Improving the Goodwill Sorting Process

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Evergreen **Goodwill** OF NORTHWEST WASHINGTON

UNIVERSITY *of* WASHINGTON

Innovate and implement a process or system to make production at Goodwill more efficient and cost-effective

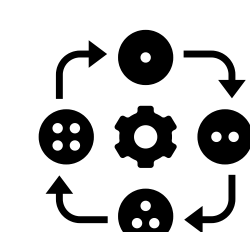**~70%** of stored raw boxes are salvage items

Salvage items - Items that cannot be sold in Goodwill stores
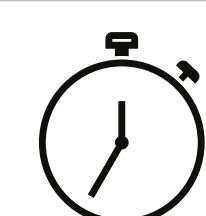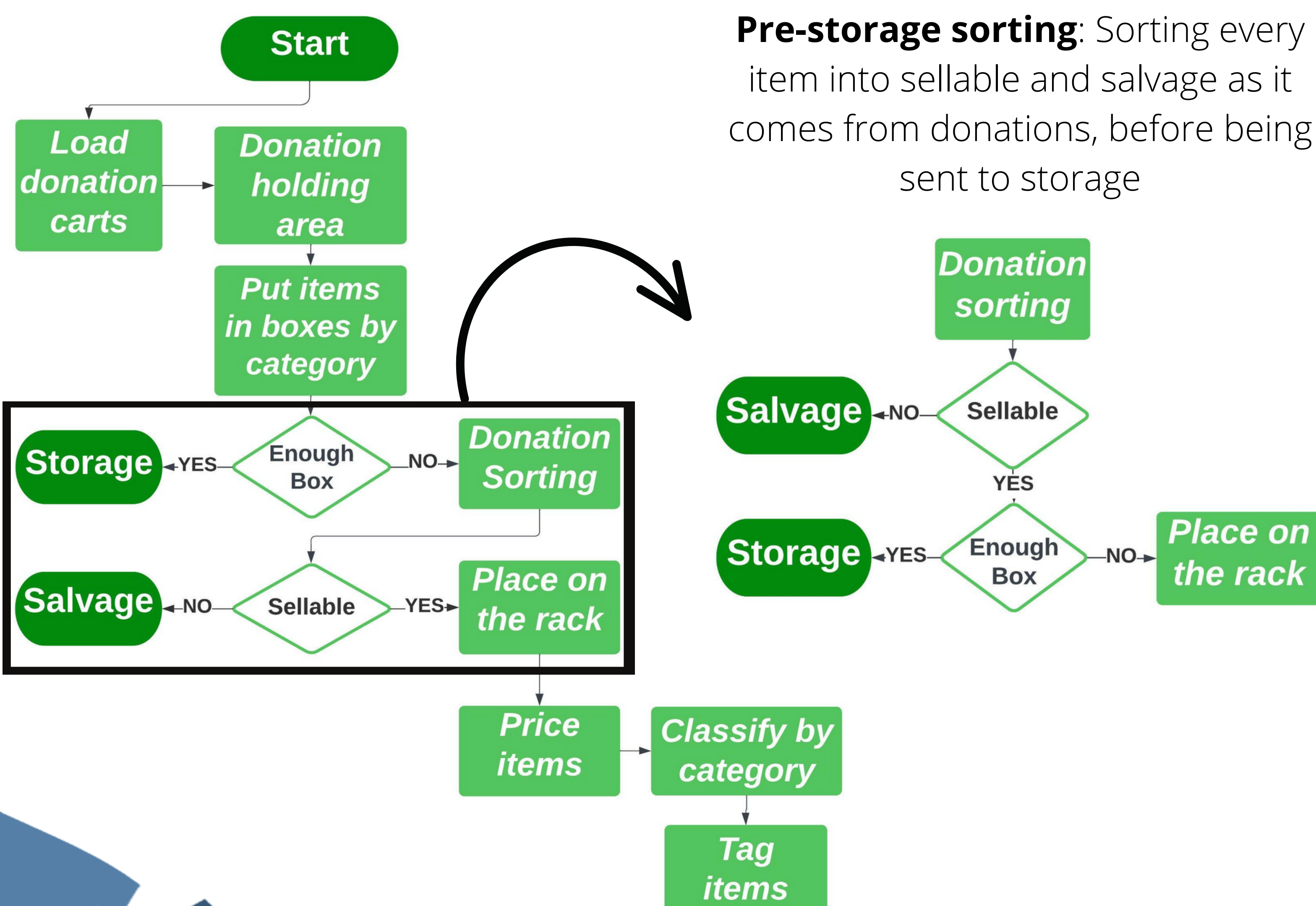**Raw box** - Unsorted donation boxes

Goodwill Mission

GOODWILL WORKS TO ENHANCE PEOPLE'S DIGNITY AND QUALITY OF LIFE BY STRENGTHENING THEIR COMMUNITIES, ELIMINATING THEIR BARRIERS TO OPPORTUNITY, AND HELPING THEM REACH THEIR FULL POTENTIAL THROUGH LEARNING AND THE POWER OF WORK.

- Digital equity programs
- Youth Aerospace Program
- Youth Maritime Program
- Language Training Courses
- Retail Skills Classes
- Pathways to College
- High School Completion
- Job Preparation Classes
- Job Placement
- Wrap Around Social Services

Time Studies

Completed time studies to use in simulation of current and proposed sorting processes
Counted number of items that were processed in 15 minute time intervals

Current Sorting Lognormal(-1.59,0.036)	Initial Sort Lognormal(-2.04,0.188)	Hang Lognormal(-1.35,0.354)	Pricing Uniform(0.16,0.18)

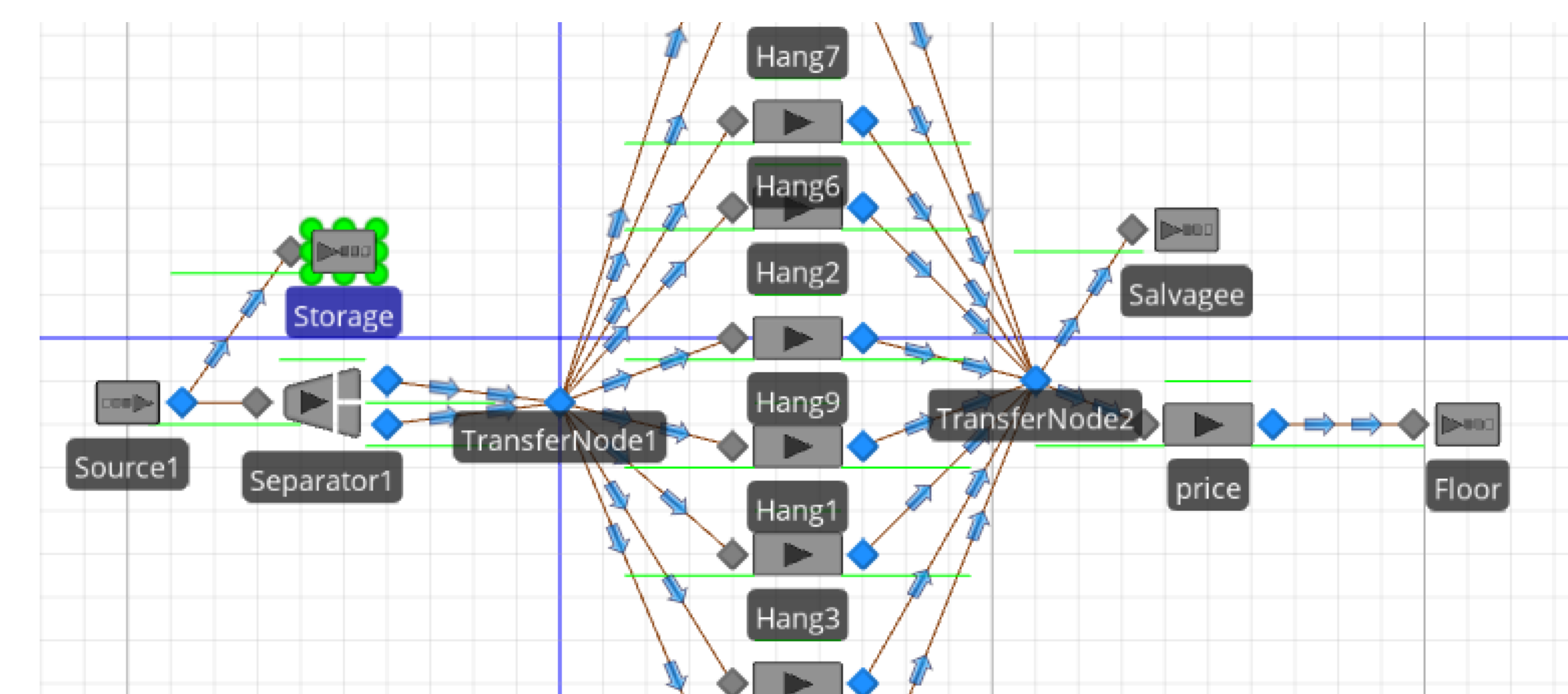## Simio model

Model assumptions:

- Seattle Facility (10 stations)
- 1 box = 800 clothing items
- Seattle time studies
- 60% of items are salvage
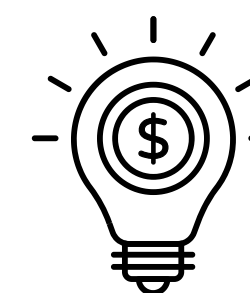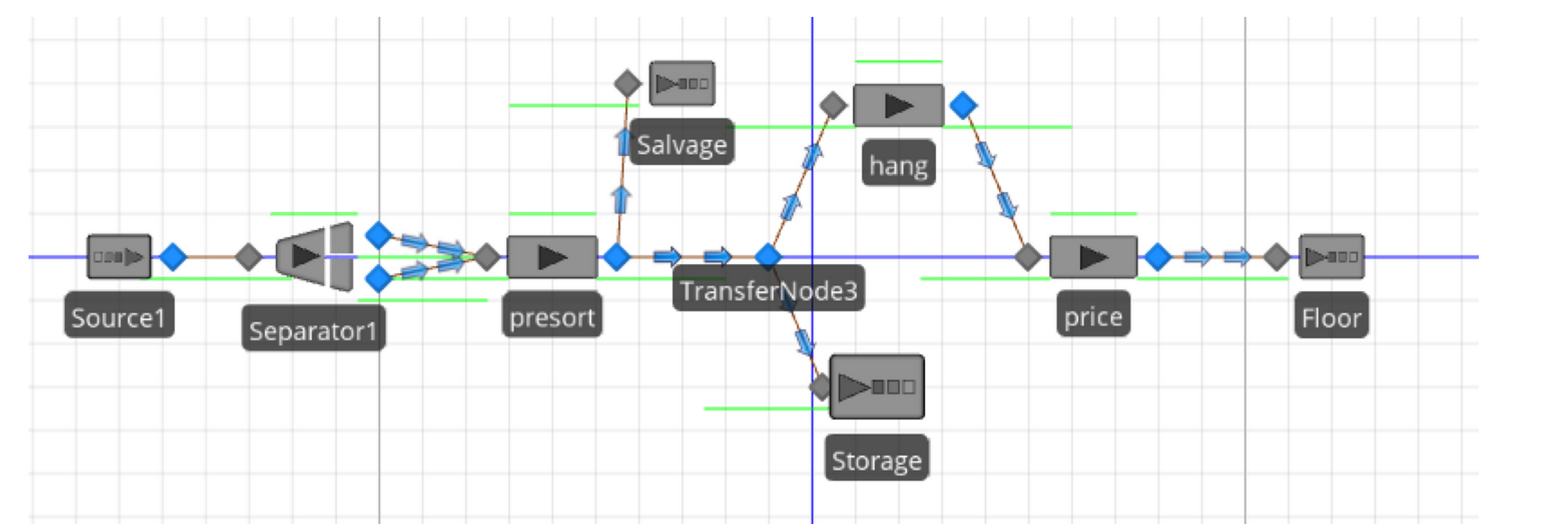- 80 boxes arrive per week
- 41% of boxes are sent to storage

Results

Presort method is capable of producing the current method's numbers without requiring more workers

Current Model

Presort Model

Proposed Solution

Original Process

Start → Load donation carts → Donation holding area → Put items in boxes by category → Enough Box (YES → Storage) (NO → Donation Sorting) → Sellable (NO → Salvage) (YES → Place on the rack) → Price items → Classify by category → Tag items

Pre-storage sorting: Sorting every item into sellable and salvage as it comes from donations, before being sent to storage

Donation sorting → Sellable (NO → Salvage) (YES → Enough Box (YES → Storage) (NO → Place on the rack))
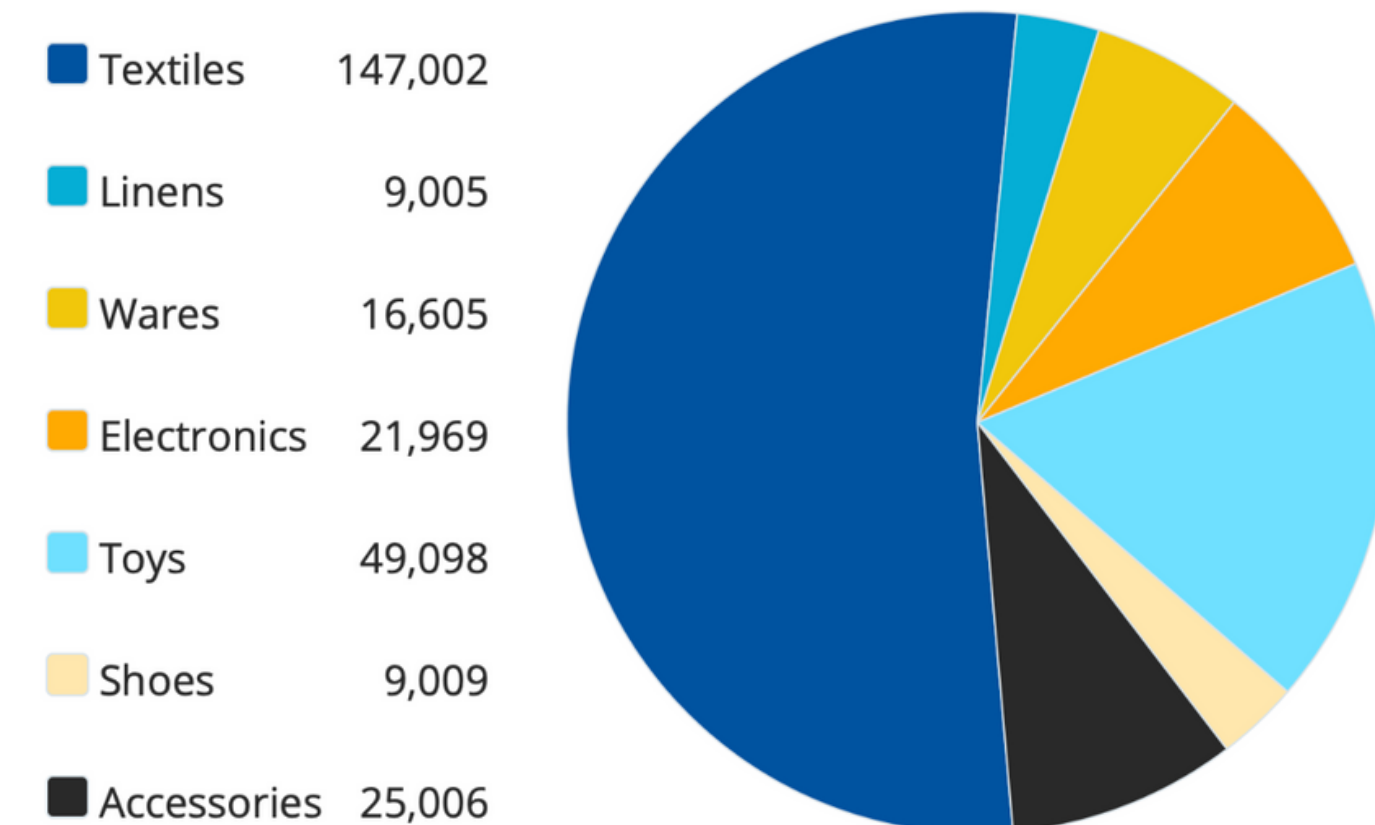
Cost Benefit Analysis

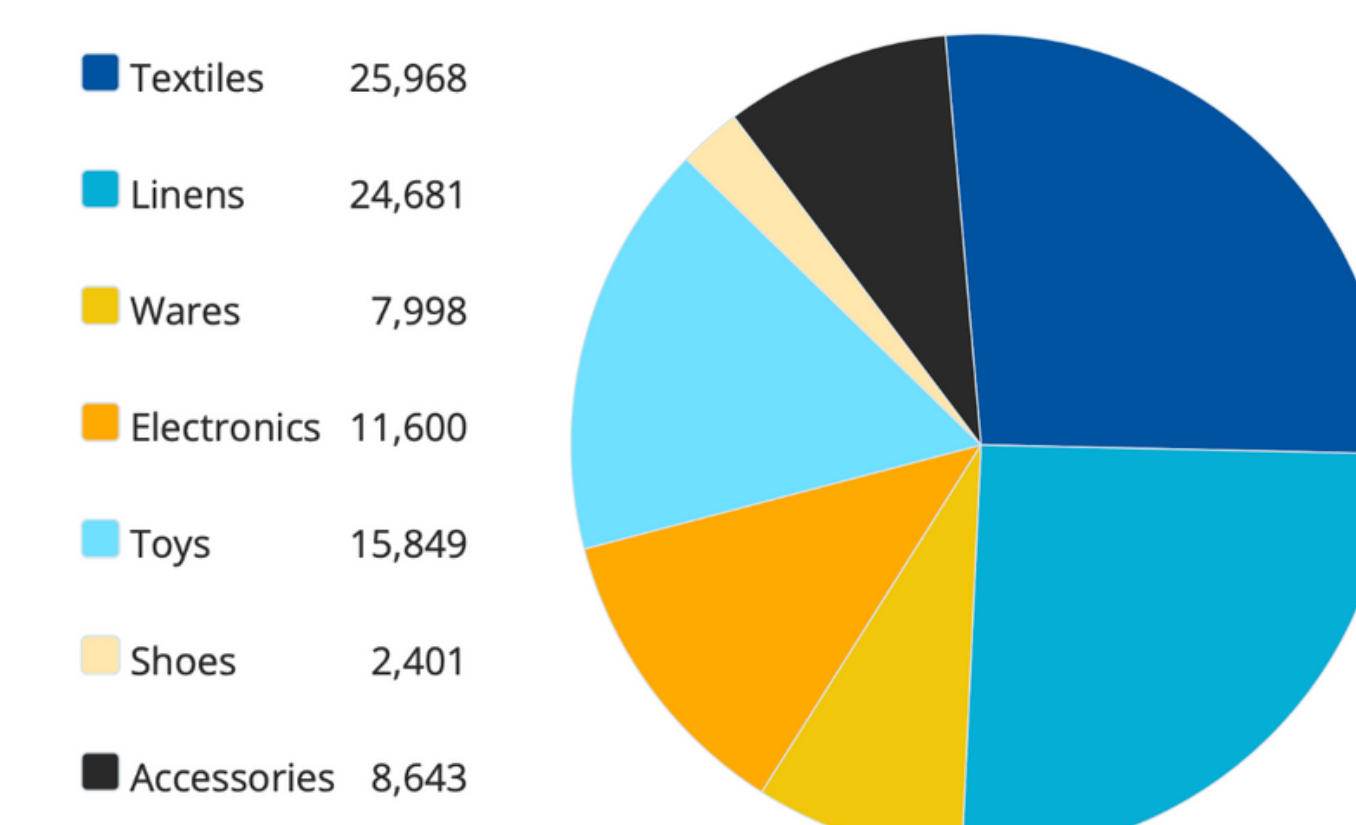Implementing presorting saves Goodwill money in multiple ways:
- Salvage items would no longer use warehouse space
- Employees would not need to sort boxes pulled from inventory

With presorting we can calculate sorting costs and monthly sitting costs of unsorted goods in warehouses:
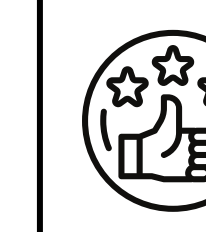
Labor Cost of Current Inventory ($)
- Textiles 147,002
- Linens 9,005
- Wares 16,605
- Electronics 21,969
- Toys 49,098
- Shoes 9,009
- Accessories 25,006

Monthly Sitting Cost of Salvage ($)
- Textiles 25,968
- Linens 24,681
- Wares 7,998
- Electronics 11,600
- Toys 15,849
- Shoes 2,401
- Accessories 8,643

Storage waste ➡ **$582,835 storing unsellable items**

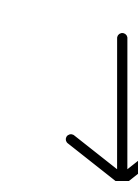**Labor Waste** ➡ **$277,154 wages + 22 months of time**

Results & Recommendations

Implement pre-storage sorting
↓
Saves $582,835 in storage costs
↓
Eliminates future storage waste
↓
Savings contribute to job training and education programs