The Wiremold Company: Ensuring Shareholder Commitment*

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On September 23rd, 1992, Art Byrne celebrated his first anniversary as President and Chief Executive Officer of The Wiremold Company. He could look back on his first year with a certain amount of satisfaction. He could point to visible, dramatic process improvements Wiremold associates had achieved through the kaizen process. The potential for further improvement was enormous and the company had only begun to scratch the surface. Still, the visible gains were converting the associates into believers in the time-based competitive strategy and the Lean business philosophy Art had initiated when took the helm. In addition, financial performance was on the upswing. There was a long road ahead, but Wiremold was building momentum in the right direction.

Orest "Orry" Fiume, Wiremold's Vice President of Finance and Administration, was also pleased with the progress Wiremold had made. He was concerned, however, about how some of the shareholders might react to the improved results. In 1991, Wiremold stopped a steady, three-year decline in sales and profitability that left the company barely above breakeven in 1990. 1992 would mark their second year of profit improvement (see Exhibit 1). The shareholders might decide the time was ripe to sell the company, using the proceeds to diversify their investments in the rising stock market. The management team would not have a chance to execute Art Byrne's strategy if the company were sold now. How could they convince the shareholders they would be much better off staying with Wiremold?

Background

In 1900, Daniel Murphy purchased Richmondt Electric Wire Conduit Company of Milwaukee, Wisconsin, and named his son, Daniel H. Murphy secretary.[1] The company merged in 1902 with the then-largest conduit manufacturer, Safety Armorite Company of Pittsburgh, Pennsylvania, becoming a subsidiary. The owners of Safety Armorite ran into financial difficulties in 1911, giving Daniel Hayes Murphy the opportunity to re-purchase his father's company, now called The American Conduit Manufacturing Company. The company moved to Hartford, Connecticut in 1919, and was renamed The American Wiremold Company in 1920. The word "American" was dropped from the name in 1926, and the company moved to a new facility in West Hartford, Connecticut in 1929.

Daniel H. Murphy's sons, John Murphy and Robert Murphy, joined the company full-time in the mid-1930's. In 1955 John Murphy succeeded his father as President of Wiremold. The company grew steadily throughout the 1960's and 1970's. In 1977, John Murphy assumed the position of

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[1] For a complete history of The Wiremold Company, see J. Smith, *The Wiremold Company, a Century of Solutions*, The Wiremold Company, West Hartford, CT, 2000.

Chairman and CEO and Robert became President and COO. In 1979, Warren Packard became the first President and CEO of The Wiremold Company who was not a member of the Murphy family. Although both Robert and John Murphy remained on the Board of Directors, no Murphy family members were involved in the day-to-day management of the company after 1979.

Wiremold continued to prosper in the early 1980's. However, the sales growth rate began to slow to single digits in 1984 and 1985. As the market for wire raceway had matured, Wiremold had grown through acquisition, diversifying its product line. However, the diverse product line was turning into a liability. Wiremold's traditional production system relied on large amounts of finished goods inventory. As product lines and sales expanded, inventories grew and customer service levels declined. Wiremold was unable to respond to changes in the marketplace led by more flexible competitors.

Seeking a new approach to overcome their stagnation Wiremold's management attempted to implement total quality management and a Just-in-Time (JIT) production model. Unfortunately, nobody at Wiremold had any experience implementing a JIT system. As Wiremold reduced inventory levels they uncovered production and delivery problems they were unable to solve. On time deliveries and customer service fell. Fearing loss of customers and market share, Wiremold abandoned their initial attempt at JIT in 1990 and rebuilt inventories to improve customer service. Nevertheless, the senior managers continued to believe that JIT was a better way to operate.

When Warren Packard announced his retirement in February 1991, the company began a search for a new President. Convinced that JIT would be critical to Wiremold's future, the search committee looked for a candidate with experience successfully implementing the Just-in-Time production method. Art Byrne was the candidate that satisfied that criterion.

Prior to joining Wiremold, Art had been one of two Group Executives of the Danaher Corporation. He was responsible for the day-to-day operations for eight of Danaher's thirteen business units. Over the previous six years, Art had helped lead the systematic conversion of all thirteen of Danaher’s businesses units to lean business practices, including JIT. Wiremold's search committee offered Art Byrne the position. Art accepted and assumed the position of President and CEO of Wiremold on September 23, 1991.

As Art Byrne took the helm, Wiremold employed 1,000 people at five plants (four in the U.S., one in Canada) and three warehouses (all in the U.S.). The company projected $100 million in sales for 1991. Wiremold manufactured over 1,400 wire management and power conditioning products. Examples of Wiremold products are presented in Exhibit 1.

An overview of the overall wire management market is presented in Figure 1. Despite the large number of products they carried, Wiremold served a fairly narrow range of the overall market. In addition, the company tended to dominate the slowest growing segments of the market. Wiremold was primarily supplying steel products through electrical distributors to serve power needs in commercial and industrial building renovation. The growth area of the wire management market was plastic products for data and telecommunications applications. For example, Wiremold had a 46% share of the market for single compartment raceway, largely because it had a 93% share of the market for single compartment *steel* raceway.[2] The overall demand for single compartment raceway was growing by 10% per year, but the demand for single compartment steel raceway was only growing by 1% per year.

Wiremold was taking 2-3 years to design a new product and bring it to market. They had a particular tendency to overanalyze products outside their traditional focus. As a result, their rate of new product introduction was very low, especially for products serving areas outside their traditional focus.

Figure 1. Overall Wire Management Market Overview
(Gray shading indicates the segment of the market primarily served by Wiremold)

Markets	Industrial		Commercial	Residential	
Type of Construction	Renovation			New Construction	
Wiring needs	Power	Video	Telecommunications	Data (Computer networks)	
Type of material	Steel		Plastic		Aluminum
Distribution channel	Electrical	Catalog	Telecommunications	Electronics	Home Centers

Art Byrne's Strategy for Wiremold

Art Byrne's first exposure to the Toyota Production System (later known as "Lean Production" hereafter referred to as "Lean"), the overall management system that included JIT, was in the early 1980's when he was general manager of General Electric's High Intensity and Quartz Lamp Division. He implemented a kanban system between his division and a supplying division within GE and was very impressed with the results. Inventory levels were greatly reduced, but there were also substantial improvements in quality, reliability, efficiency, and throughput times.

At Danaher, Art Byrne was in a position to spearhead the adoption of Lean business practices throughout the company. He was able to enlist the help of the Shingijutsu Consulting Company[3] in making the transition to Lean, persuading Shingijutsu to accept Danaher as their first U.S. client.[4] Through his studies of the Lean business philosophies and practices, his experience at GE, and his work with Shingijutsu and experiences at Danaher, Art Byrne realized that Lean principles and practices could be applied to any business and any business process. Lean was not merely an inventory reduction system or a means to improve manufacturing operations. The same principles and tools could also be used to improve service and support functions. Art Byrne viewed Lean business practices as having strategic implications for Wiremold. Lean was the means by which a company could execute a time-based competitive strategy. Art planned to adopt just such a strategy at Wiremold.

[2] Wire raceway is a metal or plastic channel or conduit attached to the outside surface of walls or columns. Wiring is run through the channel and is held in place against the walls or columns, improving the safety and aesthetics of the wiring.
[3] Shingijutsu was a consulting company created in 1987 by three Toyota engineer/managers who had played a major role in implementing and refining Taiichi Ohno's Toyota Production System.
[4] Danaher would be Shingijutsu's only U.S. client for about four years.

Early in 1992, Art Byrne presented the following strategy to Wiremold associates[5] at an all-employee meeting and to the board of directors and shareholders at the annual meeting.

- Strengthen existing operations.
- Profitably double the business over the next five years.
- Become one of the premiere time-based competitors in the USA with world class manufacturing and product development skills.

The three strategic objectives are interrelated. Wiremold could not become a premiere time-based competitor if it did not strengthen existing operations. Sales growth was the means of capitalizing on the time-based competitive advantage in product development and in getting new products to market. Art Byrne believed sales growth was also necessary for a successful lean implementation. Employees would not work to achieve continuous improvement if they believed the results would be layoffs. Sales growth would allow Wiremold to profitably re-deploy employees as efficiency increased.

Art Byrne presented a set of goals and performance measures related to the objective of strengthening business operations.

- 100% customer service (as measured by on-time deliveries on an item-by-item basis).
- 50% annual reduction in defects.
- 20% annual increase in productivity (as measured by sales per employee).
- Annual inventory turnover equal to twenty times.
- Establish visual control and the 5C's.[6]

By any standards, these goals were ambitious. Wiremold's 1990 on-time delivery rate was just over 60% and inventory was turning over less than four times annually. Art Byrne deliberately used stretch goals for three reasons. First, the Lean approach was a completely different way of thinking about and doing business. Art wanted it to be clear that the company could not reach its goals simply by working harder at business as usual. Second, Lean was a journey of continuous improvement, not a destination. Achieving a challenging goal would mean setting a new, more challenging goal, not stopping and saying, "we've arrived" and working to maintain the status quo. Third, Art knew from prior experience that dramatic results could be achieved rather quickly if Lean business practices were successfully implemented.

For sales growth, Art Byrne set equally challenging goals. Despite its recent troubles, Wiremold was still the market share leader in a mature product market. Most of the sales growth would have to be driven by new products internally generated and products acquired through selective acquisitions. Art Byrne set a goal of 3-6 months for new product development time (compared to the 2-3 years Wiremold was taking at the beginning of 1991). In addition, Wiremold should

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[5] Wiremold refers to employees as associates.

[6] The 5C's are Wiremold's version of the 5S's, shorthand for the five essential components of good housekeeping and organization in the work place, an essential component of the Toyota Production System (See *Gemba Kaizen* by M. Imai, McGraw-Hill, New York, NY, 1997. Chapter 5). The 5S's in (Japanese and English) along with their Wiremold equivalents are: seiri (sort) categorize, seiton (straighten) clear, seiso (scrub) clean, seiketsu (systematize) consistent, and shitsuke (self-discipline) continuous coaching and discipline.

have a steady stream of new products, with new product rollouts occurring every calendar quarter.

Progress During Art Byrne's First Year

Art Byrne began Wiremold's transition to Lean by reorganizing the company. Like most companies, Wiremold had a traditional hierarchical structure with a functional orientation (Exhibit 2). The functional orientation extended to the factory floor, where machines and the associates who operated and serviced them were organized by machine function. The new organizational structure focused on product families (Exhibit 3). The leaders for each of the six product families led cross-functional teams responsible for the entire production process, purchasing, inventory management, quality, and customer service for all the products in their family. The new structure also included a JIT Promotion office to implement follow-up and train associates in kaizen. By October 31, 1991, the new structure was in place, and Art led the first kaizen training session with team leaders and the President's staff team. The entire workforce would eventually complete the two-day kaizen training session.

A kaizen is an intense structured process where a cross-functional team examines and documents an existing operation and designs, tests, and implements improvements in the operation. The kaizen team typically devotes an entire five-day period to the process. The kaizen team is expected to achieve dramatic improvement (examples of typical kaizen objectives are provided in Table 1).

At the same time, Art instituted the *Kaizen News*. The *Kaizen News* was essentially a letter from Art Byrne to all Wiremold employees written in newsletter format. Art used the newsletter to report on the results achieved on the most recent kaizens, and to announce the focus of upcoming kaizens. Successes were celebrated, and the how improvements on specific Kaizens were connected to achieving Wiremold's goals and objectives. The *Kaizen News* was issued roughly every two to four weeks following its November 5, 1991 debut.

Art was convinced that Wiremold had twice as many employees as it would need once Lean business practices were in place, and he was worried that Wiremold would not be able to grow sales fast enough to profitably employ the excess. As a result Wiremold offered early retirement to both hourly and salaried employees with sufficient tenure in December of 1991. Most of the eligible hourly employees accepted the offer, but involuntary staff reductions were made on January 31, 1992 because too few salaried associates had accepted the early retirement offer. Immediately following the staff reductions, the remaining associates were promised that no one would ever lose their job as a result of productivity improvements achieved through kaizen. A few pilot kaizens had been conducted during 1991 to begin the improvement process, and to provide associates with a visible demonstration of the process and the results that could be achieved. With the employment at levels that could be absorbed with increased sales and with the employment guarantee in effect, the kaizen process could proceed in earnest.

Table 1. Typical Kaizen Objectives at Wiremold

1. For an assembly operation
    - Reduce staffing from 5 to 2 people
    - Reduce space occupied by 60%
    - Reduce inventory by 90%
    - Cut defects by 70%
    - Establish visual control
2. For a setup reduction
    - Reduce setup time by 90%
    - Reduce space occupied by 40%
    - Build die and storage handling system
    - Establish visual control and kanban system

Wiremold's production involved machine-based processes, with many products sharing the same machines. Reducing machine set-up times was critical for achieving one-piece flow. Almost two-thirds of the kaizens during the first year focused on reducing setup times. A sample of the setup time reductions Wiremold achieved in kaizens during Art Byrne's first year is presented in Table 2.

Table 2. Machine Setup Time (in minutes), Before and After Kaizen

Machine	Time Before Kaizen	Time After Kaizen	Percentage Reduction
2 1/2" Extruder	180	19	89%
150 Ton Press	90	5	94%
Hole Cut on Mill 1228	64	5	92%
Injection Molder	120	15	88%
P.M. Punch Press	52	5	90%
Rolling Mill	720	34	95%

Lean business practices do not apply only to the factory floor. To fully realize the benefits of Lean in executing a time-based competitive strategy, all business processes must be subject to a Lean transformation through kaizen. In fact, the first Kaizen Art Byrne led at Wiremold focused on the order entry process. A sample of results from support function kaizens is presented in Table 3.

Table 3. Some Results of Kaizens on Support Processes

Accounts Payable Processing

- Conversion from batch processing to one piece flow.
- Staffing reduced by 50%.
- Most invoices processed within 24 hours of receipt.
- Backlog down 64% despite 32% greater invoice volume.

Accounting

- Month-end financial closing time reduced by 25%.

Mailing

- Staff reduced from 4 to 2.
- Space occupied reduced from 5,220 square feet to 837 square feet.
- Time spent filling supply orders reduced 66%.
- Time spent on UPS shipping reduced 42%.
- Added internal mail delivery service.

As a batch processor, Wiremold had scheduled production runs for many of its products once every four to six weeks. As a result, they needed to hold large amounts of inventory to avoid stockouts of the products during the time between production runs. With machine setup times greatly reduced, Wiremold could produce more products more frequently. They divided their products into three categories based on demand. High volume "A" products were produced in the amount demanded every day. Medium volume "B" products were produced in the amount demanded every other day. Low volume "C" products were produced every two to four weeks. As a result, throughput times were down to 1-3 days, and Wiremold could avoid stockouts while carrying only a few days worth of finished goods inventory for its higher volume category A and B products. Wiremold's goal was to enable every product to be considered a category A product.

Just one year into the transition to Lean, Wiremold had some impressive results to report. Wiremold had completed over 70 kaizens and over 60 percent of the associates had participated in at least one kaizen. When Art Byrne joined the company Wiremold had been exploring the option of leasing an additional 100,000 square foot warehouse to store inventory. With lean, Wiremold cancelled its plans to acquire more warehouse space and it freed up 40% of the total floor space in its main factory. Wiremold also freed up 50% if the floor space in its Philadelphia factory and 45% in its Chicago plant, eliminating the need for one entire building in Chicago. Inventory turnover had increased from 3.8 to 6.5, and Wiremold's cash flow from operations increased as excess inventories were used or sold.[7] They were generating 10% more sales with 20% fewer employees, and profits were growing in absolute terms and as a percentage of sales.

The use of the Quality Function Deployment (QFD) process by the product teams was already improving performance on new product development. For example, the development of a new product family involving three wire raceways and 29 fittings had taken 7 months, compared with more than two years to develop a similar product in the past. In addition, the new product

[7] Wiremold measured inventory turns using 12 month rolling average first-in, first out (FIFO) inventory values.

required only $200 thousand in tooling cost, compared with more than $800 thousand for tooling costs on similar products in the past.

Wiremold had 41 new products in development scheduled for rollout during 1993 and 1994, with at least three new product introductions scheduled for each quarter. In total, the market potential for the new products was estimated to be $40-$96 million dollars.[8]

Ensuring Shareholder Commitment

In 1992, Wiremold was a privately held corporation. Some stock was held in trust for the benefit of Wiremold's associates under the company's 401K plan, but the vast majority of the stock was held by the members of the Murphy family. In the early 1970s, the largest shareholders were Daniel H Murphy's five children, John, Robert, and their three sisters. John and Robert were planning for their retirement. They and their sisters had seen too many family-owned businesses fail because later generation family members lacked the inclination or the talent to ensure the continued prosperity and growth of the business. They decided that John and Robert would be the last family members to manage the company. Professional managers would be hired to run the company after they retired. As a result, no family members had been active in management since John and Robert retired in 1979. In September 1992, there were over 100 family shareholders of Wiremold. John, Robert, and their two surviving sisters remained the largest shareholders.

Orry Fiume felt that the younger generations of family shareholders suffered from the disadvantage of privately held stock (the lack of liquidity) at the same time they lacked the influence on management decisions and even the emotional attachment to the company that usually balances the liquidity disadvantage for private shareholders. To the younger generations, Wiremold was simply another financial investment.

For many years, Wiremold had its stock independently valued. The company stood ready to buy back shares at that price from family members needing money to finance education or for other purposes. Still, the independent valuation was performed only once per year. This was not as attractive as the ready market that would be available for a publicly traded stock.

John and Robert Murphy remained on the board of directors and understood the Lean transformation under way at Wiremold. Some other family members who resided in Connecticut learned about the Lean transformation at the annual shareholders' meeting. However, many other family members had moved to the mid-west and to the west coast, and they had very little awareness or understanding of the changes taking place at Wiremold. Orry felt that Wiremold's managmement had an obligation to inform the geographically distant family shareholders of the changes taking place at Wiremold.

From a management perspective, it was also important to convince these shareholders that their interest in Wiremold was a solid investment for the long-term. John, Robert and their surviving sisters were all in their seventies or early eighties. While they were all currently enjoying

[8] $40million ($96 million) represents the sum of the low (high) end estimates of the market potential for the individual products.

excellent health, it was becoming increasingly likely that one or more of the siblings could pass away soon, leaving a much greater portion of Wiremold stock in the control of members of the younger generations. If these family members were not convinced of the benefits of holding Wiremold stock, there would almost certainly be increased pressure to sell the entire company or have Wiremold buy back a substantial portion of its stock to allow the investors to diversify their investment portfolios.

Art Byrne's strategy involved selective acquisitions as well as internal growth. Wiremold needed to continue its trend of growing profits before they would be able to obtain financing for a significant acquisition. If Wiremold had to buy out a significant portion of the family shareholder interests they would be unable to pursue their acquisition strategy. If the family put the entire company up for sale, the management team might lose control of the company.

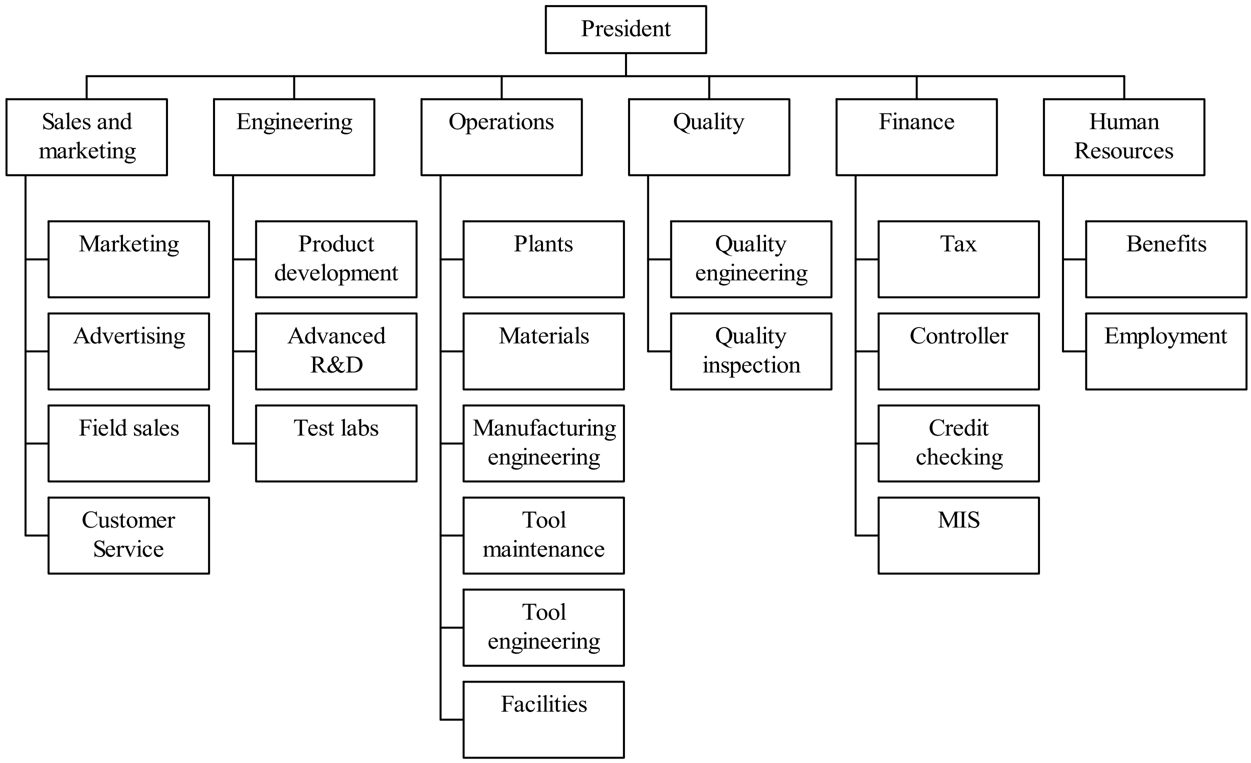
Orry and Art had to find a way to explain the changes taking place at Wiremold to the distant family shareholders and convince them it would be in their best interest over the long-term to keep their investment in Wiremold.

Exhibit 1. Wiremold Financial Performance: 1990-1992

	1990	1991	1992
Net sales index	100	106	114
Gross profit index	100	103	115
Operating profit index	100	156	311
Net profit index	100	192	460

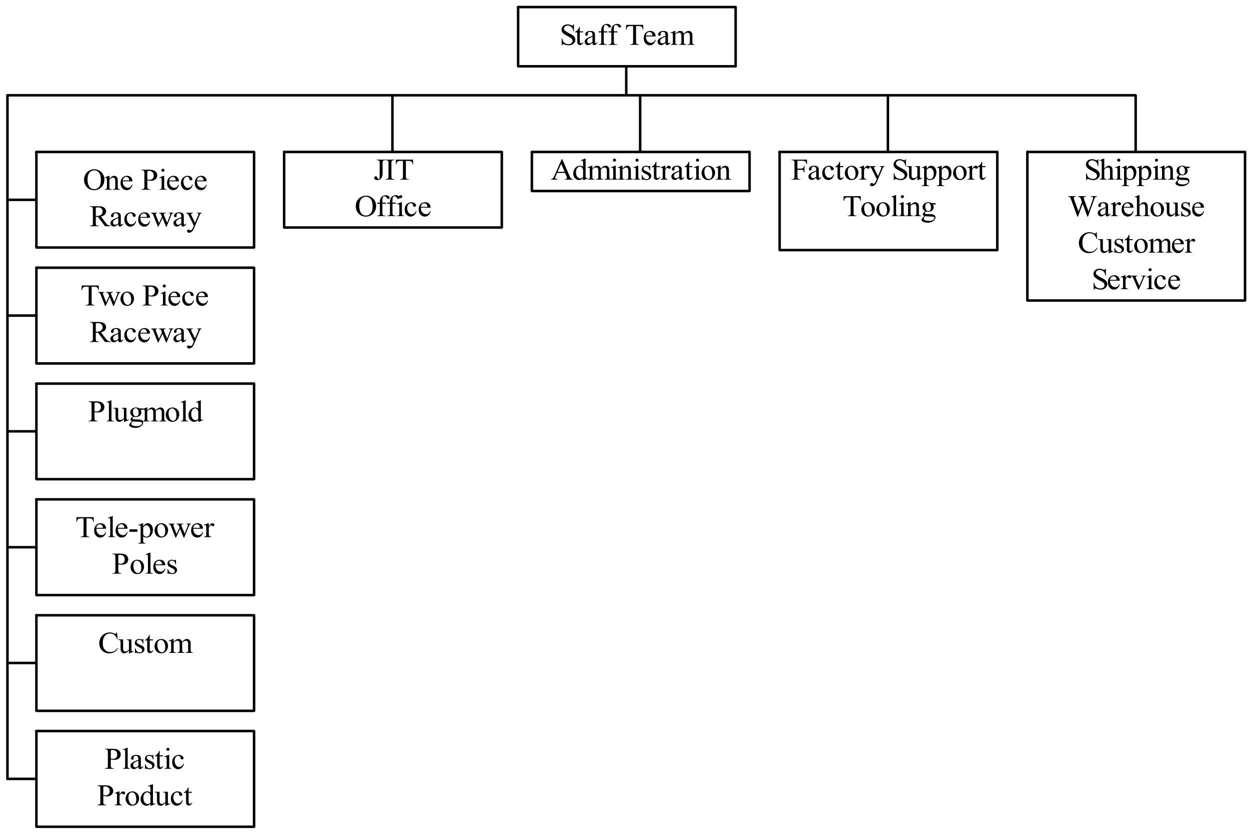
Source: Company records.

Exhibit 2. Old Wiremold Organization



Source: James P. Womack and Daniel T. Jones, *Lean Thinking*, Simon & Schuster, New York, NY, 1996.

Exhibit 3. New Wiremold Organization



Source: Company records.