Case study

# Lean Process Saves Money and Time at a Grocery Store

Brooke Holmes

A few years ago, my husband decided to change careers and go back to school. This required careful adjustments to our monthly budget to accommodate the added expense of his classes while our income was reduced to one salary. After trimming utilities and cutting out all extra monthly expenses (goodbye Netflix and yard service), the last area to cut expenses was our grocery bill. With determination, I set out to become a couponing pro, planning my weekly shopping trips with military-like strategy, comparing store sale prices with manufacturers coupons and rebates to achieve maximum savings. Despite my efforts, I barely made a dent in lowering our monthly grocery expenses. Frustrated, I decided that the best way to successfully reduce grocery spending, without sacrificing previous family time, was to take a disciplined approach to optimize my grocery shopping process using the Lean tools I leveraged every day in my corporate career.

My first step was to thoroughly review the current state of the process. I created a high-level process map with the steps I took to prepare for and execute each weekly shopping trip. As seen in the process map in Figure 1, most of the process steps related to planning and researching rather than executing the shopping trip. I wanted to understand if all this "prework" was truly value added, so I surveyed my customers, in this case my husband and children, to learn what was most important to them. My young children valued family time together more than saving money and wanted me to spend as little time clipping coupons as possible.

My husband, a picky eater, valued making sure our house was stocked with the food he wanted to eat, regardless of whether those items were on sale that week. From their point of view, the steps I took to find good deals were not value added.

The following week, I timed myself while reviewing store ads, clipping coupons, finalizing my shopping list, driving to and from stores, shopping in each store, and putting groceries away. I also compiled two years' worth of transactional data from my financial records to analyze my grocery shopping trends, including which stores I frequented, the average receipt amount, and frequency of shopping trips. The results shocked me.

**About the Author:**

Brooke Holmes is a continuous improvement professional with a current focus on enhancing operational processes through abandonment, realignment, and automation. She has over a decade of experience as an operations leader and four years of project leadership as an ASQ certified Lean Six Sigma Green Belt at a Fortune 500 company in the financial services industry. Brooke received undergraduate degrees from University of Texas at Austin and received her MBA from The Keller Graduate School of Management. She currently resides with her family in Gilbert, Arizona.

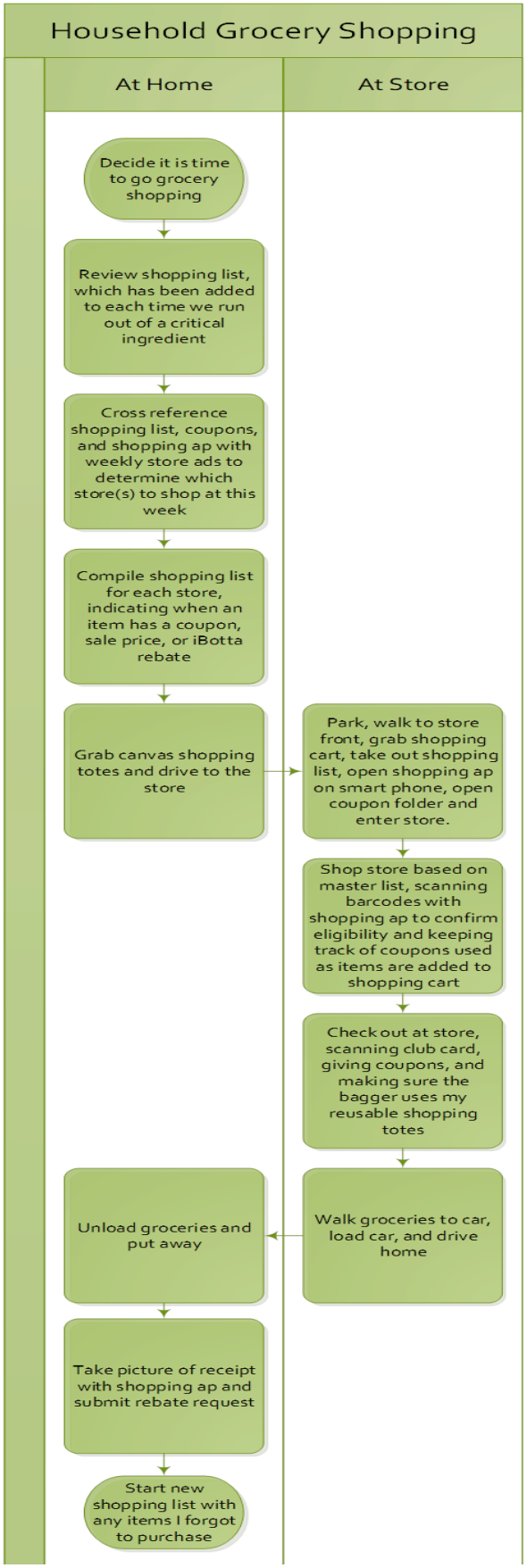


*Fig. 1 – Current State High Level Process Map. Several process steps related to planning the shopping trip, researching sales, clipping coupons, and submitting rebates were found to be non-value added.*

I spent a total of 6 hours on grocery shopping that week. Two hours were spent on research to plan the shopping trips, two hours were spent shopping (three different stores over the course of the week), an hour was spent driving to three different stores, and an hour was spent putting groceries away from the three different shopping trips. Analysis of my transactional data confirmed that this was a typical week. The pareto chart in Figure 2 shows that 80% of my shopping was spread between 5 key stores within 1.5 to 4 miles from my home. On average, I made 11.5 shopping trips each month. My average store receipt was $48 dollars and my average total monthly shopping expense was $543.

The histogram in Figure 3 shows the strong correlation between total monthly grocery expense and the number of shopping trips I made during the month. The less stores I shopped, the less money I spent that month. This finding contradicted my previously held belief that I was saving money by stopping at multiple stores to take advantage of their weekly promotions. Additionally, the multiple shopping trips were adding a great deal of waste into my process: extra driving, extra time researching, extra time walking the aisle at each store.

I came to realize that the most significant pain point in my shopping process was my subconscious shopping behavior. I wanted each stop at a store to feel "worth it" so I would buy a few more items than were on my list, driving up my receipt. Often, these spontaneous buys came from shiny end caps advertising a special low rate, so while it didn't feel like I was inflating my bill at point of sale, over time those add-on items ballooned my total grocery spending.

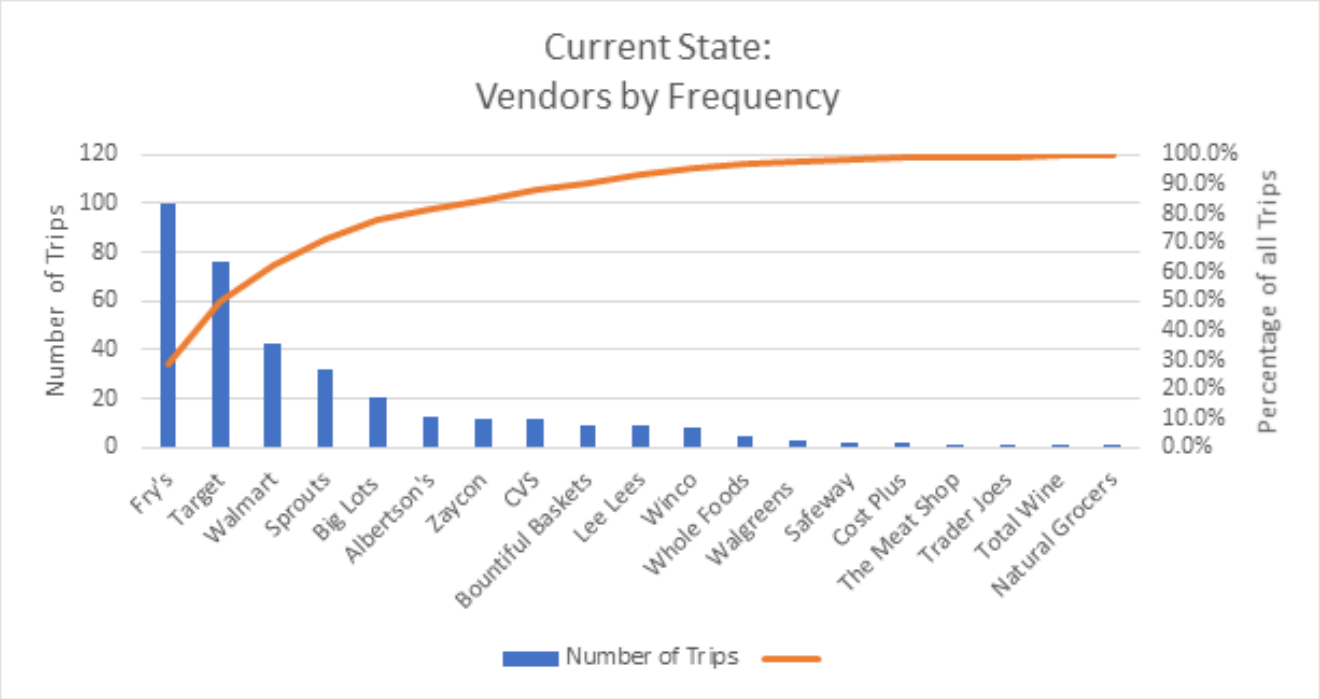


*Fig. 2 - Current State Pareto Chart Showing Vendors by Frequency: This includes two years of data about my grocery shopping and shows that five stores make up 80% of my shopping trips.*

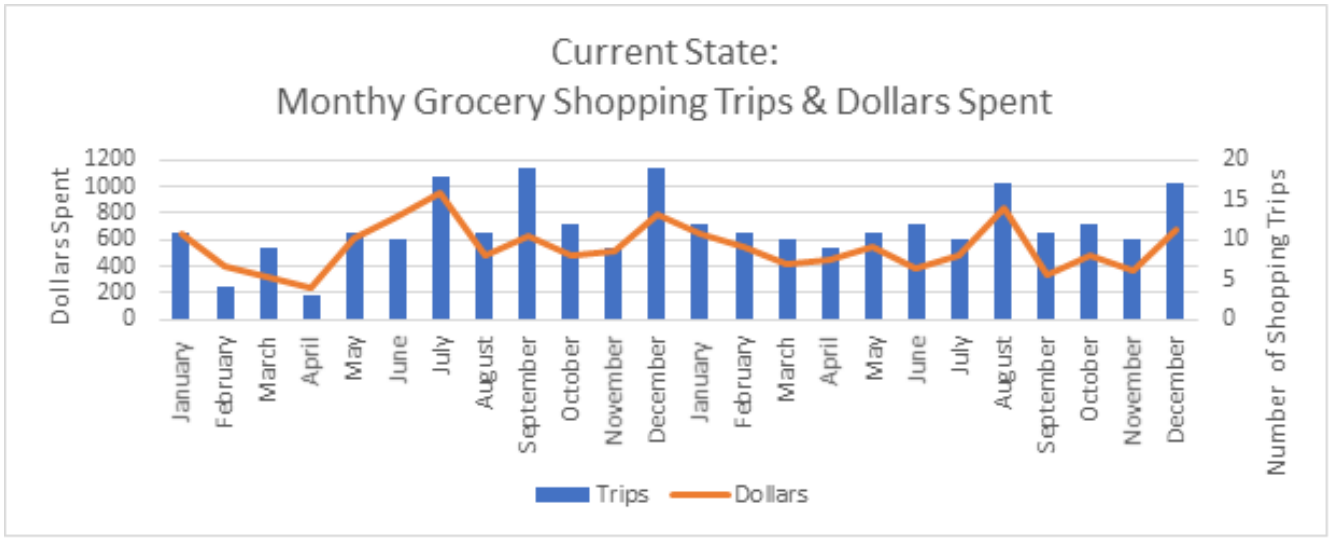


*Fig. 3 - Current State Histogram Showing Monthly Shopping Trips & Dollars Spent: Two years of data showed a clear correlation between the number of shopping trips and the total dollars spent on groceries each month.*

This effectively cancelled out all the dollars I had saved from couponing and price comparisons. With this new found understanding of my problem, I was able to completely redesign my grocery shopping process with two goals in mind:

1) eliminate time consuming preparation for shopping trips and
2) decrease the number of my shopping trips.

As a first step to design the new process, I selected just one store to be my sole grocery destination. I choose the store closest to my house, which also had a wide variety of products at consistent and fair prices. I stopped clipping coupons and reviewing weekly store flyers for specials.

Instead, my family created a list of items we consistently needed, and I organized that list into perishable and non-perishable categories. I set up automated monthly shipments from Amazon for most of the non-perishable items, such as toilet paper, facial tissue, crackers, nuts, and cereal. The remaining perishable items became the template for our weekly shopping list. My family would add other items to the list as things ran out or based on weekly menu plans. I went to that one store just once each week and I shopped strictly from my family's list.

**Results:**

My redesigned grocery shopping process was implemented three years ago. It now takes 90 minutes or less each week to shop at one store, including drive time and putting groceries away, and my average monthly grocery expense is $402 for my family of four. I receive automated shipments from Amazon every 2-3 months with paper products, household cleaners, and crackers.

There are still occasions when we need to pop into the store to get 1-2 items during the week, but this happens much less frequently.

As seen in Figure 4 the correlation between total monthly grocery expense and number of shopping trips is still present, but the variation has decreased for both dollars spent and number of trips. The pareto chart in Figure 5 shows that 80% of my shopping is now done at just one store.

By utilizing simple lean tools to understand and improve my shopping process, I was able to save over $1600 annually and reclaim 4.5 hours each week to spend with my family. In the spirit of continuous improvement, I'm now exploring new options that are becoming available such as grocery delivery services and curbside pickup to further optimize my process.

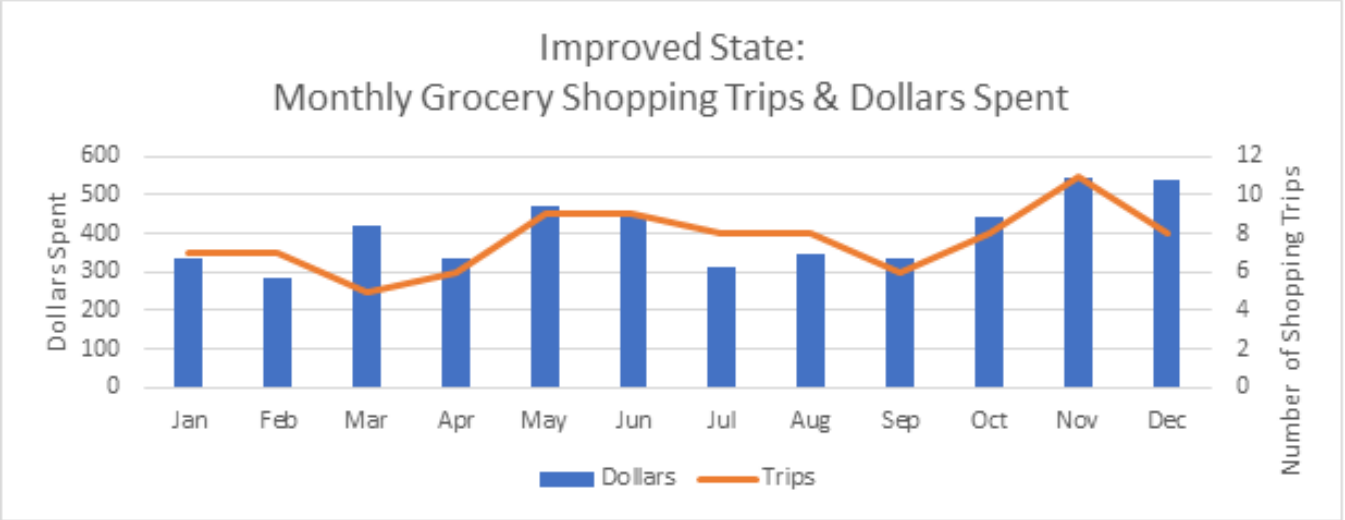


*Fig. 4 - Improved State Histogram Showing Monthly Shopping Trips & Dollars Spent: The correlation between dollars spent and number of shopping trips remains, but the range of variation has decreased for both total dollars spent*

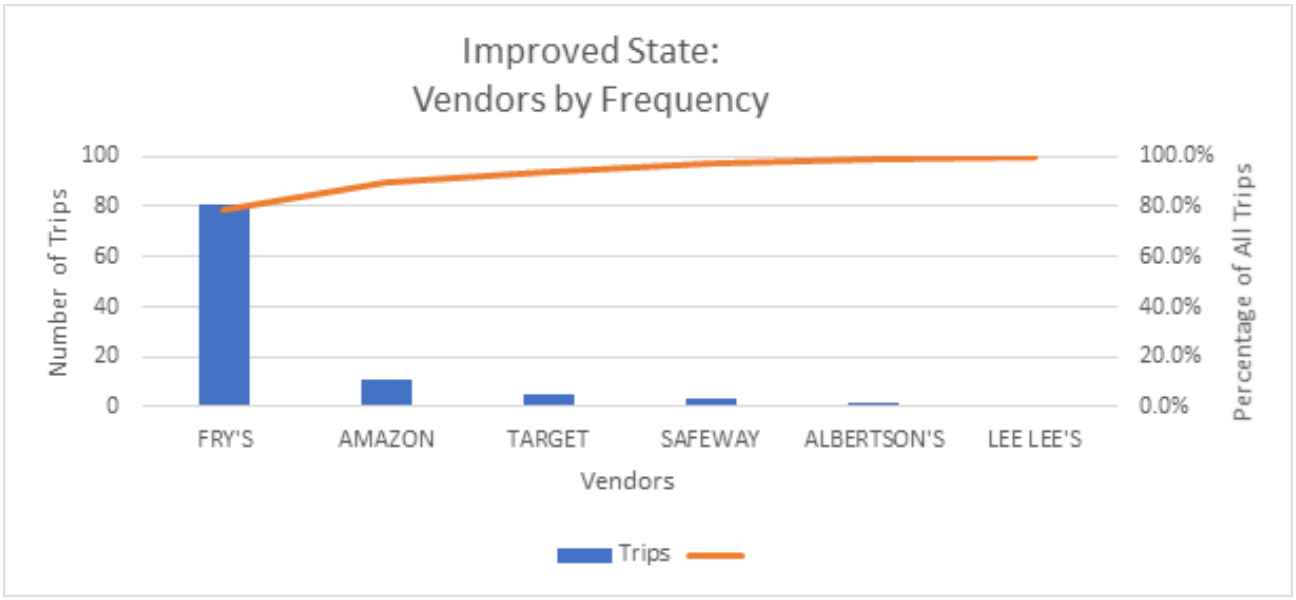


*Fig. 5 - Improved State Pareto Chart Showing Vendors by Frequency: This pareto chart shows the numbers of shopping trips to each vendor during the most recent full calendar year. One store now receives 80% of my visits and the number of vendors shopped was reduced from 19 to just 6.*