

Company Background

- Headquartered in **Richmond, VA**
- ~1800 employees (PMUSA)
- **Bay 4 Produces 110,000 cigarettes per minute**
- 12 modules in **Bay 4** (2 cigarette makers and 1 cigarette packer in each module)



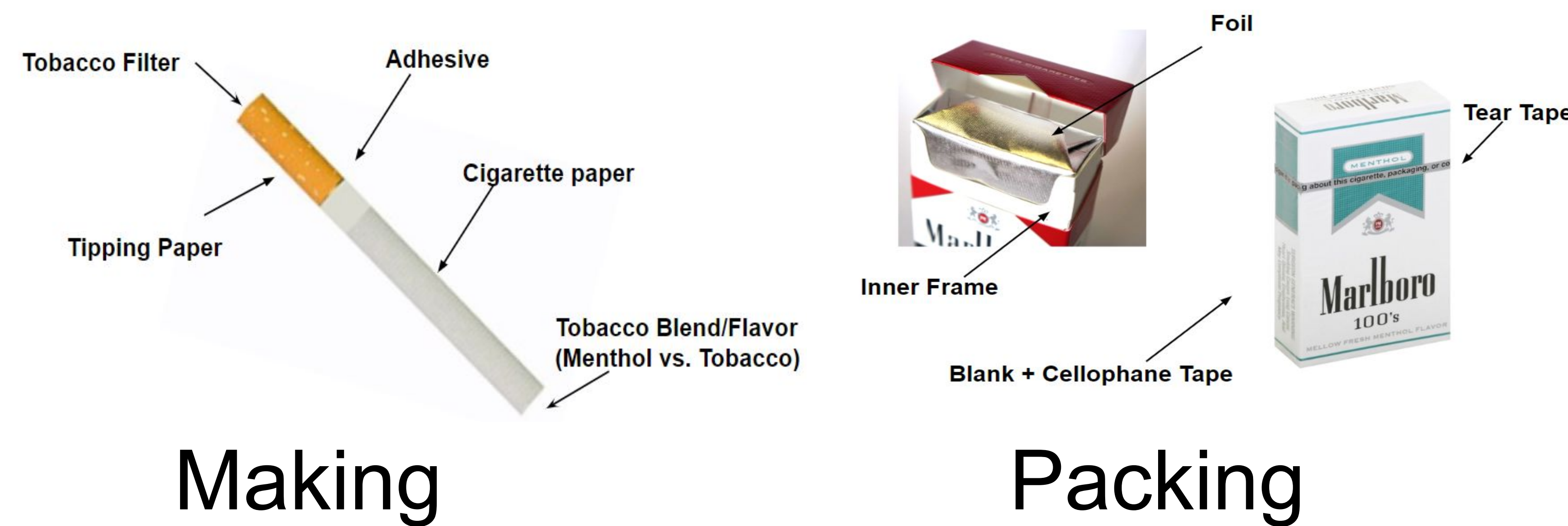
Problem Statement

- Due to recent **decreases in lot size** the brand mix at Philip Morris USA is increasing leading to more changeovers.
- These changeovers can last up to **six hours** and takes away from production time.
- Changeovers can cost Altria about **\$7000 for every extra hour of changeover duration**

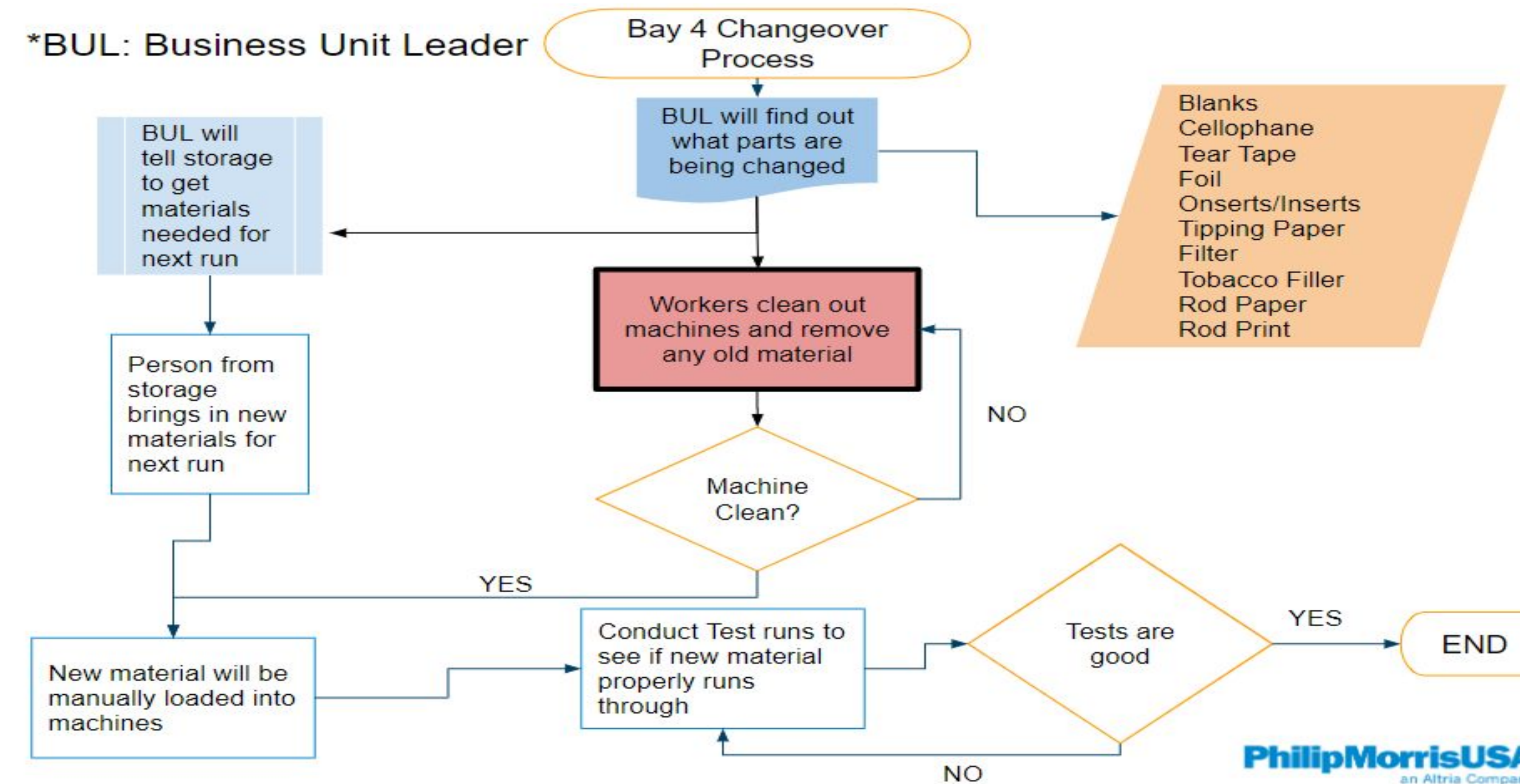
Goals/Objectives

- 🕒 Reduce duration of Changeover Processes in Bay 4 by at least 20% by March 2020.
- 💰 Reduce changeover costs by \$560 for every hour reduced in a changeover

Types of Changeovers



Process Flow



Data

Task	AVERAGE DURATION TASK
Remove all products from packer and maker machines	20 minutes
Clean out all cigarettes and other materials from machines, conveyor belt, and on the floor	2 hours
Order and receive all materials for next production run	25 minutes
Business Unit leader inspects to see if all machines are properly cleaned	30 minutes
Load new materials into packer and maker machines	15 minutes
Load new materials into packer and maker machines	30 minutes

Proposed Solutions

- 🔄 Operators working in parallel
- 👥 Setup a meeting with Bay 4 operators (Kaizen Event)
- 🕒 Shut down one maker and changeover, while the other maker runs
- 📊 Implement changeover data collection software

Expected Impact per Changeover

- 1 Operators working in parallel:
Time savings: 30-60 mins.
Cost savings: \$230 - \$560
- 2 Kaizen event:
Time savings: 10-20 mins.
Cost savings: \$90 - \$190
- 3 Shutting down one maker early:
Time savings: 30-40 mins.
Cost savings: \$230 - \$375
- 4 Changeover collection software:
Improve PMUSA's Understanding of Bay 4 Changeover performance