

**THE WIREMOLD COMPANY:
WIREMOLD®¹ DISTRIBUTOR INCENTIVE PROGRAM**

TEACHING NOTE

This teaching note was prepared by Martha C. Fransson and Robin Chase, of Rensselaer Polytechnic Institute, and Edward B. Miller and Scott M. Bartosch, of The Wiremold Company. Presented to and accepted by the *Business Case Journal*.

CASE OVERVIEW

Scott Bartosch, Vice President for Sales, Ed Miller, Vice President for Marketing, Art Byrne, President, and Orry Fiume, Vice President for Finance, of The Wiremold Company (the company) were considering three problems. First, consolidation of firms distributing electrical products was occurring, and the new larger distributors wanted a manufacturer incentive system that applied to their entire firm, not a branch-by-branch incentive system. Second, competing manufacturers had de-coupled their incentive systems from requirements for distributors to promote their products, in effect, offering price cuts to their products. Third, the company had excess distribution capacity in many markets, and this was encouraging intense price competition between the company's distributors. All three of these phenomena threatened the existing Synergy^{SM2} Distributor Incentive Program.

The case provides an unusual, if not unique, look at how Lean business principles may be applied to distribution, and makes explicit how channel management decisions can create factory-level demand, problems, and opportunities. Key company policies were to become the marketing partner of the distributors, to help them implement Lean business practices to improve their profitability, to create value for them, and to change the competitive landscape. Students are asked to analyze the case data, to determine whether they would state new decision problems, and to recommend solutions both to the stated and possibly reformulated problems.

The Epilogue section of the Teaching Note may be read in class. It provides a brief summary of the outcome of the company's decision-making process and what happened.

The case is intended primarily for a graduate level Marketing Strategy course, with additional applications in undergraduate courses in Marketing Strategy or Business-to-Business marketing courses.

The Teaching Note includes a section entitled Additional Pedagogical Material with three supplemental cases and an appendix. Supplements 1, 2, and 3 provide information about the company's decision process and the decisions they made. Appendix A is a note entitled "A Brief History of Lean Production" by our colleague Edward D. Arnheiter, Ph.D., Assistant Professor

of Manufacturing Systems Management. All of the supplements and the appendix may be photocopied and distributed to students.

LEARNING OBJECTIVES

1. To apply Game Theory concepts to Wiremold's marketing strategy.
2. To analyze the effects of key company policies on the company's distributors.
3. To analyze the probable consequences of changes to the incentive and distribution systems.
4. To critique the efforts of the company's decision-makers in managing the distributor incentive program.

RESEARCH METHODS

In 1999 The Wiremold Company received the Shingo Prize³ for Excellence in Manufacturing. At the inception of the research process, it was anticipated that there would be a book prepared for the corporate audience and that cases would be prepared for educational use. The research team was co-led by Professor Mario Emiliani (for the book) and Associate Professor Martha C. Fransson (for the cases). Team members conducted in-depth interviews with 13 members of Wiremold's management team. As company officers, Ed Miller and Scott Bartosch were among those interviewed and quoted in the book. The completed transcripts of over 60 hours of taped interviews totaled approximately 900 pages. The research led to the preparation of a book (Emiliani, Bob et al, 2003) and to three case studies of which this case is one. None of the authors of this case are authors of or contributing authors to the book.

After the end of the initial research process, Scott Bartosch and Ed Miller agreed to co-author a case about the company's distribution system. The authors conducted additional interviews, obtained additional quantitative data, and obtained copies of distributor presentations to prepare this case study. It is therefore a completely independent original work based on primary field research data. It was Wiremold's policy not to release financial information.

SUGGESTED ASSIGNMENTS

The authors believe that the company's business strategy may best be analyzed using Game Theory concepts. The following article provides a good overview of the PARTS concept and *co-opetition*.

Brandenburger, Adam, and Barry Nalebuff, "The Right Game: Use Game Theory to Shape Strategy," *Harvard Business Review*, July-August 1995, pp. 57-71.

Depending on the extent to which students are already knowledgeable about Lean business practices, one of the following articles may be assigned to provide an introduction to Lean manufacturing (which uses small lot sizes and short changeover times compared to the large lot sizes and significantly longer changeover times of large scale manufacturing, traditionally known as "mass production").

Arnheiter, Edward D., "A Brief History of Lean Production," Appendix A to this Teaching Note.

Emiliani, M. L., "Cracking the Code of Business," *Management Decision*, Vol. 38, No. 2, 2000, pp. 60-79

Womack, James P. and Daniel T. Jones, "Beyond Toyota: How to Root Out Waste and Pursue Perfection," *Harvard Business Review*, September 1996

QUESTIONS

1. Who were Wiremold's end customers and what distribution channels were used to reach them?
2. Was Wiremold playing in a rules-based or a free-wheeling game?
3. Who were the members of Wiremold's Value Net?
4. How did Wiremold change the Added Values for itself and its distributors?
5. What Rules did Wiremold change and how?
6. What Tactics did Wiremold use?
7. What did Wiremold see as the overall Scope of the game?
8. What was the situation at the end of the case?
9. What should Wiremold do about the distributors' requests for changes to the incentive system?
10. How could the Internet aid the distribution system?
11. How well did the company do in responding to the requests from the newly-larger distributors for changes to the Synergy program?

ANSWERS TO QUESTIONS

1. Who were Wiremold's end customers and what distribution channels were used to reach them?
Wiremold faced a complex selling and distribution problem. It sold its products through distributors to contractors who installed electrical, communications and data infrastructure. While the contractors ordered and paid for the product, often other parties specified the products needed and preferred brands. These specifiers included architects, engineers, and building owners as well as contractors. The company was making an increased effort to reach out to these specifiers so that they would "specify" Wiremold products.
The company used a hybrid channel. It used distributors with assistance from its own distributor-dedicated sales force (the Distribution Specialists) to reach its end customers (the contractors who paid the invoices for the materials that they would install on the job-site) and another separate group of its own sales force (the Specification Specialists) to reach the specifiers (building owners, architects, interior designers, and engineering consultants who all had a say in the selection of a wire management system). The distributors undertook the primary tasks of distribution: selling to or generating demand from contractors, and physical distribution which included ordering and receiving goods into inventory, selling over the counter, and physical delivery to contractors. In addition, distributors were responsible for placing special orders for contractors for all of the components of wire management systems specified for a particular job.

The distributors had several sensitivities and needs. Key concerns were profitability and the GM ROI performance of their inventory investment. They also were concerned about winning the jobs they bid on and the cost of transactions with their suppliers. Wiremold was able to differentiate itself from other suppliers by offering the distributor an opportunity to grow its business in the cable management category as well as significant financial gains from working with Wiremold. These included the following needs: more frequent inventory turnover to reduce their carrying cost of inventory for a given dollar volume of sales; easy and error-free ordering; a high perfect order fill ratio (the percent of orders shipped complete the first time); easy returns for damaged goods; high margins; and an incentive system that paid them good rewards on the Wiremold line. The company assigned sales persons known as Distribution Specialists to work with distributors and help them to improve their profitability on the Wiremold line and their ability to service the end-customers (the contractors).

The company carried out demand generation activities targeted at the specifiers and provided technical and service support to them. The company assigned sales persons known as Specification Specialists the task of reaching the specifiers and persuading them to specify Wiremold products.

Specifiers needed access to information about the latest products in wire management to meet their needs. These needs included: aesthetically attractive products; system solutions that provided ease of installation, flexibility for later moves and changes, low costs for installation and later moves and changes, and on-time damage-free delivery to large job sites.

2. Was Wiremold playing in a rules-based or a free-wheeling game?

Wiremold was in a mature industry with many competitors (Case) and what appeared to be thin margins. Manufacturing competitors and distributors had deeply ingrained ways of doing business centered around the deep volume discounts offered by the manufacturers at end-of-month and end-of-quarter. Distributors used these opportunities to load up on inventory. (In our conversations with them, company personnel often referred to these informally as “loader programs”.) Manufacturers supported these periodic volume discounts by using traditional mass production techniques (batch and queue) to build inventory that could then be sold in bulk. (Arnheiter, 2002) Approximately 30% of all field sales force time industry-wide was spent negotiating prices. (Case) Therefore, we can say that pricing was very important to distributors and the contractors that they sold to. Absent strong differentiation, the product would be viewed as a commodity. Since the end-of-month and end-of quarter (loader) programs were so important, we can also say that buyers of these products apparently had a transactional approach to purchasing. (Bund Jackson) The distributors’ main concern appears to have been: how low a price will you give me today?

In a rules-based game we would expect to find players operating in accordance with well-known and understood conventions (rules of engagement). (Brandenburger and Nalebuff) Also in a rules-based game, we would expect to find some consolidation of smaller players into larger ones to gain bargaining power. (Brandenburger and Nalebuff) Both of these conditions appear to have been fulfilled in Wiremold’s situation. There was a very strong set of trade customs (the industry was at least 100 years old) in the areas of payment terms and loader programs. Consolidation of firms at the distributor level was

also occurring and the larger distributors were pressing Wiremold for changes in their incentive program (an implied contract). Accordingly, we can say that the company was playing in a rules-based game.

In a freewheeling game the players interact without any external constraints. (Brandenburger and Nalebuff) The emergence of new technologies and new ways of doing things to accomplish new ends (typically through radical or disruptive innovations) can be accompanied by a period of free-wheeling innovation before the emergent industry settles down to conventional rules-based competition constrained by customer desires for service and satisfaction, laws requiring honest and fair dealing with customers, and regulations governing communication and behavior among competitors.

The company desired to change the rules in its rules-based game. Rules can change when innovation creates opportunities for a new Value Net and opportunities for new alliances between players in the Value Net. (Brandenburger and Nalebuff) The company saw Lean business practices as a way to create greater value for itself and its partners compared to the existing values being extracted by other industry participants.

Wiremold's Synergy Program established rules on how the company would work with its distributor partners. Many distributors wanted the company to significantly bend the rules of pricing and payment terms (see below) periodically. The distributors generally appreciated that they knew exactly where they stood and that they did not have to worry about being disadvantaged or facing an uneven playing field. (Case)

3. Who were the members of Wiremold's Value Net?

Wiremold's Value Net included its customers (the end-user contractors), its complementor/partners (the distributors and specifiers), as well as its suppliers and its competitors (other manufacturing companies selling through the same distributors, and those distributors jealously guarding access to their customers). See Figure TN-1. The elements of the game that might be changed were the Players, the Added Values, the Rules, the Tactics or the Scope (known collectively as PARTS). As can be seen from Figure TN-1, Wiremold's fellow players included its suppliers, its distributors, its specifiers, its end-customers, and of course its competitors. Wiremold changed its relationships with its suppliers through Lean business practices requiring just-in-time delivery from them.

The company worked at migrating Lean management principles to its distributors in an attempt to create a win-win game with these members of its Value Net. The win-win game could only be achieved through co-opetition, (a relationship that is both co-operative and competitive). (Brandenburger and Nalebuff) The company's efforts included introducing higher levels of co-operation between itself and the distributors to modify the extent to which the distributor would see the company's sales force as competing directly with its own. The establishment of the Specification Specialist sales force was another effort at co-opetition with the specifiers as Wiremold co-operated with specifiers by providing them with technical and other information about its products while at the same time encouraging the distributor's sales force to actively solicit orders from contractors.⁴

4. How did Wiremold change the Added Values for itself and its distributors?

Wiremold needed to level out the demand on its factories. The old method of ordering large quantities at the end of the month or the quarter made Lean very difficult to implement. Lean is a “pull system”, meaning that the company will make what the market is taking up in a given period of time, usually measured on a daily or weekly basis. (The German word for this is Takt time, a word that has been absorbed into the Lean vocabulary.) Accordingly, Wiremold needed to add value to itself by converting the distributors to weekly orders. If this could occur, Wiremold would be able to take full advantage of its Lean manufacturing system to lower costs and offer very competitive prices in the marketplace.

The goal of weekly orders meant that the company had to educate its distributors about the benefits of improving their inventory turns. Higher inventory turns for a given level of dollar sales would result in higher profits. The company expressed this concept with the measurement that they developed called GMROI. The acronym GMROI stood for Gross Margin Return on Investment. It was calculated as follows: Take the average cost value of the distributor’s inventory of Wiremold products and divide that number into the gross margin received from the distributor’s annual sales of the entire Wiremold line. (See Case Figure 2) GMROI would go up if the distributor took either or both of the following actions: reduce inventory levels by carrying less inventory for his historical sales level of stocked Wiremold products and/or increase sales of stocked Wiremold products without concomitant increases in inventory levels. See Table TN-1 for an explanation of how GMROI was calculated. Inventory reductions could be achieved by placing weekly orders and accepting weekly deliveries via cycle trucks. Increased sales of company products could be achieved by carrying new Wiremold products with higher margins as soon as they became available.

Wiremold added value in other ways as well. It provided product leadership, a high perfect order rate (in excess of 90%), easy procedures for returns if they were needed, and access to a field sales force of Specification Specialists to help write profitable business. It also provided the distributor fast and easy access to products for which normal demand might be low, but could be quickly delivered from the company (breadth stocking). The end customers also received value from Wiremold and the distributors in the form of lower material carrying costs, lower installed costs, and flexible rapid response from both the company and the distributor. (See Case, Figure 3) As a result, Wiremold expanded the ZOPA (Zone of Possible Agreement) for pricing by both increasing the value provided and lowering its own costs of manufacture. (Shapiro, 1999) By expanding ZOPA and moving away from commodity based pricing, Wiremold added value and changed the game.

The case mentions the importance of new products and new product launches seven times. Product leadership was an important part of the company’s added value (see Case Figure 3). The integrated configurations for electricity, data and communications (Case) solved a difficult electromagnetic phenomenon: cross-talk between electrical power lines and communications lines. Thus, the new products referred to in the case were an important element of the company’s value added to its customers, both distributors and contractors, and specifiers, the architects, engineering consultants, building owners, and interior designers.

The company's Specification Specialists knew how to write a specification to favor the selection of Wiremold product over other alternatives in competitive bid situations. (Case) It was greatly to the advantage of the distributors to do business with a company whose products usually met the most exacting specifications for a specific project, and there was less competition from other manufacturers (leading to less price competition to supply materials for the project and therefore higher margins.) The company's full line also helped. The case states that it often required as many as three other manufacturers to fill a complete specification list for a project. (Case) Wiremold usually provided one stop shopping. Thus, the distributors also received added value from the company's Specification Specialist field sales force.

5. What Rules did Wiremold change and how?

Some of Wiremold's pricing and terms of payment rules had had been set by its founder early in the twentieth century and these had become very different from industry norms. Accordingly, as company management at the time of the case refused to adopt industry norms in these areas, we can say that the company was intentionally differentiating its traditional set of rules from competitors. Within the context of game theory, the persistence of these traditional rules should be considered as a change of rules. Further, the company changed additional rules with respect to pricing, ordering, and payment to increase its distance from industry norms. All of the differences affected the distributors' normal ways of doing business. Therefore we can say that Wiremold changed the rules of pricing, ordering, and terms of payment to support its new value net and that these changes were an intentional part of changing the rules-based game.

a. Changing the Rules of Pricing Wiremold had three core rules: one-price to all distributors, a level playing field for all distributors, and a tightly controlled process for approving exception pricing. In addition, the company offered a 5% discount (since 1919) for prompt payment, and while technically this was primarily a terms of payment rule, it clearly also affected list prices, tending to increase them so as to provide enough margin to provide the 5% discount for prompt payment. These differences taken together tend to support the conceptualization of Wiremold as a specialized player in an increasingly commoditized marketplace subject to strong price competition.. (Case)

The one-price policy for all standard products was strictly enforced because the company believed that it was their job to maintain a level playing field for all distributors. The one-price policy also meant that the company did not offer end-of-month and end-of-quarter discounts for large orders (known in the trade as "loader programs" because the distributors could use them to "load up" on inventory.) The level playing field was important because it built trust between the distributors and the company. (Case) To ensure adherence to these policies (rules), pricing authority lay exclusively with Miller and Bartosch. Field sales representatives could not change a published price or discount. Requests for changes required written proof of the lower competitive price and the similarity of the product based on functionality, features and benefits. Regional managers could respond to these requests only within well-defined and narrow limits. Anything more required that the request be submitted (in writing and with proof of the competitive offer) to Bartosch, who rarely agreed to meet a competitive price. The company was able to hold the line on requests for exception pricing because of their knowledge of the

project and the parties (specifiers, contractors, end users) and their money and labor saving solutions. Bartosch stated, “Less than 10% of the company’s business is a negotiated or special price versus an estimated 50% for the electrical industry as a whole.” (Case)

b. Changing the Rules of Terms of Payment The standard industry payment terms were 2% 10th Prox⁵ 25th cutoff, Net 30th. (Case) This industry practice meant that distributors in the industry were in the habit of paying manufacturers around the 10th of the following month and taking the 2% discount. The 25th was the cut-off of the current month. (The 26th was considered the first day of the next month.) Alternatively, a distributor could wait until the end of the following month and take no discount. As can be seen from Table TN-2, these terms provided distributors with a maximum of 45 days to pay and still get the discount. Traditional industry terms were therefore fairly generous, as a distributor could take up to 65 days to pay if he were willing to forego the discount. It may be appropriate to ask students under what circumstances a manufacturer might be willing to wait 65 days before being paid. One reason for manufacturers to wait that long would be that distributors might be providing trade financing to contractors, waiting until they receive payment at the completion of the job. Another reason to wait might be to provide trade financing to highly leveraged distributors. A third reason, might be that it was simply industry custom.

Because Wiremold offered a 5% discount instead of the industry standard 2%, its invoices were almost always processed first – and on time – because the higher discount went directly to the distributor’s bottom line, and the company strictly enforced the time limit on its discount. (Case)

Wiremold considered other payment terms, trying 5% net 15 days; i.e., payment after 15 days. Eventually the terms became 5% with invoices dated from the first to fifteenth due on the 25th and invoices dated from the sixteenth to the thirtieth due on the 10th of the following month. (See Table TN-3.) This gave the distributors between 11 and 25 days to pay, depending on when the order was placed. When some distributors complained, the company conducted a study and discovered that many distributors were cutting weekly checks to ensure that they received their 5% discount. (Case)

It may be appropriate to ask students what the advantages of the new rules might be – after all, wouldn’t Wiremold lose business by refusing to extend 50-60 days of trade credit? Students may suggest the following reasons: One advantage to the company would be improved cash flow for the goods they sold to distributors. This is a good answer. A second answer might be that a distributor would have much less incentive to provide 50 – 60 days of trade financing for contractor installations. A higher than normal discount would in this way encourage a distributor to do business with the most reputable and highest quality contractors. If contractors were receiving up front deposits and/or progress payments, the higher discount would encourage a distributor to ask for prompt payment -- before a contractor’s cash might be diverted to paying others. In this business, repossession was nearly impossible once the raceway components and fittings had been installed in a building. This is an acceptable answer but does not drive to the heart of the matter.

In our experience in teaching the case, the above financial reasons are often cited, but it is the excellent students who perceive the significant marketing advantage. The 5%

discount was the additional profit that the company offered the distributor. In a climate of declining margins and profits, Wiremold became the company to-be-loyal-to because it provided additional profit for its distributors. The company wanted to influence the distributors' behavior – to be loyal to the Wiremold line.

c. Changing the Rules of Delivery: Over a period of time the company implemented the Cycle Truck Program and shifted its deliveries to distributors from common carrier to company-owned trucks. By the time of the case, the company was able to specify a regular day each week and a narrow time window for every distributor on the cycle truck program and be 99% certain the delivery would occur when it was supposed to -- a big change to the rules of delivery. There were some important advantages to using cycle trucks: less damage to or loss of goods during transit and therefore fewer returns; phased shipments of large orders minimized storage and handling requirements; all components could be shipped together; the distributor knew when the shipment would arrive and could plan for receiving activities and make availability promises to customers. (Case) Using cycle trucks, the company began achieving a perfect order rate of over 90%. A perfect order was defined as the on-time delivery of 100% of the distributor's order with no missing or damaged goods. (Case)

The cycle truck program also enabled the company to set a cut-off time every week for deliveries on the next cycle truck. This improved a distributor's ability to obtain goods for customers without paying premium prices and to schedule deliveries to his customers for large projects.

6. What Tactics did Wiremold use?

There are seven basic (tactical) games that can be used: Pay Me to Play; Cheap Complements; Change Added Values; One Price to All; Meet the Competition Clauses; Fog of Business; Change the Scope of the Game. (See Table TN-4 for a brief summary.)

At a tactical level, the Synergy Program (Distributor Incentive Program) was essential to changing the Added Value that Wiremold offered the distributors and providing them an incentive to convert to Lean. The program was named Synergy because it provided a mechanism for the distributors that participated to reap rewards for helping the company to add value to its own and the distributors' operations. Implementing the GMROI program required dedicating a portion of the field sales force (the Distribution Specialists) to working with the distributors while the remainder of the field sales force (the Specification Specialists) became a missionary⁶ sales force working with the specifiers. The Synergy program enabled distributors to earn monetary rewards from the company for their adherence to the program and support of the Wiremold line. Thus, Wiremold used a tactical incentive system that encompassed all phases of its game-changing strategy.

The company also invited distributor representatives in to participate in kaizen events so that they would more fully understand, and thus use kaizen to continuously improve their own operations to provide enhanced service to their customers. Distributors applying kaizen to their own operations became more inherently profitable. (Case) To the extent that a distributor also did business with manufacturers using traditional batch and queue production methods, the distributor was being invited to join Wiremold in attempting to change the rules of the electrical industry – to favor Wiremold.

7. What did Wiremold see as the overall Scope of the game?

Scope refers to the boundaries of the game and its links to other games. (Brandenburger, 1995) Wiremold wanted to leverage the advantages of using Lean in the factory to do more than obtain lower costs of production. The company had extended its Lean practices to suppliers who were required to provide JIT deliveries. (Case) As we have seen, the company desired to extend the benefits of Lean to both its end-customers the contractors, its distributors, and to specifiers, The case data implies that the other manufacturers were using conventional mass production (batch and queue techniques) and possibly some imported product. (The case refers to strong price based competition.) Throughout the case, the company refers to price-based competition, at the manufacturing level, the distribution level, and at the end-customer level. In response to the competitive landscape, Wiremold saw its future in becoming a flexible manufacturer of solutions for wire and cable management. (Case) Achieving that future required completely new solutions to old problems in the Value Chain (Porter, 2001).

Accordingly, the company used kaizen to develop those new solutions. These included: changing the rules of delivery, pricing, and terms of payment, all of which affected ordering and the ability to level demand on the factory. The company identified new partners, distributors and specifiers and established a sales group for each. The company worked to create a “marketing partnership” between itself and its distributors. In so doing, the company established a new incentive system (Synergy) for the distributors to help them become more profitable. In so doing, the company expanded the Zone of Possible Agreement on Prices (ZOPA) (Shapiro, 1999) to gain upside pricing flexibility in a commoditized market. In fact, the company’s new solutions went beyond this case. We studied and have prepared cases about the company’s product development process, which it used to create new better products in less time by listening to the voice of the customer, and about the Specifier sales force through which it provided outstanding technical and design support to the specifiers to gain access to new customers and new markets. Therefore we can conclude that Wiremold sought to extend the scope of its game to all of the external parties with which it did business.

We can also conclude that the company’s policy of ensuring that kaizen teams made decisions by using a jury system, requiring affirmative consent of all team members that the best solution had been found (Case), meant that the company intended that its game would be played consistently in all of its actions and by all of its internal functions. Wiremold in fact believed that a focus on improving its processes was the best road to wealth creation, and it provided this message repeatedly to its distributor partners and anyone who would listen. (Case, Figure 4) Thus we can say that Wiremold sought to change the Scope of the Game by introducing new processes.

8. What was the situation respecting distribution at the end of the case?

There were three problems. First, there was consolidation at the distributor level and the new larger distributors wanted an incentive system that applied to the total volume generated by all branches. This would be a change from Wiremold’s pay-by-the-branch system. Second, competing manufacturers had de-coupled their incentive systems from requirements for distributors to promote their products. In effect, they were offering price cuts on their products. Third, the company had excess distribution capacity in several

markets, and this was encouraging intense price competition between the company's distributors in those markets. All three of these phenomena threatened the existing SynergySM Distributor Incentive Program.

All of these phenomena had to do with received price, that is the prices that Wiremold would receive from selling its goods through the existing hybrid distribution system, a combination of selling through distributors and using its own missionary sales force to create demand from the Specifiers. (Received price is calculated by taking list price and subtracting applicable discounts.) If the received price were to drop too low, the company might not be able to continue investing in demand generation with its own Specification Specialist sales force. Therefore, in some sense, by pressing down on received prices, the distributors may also be issuing an implied threat to replace the company's missionary sales team with their own. (Reinartz and Kumar, 2002)

Distributor Consolidation: Wiremold was facing a marketplace in which there would henceforth be fewer larger distributors and therefore each relationship would become more important as each distributor would account for a larger percentage of the company's total sales. In this context, price negotiation issues become acute as the company can afford fewer mistakes. (Shapiro, 1999) Losing the loyalty of a large distributor in an important market could mean that the company would lose access to those end-customers. Therefore, if the company were serious about being the marketing partner of its distributors and vice versa, this request from the new larger distributors required very serious attention. The company would have to explain its decision.

Rewards for Total Volume: A change to calculating rewards based on the total volume of all branches would move all of a distributor's branches to the highest volume category available to that distributor. Since the Synergy program set reward levels according to the total sales volume of each branch, and since the existing two-tier distribution system established two different reward levels, (Case, Table 1) many newly-large distributors could reap substantial rewards if all of their branches were consolidated under the existing reward levels of the Synergy program.

Students may be invited to speculate about how significant this change might become by constructing hypothetical scenarios of how much Wiremold's total reward budget might increase using the parameters given in Case Table 1. Table TN-5 contains a hypothetical illustration of the potential size of this problem. To develop these two scenarios, we specified the number of branches at the three different sales levels for which rewards would be or not be paid. Case Table 1 shows no rewards for sales levels of Wiremold products under \$50,000 annually. We then developed assumptions about the average sales volume of each branch, and the average percentage reward for each branch.

It is important to note that the data in Case Table 1 indicates that the total reward percentage had three components: a reward for *growth*, a reward for *loyalty* (the degree to which the manufacturer promoted Wiremold exclusively in Wiremold's product lines), and a reward for *promotion* (the effort that a distributor was making in promoting the Wiremold line). The growth reward served to motivate distributors to increase their sales of Wiremold products. The loyalty reward served to motivate them to move to offer Wiremold-only for those product lines in which Wiremold competed. This reward had the effect of tending to limit the number of lines that a distributor would carry that competed directly with Wiremold's. The promotion reward was both a reward for effort and an after-the-fact cost sharing between the company and the distributor of the

distributor's promotional costs for the Wiremold line. The distributor's promotional costs could include advertising, countertop displays, Wiremold-specific field sales activities, and Wiremold-specific telemarketing activities. For the purposes of the illustration contained in Table TN-5, we selected a ballpark reward percentage in the middle of the cumulative range for each component of the reward system and summed these for a total estimated average reward percentage for each of the branch size categories. We then multiplied by the average sales volume for each branch category. This is of course an over-simplification because the Wiremold distributor incentive program is notable for what it *does not* reward: base sales levels. If in any given year, a distributor did not increase sales volume, offered many manufacturers' alternatives to the company's product lines, and performed no promotional activities, that distributor would *not* earn an incentive reward from the company.

We then calculated the total rewards to each distributor assuming no change to the incentive system. For our illustration, these turned out to be \$127,494. We then recalculated the rewards assuming consolidation of all branch sales to establish a distributor-wide reward percentage for each distributor. Given the latitude for the total reward rate for very large distributors shown in Case Table 1, we assumed specific higher reward rates for the two largest distributors in our hypothetical scenario. For our illustration, the recalculated total rewards turned out to be \$205,937, a 61% overall increase with *no increase in base sales volume for all the branches combined*. (Italics added for emphasis.) The hypothetical increase was fairly evenly distributed among the three types of distributor, with the smallest ones benefiting the most with a 70% increase, and the two larger types of distributors garnering a 53-54% increase. Clearly, this particular request from the large distributors could have very significant financial implications.

Rewards for Loyalty: The second issue was that competing manufacturers were eliminating the loyalty component of their incentive systems and just cutting prices instead. Case Table 1 shows that the loyalty component of Wiremold's incentive program ranged from 1/2 to 1% at the low end to 2-3% for the distributors selling large volumes of company product, and large volumes of specific parts of the product line. A straight price cut, particularly to selected distributors using bulk purchases at end-of-month or end-of-quarter, could reasonably be expected to result in significant price pressures in the marketplace. Distributors could reasonably be expected to negotiate aggressively for the best price among manufacturers, especially with the manufacturers giving up any claim to loyalty as a negotiating tool with their distributors. Thus, this action could be expected to inaugurate a price war in the most commoditized segments of the product lines.

Wiremold needed to decide whether it wanted to retain the loyalty component of the Synergy rewards. Alert students will note that the loyalty component could range from 25% to as much as 50% of the total rewards paid. Perhaps, they will argue, the loyalty component should be dropped to save money. Perhaps it would be as well to go along with the request for branch consolidation for the reward system. If we do so, they will argue, the increase falls to 30% (approximately) from 61%. Maybe, they will argue, that is a good compromise.

Other students may perceive that there must have been a reason for the loyalty factor to begin with. Presumably it was to provide an incentive for a distributor to recommend Wiremold first and to support the Wiremold product line along its length and breadth. If

the loyalty component were removed, then distributors would have no incentive to recommend Wiremold along the length and breadth of the line. They might simply sell whatever was least expensive for the contractor, or be open to stocking up on product from other manufacturers at end-of-quarter sales. In other words, maybe the loyalty component was helping Wiremold's market share in the territories where distributors were earning loyalty rewards. There would be risks of distributor defections in certain product categories. So, simply cutting or eliminating the loyalty reward could itself be very expensive.

Price Competition Within a Regional Market: The third issue was how to handle the emerging price competition *among Wiremold distributors* in some regional markets. That is, some of the distributors were selling Wiremold product at prices below that of their compatriots *in the same market*. (Italics added for emphasis.) The question arises as to how these distributors were accomplishing this feat when the company had a strict one-price policy for the purpose of creating distributor trust that they would not be undersold. (Case) The case describes in great detail how Wiremold had a strict one-price policy for products sold into a distributor's inventory, how field sales managers had specified limits within which they could deviate from posted prices, and how Wiremold required written proof of a competitive price. The probability was that some distributors were taking a portion of their Synergy rewards to subsidize price reductions either across-the-board or on selective items. Or, alternatively, perhaps the price-cutting distributors were receiving no loyalty rewards from Wiremold anyway, and were merely selling its products to complement those of other manufacturers. The case states that price competition was occurring in these few markets, so the implication is that all Wiremold distributors in those markets were meeting the lowest prices offered by any one distributor. (Case) The central issue is that in these specific markets where price-cutting was occurring, the company had lost its persuasive power to control the prices of its products.

Students should be encouraged to speculate about possible options. One option would be to accept the current trends in the marketplace and go along with the price-cutting by eliminating the loyalty component of the Synergy rewards. Another option would be to eliminate the distributors doing the price-cutting. Unfortunately such a course of action could be interpreted as an attempt to restrain trade. A third option would be to review all of the distributors in each of the affected markets and to reduce overall distribution capacity in those markets. With respect to the third option, students should be asked to suggest what factors might be important in deciding which distributors to keep and which ties to sever. Would past loyalty be important? Would over-all support of Wiremold's marketing approaches be appropriate? Would past adherence to the Synergy program be appropriate? How about potential to grow Wiremold's sales? How about the strength and past effectiveness of a distributor's promotional programs? Might the consolidation at the distributor level have brought a new player into the market, one that had worked well with Wiremold in the past? Should such a (hypothetical) distributor receive special consideration?

9. What should Wiremold do about the distributors' requests for changes to the incentive system?

The First Step: The company's initial response to these developments is described in Supplement 1 to this case, included in the section entitled Additional Pedagogical

Material. It may be distributed in class at this point, or held for later. Briefly, Supplement 1 describes the amendments to the Synergy program and the process by which they were presented to the vice presidents for approval. Key elements of the program were: a new written market mission with each distributor, a mutual plan to assist the distributor in achieving a minimum ten times inventory turns, a reward structure that based incentives on exclusivity by the distributor to Wiremold's core product lines and selected competitive lines and finally a recognition of the distributor's total purchases. Wiremold would shed the branch-by-branch qualification rules in return for exclusivity. It was expected to have the effect of beginning to limit the number of Wiremold Authorized distributors.

A new SynergySM presentation for use by the Distribution Specialists contained detailed directions for how a distributor could achieve the ten turns per year using company-provided resources to help him do it. The company was dedicating itself to its promise to the distributors to add value to their operations by helping them to improve their profitability as measured by GM ROI. In an article published in 2002, Art Byrne said,

We're now trying to teach our distributor partners how to turn their inventory of our product over 10 times because most of them are running an MRP system. Most distributors are very traditional and tend to turn it only three times. A good guy might turn it five or six times. We're saying, "Hey, wait a minute. We can show you how to turn this stuff 10 to 15 times, Wouldn't you like to do that?"

An electrical distributor doesn't make a lot of margin. The whole industry makes 1 to 2 percent pretax. That is nothing. So how they manage their asset base, which is almost all inventory in a few warehouses, is really critical to them.

Yet most of the manufacturers in our industry are trying to load them up with product. They're saying, "If you buy a trailer load, I'll give you another five off." They're trying to sell them trailer loads because their manufacturing process makes 50 trailer loads at a crack.⁷

The Second Step: A year later, the situation had improved, but there were still some few distributors selling on price. Supplement 2 describes the analytical activities that Wiremold performed and the process by which a decision was reached. Supplement 3 describes the decision. Depending on time constraints, the instructor may choose to distribute these supplements or to read the Epilogue. The supplements will be of interest to students interested in and focusing on Lean processes. Otherwise, reading the Epilogue will suffice.

The Third Step: Lifting the Fog: In connection with the Epilogue, it will be important for the instructor to note that the outcome described is entirely consistent with the company's game theory strategy. The solution maintained the company's value net and the roles and duties of the players. The solution also maintained the added value component of the strategy with respect to distribution by helping the distributors to improve their own profitability. The company did change the incentive rules and began paying rewards based on the consolidation of all of a distributor's branches. The company more strictly

enforced the new rules of ordering and payment. The company gave a year's notice of its intentions and made a good faith effort to help all distributors convert to the rules. The tactic therefore of eliminating those that did not comply was a tactical game in itself known as Lifting the Fog. (See Table TN-4) By eliminating a few distributors based on their adherence to the Synergy program, the company very effectively communicated its intention to enforce the program, thereby dispelling possible skepticism. The company continued to see the scope of the game as a marketing partnership between the company and its distributors.

10. How could the Internet aid the distribution system?

As we have seen, the company was deeply committed to the Synergy distributor incentive system and to the value added from it. Moving to Internet distribution, implying the possibility of direct selling to contactors via the Internet, would impair the company's existing value net and its added value strategy. However, good students may raise these possibilities, and for that reason we added the following three issues to the case as red herrings. (Case)

Internet: Given the company's history in changing the rules of the game, some students will be surprised that Wiremold was not attempting to change the game by going to the Internet, (a modern form of electronic communication and one that they are personally familiar with). The question revolves around two distinct issues.

First, the Internet is especially useful in distribution when it can be used to search for items not previously known, to eliminate distance, to enable round-the-clock operations, and to make location irrelevant. (Pitt, Bethin and Berthon) The company in fact had an EDI system (that met or exceeded all industry standards) that was not discussed in the case for competitive reasons. The EDI system was already accomplishing all of these goals for the order entry function. What the EDI system could not do was to provide information on the company's products. Wiremold had a web site for this purpose. It attracted new customers and provided technical and other specifications to specifiers seeking information round-the-clock. Students may be invited to visit www.wiremold.com to see for themselves. At the time of this writing, the company had just redesigned its web site to provide more information about and promote its pre-wired raceway line and to provide contractors and specifiers with a means to design a custom wire and cable management system with mix-and-match components in a variety of styles and colors.

Direct Selling to Contractors: Direct selling to contractors via a web-based protocol would mean that the company would begin competing with its existing hybrid distribution channel. The risks of retaliation by the distributors (refusing to carry and promote Wiremold product) and by the Specification Specialists (defecting to other companies) would be high. In addition, the company would have to begin delivering to every job site, a far more complicated logistics program that it employed in the case, weekly deliveries to all distributors (serving many contractors) and to large job sites by special order. Students should also remember that raceway lengths were often in excess of ten feet, so that using a common carrier would increase the risk of damage to the goods. In fact, loss or damage to goods occurring in transit via common carrier had been

one of the reasons the company had established the company-owned cycle truck program in the first place. (Case, p. 5)

This discussion should serve to highlight the importance of the reciprocal relationship between the company and its distributors. In Business-to-Business marketing terms, this is sometimes referred to as a Channel Positioning Matrix.⁸ (Anderson and Narus) Table TN-6 provides a summary of the company's channel positioning matrix. If the company were to signal the distributors that they were henceforth less important, then the company would have to find other ways of accomplishing all of the items shown in the matrix. This would be a significant task indeed, probably requiring a re-thinking of the company's entire strategy.

Lower Prices for Web-based Purchases: Throughout the case, the company was concerned about its ability to influence prices in the marketplace. This was very important when considering what to do about the price-cutting distributors. Offering lower prices for web-based purchases would be a strategy clearly opposed to the company's decision to withdraw from doing business with distributors that were not adhering to the Synergy program. Departing from the one-price strategy, which would then apply to only non-Internet methods of placing orders as well as to the distributors, would imply a significant departure from the company's commitments to the players in its value net. (In fact, the company accepted orders by phone and fax when distributors needed the added flexibility. This too was not discussed in the case for competitive reasons.)

11. How well did Miller and Bartosch do in responding to the requests from the newly larger distributors for changes to the Synergy program?

This question should be asked after Supplements 1 and 2 have been distributed and students have read them, and after either Supplement 3 has been distributed or the Epilogue read in class.

This was a company that said that it was important to focus on improving the processes, not the short-term results. (Case, Figure 4) What we have observed as we have analyzed the issues is that Miller and Bartosch consistently focused on developing and improving the company's relationships with its distributors. They crafted an incentive system that rewarded top line sales growth and distributor loyalty (measured by the support given to the Wiremold product line). These two factors drove a fourfold increase in dollar sales over a ten-year period of low and falling inflation rates. (Epilogue) In return for distributor exclusivity or near-exclusivity to its product lines, Wiremold sought to help the distributors improve their own profitability by applying the Lean principles that had helped the company achieve a sixteen-fold increase in profits over the same period. (Epilogue)

Wiremold decision-makers (Miller, Bartosch, Byrne, Fiume, and the other five vice presidents) decided to concede to their distributors' request for higher incentive payments by consolidating the results achieved by all the branches. In part this was pragmatic (fewer larger distributors were more important to the company), and in part it appears to have been part of a crafted negotiating strategy. Miller and Bartosch recommended this concession as a cornerstone of a new incentive system that required adherence to the one-price policy and adherence to the company's system of rapid inventory replenishment

that eliminated the bulk-purchases of the past. While company decision-makers might have guessed that there would be a few hold-outs, they did not make the mistake of moving too rapidly. Precipitous action might have brought accusations of attempting to restrain trade.

Miller and Bartsoch made change slowly. They implemented the new program and took a year to require all distributors to comply with it. Then they evaluated all distributors in the affected markets against four criteria: customer service, meeting the needs of the market, adherence to the Synergy program, and potential for market leadership. The company was willing to invest in establishing SynergySM with distributors it really wanted. Where it was necessary to terminate a distribution agreement, the one with the lowest overall potential was selected. There were probably some hard feelings on the part of those whose agreements were terminated, but the proof was in the pudding: sales went up in the areas that had previously been subject to price-cutting.

The Lifting the Fog tactic would also allow the distributor “grapevine” to alert all the distributors to the idea that the company meant what it said about adhering to the Synergy program. This was probably a better way to send the message than to have Distribution Specialists attempting to deliver it during their sales calls. (It would not be easy to sell and threaten during the same sales call.)

Helping the distributors achieve higher GM ROI through applying Lean principles to their own operations to achieve ten inventory turns per year (Supplement 1) would help drive distributor profitability, just as Lean processes had increased the company’s profitability sixteen-fold. (Epilogue) Making a commitment to support them in achieving that goal, including bringing them into company operations to learn how to use and apply kaizen, would be expensive. Whether or not it would in the long run create permanent relationships would of course depend in part at least on what strategies the competitor manufacturers chose to employ.

In conclusion we can say that the company’s decision-makers adhered to their strategy (game theory) and Lean principles (cross-functional decision-making, and continuous improvement) and their message. They did not sacrifice long-term improvement for short-term results.

EPILOGUE

By the end of a ten-year period of low and falling inflation rates, during which Wiremold used the game theory approach described in this Teaching Note, sales in its core business had increased fourfold, and profits sixteen fold. The company embarked on a pro-active campaign to convert the last of its distributors to the Synergy system. (See Supplements 2 and 3) Most of the hold-outs converted, but a few did not. As described at the end of the case, the company believed that it had excess distribution capacity in a few markets and that over-distribution was destabilizing the value-creation effort in those markets.

After due deliberation, company officers decided to reduce the number of distributors in the few affected markets. A reduction in distributors would increase the value of the Wiremold® product line to those who remained. The selection of which distributor to terminate was made based on an evaluation of how well each distributor served the market in question, and in some cases based on interviews of the contractors in the market. While adherence to the distributor

incentive program was a factor in the evaluation, the company wanted to cultivate the distributors who were the leaders in each market. In some cases, this represented a significant educational and training effort to establish SynergySM with the selected distributors. The distributor with the lowest overall potential was selected for termination of the distributor relationship with Wiremold.

Six months after the reduction in the number of distributors, sales in each of the affected regional markets had increased significantly.

In an interview, Scott Bartosch, vice president of sales, noted the importance and challenge of integrating lean principals to the distributors who sell 95% of Wiremold's product:

Lean is a competitive advantage. Nobody takes the time to go from the back door of the factory to what can be leveraged in the marketplace. You can't say that Lean ends at the factory door. If you do, you've missed the whole strategic point of Lean.

In a separate interview, Vice President of Marketing, Ed Miller said that the company's practice of inviting distributors in to the company to participate in kaizens had helped to reinforce the relationships between the company and its distributors and had provided added value to the distributors seeking to improve their operations in areas other than simply ordering and carrying Wiremold products.

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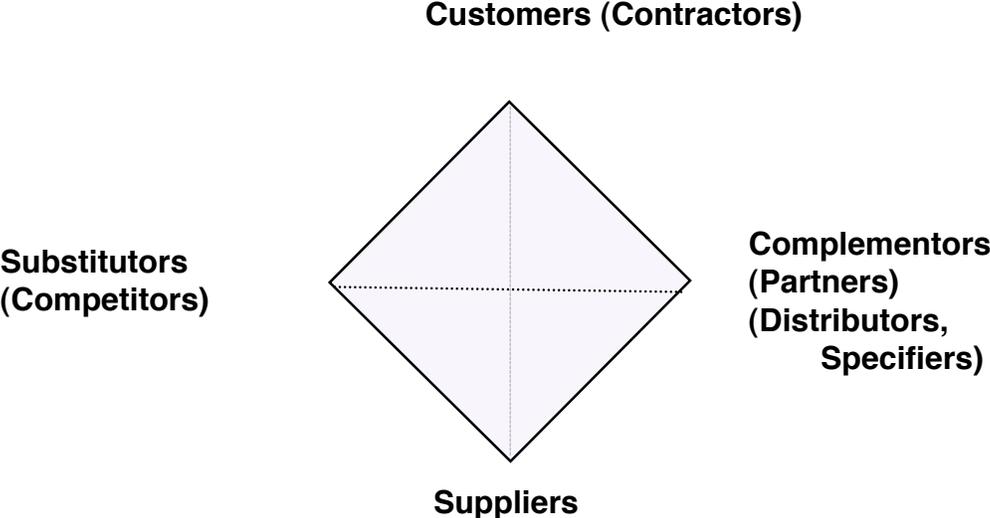
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**FIGURE TN-1
WIREMOLD'S VALUE NET**

Game Elements: PARTS (players, added value, rules, tactics, scope)



Source: Brandenburger and Nalebuff

Table TN-1

GM ROI Calculations

GM %	Gross Sales	Inventory Turns	Average Value of Inventory @ Cost	GM ROI
25%	\$1,000	1 time	\$1,000	.25
25%	\$1,000	3 times	\$ 333	.75
25%	\$1,000	4 times	\$ 250	1
25%	\$1,000	5 times	\$ 200	1.25
25%	\$1,000	10 times	\$ 100	2.5

GM ROI = $\frac{\text{GM of Stock Sales}}{\text{Average Value of Inventory}}$ at 5 times = $\frac{250}{\$200} = 1.25$ or 125

Source: Prepared by authors from company documents

Table TN-2

Traditional Ordering & Payment Sequence
(2% 10th Prox, 25th cut-off)

<u>9/26</u>	<u>9/27</u>	<u>10/30</u>	<u>11/1</u>	<u>11/10</u>	<u>12/10</u>
Distributor places Order	Invoice for 9/26 order sent	Distributor places Order	Invoice for 10/30 order sent	Payment due for 9/26 Order, last day for discount Or: Pay Net by 11/30	Payment due for 10/30 order, last day for discount Or: Pay Net by 12/30

The 9/26 order gets 45 days to get the discount, and a maximum of 65 days. (4+31+10+20)

The 10/30 order gets 40 days to get the discount, and a maximum of 60 days. (30+10+20)

Source: Prepared by authors

Table TN-3

**New Ordering & Payment Sequence
(5% if Pay on 10th and 25th net 30)**

9/26	9/26	10/1	10/10	10/18	10/25	11/10
Distributor	Company	Distributor	Invoice	Distributor	Payment	Payment
places Order	sends	places Order	for 9/26	places Order	for 10/1	for 10/18
	Invoice for	and co sends	Order is		Order is	Order is
	9/26 Order	invoice	due, last		due, last	due, last
			day for		day for	day for
			discount		discount	discount

Invoices 1st to 15th of the month are paid on the 25th of the current month.
Invoices 16th to 30/31st of the month are paid on the 10th of the next month.
The maximum is 30 days.

Source: Prepared by authors

Table TN-4

The Seven Basic Tactical Games

- 1. Pay me to Play: Reduce the added value of a competitor**
- 2. Cheap Complements: Provide incentives to potential complementors to enter**
- 3. Change Added Values: Capture the desirable value for yourself**
- 4. One Price to All: Persuade competitors to stand pat**
- 5. MCC (Meet the Competition Clause): Incumbent seller has the right to make the last bid**
- 6. The Fog of Business (War): Create Fog by fostering different perceptions of real intent
Lift Fog by using “tests” to communicate real intentions and probable outcomes**
- 7. Change the Scope of the Game: Introduce new technology or processes**

Source: Brandenburger and Nalebuff

Table TN-5

**Illustration Concerning Possible Effects of Branch Consolidation
Under Different Scenarios with Existing Synergy Rewards**

Scenario 1: No Change

Distributor	# A Branches	Rewards for A Branches	# B Branches	Rewards for B Branches	# C Branches	Rewards for C Branches	Total Rewards
1	5	0	3	\$5,625	1	\$4,687	\$10,312
2	0	0	10	\$18,750	3	\$14,062	\$32,812
3	0	0	20	\$37,500	10	\$46,870	\$84,370
							\$127,494

Assume that an A Branch sells, on average \$25,000 of company product annually.
Assume that a B Branch sells, on average \$75,000 of company product annually
Assume that a C Branch sells, on average \$125,000 of company product annually

Assume that A Branch Rewards average \$0 per branch
Assume that B Branch Rewards average \$1,875 per branch (2.5%)
Assume that C Branch Rewards average \$4,687 per branch (3.75%)

Scenario 2: All Branches included for Highest Reward Level for Company

Distributor	Total A Sales	Tot B Sales	Tot C Sales	Tot Sales	Reward level	Total \$ Rewards
1	\$125,000	\$225,000	\$125,000	\$475,000	3.75%	\$17,812
2	0	\$750,000	\$375,000	\$1,125,000	4.5%	\$50,625
3	0	\$1,500,000	\$1,250,000	\$2,750,000	5%	\$137,500
	\$125,000	\$2,475,000	\$1,750,000	\$4,350,000		\$205,937

Case Table 1 shows a range of reward levels above the \$1,000,000 sales level, so we have assumed reward levels for Distributors 2 and 3 of 4.5% and 5% respectively.

Source: Prepared by academic authors for purposes of illustration only.

Table TN-6

The Channel Positioning Matrix

Company Offering	Distributors' Requirements
Quality Product	Strong aftermarket support
Cycle Trucks	More frequent, smaller orders
Incentives (protected profit)	Stocking loyalty and sales force attention
5% Discount	Prompt payment of invoices
Combination of cycle trucks and discount gives high velocity turnover of materials	Loyalty
Full line of product for Communications and Power, market development and growth opportunities for system sales	Remind contractors and end market that Wiremold offers "one stop" solutions
Consolidated warehouse (one shipment point)	Highest 1 st time 100% complete fulfillment rate in the industry
One price to all, no one disadvantaged	Loyalty
Education on how to increase inventory turns	Loyalty for improved profitability of distributorship
New Synergy Program	Adherence to program

Source: Prepared by authors

TEACHING NOTE ENDNOTES

¹ Wiremold is a registered trademark of The Wiremold Company.

² Synergy is a registered service mark of The Wiremold Company.

³ The Shingo Prize, awarded annually, is named after Mr. Shigeo Shingo, a consultant to Toyota. Among his contributions was the development of methods to reduce the amount of time needed to set up production equipment for any particular production run. Mr. Shingo's contributions enabled a cash-short Toyota in post-World War II Japan to make frequent change-overs from one part number to another so as to avoid producing large amounts of parts inventory. Wiremold under Art Byrne essentially adopted and implemented the Toyota Production System in its entirety, except that it was called (initially) Just-in-Time (JIT) or (later) Lean.

⁴ This process is described in great detail in the case "The Wiremold Company: The Field Sales Force" by the same authors.

⁵ The term "Prox" is a slang term in general industry use for *proximo*, the definition of which is "of the following month".

⁶ The definition of a missionary sales person is one who works to educate potential customers and influencers about the benefits and technical specifications of the product, but cannot book an order. See Weilbaker, 1990.

⁷ Manufacturing News: Volume 9, No. 2: 1/31/02: *Breaking the Mold at Wiremold*: page 9:
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⁸ Anderson and Narus, p. 280.

ADDITIONAL PEDAGOGICAL MATERIAL

This section contains three supplemental cases and an unpublished Note describing the history of Lean production. The Note also includes a glossary of some common terms used in Lean business practices.

**THE WIREMOLD COMPANY:
THE WIREMOLD® DISTRIBUTOR INCENTIVE PROGRAM (B)***

Revisions to the Distributor Incentive Program

About three months later, Art Byrne called the bi-weekly staff meeting to order at about 9:30 am. All of the eight vice presidents were present, which was somewhat unusual as four of them had very heavy travel schedules and usually someone participated by speakerphone. The agenda for the meeting had been e-mailed to all the vice presidents a few days earlier.

After working through the routine items on the list, Byrne said,

The next item is the proposal for some changes to our distribution system. Ed and Scott, take it away.

Ed Miller and Scott Bartosch commenced their formal presentation with the following words from Bartosch.

About a year ago, Ed and I began having some informal discussions about what to do about our excess distribution capacity in a few regional markets. Excess distribution capacity is expensive because we only sell through distributors, and we make very significant commitments to support their businesses. So, we thought there might be some waste there, and we talked to Art and to everyone here, and over the past year we have done some experimenting. We prepared some financial models, and two weeks ago, we made a formal presentation to Art and Orry. On the basis of that meeting, Art agreed to put this issue on the Agenda today. What we are asking for is your approval to proceed with formal implementation of some very significant changes to our agreements with distributors. These are all detailed in the package that was distributed to everyone last week.

For the next thirty minutes, Miller and Bartosch made a formal presentation of every aspect of their proposal including both the financial impacts of the changes, and the operational impacts on each department. Every page of the pre-meeting package was discussed. Because everyone had read it prior to the meeting, there were no surprises for those hearing the presentation.

Key elements of the program were: a new written market mission with each distributor, a mutual plan to assist the distributor in achieving a minimum ten times inventory turns, a reward structure that based incentives on exclusivity by the distributor to Wiremold's core product lines and selected competitive lines and finally a recognition of the distributor's total purchases. Wiremold would shed the branch-by-branch qualification rules in return for exclusivity. It was expected to have the effect of beginning to limit the number of Wiremold Authorized distributors.

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A new SynergySM presentation for use by the Distribution Specialists contained detailed directions for how a distributor could achieve the ten turns per year using company-provided resources to help him do it.

At the end of the formal presentation, Ed Miller said,

The essence of what we are trying to do here is to partner with our distributors. We view this program as essential to maintaining our brand reputation and our ability to continue to avoid commoditization of our products. This program will support a continuation of the end-user support – to all our customers – that differentiates us from our competition.

With that statement, Miller and Bartosch turned to their colleagues and asked for comments. A free-flowing discussion ensued for another hour. Then Byrne asked if anyone had anything else to say. Seeing no response, he proceeded to go around the room and asked each vice president to summarize his support for the proposal, his reservations about it, and whether or not his reservations had been adequately addressed.

One by one, the vice presidents spoke. As the last one spoke in favor of the plan, Miller and Bartosch breathed quiet sighs of relief. They had agreement from all their colleagues. Had there not been full agreement, the decision would have been not to go forward. As it was, they would be expected immediately to put their proposal into effect.

**THE WIREMOLD COMPANY:
THE WIREMOLD® DISTRIBUTOR INCENTIVE PROGRAM (C) ***

A Year Later

A year after the introduction of the revisions to the distributor incentive program, there were markets where some distributors were not fully complying with the commitments required of them. The primary effect of this was that there was significant price competition on the company's products and customers were not getting the end-user customer support that they expected. Bartosch and Miller assembled distributors' comments on the new program, consulted the field sales force and its management, and personally visited several distributors to get the market perspective of the new program. Armed with the best intelligence they had, they sat down with Byrne and Fiume to discuss their options for action steps to address those distributors who were reluctant to sign-on to the revised program.

After extensive discussion, Bartosch, Miller, Byrne, and Fiume decided that they had three options for action to prevent further damage to the company's brand reputation from the distributors who were persisting in supporting competitive products or selling Wiremold products solely on price considerations. First, they could change the package of financial incentives provided to all distributors. Second, they could alter the exclusivity requirements of the new SynergySM program. Third, they could reduce the number of distributors in the affected regional markets and require those that remained to participate in the distributor incentive program without reservations.

Art Byrne looked around the table and said,

All right. We've researched and discussed this extensively; it's time to make a decision. What shall we do?

* Wiremold and Synergy are trademarks and service marks of The Wiremold Company.

**THE WIREMOLD COMPANY:
THE WIREMOLD® DISTRIBUTOR INCENTIVE PROGRAM (D)***

The company decided to reduce the number of its distributors in the few markets. A reduction in distributors would increase the value of the Wiremold® product line to those who remained. The selection of which distributor to terminate was made based on an evaluation of how well each distributor served the market in question, and in some cases based on interviews of the contractors in the market. While adherence to the distributor incentive program was a factor in the evaluation, the company wanted to cultivate the distributors who were the leaders in each market. In some cases, this represented a significant educational and training effort to establish SynergySM with the selected distributors. The distributor with the lowest overall potential was selected for termination of the distributor relationship with Wiremold.

Six months after the reduction in the number of distributors, sales in each of the affected regional markets had increased significantly.

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A Brief History of Lean Production¹

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The origin of lean management can be traced to the Toyota production system (TPS); a manufacturing philosophy pioneered by the Japanese engineers Taiichi Ohno and Shigeo Shingo. The TPS is also the birthplace of just-in-time (JIT) production methods, a key element of lean production, and for this reason the Toyota production system remains a model of excellence for lean production advocates.

Just as the basic tools of total quality management (TQM) were developed and practiced at Western Electric in the 1920's, some of the principles of the TPS developed at Ford in the early part of the 20th century. In 1926 Henry Ford boasted, "Our finished inventory is all in transit. So is most of our raw material inventory." He also claimed that Ford could pull iron ore from a mine and produce a finished automobile in 81 hours². Ford's words convey the importance he placed on inventory reduction, short-cycle manufacturing, and, in general, the reduction of waste, all of which are basic aspects of the TPS. It is not surprising that Ohno greatly admired Ford and studied his accomplishments.

John Krafcik originally coined the phrase "lean manufacturing." Krafcik was a member of the research team for the book *The Machine that Changed the World: The Story of Lean Production*³. This book described the advantages that Toyota's manufacturing techniques had over traditional "batch-and-queue" production methods. High production volumes, large batch sizes, low product variation, and long product life characterize batch-and-queue production. Batch-and-queue techniques developed from economies of scale principles, which consider small batch sizes uneconomical because of the associated setup penalties. Batch-and-queue methods typically result in lower quality since defects are usually not discovered until subsequent operations or inspection of the finished product. Most manufacturing and service businesses today still operate batch-and-queue systems, even in Japan.

Key Elements of the Toyota Production System

Several aspects of the TPS have been misinterpreted. Despite the popular notion of "driving inventories to zero", the TPS is pragmatic and **does** allow for buffer inventories. Production line segments are buffered to ensure that a brief stop in one station does not immediately affect the next. To be sure, the inventory is kept small, but it is still of sufficient size to prevent major line shutdowns most of the time⁴. Another aim of the Toyota system is to reduce variability at every opportunity. These reductions include demand variability, manufacturing variability, and supplier variability. Variability reduction is today the focus of many quality efforts in light of the recent interest in "six-sigma" quality programs. The primary goal of lean production is to develop processes that are repeatable, reliable, and stable. Occasional process problems are expected, but they are considered valuable opportunities to learn and improve.

Basic Concepts in Lean Production

There are five main elements of lean production:⁵

- Value
- The Value Stream
- Flow
- Pull
- Perfection

Value implies determining what the end-user really wants or needs to see in the product or service. It is surprising how many companies never directly ask customers about their needs, likes, dislikes, problems, or complaints.

The **value stream** encompasses the entire set of activities required to bring a product from conception to detailed design, order taking and scheduling, production launch and physical transformation of raw materials, and finally to delivery into the hands of the customer. Within the value stream there are three types of activities that can consume human and material resources:

1. *Steps that unmistakably create value.* Examples of this would be spot welding a car frame together, or driving passengers from point A to point B.
2. *Steps that create no value but are unavoidable given the current technology and production equipment* (known as Type I muda). An example is the inspection of welds on an aircraft engine.
3. *Steps that create no value and are immediately avoidable* (known as Type II muda). An example would be the unnecessary double handling of an invoice by two clerks in an accounts payable department.

Flow is the general term for producing and moving parts in *small* batches, ideally using *single-piece flow* (i.e., move batch size = 1). Hybrid systems are common, consisting of single-piece-flow in some areas, and batch-and-queue practices in other areas. In wrench manufacturing, for example, steel forgings might move in a single-piece manner through a U-shaped machining cell, but then queue up at the end of the cell before moving to the chrome plating station. In fact, very few manufacturers can claim a pure single-piece-flow system throughout their entire operation.

The term **pull** implies not making anything until it is needed by the downstream customer, and utilizing a make-to-order (MTO) approach whenever possible. Pull techniques were pioneered by Toyota using their just-in-time (JIT) production methods. This is a very common technique used in the personal computer business. Dell, for example, uses their “direct sales model” to convert telephone orders from customers into finished personal computers ready for shipment in about four hours. The initial “pull” in this case is the telephone or electronic order from the customer. This method also allows Dell to customize each unit to the customer's specifications.

The complete elimination of wasteful practices, so that all activities along a value stream create value is known as **perfection**. Efforts focused on waste reduction are often pursued through continuous improvement or *kaizen* events, as well as radical improvement activities, or *kaikaku*.

Flexibility and Its Relationship to Lean Production

Flexibility is an important element of manufacturing strategy and is a key concept within lean production. The following example illustrates the importance of developing flexible production systems.

During the 1980's GM was touting its “reindustrialization” strategy. The plan called for spending approximately \$80 billion worldwide to update and automate GM assembly plants, gradually transforming them into automation showplaces, loaded with sophisticated robots and other automated equipment. GM felt it could significantly reduce direct labor costs associated with vehicle manufacturing by using technology, essentially outspending and thereby leapfrogging the competition. GM, however, ignored flexibility, one of the most important elements of the TPS. In fact, most GM plants were designed and built to produce just one model, year-after-year! GM arrogantly assumed *it* could drive consumer demand. When consumer tastes changed, GM could not adjust quickly or easily to the demand for new styles and models.

A GM assembly plant in Fairfax, Kansas fell victim to reindustrialization. Fairfax was completely renovated in 1987 as a highly automated factory, containing over 200 different robots. Unfortunately, it was designed to assemble only the Pontiac Grand Prix, and was not flexible enough to build any other GM models (although the plant has since added the Oldsmobile Intrigue to its model mix). The original design capacity of the plant was 250,000 units, but it spent many years producing only 100,000 units because GM could not sell enough cars to keep the plant fully loaded⁶. Toyota plants, on the other hand, are extremely flexible and each assembly plant can build at least three different models or platforms. If one model is not selling well, it is then a simple matter to shift production to a better selling model. Toyota’s Georgetown Kentucky plant is an example of this flexible approach to manufacturing. The plant is able to produce the Toyota Camry sedan, the Sienna Minivan, and the Avalon sedan.

Glossary of Lean Terminology

Brownfield - An older, existing production facility that uses mass-production methods and a traditional organizational structure.

Chaku-Chaku – A method of production to achieve a *single-piece flow* of parts, typically by arranging machines in a U-shaped cellular layout. The cell operator unloads the machine, replacing the workpiece with a part from the adjacent upstream machine. The removed workpiece is then loaded into the adjacent downstream machine, after unloading its workpiece. This swapping of parts (by unloading and loading) continues until all of the parts in the cell have been moved downstream by one machine. The operator then moves back to the first machine and repeats the routine until all parts in the lot have moved through all of the machines in the cell. The term literally means “load-load” in Japanese.

Greenfield – A new manufacturing facility where it is possible to implement lean methods from the very beginning of production.

Heijunka – The manufacture of products using a level or uniform schedule so that during any given day, a wide variety of product models are produced. The goal is for production to mirror how the products are actually being purchased and consumed in the marketplace.

Jidoka (also called autonomation) – The development of automated machines that can halt production immediately when a nonconforming part is detected. This is accomplished with mistake-proofing or *poka-yoke* principles. Ideally, a machine with true process control would not be capable of making bad parts. It is more common, however, to first develop sensing capability within a process to know when a defective item has been made and then shut down the machine (detection during process). The simplest level of mistake-proofing would be to detect defective parts after they have been produced, and then automatically sort the good from the bad.

Just-in-Time (JIT) – This term is sometimes used synonymously with lean production, because it seeks to eliminate waste in all areas of a firm's production activities, but this interpretation is related more to what is often called "Big JIT". The classic pull system, where production at one level is initiated from a request of a higher level is usually referred to as "Little JIT". Little JIT focuses on scheduling goods inventories and providing service resources when and where needed. It works best when the production rate at final assembly is fairly uniform. But it can still typically incorporate only 60% to 70% of all parts and subassemblies regularly used in large-volume products. Big units or complex subassemblies often need to be scheduled separately under routine planning and control procedures.

Kaikaku- The radical improvement of an activity to eliminate muda. Moving or eliminating machines to facilitate better material handling and faster throughput would be an example of kaikaku. In contrast, improving a work area by developing a new quick-change fixture, and organizing the area and its tools are often the types of actions performed during traditional kaizen activities. Both initiatives in this example reduce waste, although the term kaikaku is generally reserved for the initial rethinking of a process.

Kaizen – The Japanese term for continuous incremental improvement involving everyone. In 1986, Masaaki Imai wrote *Kaizen - The Key to Japan's Competitive Success*⁷, which became very popular with U.S. management. Kaizen is one of the most commonly used words in Japan, and means continuous improvement in ones personal life, home life, social life, and working life. Imai studied many management philosophies, theories, and tools used successfully in Japan, and organized them under a single and readily understandable common framework. Kaizen implies achieving continuous, gradual, incremental improvements, but it is more common today to use a "kaizen blitz" approach, achieving rapid change within an area by focusing significant human resources on a process for a short period of time, typically one week.

Standard work – Details the motion of the operator and the sequence of material movement through the cell. Components include the cycle time, takt time, work sequence, and the minimum needed inventory of parts on hand (standard work-in-process).

Takt Time - A calculated value representing the allowed production time for each unit, so that the pace of production matches the rate of customer demand. Takt time is equal to the available production time per day divided by the number of orders placed by customers each day.

Total Productive Maintenance (TPM): Improving the overall effectiveness of process equipment by actively involving the operators. TPM is accomplished by performing regular cleaning, daily walkarounds, and preventive maintenance.

Visual Control – The placing of tools, parts, production tasks, and indicators of system performance so anyone can walk into a workplace and visually understand its current status. Factors such as workplace organization, the work process, the schedule condition, and any abnormalities should be obvious to the observer. Overhead display boards containing a series of colored lights are often used, referred to as *andons* by the Japanese. Toyota refers to visual control as *transparency*.

Endnotes

¹ Not previously published. Used with permission.

² Hopp, Wallace J., and Mark L. Spearman, *Factory Physics*, 2nd Edition, New York: Irwin McGraw-Hill, 2001, p. 25.

³ Ironically, John Krafcik is not well known because he was not one of the three authors of the *Machine that Changed the World*. In 1996, two of the author's, James Womack and Daniel Jones, subsequently wrote an enormously popular sequel entitled *Lean Thinking*.

⁴ Mishina, K., and K. Takeda, *Toyota Motor Manufacturing, U.S.A., Inc.*, Case Study Teaching Note 5-693-046. Harvard Business School, 1993, p. 3-5.

⁵ Womack, James P., and Daniel T. Jones. *Lean Thinking*. New York: Simon & Schuster, 1996, p. 15-28.

⁶ Based on Jim Harbour's comments to host Hedrick Smith in the video series "*Challenge to America: Old Ways, New Game*", Films for the Humanities and Sciences, Princeton, NJ, □ 1994.

⁷ Imai, Masaaki, *Kaizen: The Key to Japan's Competitive Success*, McGraw-Hill/Irwin, 1986.