

Application of Lean Principles for Improving Customer Service at Byrotek

Priyanka Lal

Prin. L. N. Welingkar Institute of Management Development & Research, Mumbai, India

Abstract. Byrotek derived its competitive advantage from strong customer orientation. They were known for providing high quality product at low cost with unique features. Specifically, the combo bag was renowned for its energy saving, environmentally friendly, and safety features for storage and transportation of molten aluminium. To thrive in a hyper competitive market with increasing use of new technology, Byrotek must maintain low prices without sacrificing product quality or on-time delivery. However, relying on old machinery with an under performing workforce caused a reduction in product quality and delays in supply to customers. To solve the issue, the organisation must immediately remedy its operational challenges with minimum or no expenditure. The plant manager, Sudhakar, and his staff are seeking a solution that is efficient, simple to deploy, and requires little financial investment. Students will learn how to use Value Stream Mapping (VSM), Little's Law and Deming's 14-point quality principle, to solve the issue and in doing so link Operations Management and Human Resources to the overall company strategy.

Keywords: Little's Law, Value Stream Mapping, Fishbone Diagram, cellular facility layout.

Sudhakar was well-known for his charismatic leadership and customer-focused approach. He was recently promoted to plant manager of the India-based manufacturing facility. Byrotek Industries' Indian production unit manufactures combo bags for the aluminium industry. The combo bag was sold primarily in 200 SKUs (Stock Keeping Unit). The company was renowned for its high-quality products and customer satisfaction, which led to a steady increase in demand for its products in the preceding years. This compelled Sudhakar to consider the expansion strategy. While Sudhakar was concentrating on preparing the strategic plan for the unit's expansion, there was a sense that something was amiss.

Recent mornings began with a phone call or email from a customer complaining about a bag's poor quality and/or delivery delays. He realised that the escalating customer demand was driving the system to fast and causing problems. The customer's complaints lead him to believe that symptoms were readily coming to light and that the cause of the symptoms must be identified immediately.

This shortened version of the article is for promotional purposes on publicly accessible databases.

Readers who wish to obtain the full text version of the article can order it via the url

<https://www.neilsonjournals.com/JIBE/abstractjibe17byrotek.html>

Any enquiries, please contact the Publishing Editor, Peter Neilson pneilson@neilsonjournals.com

© NeilsonJournals Publishing 2022.

1. Company Introduction

On the basis of an idea, Wale Swanson founded Byrotek in Spokane, Washington, in 1956. Wale's idea was to use fibreglass fabric technology to develop a filter for capturing impurities in molten aluminium. In June 1968, Wale partnered with Ellan after Ellan had joined Fibrous Glass Products, a small manufacturer of aluminum-cleaning cloth filters. In the 1960s, the company established a manufacturing facility in Carlisle, Pennsylvania, and began selling its products in the United States, Canada, Australia, New Zealand, and Western Europe. In the 1970s, the company entered South American markets, expanded its business by acquiring a number of small filter distributors in the United States, and expanded its manufacturing facilities in Drummundvik, Canada, and Trenton, Tennessee.

Subsequently, the company acquired several businesses in the United Kingdom, Australia, and the United States during the 1980s and 1990s. It also began selling in Eastern European nations. The manufacturing facility continued to expand with the opening of new facilities in Venezuela, China, Canada, New Zealand, Germany, and South Africa. The company's global headquarters are located in the United States, and its annual revenue is approximately \$500 million. It employs over 3,000 people and has over 80 locations in over 35 countries, including six R&D centres, five engineering centres, and forty manufacturing facilities.

The customer base was global and primarily concentrated in the aluminium industry. Slowly, the company expanded its reach into sectors such as Acoustic and Thermal, Battery, Building and Construction, Materials, Marine, Oil and Gas, Construction, Mineral Processing, Transportation, and Power generation. Smelter, casthouse, foundry, flatglass, container glass, battery, acoustic and thermal, foundry and dies casting, graphite materials, Hearth, Lead, Power generator, Steel, and Zinc are some of the specific industries served by the company.

In addition to products, they offered services in the following categories: capital equipment, consulting services, consumables, engineered systems, engineering services, metallurgical services, R&D, and technical support.

Throughout the company's journey of rapid development in the 1970s, customer orientation and satisfaction remained a priority. Its mission had always been to do the right thing for customers and to remain their trusted partner over the long term. Using technology's efficacy, the company aided its global clientele in achieving competitive advantages over their most important rivals. Customers would receive the latest engineered technology from a company that had always been at the forefront of innovation. This ensured that customers were more competitive and productive over the long term and that they had access to the best solutions for every problem.

For the distribution of metals, an innovative thermally formed combo bag was introduced in the early 2000s. Expansion of the company's activities continued

with the acquisition of multiple companies in various nations. And in India, China, the United States, the Czech Republic, and Bahrain, new manufacturing facilities were set up.

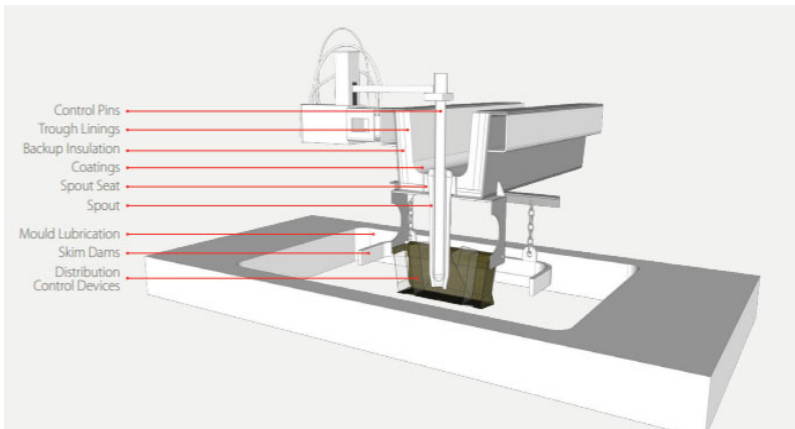
2. Product Information

The combo bag (Figure 1) is provided for a one-time use in the aluminium industry. The majority of aluminium produced is initially cast into ingots with large cross sections before further processing into a sheet, plate, or foil (Figure 2). Vertical direct chill (VDC) casting ingots are typically scalped and rolled into sheet and plate products for the packaging, building/construction, and transportation industries. DC-cast T-ingots are sold for remelting and additional processing. Metal quality and minimal downtime are essential for producing high-value goods and reducing scrap. Distribution troughs, downspouts, coatings, mastics and mortars, channel bags, combo bags, skim dams, lubricants, gaskets and seals, thermocouples, and more are available for VDC ingot/slab casting.

Figure 1



Figure 2



Thermally formed (TF) combo bags for VDC slab casting are an efficient means of distributing molten aluminium. The fibreglass fabric, manufacturing process, and coating produce superior rigidity, reduced emissions, enable precise dimensional control and superior casting performance. The company's TF combo bags can be tailored to specific applications with optional features such as drain holes, integrated spout socks, and diverse fabric styles. As combo bags are used in the initial process of transforming extracted aluminium into saleable sheets, their timely delivery is crucial to ensuring that downstream customers receive their supplies on schedule.

The product has numerous advantages, including simple installation on an existing mounting system, rigidity at standard casting temperatures for up to 90 minutes, minimal fumes, smoke, and flame during cast start-up, reduced turbulence, and oxide generation that collects oxides and large particles (Figure 3), enhanced bottom block filling, resistance to oxide attachment, and potential reductions in butt curl and scalping. Once the bag's specified quality is met, the various benefits can be obtained. Therefore, it is essential to continually provide a high-quality product.

Figure 3



3. Operations in India

Byrotek is a global leader in supplying equipment, products, and services to the aluminium industry, operating wherever aluminium is produced and processed. Byrotek was founded on the original filtration system, which is now a global standard. Numerous industry partners are represented in the company by a diverse, global team of highly educated engineers and technical manufacturing specialists.

The manufacturing facility in India, headed by Sudhakar, produces combo bags for the aluminium industry. Sudhakar guaranteed that the organisation would adhere to a global "customer-first" policy, which would ensure that the team spent more time with customers and understood their needs. Sudhakar had a master's degree in industrial engineering and 15 years of extensive corporate experience at Byrotek. He joined the company as a trainee manager and quickly