

CASE STUDY SUMMARY – A Delivery Catastrophe Resolved

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Introduction

The information in this case study summary is accurate in substance and context. Titles, processes, and the company's name and industry have been disguised to protect the identity of the actual company.

Overview

LUDVON Industries (LUDVON), a durable goods manufacturing company, was alienating customers and losing market share due to deplorable delivery performance. Significant & immediate improvement was required.

Situation

Due to a number of reasons, including a lack of investment in capacity and a deterioration of existing production machinery and equipment, LUDVON had developed an extremely serious delivery problem. The products were electro-mechanical devices and the company utilized injection molding, painting, machining, and assembly/packaging as the most common processes. Orders were an average of two weeks past due in an industry that absolutely required on-time delivery (some products were literally months past due). The Customer Service Department was insensitive to the customer's plight. Customers were abandoning LUDVON in favor of competitors. Market share was declining.

LUDVON was on a very steep slope to ruin. Immediate, consistent improvement in delivery was required to salvage existing customers and regain lost customers.

The Approach

The requirement was for a very coordinated, broad problem solving effort that addressed a number of critical shortcomings simultaneously. Improvements in delivery performance had to start almost immediately to stop the customer exodus. As the newly appointed general manager, I launched an immediate effort to make the needed improvements.

The concept was to first install a sense of urgency in the top management team. The team had to understand how serious, potentially fatal, the problem was. LUDVON needed full support from all key managers in order to successfully solve the problem.

A serious, complicated problem, especially one of this magnitude, was best solved using a team - utilizing the talent, experience, and skills of a very select group. The top management team carefully identified and selected those employees who could contribute the most to solving our delivery problem. These employees formed the problem-solving team.

We also used a highly structured problem solving approach to analyze and solve the delivery problem that included the following steps:

- (1) Clearly define & agree on the problem
- (2) Objectively identify the root cause(s) of the problem
- (3) Identify any underlying or contributory causes
- (4) Determine the appropriate corrective action(s) required
- (5) Quickly & aggressively implement the corrective action(s)
- (6) Verify that the fix(s) truly solved the problem once-and-for-all

The team functioned by using fact-based analysis & decision making (utilizing accurate and timely data and information, not opinions or guesses). The structured approach, described above, provided a framework for this fact-based analysis but still allowed for & promoted very creative, out-of-the-box thinking.

The problem solving team easily agreed on the problem definition – consistent, almost entrenched inability to provide key products on time to customer specified delivery schedules.

The team then identified one true root cause and several underlying or contributing causes. The root cause was more or less obvious – we didn't produce enough of the right products at the right time to satisfy demand.

Identifying and eliminating the numerous contributing causes or factors then became the key to permanently solving the problem. The team identified the following elements as contributing factors to the root cause:

- There was no market-based forecast. We used historical sales and added an internal “guess factor” to create a forecast. As a result, the forecast was consistently inaccurate.
- There was excessive, unscheduled downtime in critical manufacturing operations (specifically injection molding machines).
- Downtime aside, there was still inadequate capacity in injection molding machine-hours (not enough injection molding machines).
- There was excessive lost time due to injection molding tooling failures and breakdowns.
- There was excessive turnover in our Maquiladora finishing plant resulting in lost product knowledge and reduced throughput from new replacement workers.
- Quality from both the stateside molding factory and the Maquiladora was inconsistent and spotty.

- Schedule adherence was poor – the factories focused on longer, more “efficient” production runs rather than making what was on the schedule.
- The Customer Service department was insensitive to customer complaints and didn’t coordinate effectively with production personnel about delivery problems.

A very serious, potentially fatal problem had now been well defined and a root cause with a number of underlying contributing causes had been accurately determined. Through extensive individual and team effort, we developed corrective actions for each contributing cause identified. Each of the corrective actions became a project in its own right and was individually managed as such. Some, but not all of the corrective actions developed & implemented are listed below.

- For the first time in the history of the company we implemented a disciplined process to routinely get valuable customer input into the forecasts.
- We implemented a preventive maintenance program on manufacturing / process equipment to reduce unscheduled downtime.
- We developed & implemented improved training to further reduce equipment downtime caused by operator error.
- We increased injection molding capacity by:
 - Reducing machine cycle time through simple automation & improved operator training. We got more cycles and therefore more parts per existing machine-hour.
 - Adding new injection molding machines to the existing machines, resulting in a 20% increase in available machine-hours.
 - Significantly reducing downtime from broken injection molding tooling by hiring toolmakers & developing an in-house capability to quickly repair broken tooling. (We previously sent all tool repair work to local outside vendors who were expensive and very slow - they did not work to our needs or priorities.)
 - Re-tooling high volume parts to significantly increase cavitation (the number of parts produced per each machine cycle). In one case we went from 4 parts per machine cycle to 8 parts per machine cycle, thus effectively doubling the capacity for that item. This we did on literally dozens of key parts.
- We replaced a weak Maquiladora Factory Manager with a seasoned professional. We surveyed other Mexican factories near our Maquiladora and discovered we were no longer competitive in wages paid. We increased wages to competitive levels, we provided front line supervisory training to our floor supervisors, and, in some cases we replaced ineffective supervisors. Turnover went from being much higher than average to almost non-existent in less than 1 year.

- We created a corporate-wide Quality Assurance capability where none had existed. We established “quality acceptance criteria” for all materials, components & assemblies; we developed written, bilingual production route sheets & methods sheets and written inspection criteria; and we introduced statistically-based sampling inspection and disciplined follow up on corrective actions. As a result, quality rejections and rework were quickly reduced and significantly more product volume was available to ship to customers.
- We improved and simplified factory schedules and implemented tight monitoring programs (reports and daily meetings) to ensure schedule adherence was highly visible to key managers and an established priority with all production & logistics personnel.
- We reorganized the Customer Service function to report to the Sales & Marketing function, we promoted a very capable employee to lead the department, and we empowered her to be “the representative or voice of the customer.” We also replaced one individual with a particularly toxic personality with someone with the appropriate personality & skill set to deal with the customers. We established formal and informal communications channels between Customer Service, logistics, the production factories, and the field sales team. Customer Service thus became a helpmate, not a hindrance, to improved customer satisfaction.

Results

As a result of these corrective actions, past due amounts were reduced by an incredible 99% (from as high as \$1 million past due on a daily basis to consistently less than \$10K past due on a daily basis)! Had this critical problem not been solved as quickly and thoroughly as it was, the business almost certainly would have collapsed.