CREATING SHAREHOLDER VALUE IN THE SUPPLY BASE

Gentex Corporation – Leveraging Intangible Assets through Relationships

A Best Practices Case Study

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I. INTRODUCTION

In 1998, Andersen LLP undertook a three-year study of 10,000 firms to determine the underlying drivers of value creation. The resulting research created a set of principles named Value Dynamics™. Value Dynamics™ maps out the valuation capital that markets assign to a company's tangible and intangible assets. Looking at the automotive sector, Gentex Corporation stands out in terms of its market capitalization (in relation to its revenue base and physical assets) and its allocation of asset valuation. Gentex leverages its intangible assets far differently than other automotive suppliers, and the results show in its financial statements and market capitalization. This case study focuses on the formal and informal communication channels as well as the reward systems that Gentex employs to leverage its intangible assets– specifically its employee-, supplier-, and customer-relations.

Looking at its market value to book value ratio and its valuation of intangible assets, Gentex Corporation can be described as Silicon Valley meets the Motor City. There is one major variation–Gentex management never lost sight of the fact that traditional business valuation models still hold true. Revenue growth, return on assets, and cash flows are well understood by Gentex engineering, financial, and manufacturing communities. The linkage of entrepreneurship to commercialization and commercialization to cash is communicated and consistently acted upon from the CEO through the entire management ranks and onto the production floor. These linkages leverage Gentex's intangible assets: its relationships—internally with employees and externally with suppliers and customers. As Andersen partners Richard Boulton, Barry Libert, and Steve Samek write in their book Cracking the Value Code,

> "Organizations are creating value in totally new ways, using assets and combinations of assets heretofore unrecognized under traditional accounting systems – and certainly unmeasured. The realization of the enormous economic value of people, for instance, has sparked a no-holds-barred war for talent, often at the expense of traditional attitudes about work itself and old ways of recognizing and rewarding employees. In fact, it is the combination and interaction of various assets – more than any other factor – that will determine a business' economic success." There is no fancy "new economy" accounting or economics at Gentex. The Company is, however, leveraging its intangible assets in its own way and the financial results are impressive – Gentex ratio of market value to book value is running at 5.28 compared to 1.7 average for the supplier sector (as of August 2001). Clearly investors are rewarding Gentex for far more than its physical asset base."

In May 2001, Andersen LLP asked the Center for Automotive Research at the Environmental Research Institute of Michigan to do a series of interviews throughout Gentex to discover the processes Gentex was undertaking to leverage its intangible assets. After conducting 13 interviews across nine functions and general management in June and July of 2001, we have concluded that what Gentex is particularly good at is "information transparency." As Boulton, et al write, "Under models of the past, companies have focused primarily on internal information, while

resisting disclosing more than the bare minimum required by regulation. The model of the future is transparent and user-driven, and allows stakeholders to readily access the information they need to know, when they need to know it."

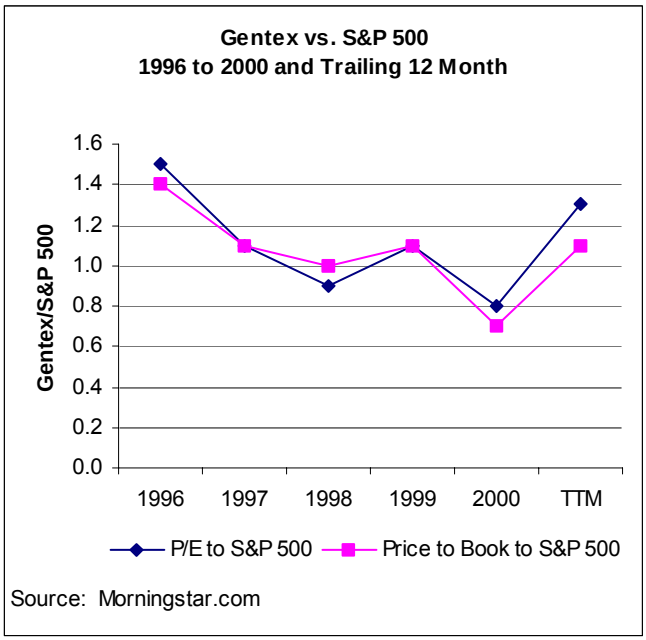
We found that Gentex has built an incredibly efficient personal communication system. Throughout our interviews we found a sense of discipline and focus on providing customer service and innovative products within the business context of high volume production and stringent target price requirements. Internal management systems, supported by the appropriate technology levels have been built to serve these external demands. While there are many unique aspects about Gentex (such as the concentration of product development, engineering, and manufacturing in Zeeland, Michigan) there are many lessons to be learned. Our interviewees showed significant modesty by indicating the lack of a "Gentex system" that could be adapted outside their walls. However, this case study shows many soft and hard technology fundamentals that automotive suppliers–and non-automotive firms–can adopt to leverage their intangible assets into market valuation. And most important, because Gentex has developed such an effective communication system within its $300 million revenue scale, it has a better opportunity to successfully scale-up its information technology to distribute information as its business becomes more geographically and organizationally complex.

We would like to thank Ken La Grand, Executive Vice President and Connie Hamblin, Corporate Secretary and Director, Corporate Communications, at Gentex Corporation for allowing us access to the executives we interviewed and for all of their help in coordinating our interview visits. We would also like to thank Randy J. Miller, Andersen LLP Global Automotive Partner, and Russell Hensely, Leader, Andersen Automotive Competency Center for their support through this process.

II. GENTEX FINANCIAL PERFORMANCE

Gentex develops, manufactures and markets proprietary electro-optical products combining photoelectric sensing devices with related circuitry. The company is also currently developing opto-electronic and LED technology. Gentex is primarily automotive at 93 percent of total sales. It derives the other seven percent of its total sales from its Fire Protection Products Group. The company reported a net income of $70 million on sales of $297 million in fiscal year 2000, an 8.8 percent increase over the previous year. Gentex has had a decade of rapid growth in net sales and net income. This strong growth has been driven by the ability to add significant value to a product (mirrors) viewed as a commodity, through the use of highly innovative chemistry, electronic features and process engineering.

Gentex prides itself on simultaneously being an "automotive supplier and high technology innovator." Its market capitalization indicates that the financial markets have accepted them as such. Gentex stock has sold at an average 27.7 times earnings over the past five years. The graphic on the next page shows that the Gentex valuation on a price-to-earnings ratio has varied within 80% and 150% of the S&P 500 over the past five years and its price-to-book ratio has varied between 70% and 140% of the S&P 500. With a P/E ratio in the neighborhood of 30 (on a forward basis), Gentex is leveraging its intangible assets to achieve a market capitalization of



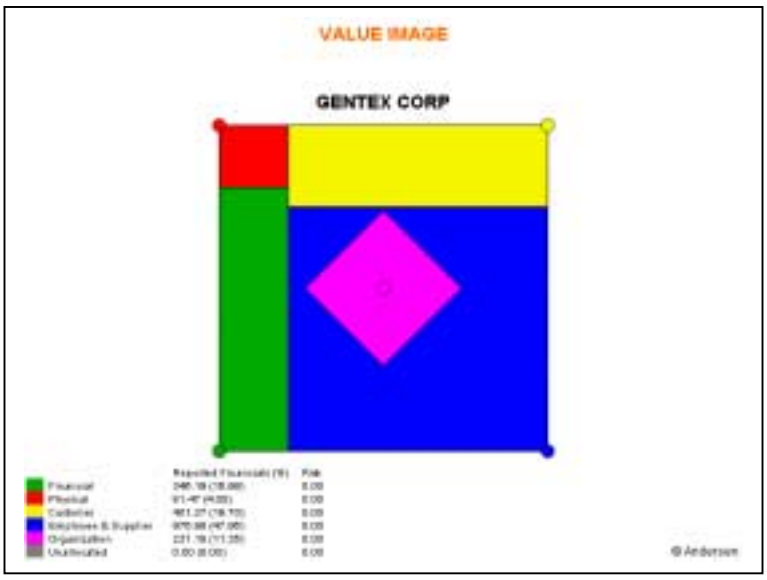
Source: Morningstar.com

approximately $2.1 billion on $300 million of revenues. This compares to the $2.2 billion market capitalization of Visteon Corporation, an auto supplier with a revenue base of $18.6 billion.

The company's core competency is in the development and manufacture of automatic dimming mirrors. Their Night Vision Safety Mirror™ uses electrochromics–the process of reversibly darkening materials by applying electricity–to enable enhanced driver night vision by reducing glare. Gentex has established itself as the global leader in the development and implementation of this technology. Through increased market share and content per vehicle, Gentex has increased its sales approximately 17 percent per year over the past three years (compared to a 12.6 percent annual growth rate for S&P 500 companies). Innovation resulting in penetration of vehicle segments and additional content per vehicle (such as with compasses, map lights, or audio microphones) allows a supplier's revenue growth to surpass vehicle production growth rates. In 2000, over 40 percent of all its interior mirrors included at least one added electronic feature. Gentex is looking to keep revenue growth rates above 15 percent per year by focusing its research and development in three distinct advanced technologies beyond electrochromics: mirror based telematics, 'camera on a chip' imaging technology, and LED lighting. These technologies illustrate the company's continued push to innovate.

With the successful implementation of mirror-based microphone and call buttons for General Motors' OnStar™ system, Gentex has made significant inroads to becoming a leader in the telematics sector. Such a market offers a significant opportunity for continued revenue growth in the next five years. In addition, their relationship with Photobit Corporation leads additional consumer value and vehicle content in areas such as intelligent headlamp control. Finally, Gentex-developed advanced light-emitting diode technology offers applications throughout vehicle interiors and exteriors as well as nonautomotive applications. This electronic technology pipeline assures Gentex will continue to be thought of as a Silicon Valley company in the industrial Midwest.

Using Andersen's valuation of July 2001, Gentex's market value is approximately 5.3 times that of its balance sheet book assets. This compares to an automotive supplier sector (18 firms) average of 1.7 and the next best supplier, Delphi Automotive, at 2.85. Obviously, the capital markets are placing additional value on Gentex's intangible assets.



The illustration at left shows Gentex's Value Image™ framework as determined by Andersen's Value Dynamics™ mapping methodology. It shows a high percentage of the Company's valuation attributed to the intangible assets of customer-, supplier-, and employee-relations. Our qualitative interviews confirmed this quantitative data. Throughout all of our interviews, we heard the priority that Gentex places on building internal and external relationships. Like its capitalization, the Gentex Value Image™ framework compares more closely to high technology firms than automotive firms. The Andersen Value Image™ framework for its supplier sector sample shows almost the complete opposite–a market valuation that is based some 80% on the suppliers' physical and financial assets.

With all organic growth and zero long-term debt on its balance sheet, Gentex's financing strategy is consistent with all of its other strategies: operate the business focused on external demands, not internal requirements. Gentex's financial conservatism stems from the belief that they never want interest expense coverage to dictate their business decisions. We heard (in a variety of forms) that managing to the top line versus the bottom line provides a greater probability of long-term success. Methodologies such as economic value added are not embraced, as the company believes these methods may direct management to act inappropriately–such as cutting R&D as a cost cutting move or selling off assets that may offer long-term payoffs. While the company admits that not following these current financial trends places them out of favor with some Wall Street analysts, Gentex's operating performance speaks for itself. The company believes that its valuation is based 50 percent (approximately) on its current operations and financial results and 50 percent on future expectations.

III. CORE VALUES

A company's core values are made up of a web of stated and implied thoughts, beliefs and values. These fundamental attitudes, if clearly expressed and institutionalized, act as a strong coalescing force. There is little doubt that Gentex has a clearly communicated and trusted set of core values. While many companies make significant efforts to publicize their core values, they often give minimal tangible support to reinforce these values through actions. It is not uncommon for a company's stated core values to be very different from the actions practiced by management. This is not the case at Gentex. The company, through an effective incentive and reward structure and strong leadership, has established a set of values that it is clear to all employees and practiced as a normal course of events.

We identified four core values that interface to give the company a tangible sense of purpose and fundamental financial success. These values are continuous business improvement, product and process innovation, entrepreneurship, and customer focus. While these four core values may not be unique, the focused attention to continuous implementation is. These core values are ingrained within the Gentex culture. We believe this is the basis for the large allocation of value to the employee-, customer-, and supplier-relations sector within the Andersen Value Image™ framework. In turn, it is the realization of these values that result in the market capitalization that sets Gentex apart from its automotive sector peer group. The following sections of this case study–reward structures, corporate communication flows, and hard information technology–are each written around these core values.

A. Continuous Business Improvement

The concept of continuous business improvement is certainly not unique to Gentex; however, few companies practice this value as religiously. This value is deeply ingrained in the employees' daily activities and, while the majority of the improvements are small in nature, their cumulative results assist the company in continually hitting its financial expectations. For example, a team of Gentex employees was touring a supplier's plant during a routine visit and observed what was viewed as a nonvalue-added operation. When told it was done to meet a Gentex blueprint specification, the team (made up of all required decision makers) agreed on the spot to remove the specification. The specific cost savings might be small, but the reinforcement of continuous improvement through the attention to detail will add up to significant savings.

From customer relations to product development and supplier relations, interviewees note examples of constantly improving company operations. Employees believe that ideas can come from anywhere within the organization because the company offers a structure that encourages the introduction of ideas from any level. While most process innovations are generated internally, examples (such as the application of the Toyota Production System (TPS) on selected production lines) indicate that outside best practice systems and learning can be adopted by Gentex.

B. Product and Process Innovation

The drive to constantly innovate product and process technology is strongly evident throughout the company. All managers understand the direct connection between the company's position as a technology leader and the ability to maintain their business model. "A sense of urgency" and "wolves nipping at our heels" are phrases used to describe the business environment. This core value is traced back to the company's founder–an inventor with a unique balance between an inventor's flair and a business person's practicality. The company reinforces this value by maintaining research and development spending through good times and bad. Management communicates this spending stability to the employees and investment community as "paying a short-term penalty for long-term growth." While Gentex is best known for its visible automotive components, internal Gentex process innovation is equally revered. It is the Gentex process innovation, the Company believes, permitting the production of innovative product at auto industry

production volumes that ultimately supports Gentex's market capitalization. Process innovation examples include a significant simplification of the filling and sealing process of the electrochromic chemicals on the production line to allow increased output without requiring increased floor space.

C. Entrepreneurship

We include in this value a wide range of attributes, including the employees' perception of reward for assumed risk and effort, a wide distribution of company ownership, and a keen focus on a team environment. The ultimate focus is on product outcomes, coaching, and knowledge transfer. Each of these individual attributes contributes to the entrepreneurial culture. To describe Gentex's focus on innovation to grow the top line, one executive used the analogy to the pressure a pharmaceutical company faces in keeping its research pipeline full to assure continued growth. Entrepreneurship is also traced back to the company's co-founder and CEO and the early days of the company when it won acceptance of its new auto-dimming mirrors by outfitting them in auto executive vehicles.

The Gentex environment nurtures rebels–individuals that stand up and take calculated risks. Throughout the engineering community, skunk works are affectionately mentioned in an intra-company competitive manner that shows that individual groups and people enjoy the spirit of innovation. There are active skunk works across both product and process initiatives. Even the marketing groups become competitive among each other in trying to have their customer be a first adopter of new technology. The company makes every attempt to reward proactive efforts. However, it reinforces risk taking by not placing blame upon individuals if there is failure (although we consistently heard that the employees are held accountable for project results). Instead, the corporate culture strives to assess the reasons for failure and incorporate the lessons learned into the corporate memory.

D. Customer-Focus

The definition of failure to a Gentex technologist is "anything that sits on the shelf." Whether that is a process improvement that the Company does not implement or a product that does not become commercialized, this definition shows how focused employees are on satisfying internal and external customers. The reason a development sits on the shelf is that some piece of a customer's value equation is missing. The drive to pull all work from the shelf places Gentex in a continuous mode of trying to better understand the customer and improve Gentex products or processes.

While none of the four values are mutually exclusive, customer focus is most significantly interrelated with the others. Gentex spends the greatest amount of structured meeting time on this value and organization systems are built around defending it. Often repeated anecdotes introduce this desired behavior to new employees and financial incentives reinforce it to current employees. However, being customer focused does not mean bending to every customer request. As one executive noted, "we are focused on our business and that means we don't

get completely wrapped up in everything the customer wants." As an example, customer requests and inquiries for increased vertical and horizontal integration have been reviewed, but Gentex guards against moving into businesses requiring a reallocation of financial or human capital away from areas that protect their business model and into businesses (such as injection molding) where production and engineering capacities are abundant. This has kept Gentex focused on making business decisions to support the customer and not its balance sheet or other internal requirement.

IV. REWARD STRUCTURE

The Gentex reward structure has established a set of incentives–financial and performance criteria–that reinforce the company's core values. Gentex is known for making its reward systems as generous as possible to recognize achievement and employee contribution. While economic rewards are usually the most effective and visible type of employee motivation, Gentex has also developed a culture that rewards in non-economic ways. This section focuses primarily on financial rewards that support its core values. However we would be remiss not to mention the most significant cultural reinforcement (that we found) that supports each of the core values–Gentex's informal network. Since the Gentex culture thrives on collaboration, persons are quickly put "in the out" if they appear to be hording information, human resources, or capital. This informal discipline system is played out daily in the well-honed "horse trading" that goes on across Gentex to achieve the greatest amount of output with the least amount of input.

A. Continuous Business Improvement

A very equitable profit sharing plan, with several specific attributes, reinforces the value of continuous business improvement. First, all employees–from the CEO to the production floor–earn the same percentage of a distribution pool. This reinforces the value that everyone has an equal opportunity to contribute to, and benefit from, the improved operation of the business. This establishes a core principle among employees that the success of the individual is directly tied to the success of the team. It also contributes to the willingness of all to work cohesively as a team. Second, the plan pays out quarterly to continually remind the employees of the business' objectives—versus a 12-month goal that encourages a year-end scramble. Third, the percent of profits paid into the pool is a sustainable percentage varying little quarter-to-quarter. This provides a level of continuity to the program. The company also uses these payouts as an opportunity to hold employee town hall meetings and discuss the state of the business.

B. Product and Process Innovation

The "Look-Back" bonus system rewards employees for extraordinary performance and effort–from landing a major contract to cracking a production problem or breaking through on a product such as SmartBeam™. These "Look-Back" bonuses are at the discretion of managers and approved by the CEO. There are

no special funds set aside for these rewards; therefore managers must make a case to upper management for each situation. The fact that there is no specific budget for these awards shows that Gentex manages to the external world (breaking through with a new product or satisfying a customer requirement) rather than to an internal budget. Typically, employees are often given a portion of the awarded bonus at the time of the innovation, and the other portion when the idea is put into production. Incentives tied to patents are also available to spur and reward invention. To reward employees participating in team projects, a manager can recommend "Look-Back" bonuses to employees from other departments.

C. Entrepreneurship

The company excels by attempting to make "employees think like an owner." To this end, all salaried personnel are eligible to participate in a stock option plan. The Gentex salaried compensation system is set up to protect the spoils of success from inviting complacency. While the total executive compensation package–salary, bonuses, and options–is competitive with other automotive suppliers, Gentex places more of the package at risk. That is, base salaries are slightly lower on a comparable basis, but bonuses (and particularly options) have placed Gentex executives in a very enviable position. Putting a significant portion of the executive package at risk keeps pressure on individuals to perform.

In addition to the stock option program, the company also offers a stock purchase plan for all employees. These two programs offer another similarity between Gentex and a Silicon Valley company. And just like its high technology company peer group, it is important to note that these programs have significantly greater value when the stock market is on the rise.

D. Customer-Focus

Performance reviews emphasize a customer focus. In fact, for many employees, it is the first area reviewed on an employee's annual review. Satisfaction of internal and external customers is incorporated in many manager and peer performance reviews. Technical staff performance reviews are used to motivate employees to focus on customer satisfaction. Although reviews cover many aspects of performance, the process is focused on the employee's ability and desire to satisfy the customer. As such, the review process creates a close connection between customer-focused quality and an employee's performance. Performance reviews are also used to reinforce innovation in the workplace. Individuals are evaluated on their ability/desire to pursue innovative and creative solutions to problems.

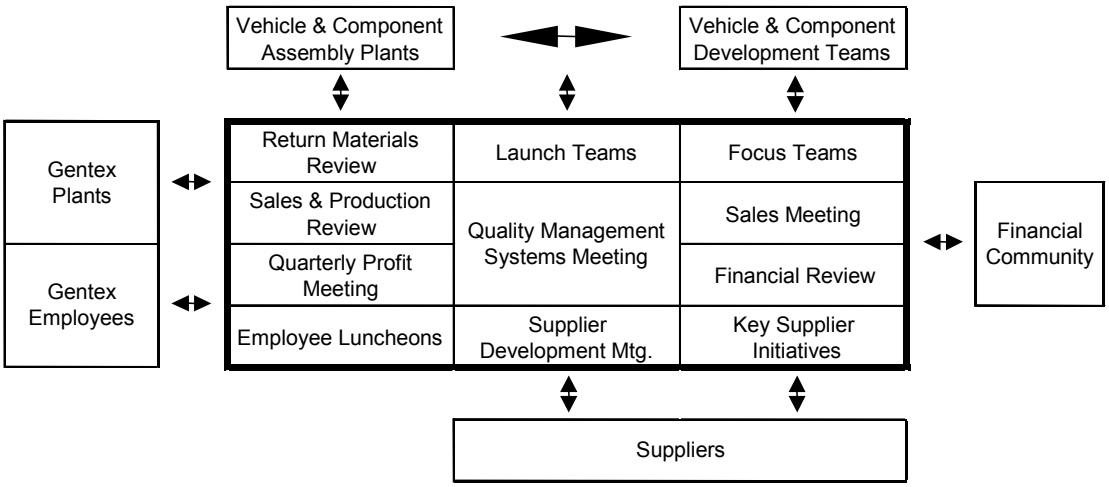
V. BASIC COMMUNICATION FLOW

While Gentex culture exhibits certain "looseness," it is structured. The company lives with the hard reality of automotive industry pressures–piece price reductions, capacity utilization, and the like. This places a premium on communication through the organizational structure and financial discipline through the product and process

development systems. Communication flows within Gentex depend upon personal contacts that are backed by electronic information distribution and archives. Gentex works, as one interviewee noted, because "People know how to network the company." There have not been numerous reorganizations. There have not been acquisitions that have required formal and informal networks to be rewired. There has only been organic growth and this has served Gentex well. As another interviewee noted, "simplicity is a very useful thing." The graphic below illustrates the eleven critical, regular activities that channel information throughout the internal organization and between Gentex and the external communities.

Two elements of success are immediately obvious when studying these communication channels. First, building relationships is a company strength. For example, when new sales personnel are hired, they are encouraged to meet professionally and socially (including their families) with the Gentex engineering community that they will be representing and working with on customer focus teams and product launch teams. Another example of relationship building is special employee lunches. These happen only every 6 to 8 weeks and are limited to 20 to 30 persons, but the lunches allow all employees direct access to top management. In addition, supplier development meetings focus on minimizing supplier turnover by improving the business operations of low-performing suppliers.

Basic Gentex Communication Linkages



The second element of Gentex's success comes from the promotion of cross-functional teams and collaboration. Collaborating examples include the returned materials review that involves the production supervisor for the area, a process engineer, a quality control engineer, a design engineer, and an electrical or mechanical engineer–all the key decision makers needed to determine an internal quality problem's root cause and solution. External issues will also involve procurement. The key supplier initiatives team is made up of five to seven Gentex

personnel that meet monthly with the Company's top 10 to 15 suppliers (by purchase dollar) to review new projects, capacity planning, cost issues, and quality concerns. As the main conduit for new program development, focus teams are aligned by manufacturer and have sales, program managers, and engineering representatives. The sales, sales and production, finance, and quality management systems meetings involve the managers of each department and act as the central clearinghouse for the major corporate operational issues. These meetings take place over two days each month that are set-aside as "meeting days."

Two critical attributes support relationship building and collaboration within the Gentex organization: a flat organization structure and extremely low employee turnover. These two organizational attributes allow an effective flow of information throughout the organization. While each attribute is not easy to replicate in other companies, neither is unique to Gentex. Gentex simply (or perhaps not so simply but in a disciplined manner) puts these two attributes to work each day. Behind these two core attributes flow a number of advantages. With a flat organization, information and ideas from those with direct experience is quickly channeled to action. Given a low executive turnover, institutional memory is created. The following section illustrates how Gentex uses its communication mechanisms in support of its core values.

A. Continuous Business Improvement

A part of the entrepreneurial, employee ownership philosophy is the operating principle that you spend a dollar as if it were your own. As the result, asset utilization runs high—from conservatism over adding additional production capacity to an informal but well ingrained process of bartering human resources to keep employees fully utilized. The focus on high asset utilization pressures the company to manage its capacity to handle everything from over 40 customers and a 40% international business mix to managing an increasing number of engineering programs.

The Quality Management Systems (QMS) meetings are designed to be the clearinghouse to report out all exceptions, to plan and bring all functions together, to determine issues and solutions, and to negotiate resources. Focus Teams bring any customer issues that need addressing to the Sales Meeting and Financial Review Meeting. In addition, managers have quarterly reviews with their direct reports to set or adapt objectives. These are directly tied into continuous improvement.

The Company has handled its growth–while keeping its overhead spending in check–through a process of "divide and conquer". This process is best illustrated by the Focus Teams built to manage individual customers externally (primarily focused on bringing in new business) and development programs internally (primarily focused on managing resources to bring programs to fruition). ISO 9000 is frequently mentioned as an event that forced the required application of structure to the company.

B. Product and Process Innovation

There are several "norms" that reinforce Gentex's development of intangible value through product and process innovation. First, Gentex invests between five percent and six percent of net sales in research and development. This investment level is generally fixed–communicating the importance of an R&D flow even though specific products might not hit market for two to three years. The R&D budgets are focused on electronics, opto-electronics and electrochromics (chemicals), and include product and process advancements.

A second norm is that innovation activity takes place within Gentex–outsourcing is used sparingly in temporary overflow or narrowly defined expertise needs. For example, process innovation is so important and so core to its competitive strength that Gentex designs all of its own testing equipment in-house. (And, it is so protective of its testing technology that it sources the equipment orders out to multiple vendors so that no single outside vendor sees the complete piece of equipment.)

While most innovation is taken on internally, Gentex has experimented with the Toyota Production System as taught through on-site TPS personnel. The experiment was originally viewed as much an introduction to Asian vehicle manufacturers as it was to improve a Gentex line operation. Showing the company can learn from the outside, Gentex quickly learned–in typical Toyota fashion–the need to stretch problem definition and analysis to a holistic level. The TPS methodologies have tremendous payoff potential at Gentex while the company looks to continuously improve its throughput as new products and volume come on line, reserving physical capacity expansion for major new programs.

In a limited manner, the company has locked into technology through equity investments: the most current and visible being Photobit, the start-up company in California that is providing important components to Gentex's SmartBeam™ intelligent headlamp control system. The SmartBeam™ story illustrates the many Gentex attributes that bring innovation to the market. First (as previously mentioned), low executive turnover creates a depth of institutional memory. A vehicle manufacturer chief body engineer brought the need for an effective automatic-dimming headlamp to Gentex over 10 years ago. A new R&D hire pieced together the needs and requirements as told to him by the original Gentex contacts with this engineer and began a literature search to discover whether or not the missing technologies had been developed over the past 10 years. This is the second critical attribute illustrated by this story–individual entrepreneurship within the corporate umbrella. There was not a formal R&D project budget that initiated this search, just the individual drive for scientific discovery. Of course, a third reinforcing attribute is displayed as well–individual financial returns. This individual will be rewarded through the "Look-Back" bonus system. These three Gentex attributes–low turnover, encouragement of idea generation, and drive for commercialization all reinforce the full circle–demand, discovery, delivery–of the value creation.

Innovation is a constant and disciplined activity at Gentex. Two processes drive internal innovation. The first driver is an extremely low level of spending authority for department managers. Projects are almost immediately bumped up to the executive vice president or CEO for approval. On the surface this appears a burden on top management's time and exposes the organization to micro-management. However, this process provides three advantages. First, ideas are allowed to bubble up and be explored. Excessive time is not spent building elaborate business plans and creating a document or presentation for an internal approval process. So, ideas do not need to be completely thought out before they are exposed to air. Certainly, ideas not well thought out will not be propelled forward from an individual or group to top management, as everyone wants to develop a solid track record of innovation. However, ideas quickly bubbling up to top management provide company-wide knowledge, cross-functional involvement, and enterprise-wide innovation.

A side benefit of this quick knowledge dissemination is that, while Gentex is seen as an engineering-dominated company, this limits the preconceived notion that product innovation comes only from product engineers. The result is that a connection between idea originators and idea implementers becomes a network of nodes rather than needing to be a preconceived sequential flow between people or departments. This results in true innovation and encourages cross-functional and departmental teams.

The second advantage of a low spending limit is that it creates a series of spending checkpoints. Low spending limits reduce money being spent on projects with questionable payoffs and prevent the pressure of throwing good money after bad once money has been expended on a project that turns sour. There are not million dollar mistakes at Gentex. The third advantage of low limits is that it keeps communication flowing through critical information junctions. With problems, proposed solutions, and initiatives well known by one or two senior officers, these officers act as a conduit matching resources and encouraging cross-fertilization of ideas across the company. The CEO or executive vice president, for the most part, automatically approve these expenditures if a problem and proposed solution are reasonable, the person proposing the idea has a proven track record, and an expected payoff is near-term. Quality concerns are always a top priority. Typically a payback approach is used in project evaluations.

The combination of research functions with current production activities is the second driver of innovation. R&D claims "they all do double duty," split between research overhead accounts and current production accounts. This provides an important bridge between the labs and the factories allowing for the rapid infusion of research developments into production. As a result, Gentex is not just about "entrepreneurship," it is commercialization. And, just as importantly, it roots research in the fundamental aspects of Gentex business. In addition, this double duty forces research to be as much a direct expenditure as an indirect or burden cost, helping protect R&D from cuts during production slow downs.

C. Entrepreneurship

Management at Gentex has an 'open door' policy like few in the industry. Gentex has a very flat corporate structure with, at most, five levels from the plant floor to the CEO. It is not uncommon for individuals from any level to access top management to discuss ideas to improve operations and products. More importantly, management has proven that it is willing to listen. This openness to ideas–reinforced through financial incentives–provides the basis for an entrepreneurial culture throughout the company. A common story is repeated about a production worker stopping the CEO during a plant walkthrough. The CEO took diligent notes, closing the discussion by making an appointment as a follow-up for additional information. This example clearly illustrates the Gentex commitment to bubbling up ideas from every corner of the company. In addition, it illustrates how the informal system places an emphasis on the individual by putting him/her in the position of being the concept advocate. By giving the individual the opportunity to grow the idea, Gentex believes that it is more likely to be successfully implemented.

Gentex has a highly skilled—and highly valued—research and development staff, in the electrical, opto-electronics, LED/vision, applied process and materials, and chemical research groups. These staffs work on technologies that have a direct application to production products, but they are also given significant time to do "blue-sky" product-oriented innovating. This blue-sky research serves at least two key functions. First, it allows the company to constantly push the limits of their knowledge. The company is described as "great at piecing together puzzles—having the ability to take bits of knowledge from various sources, and piece them together in new technologies." By allowing technical staffs time to explore, the company greatly increases the likelihood of finding the right pieces to the next puzzle. Second, the opportunity to explore is highly valued by the R&D staff, thus increasing job satisfaction and reducing turnover.

The innovative technologies that are brought forth from R&D have led manufacturing to also be highly innovative. Because there are rarely process equipment suppliers (or material suppliers) that are capable of supplying equipment for the new technologies, Gentex often must develop processes that are capable of meeting the volume requirements. This process knowledge also applies to ongoing operations. Because of the uniqueness of many of their operations, the company must look inward for process improvements for production equipment.

D. Customer-Focus

It is estimated that about 50 percent of product ideas are generated internally and 50 percent come in from customer requests. Two cornerstone activities make up the communication flow between Gentex and its customers. The first, Focus Teams, is a cross-functional externally oriented interface between customers and Gentex. The second, a structured, quarterly returned materials review, is a cross-functional internally oriented interface focusing Gentex resources on problem resolution.

While the process of patent protection (both external counsel and internal resources) is increasing for breakthrough advances, response time to customer input on current products is where Gentex believes it can maintain a competitive advantage. The Focus Teams play a critical role here by building a relationship between the vehicle manufacturers and Gentex. The Focus Teams are responsible for establishing and monitoring key audit points along a program development timeline. Exceptions to these audit points are reported out in the QMS meetings for resolution. This creates a tight management over program development and immediately ties customer requirements into the Gentex management system.

The quarterly returned materials review meeting brings production supervisors together with process, quality, design, electrical and chemical engineers to resolve quality problems. Customer quality data is continuously logged back to the production plants and lines to red flag internal quality issues. From these quarterly meetings, design of experiment analyses are initiated to implement design, process, or material specification changes.

Problems threatening an assembly plant are always addressed immediately, in the same cross-functional manner. Gentex is proud of its track record of never shutting down an assembly plant. Anecdotes reinforcing this record include a story of a Gentex SWAT team arriving at an assembly plant in response to a reported mirror electrical power problem. The team concluded the problem was not with the Gentex mirror, but stayed on-site working with assembly plant personnel to track the problem to a downstream assembly operation that was pinching an electrical lead in the body wiring harness. This effort (and the subsequent story telling) reinforce the Gentex response mentality and customer relation emphasis, the result being an increasing market share for its current product and partnering opportunities for new programs.

VI. HARD INFORMATION TECHNOLOGY

Gentex has been very prudent in its spending on information technology. IT is seen as a supporting function (not a driving activity) to the core competencies of Gentex. Therefore, the IT budget is proportioned to provide the leading edge in the areas of product engineering and design (CAD/CAM), customer interfaces (ANX and other business-to-business communication). Internal computer network systems are considered at levels of “industry standards,” as they do not need to be leading edge. Other systems are judged functionally: investment is not made for the sake of investment, but for the results. Referring to IT spending, one interviewee stated, “sometimes being on the leading edge means being on the bleeding edge.”

Consistent with all other areas, Gentex invests its capital where there is a payoff to the customer (and ultimately the investor). Gentex looks first at external demands and adapts its internal operation to meet these requirements. This forces IT to be a hybrid activity with very decentralized decisions occurring in the engineering areas as opposed to areas dominated by external communication (such as manufacturing to vehicle manufacturers and purchasing to suppliers) where IT spending and decision making are very centralized.

Given the size of the company, its geographic concentration, and its automotive concentration, Gentex has focused on honing its personal network and has not had a strategic thrust to initiate enterprise-wide IT systems. Certainly the company continually reviews the need for ERP and CRM systems and involvement with Covisint, the automotive industry Internet exchange. Here again, the implementation of these systems will be customer-driven. If a customer requires communication through a Covisint-provided pipeline Gentex will do so. If customer and internal Gentex interfaces become so complex that customer-related information becomes isolated within the Gentex organization, then a CRM system will be considered.

A. Continuous Business Improvement

Systems have continually evolved to meet increased business complexity. The best example of this is where Gentex originally ran separate scheduling systems between itself and customers and a purchasing system with its suppliers. Over the past 10 years it has closed the gap by evolving these systems together into a common MRP2 system. This has consistently improved the company's in-bound delivery performance where only a small fraction of deliveries are considered late. As the company expands its sales and geographic base, it is inevitable that the EDI system will need to move to a web-based activity.

B. Product and Process Innovation

Gentex operates in a very open environment. Customer and product information freely flows in from Focus Team meetings, customer visits, supplier visits, and professional information service providers. There is no shortage of good ideas. As one executive noted, "great ideas generally aren't expensive." The most critical issue is logging and documenting ideas for prioritization and follow-up. Oracle databases have been developed to track program development from booking of initial business to product launch. Some of these databases are departmental and others are corporate wide. The movement of a project in the electronic system is also mirrored by a handoff from a Focus Team to product engineering and finally to a launch team.

Generally, the databases increase in scope and accessibility as a project moves from a seed (as an exchange between a customer or supplier and Gentex) through germination (with discovery) and growth (associated with a production order). For example, the R&D groups tend to keep track of their own activity within their groups: first, because the scale allows, and second, to provide additional security. R&D task teams are typically three or four people and the number of concurrent projects allows for a monthly written project status report from each researcher (approximately 30 persons across the five R&D areas). On the security front, central databases and web-based activities are scrutinized carefully as external parties have opportunities to hack their way into computer systems.

C. Entrepreneurship

Personal relationships are the impetus for most new initiatives within Gentex. For example, it is common for two or three customer groups to visit Gentex on any given week. No matter what organizational level the customer is from, Gentex's CEO makes an effort to walk around with the visitors and sit in on meetings. As a participant in every one of the monthly "meeting day" meetings, the CEO acts as a consistent voice of the customer in to the Gentex system.

From these meetings, electronic meeting notes are distributed, and initiatives may be begun as specific engineering and marketing projects. At this level, projects are tracked on databases within each group (such as electrical or mechanical engineering or chemical R&D), and databases are accessible by required and authorized persons. Projects are tracked and prioritized by a probability of production, revenue volume, and financial margins. Of course, individual support of key individuals is an additional consideration. Once a program moves through product definition and quoting stages to become actual booked business, the project is turned over to a cross-functional launch team and the critical milestones are tracked in a company-wide system that feeds into the company's master schedules.

D. Customer-Focus

Gentex does not depend upon a centralized customer relationship management (CRM) system for handling the interface with their approximately 40 direct customers. This is due to the fact that the Gentex culture reinforces proper customer handling and its organizational structure assures broad distribution of customer-related information. The Focus Groups are on the front line here working with the vehicle manufacturer customers to gain information on new platform programs to target, timing changes, and other customer-driven information. A formal contact report is generated after each meeting or other contact and is distributed electronically. Inputs from these contact reports are also fed into the sales meetings (long-range business planning) as well as the sales and operations meetings that set sales forecasts and trigger capacity allocations. Product engineering also has electronic access to these contact reports as well as to the discussions within the sales meetings. Potential projects are logged into a corporate database (developed by the Gentex IT group). These projects are then prioritized by sales potential and potential financial returns (influenced heavily by how unique the mirror and features are to current production mirrors). Finally, the Focus Teams complete the loop back to the manufacturer to monitor changes in customer's project assumptions to determine if the project priority needs changing in the Gentex system.

With growth (geographically, organizationally, and customer base), Gentex will continually evaluate whether a CRM system is needed to bridge organizational information gaps. Gentex has the advantage going into such an information technology system because they have the right culture, information paths, and the like to automate its information channels.

VII. CONCLUSIONS

The Gentex business model, emphasizing an external customer focus and internal information exchange, shows that it is possible for an automotive supplier to break away and outperform its peer group. The Gentex model emphasizes the quick identification of and execution on opportunities by leveraging employee-, supplier-, and customer-relations. The leveraging of these intangible assets has propelled Gentex, based on a valuation measurement of market value to book value, to the top of its peer automotive class and equal to the best of the S&P 500. Currently, Gentex depends as much on interpersonal communication as hard information technology to create "transparent information." It is clear that the company is creating significant value by optimizing both intangible and tangible assets.

As the company grows it will require additional investment in hard information technologies to assure that accurate and timely information is delivered freely throughout the company. It has been shown over and over that companies cannot be successful by automating and computerizing poor systems or applying technology to dysfunctional corporate cultures. Gentex has a better probability in making this transition as it has built the right culture and personal networks to support an effective IT system, showing that IT is part of the solution but not the whole story.