or OEM.

In order to implement the strategy, a new VP, who can implement the new channel strategy, should replace the current VP of Channel Sales. The leader should also have a clear

vision of how the Channel team can achieve the proposed strategy and have a background in indirect channel sales. The additional resource, Director of OEM, in the team will focus on the OEM side of the channel business. The individual must have experience in developing and strengthening relationships with OEMs. This opportunity could be offered to the current VP of Channel Sales if the management feels that termination may cause anxiety among employees. However, given his lack of knowledge and experience in the OEM strategy, the recommendation is to bring a new resource from outside the company.

Human Resources personnel are needed to support the change of the culture and the implementation of a new incentive system as well as a performance planning methodology. These dedicated personnel will ideally be competent in change management in addition to overall Human Resource activities.

Another possible resource required is additional part-time headcount to support client calls at night. Currently, the company does not have a clear idea of whether this is necessary or not due to the absence of customer surveys. Once the customer survey is conducted and a need is determined, the company should consider hiring a graveyard shift of customer support personnel.

3.3.2 Financial Resources Requirements

The company has been organically growing for the last six years by completing only the first round of venture financing for USD$9.2 million. This shows the company's capability to self-sustain to a certain extent, compared to some other firms in the same industry. For example, a company called Brix has gone through six rounds of financing totalling USD$60 million for the past five years and has been able to achieve annual revenue of only USD$4.5 million.

Nevertheless, as shown in Appendix C, the company's financials are considerably weak causing the financial gap in implementing the strategy. The operating margin is negative 28

percent displaying higher operating expenses than revenue. Losses before interest, tax, depreciation and amortization for the most recent year is over USD$1 million. The most problematic area for the company is its cash position. The current ratio of 0.66 displays the company's poor liquidity position. With the underachievement in sales in conjunction with increased operating expenses, the company's cash position is becoming extremely low. With the quarterly burn rate of USD$1.3 million, it is forecasted that NGI has less than two months to survive unless sales increase radically in the next couple of months.

The company needs to obtain additional funding in order to accelerate its sales growth and to implement the proposed strategy given the short window of the opportunity in the market place. Estimating that the company requires a year to fully implement the strategy recommendations which will generate minimal two-fold revenue while maintaining the current revenue level of USD$1 million and operating expenses of USD$1.4 million per quarter, the investment should be at least USD$2.1 million ($0.4 million times four to cover the quarterly deficit plus $0.5 million to implement the strategy).

There are several options NGI can consider: venture debt, second round of financing from new investors, and second round of financing through existing investors who can exercise their warrants and options. The first option of venture debt helps the company to pursue its organic growth by not diluting shares and by maintaining the control, but requires high interest payments. Given the company's minimum assets, NGI should be prepared to pay over 20 percent of interest, an additional monthly cash disbursement increasing its quarter cash burn rate by more than USD$100,000. This also does not bring any tax benefit given the company's loss position. The second option of finding new investors does not require debt, but substantially dilutes shares. The final option, which is recommended, does not necessitate any interest payment and also will not dilute shares as the warrants and options are already included. One challenge the company will face is convincing the existing investors to take the action.

3.3.3 Operational Resources Requirements

No significant gap exists in regards to the company's operational resources. The company's current office location has sufficient space to allow any additional headcounts up to five. In addition, the arrangement with field sales reps that work from their home offices throughout several locations in the US and travel to Vancouver several times per year is not considered a gap to implement the proposed strategy. Continuous communications using e-mail and telephone are effective to convey changes in the organization.

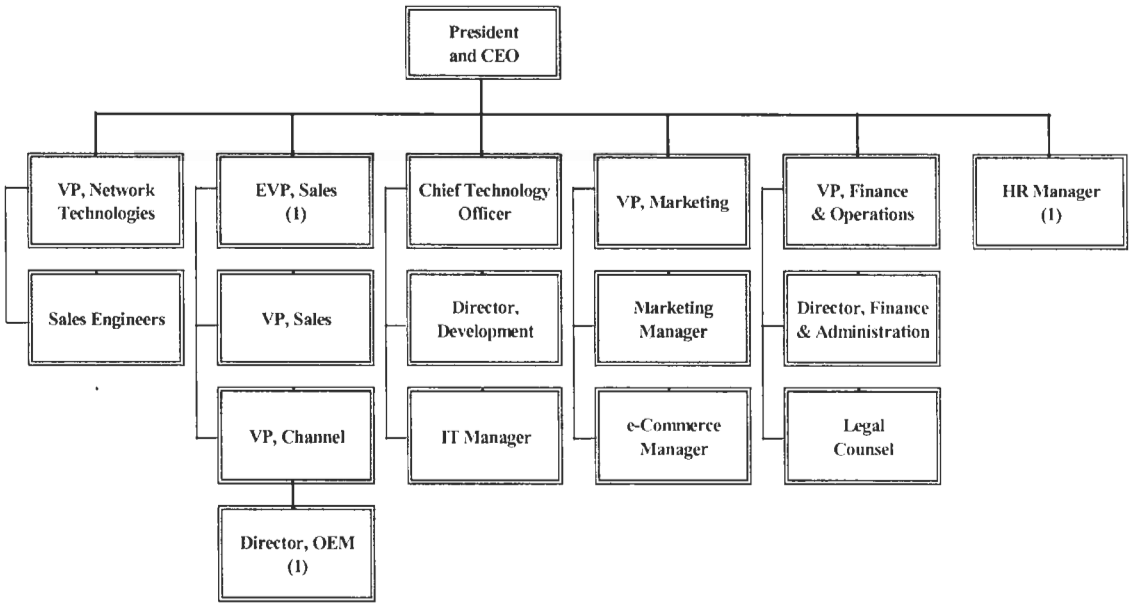
3.3.4 Summary of Resource Gap Closing Analysis

Based on the resources required and the existing resources identified above, first of all, NGI should initiate its second round of financing as soon as possible. The additional investment of at least USD$2.1 million will allow the company to survive while executing the proposed strategy and preparing for its accelerated sales growth. The investment, if possible, should be injected by the existing investors who can exercise their warrants and options.

With respect to human resources, there is a requirement to invest in two new positions to execute the proposal. In this analysis, the potential addition of customer support personnel is omitted due to the unknown needs of customers. Figure 3-2 (page 72) displays the additional resources required to implement the proposal and their respective location in the organization.

Resources to be hired externally are specified in parentheses and the team that will be involved in supporting the proposed initiative directly are highlighted. The figure assumes the support required by senior management upon acceptance of the proposal.

Figure 3-2 NGI Organization Chart Highlighting New Resources for Proposal



By the author

The cost for these additional resources is outlined in table 3-1. These costs include annual salaries and travel related expenses. The travel is primarily required by the sales department in order to develop partnerships throughout the North American region.

Table 3-1 Additional Costs for New Resources

Position	Salary (in USD)	Travel Expenses (in USD)	Difficulty
Replacement (already in budget)			
EVP, Sales	180,000	50,000	Moderate
Additional Costs (not in budget)			
VP, Channel Sales (incremental)	20,000	10,000	Moderate
Director, OEM	110,000	20,000	High
HR Manager (incremental)	50,000	0	Low
Total Incremental Costs	**210,000**		

By the author

The company may have some challenges in recruiting a Director of OEM due to the desired specialization of OEM relationships background desired for the position. However, this is not a major concern as any individual with channel sales experience in the high-tech industry

should be able to pick up the knowledge in a fairly short period of time. Furthermore, a couple of the existing VPs have worked for various software companies that in-housed OEM teams. If they are able to contact some of these individuals and successfully recruit them, the process becomes much easier.

Table 3-2 (page 74) exhibits the total resource costs for the proposal. An additional 10 percent is added for the costs associated with recruiting and training of the new hires and is only applicable in the first year. The marketing activities entail a customer satisfaction survey and implementation of key marketing messages and campaigns accordingly. These costs will be cut by half in the second year as the efforts of maintenance are lower than initial implementation. The culture change costs of USD $10,000 are only added for the first year. These costs relate to printing of artefacts that communicate the company's new culture and core values to employees as well as to conducting a third-party employee satisfaction survey. As a result, the total costs for the first year and annually starting the second year are USD $286,000 and USD $235,000 respectively. The initial costs of USD $286,000 are well under the maximum investment amount by the company, USD $500,000, thus no gap exists for financial resources. To support the proposal, the company will have to complete either the second round of financing as proposed or utilize the available debt from the venture capital firm, as originally planned.

Table 3-2 Total Proposal Costs

Position	Costs (in USD)
Sales Resources	160,000
Recruiting and Training	16,000
Marketing Activities	50,000
HR Resource	50,000
Culture Change Costs	10,000
Total First Year Costs	**286,000**
Total Annual Costs from Year 2	**235,000**

By the author

3.4 Financial Rationale

This section is to analyze the basic financial rational for the proposal. The first proposal is to invest in indirect sales by increasing its sales force in the US. Estimating conservatively that the indirect sales strategy will not only increase reseller revenue, but also increase market awareness resulting in a doubling of the current market share of 0.25 percent to 0.5 percent, the expected license revenue is USD $10.33 Million, a 135 percent sales increase in the first year. With continuous expansion of its indirect sales force and partnerships, NGI's market share is estimated to increase by 0.3 percent to 0.5 percent annually. In combination with the market growth rate, the company's revenue by the year 2009 is expected to reach USD $41.67 Million with a market share of 1.7 percent, which is on the conservative side.

Improving marketing efforts to target the right segment will also help NGI increase its market share. Currently, NGI's revenue generation from existing customers are comprised of 65 percent Enterprise Customers, 33 percent NDVs and 2 percent of Integrators customers. With the additional marketing spending, the company can increase the number of NDV customers, contributing to the market share increases discussed above.

Table 3-3 Expected Revenue from Proposed Indirect Sales Strategy

NGI's Current Market Share	0.25%
Current Total Market Size	$1,876 Million
Estimated 2006 Market Size	$2,066 Million
Estimated NGI's Market Share	0.50%
Expected Revenue (first year)	$10.33 Million
Expected Revenue (by 2009)	$41.67 Million

By the author

The third recommendation of changing the culture and empowering employees does not directly link to revenue generation. However, this will help NGI increase productivity as well as decrease costs associated with high turnover. The current turnover rate is about 9% per year costing approximately USD $20,000 to USD $50,000 (depending on position) per year to recruit replacements and to conduct an orientation and training. By decreasing the turnover rate, the company can save at least $20,000 per year. Lower turnover rate will also increase morale and loyalty among employees which is difficult to measure, but critical to the company.

The final proposal is to increase customer loyalty by investing in a customer survey and implementing any new process or product features to satisfy customers. Customer loyalty can be measured by the maintenance renewal rate. Since NGI's current maintenance renewal rate is already high at 98 percent, this proposal will not bring in additional revenue. However it will help NGI sustain the current maintenance revenue percentage of 35 percent that is already factored in the above revenue projections from the first and second recommendations.

Having completed the brief financial calculations for the recommended strategy, table 3-4 (page 76) provides the financial projection for the next five years as well as Net Present Value (NPV) and Internal Rate of Return (IRR) as a result of the proposed strategy. The current operating expenses of USD $5.2 Million are projected to increase by 50 percent annually as a

result of the aggressive sales and marketing strategy. A 10% discount rate was used for the NPV calculation.

Table 3-4 Five-Year Financial Projection

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue	4,400,000	10,329,500	19,827,900	30,404,400	41,670,400	54,306,336
Expense	5,486,000	8,035,000	12,052,500	18,078,750	27,118,125	40,677,188
Operating Income (Cash Flow)	-1,086,000	2,294,500	7,775,400	12,325,650	14,552,275	13,629,149
NPV (5 Year)	31,898,483					
IRR (5 Year)	347%					

By the author

In conclusion, generating more than $10 Million in cash flow and increasing sales by an average of 93 percent in the next three years, management should accept and execute this proposal.

4 RECOMMENDATIONS

NGI should commence the implementation of the strategic recommendations presented in section 2.6 immediately. Given the lead time on recruitment, the company will have greater success with the proposal the sooner it begins execution. The following summarizes the strategic recommendations with additional details to implement the proposal.

First of all, to increase its market share and generate additional sales to meet management's criteria, the company should actively intensify its indirect sales efforts. The indirect sales will enable NGI market penetration with less difficulty and easier access to distribution and customers which NGI has not been able to obtain as forecasted. To increase efforts, NGI should invest in creating a Sales Channel team with experienced personnel who can drive this initiative in a timely manner. The initial Sales Channel team will be comprised of two resources; the VP of Channel Sales and Director of OEM. Their qualifications are described in table 4.1 (page 78).

Secondly, NGI should be more focused on whom it is selling to. Realization of the correct target market and the shift away from Enterprise Customers to NDVs was a good start for the company. However, there has not been much effort to initialize and execute this new marketing strategy. It is imperative for the company to conduct a customer satisfaction survey not only to measure the current customer loyalty level, but also to identify what customers are looking for in products and services. The survey should focus primarily on NDVs. Results of the survey will drive the new technology or features that R&D should develop as well as the new support model that Technical Support should implement in order to meet customers' needs. An example of key questions to be included in the survey is presented in table 4-2 (page 78).

Table 4-1 VP of Channel Sales and Director of OEM Qualifications

VP of Channel Sales	Director of OEM
7+ years of experience in establishing strategic partner relationships; ideally within the network management industry	5+ years of experience in establishing strategic OEM partner relationships in a software industry
Experience in establishing senior-level relationships / access to key organizations	Experience in establishing relationships and access to key OEM partners
Proven track record in aligning and driving deals to successful completion while meeting and surpassing revenue targets	Experience and knowledge in methodologies of OEM strategy
Willingness to take personal responsibility for delivering results	Willingness to take personal responsibility for delivering results
Strong relationship building, collaboration, and communication skills	Strong relationship building, collaboration, and communication skills
Strong ability to create and articulate effective presentations to a variety of audiences	Strong ability to create and articulate effective presentations to a variety of audiences
Leadership skills in order to clearly communicate the company's vision and manage Director of OEM effectively	

By the author

Table 4-2 Simple Example of Customer Satisfaction Survey

Area	Examples of Questions
Product Experience	What do you consider strengths of our product, NetMagic, to be?
Product Experience	What do you consider weaknesses of our product, NetMagic, to be?
Overall Company	On a scale of 1 to 5 where 1 represents "Extremely dissatisfied" and 5 represents "Extremely Satisfied," how would you rate your level of overall satisfaction with NGI, Inc as a supplier?
Customer Service	On a scale of 1 to 5 where 1 represents "Extremely dissatisfied" and 5 represents "Extremely Satisfied," how would you rate your level of satisfaction with Company ABC in regards to customer service?
Pricing	On a scale of 1 to 5 where 1 represents "Extremely dissatisfied" and 5 represents "Extremely Satisfied," how would you rate your level of satisfaction with Company ABC in regards to price?

By the author

Marketing should come up with more intensive promotions to deliver key messages to NDV customers, to better communicate NGI's superior product offering to the market, and to point out the weaknesses in key competitors' products. Furthermore, NGI needs to bridge various communication breakages, especially in Sales and Marketing. Marketing should set up an on-going communication process to share any shift in market needs to R&D and Sales. This communication process will guide a more effective lead generation process that precisely links any marketing campaign such as tradeshows and conferences to sales leads instead of inefficiently using marketing resources.

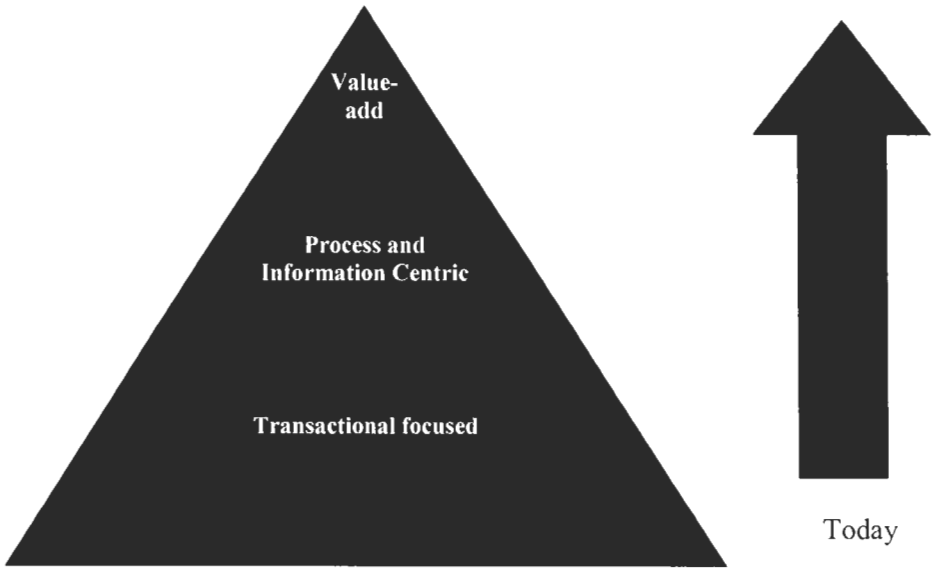
It is extremely crucial for NGI to find a right EVP of Sales who can provide a turning point for NGI. A person with great vision and leadership as well as extensive experience in sales should be able to turn around NGI's lacklustre sales organization into something much more effective.

In addition, NGI should invest in setting up various processes around sales activities. The standardized processes will increase efficiency around the organization and in turn, employees can focus on value-added activities. One would be utilizing the existing CRM system. Enforcing sales people to make continuous updates to the system enables the company to generate sales metrics directly from the system (which takes less than a minute) rather than maintaining a spreadsheet outside of the system that records sales updates which wastes the Sales Operations Analyst's time by more than an hour on a daily basis. Senior management needs to invest time and effort into precisely mapping out all the processes required to standardize these marketing activities. The Sales Operations Analyst's time should be utilized to ensure the processes are implemented and embraced by employees.

A pictorial presentation of this concept is exhibited in figure 4-1 on page 80. As of today, the company spends the majority of its time on transactional activities such as updating and

retrieving information manually, leaving very little time to focus on value-added activities such as analyzing and reviewing data and continually improving the organization. The mapping and standardization practices will enable the company to move on to the next stage of the pyramid, Process and Information Centric, where the company focuses on formalizing and automating processes and starts understanding the information and data provided by those processes. This can be used in a sales meeting to convey the company's vision.

Figure 4-1 Transactional Activities to Value-Added Activities



By the author

Finally, NGI's present culture where there is strong employee dependency on senior management and accountability is lacking poses a great risk to the company. Thus, the company should invest in altering the culture to a new ideal one. The new culture should look like the following:

- There is a strong independence and accountability among employees.

- Employees are dedicated and accordingly appreciated to a great extent.
- The organization goes an extra mile to be successful and celebrates the success.
- Employees are empowered and trusted by management.

In order for the company to achieve the desired culture, there are several actions that have to be taken. First of all, the company should invest in a full-time in-house HR manager who has the qualifications shown in table 4-3. The manager will report directly to the CEO who grants a certain level of authority to the individual. In addition, senior management's endorsement and support are essential to succeed in the initiatives put forth by the HR manager.

Table 4-3 HR Manager Qualifications

5+ years of experience in a software industry as HR advisor
Experience in corporate culture change management
Extensive experience in developing compensation systems and performance management systems
Excellent communication skills and ability to work well with all levels of an organization
Strong presentation and leadership skills
Exceptional organization skills

By the author

The HR manager should drive several initiatives required for the company such as conducting an employee satisfaction survey, designing and implementing core values based on feedback from management and employees, driving culture change by enforcing core values and measuring change, implementing a bonus system that will drive employee motivation by awarding high performers, revamping the current commission structure, and establishing a regular on-going performance plan. The employee satisfaction focusing on top performers'

opinions will provide feedback on how employees evaluate the organization and management. This will be a good foundation for other HR initiatives.

The new core values should include attributes exhibited in table 4-4 that will force the culture change.

Table 4-4 Attributes of Core Values

Accountability	Passion	Integrity	Customer Success
We take responsibility and set the right example.	We strive to achieve the best and to make our work extraordinary.	We trust each of us and treat each of us with respect.	Every employee is committed to customer success.
We make a difference.	We have fun and celebrate achievements.	We are truthful and candid.	Our strategy, products and services are developed with the goal of customers in mind.

By the author

The bonus plan should be designed for the purpose of awarding employees who exhibit exceptional performance and of alerting employees indirectly and diplomatically that there are consequences for lacklustre performance and responsibility. The plan will be closely tied to the performance plan that establishes what is expected of employees, as well as the growth and learning plan for the employees. Furthermore, the current commission structure needs to be revamped to penalize poor performance, while awarding exceptional performance. One way to do this is to set a floor amount for any commission to kick in and an accelerator to award more than the set commission rate if a quota is achieved.

In conclusion, having the right strategy and ability to execute the strategy is key to the success of the firm. The author hopes that NGI can pursue the recommendations and in turn meet its desired results and ultimately become a very successful company.

APPENDICES

Appendix A – NGI Balance Sheet

CURRENT ASSETS	
Cash & Cash Equivalents	259,355
Intercompany Accts Receivable	0
Accounts Receivable	1,302,918
Inventory	0
Prepaid and Other Current Assets	61,345
TOTAL CURRENT ASSETS	1,623,617
FIXED ASSETS	
Property & Equipment	401,359
Leasehold Improvements	0
PPE & Leaseholds Total	401,359
Accumulated Depreciation	(386,661)
TOTAL FIXED ASSETS	14,699
OTHER ASSETS	
Goodwill & Other Intangibles	0
Deferred License Fees	6,850
Deferred Financing Costs	35,908
Other Long Term Assets	0
TOTAL OTHER ASSETS	42,758
TOTAL ASSETS	1,681,074
CURRENT LIABILITIES	
Accounts Payable	181,282
Intercompany Accts Payable	0
Accrued Liabilities	251,716
Operating Facility - Comerica	395,000
Crrent Portion of License Fees	192,241
Crrent Portion of Long Term Debt	202,281
Deferred Revenue	1,232,535
TOTAL CURRENT LIABILITIES	2,455,055
LONG TERM LIABILITIES	
License Fees Payable	0
Long Term Deferred Revenue	253,508
Long Term Debt	446,030
Series A Preferred Stock	14,801,481
TOTAL LONG TERM LIABILITIES	15,501,019
TOTAL LIABILITIES	17,956,074
EQUITY	
Common Stock	31,391
Paid In Capital	2,040,606
Accumulated OCI	274,131
Retained Earnings - Prior Year	(15,451,507)
Retained Earnings - Current Year	(3,169,621)
TOTAL EQUITY	(16,275,000)
TOTAL LIABILITIES AND EQUITY	1,681,074

Appendix B – NGI Income Statement

REVENUES	
Licensing Revenue	2,957,636
Maintenance, Support & Services Revenue	1,075,898
Interco Revenue	0
TOTAL REVENUES	4,033,535
COST OF REVENUES	
Licensing Cost	(48,802)
Maintenance, Support & Services Cost	(32,950)
TOTAL COST OF REVENUES	(81,752)
GROSS PROFIT	3,951,783
OPERATING EXPENSES	
Sales and Marketing	(2,893,179)
Research and Development	(1,216,813)
General and Administration	(956,175)
TOTAL OPERATING EXPENSES	(5,066,167)
INCOME / (LOSS) FROM OPERATIONS	(1,114,384)
OTHER INCOME / (EXPENSE)	
Amortization of PP&E	(57,598)
Amortization of Deferred License Fees	(62,512)
FX Gain/Loss	(34,914)
Interest Income/Expense	(121,413)
Interest and Accretion on Series A Shares	(1,724,729)
Interest On Long Term Debt	(54,070)
TOTAL OTHER INCOME / (EXPENSE)	(2,055,237)
NET INCOME / (LOSS) BEFORE TAXES	(3,169,621)
Taxes	0
NET INCOME / (LOSS)	(3,169,621)

Figures from NGI internal documents – The figures are according to Generally Accepted Accounting Principles which slightly deviate from some of the numbers presented in the analysis. The numbers presented in the analysis are for the management purpose.

Appendix C – NGI Financial Summary

Fiscal Year	
Fiscal Year Ends:	31-Mar
Most Recent Quarter:	31-Mar
Profitability	
Profit Margin:	-78.6%
Operating Margin:	-27.6%
Management Effectiveness	
Return on Assets	-188.5%
Return on Equity	19.5%
Income Statement	
Revenue:	$4,033,535
Revenue per Share (fully diluted):	$0.11
Quarterly Revenue Growth (year over year):	271.0%
Yearly Revenue Growth (year over year):	124.0%
Gross Profit:	$3,951,783
EBITDA:	($1,114,384)
Balance Sheet	
Total Cash:	$259,355
Total Cash per Share (fully diluted):	$0.01
Total Debt:	$841,030
Total Debt/Equity	-5.2%
Current Ratio	0.66

By the author based on the figures from NGI internal documents

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