

One of the most valuable ways to learn is to observe the efforts, successes, and failures of others who have similar experiences, motivations, and resources. This chapter will follow the authors' experiences in facilitating the transformation of the accounting system of a low-volume, high-variety, vertically integrated business, which will be referred to as PackCo. This company transitioned from a very traditional, standard costing system to accounting for Lean, with a focus on the adoption of new inventory valuation methods and the utilization of new performance metrics. The actual data used to present PackCo information is disguised to avoid disclosure of proprietary information.

### **Company Description**

PackCo, a division of a one billion dollar global packaging company, manufactures customized packaging equipment that sells for in excess of one million dollars per machine. Each machine is unique, having from 10,000 to 15,000 total parts. The production cycle of each machine takes two to three months to complete. PackCo has an extensive machine shop and assembly operation, and relies on a network of approximately 350 suppliers for raw materials and purchased components, such as bearings and motors. The machine shop operates as a large job shop, processing thousands of unique parts each year. The company has been in business for decades, and the machine shop has been traditionally organized, with machine tools co-located with similar equipment. With the adoption of Lean, PackCo is now organized into three value streams, although the location of the machine tools has not moved and remains a monument at the current time.

### **Current Traditional Accounting System**

Historically, PackCo has used a standard costing system where all financial reporting for inventory and cost of goods sold is initially recorded at the pre-set standards for material, direct labor, and overhead. At the end of the month, the activity and price variances are reported per the differences between the standard and the actual quantities and costs for materials and direct labor. Overhead standard rates are developed per a relationship to direct labor hours. "Actual" overhead absorption, which is a product of standard work-center overhead rates multiplied by actual direct labor hours, is compared to the standard overhead applied, and the overhead variances are recorded.

PackCo calculates and reports twelve different variances each month. It is important to note that there is a budgeted overhead variance due to the acknowledged inaccuracy of the standard overhead rates.

A detailed examination of most of the elements of PackCo's traditional cost system reveals that its standards are generally inaccurate at the discrete level. Most standard overhead rates are several years old, and are rarely updated. Items included in overhead are direct and indirect labor benefits, overtime, depreciation, property taxes, supplies, and other incidental expenses. These overhead items are allocated to each area of the business based on outdated historical relationships to direct labor, even though this approach bears little resemblance to actual current operating conditions. Additionally, floor stock material that is not included in bills of material is also included in the overhead pools, contributing to further discrete item-level costing inaccuracies. PackCo maintains the standard overhead/direct labor ratio constant in order to have year-to-year reporting consistency.

Direct costs, such as material and direct labor standards, reflect the most recent year-end prices for each item. The standard material price is kept generally constant for the ensuing year, and all differences are recorded as purchase price variances. Direct labor processing times are reported for all machining activities, and these processing times are used to develop average hourly rates for each part. These times are then frozen and incorporated into the standards.

The following items describe the numerous challenges PackCo faces with the current costing methodology.

1. Users do not understand the cost accounting reports.
2. Inaccurate and outdated overhead standards contribute to poor make/buy and product development decisions.
3. Product-line margins are misrepresented, as large variances are aggregated into the summary account, "Other Cost of Sales." These variances are never traced back to individual product lines.

4. A tremendous amount of time is devoted to account for and review variances, with very little benefit derived.
5. Month-end close activity is stressful and consumed by work order close-outs and variance analyses.
6. Accountants spend the majority of their time acting as historians.
7. True manufacturing improvements are virtually impossible to assess from the financial reports.
8. Errors are often hidden in work-orders and are difficult to find.
9. There is little communication between shop-floor associates and the cost accounting associates.
10. Only unfavorable variances are typically reviewed.

More importantly, the current cost accounting system does not support the Lean transformation currently in progress, does not support value stream reporting, and does not motivate Lean behavior.

While the current system has a number of deficiencies, remarkably, the results appear to consistently reflect total performance. The large number of parts required for assembling each machine tends to mask the incorrect costs at the individual part level, allowing the over and under part cost assignments to generally cancel each other out. Total assembled machine costs appear to be representative of actual activity in this zero-sum system. Over the years, PackCo has had relatively level volumes and generated consistent standard product margins and comparatively constant variances.

PackCo has three distinct product lines, which are referred to as value streams under the Lean system: new machines, parts, and field upgrades. A primary concern is that it is currently impossible to correctly determine the profitability of each business segment under the existing accounting system.

If PackCo remained a traditional manufacturer, it may not be necessary to change its accounting practices. However, as the company changes its production philosophy from large batches to single piece flow, and obliterates the distinctions between direct and indirect labor, its current costing practices will become irrelevant to the user community. Work centers will be rearranged as machines are moved to cells, and current overhead rates will become even more meaningless. Direct labor measures will no longer be appropriate as the workforce constantly moves around the shop, balancing the workflow. Standard costs with embedded scrap, yield, and setup factors will hide opportunities for continuous improvement. Freed-up capacity will need to be identified and filled by in-sourcing work, which in turn will require accurate data in order to make sound business decisions.

The management of PackCo recognized that the manufacturing changes being implemented were further hindering the traditional accounting system's ability to provide accurate and timely information. Therefore, it decided to make some dramatic changes. The first objective of PackCo's accounting for Lean transformation was to implement "Plain English" profit-and-loss statements. This chapter devotes considerable effort in describing how this was accomplished at PackCo.