

Client Background



- Established 1927, headquartered in Irving, TX
- Expanded reach across the U.S. w/ over 13,000 convenience stores
- Unified management for merchandising, supply chain, and store layout



- Founded in 1970
- Provides FlexRoller and EvoRack systems to 7-Eleven
- Keeps items front-facing & optimize shelf space

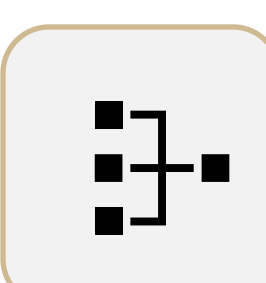
Problem Statement



Cold vaults at 7-Eleven’s stores require frequent restocking due to limited shelf depth and disorganized backstock

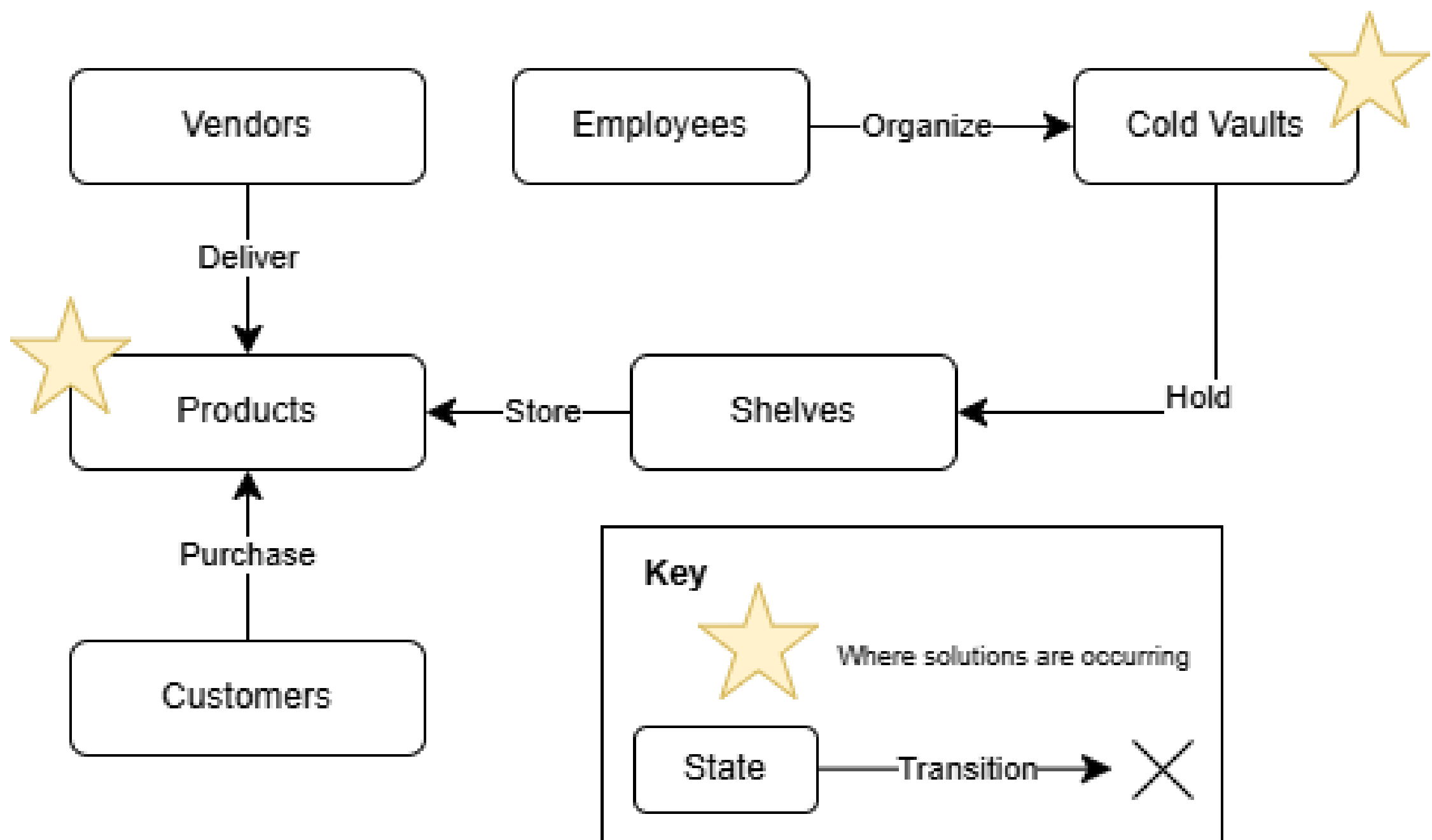


Client increased shelving depth from 36” to 48” seeking operational improvements



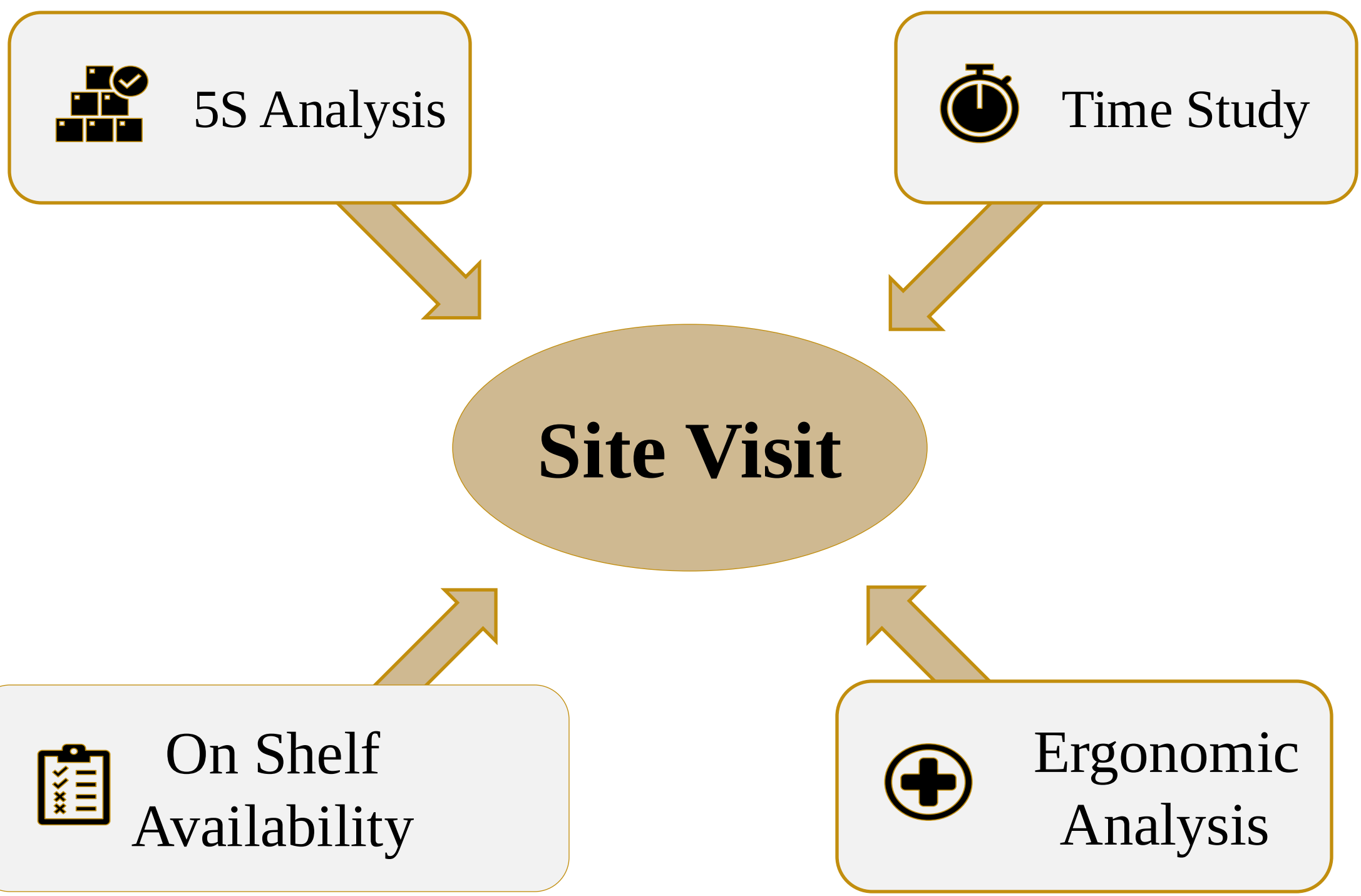
Granular components contributing to operational gains are yet to be understood

System Model



Methodology

Work Breakdown



Data Analytics

Data

- Operations: Restocking, Backstock, and Receiving
- Task efficiency between test and control stores
- Observing tasks & filming each time study



Dashboard



ROI Model - Factors



Discussion

Next Steps:

- Updated efficiency analysis incorporating sales data insights
- Simulate variability using different stocking scenarios and product types, potentially incorporating seasonal demand variations

Preliminary Results

Time Study Analysis Sample Output

| Test Store |                                                           |                |                      |                |                      |                      |                      |
|------------|-----------------------------------------------------------|----------------|----------------------|----------------|----------------------|----------------------|----------------------|
| #          | Task                                                      | Time taken (s) | # of products loaded | Time taken (s) | # of products loaded | Time taken (s)       | # of products loaded |
| 1          | Finding products & moving others if necessary             | 45             | /                    | 58             | /                    | 37                   | /                    |
| 2          | Lifting products close to rack & loading                  | 77             | 18                   | 68             | 18                   | 73                   | 18                   |
| 3          | Returning excess products to storage & disposing of trash | 6              | /                    | 9              | /                    | 32 ANOMALY (OMITTED) | /                    |

Flex Roller lets employees load products without reaching in—items roll down automatically, saving time during restocking.

| Control Store |                                                           |                |                      |                |                      |                |                      |
|---------------|-----------------------------------------------------------|----------------|----------------------|----------------|----------------------|----------------|----------------------|
| #             | Task                                                      | Time taken (s) | # of products loaded | Time taken (s) | # of products loaded | Time taken (s) | # of products loaded |
| 1             | Finding products & moving others if necessary             | 43             | /                    | 52             | /                    | 40             | /                    |
| 2             | Lifting products close to rack & loading                  | 49             | 10                   | 51             | 10                   | 56             | 10                   |
| 3             | Returning excess products to storage & disposing of trash | 11             | /                    | 7              | /                    | 9              | /                    |

| Test Store Data    |           |              |               |               | This is to quantify the impact of eliminating product island on loading distance.                                                 |
|--------------------|-----------|--------------|---------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Prod Num           | Prod Name | Volume (oz.) | Distance 1(m) | Distance 2(m) |                                                                                                                                   |
| 1                  | Red Bull  | 12           | 8.54          | 0.88          |                                                                                                                                   |
| 2                  | Monster   | 16           | 1.82          | 6.55          |                                                                                                                                   |
| 3                  | Coke      | 20           | 3.76          | 0.77          |                                                                                                                                   |
| 4                  | Gatorade  | 24           | 5.3           | 1.23          |                                                                                                                                   |
| 5                  | Water     | 16.9         | 6.05          | 1.27          |                                                                                                                                   |
| Control Store Data |           |              |               |               | As we can tell, the Control store has a greater average distance traveled due to product accumulation in worker’s paths (island). |
| Prod_Num           | Prod_Name | Volume (oz.) | Distance 1(m) | Distance 2(m) |                                                                                                                                   |
| 1                  | Red Bull  | 12           | 9.38          | 0.2           |                                                                                                                                   |
| 2                  | Monster   | 16           | 7.27          | 1.44          |                                                                                                                                   |
| 3                  | Coke      | 20           | 5.17          | 0.8           |                                                                                                                                   |
| 4                  | Gatorade  | 24           | 9.38          | 3.57          |                                                                                                                                   |
| 5                  | Water     | 16.9         | 6.73          | 2.02          |                                                                                                                                   |

**On Shelf Availability (OSA)**

1% OSA improvement → \$850-\$3500 annual revenue per store\*

Test Store: 98.1% OSA > Control Stores: 97.2% OSA

\* Assuming OSA accounts for 20-80% of sales improvements