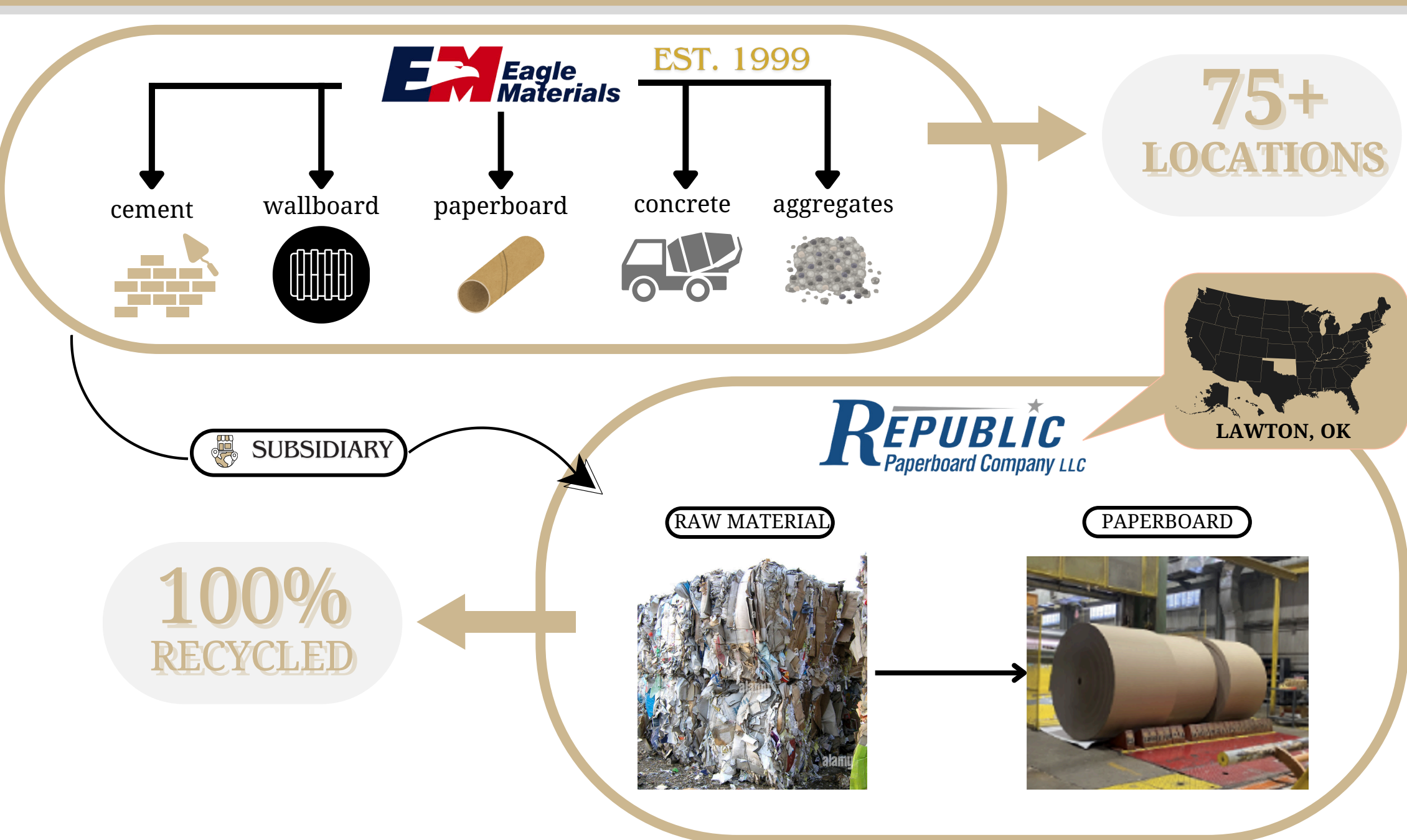
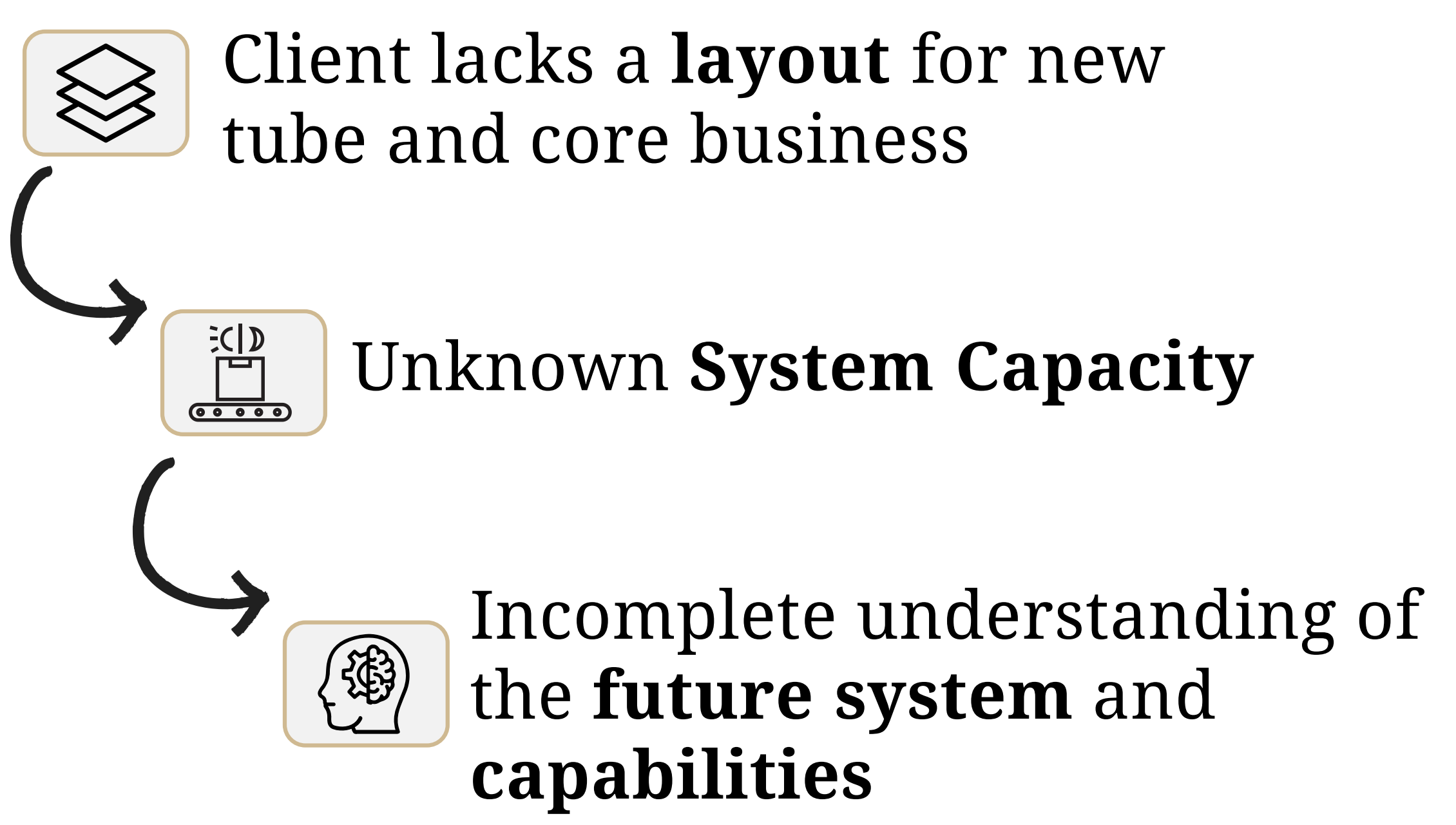


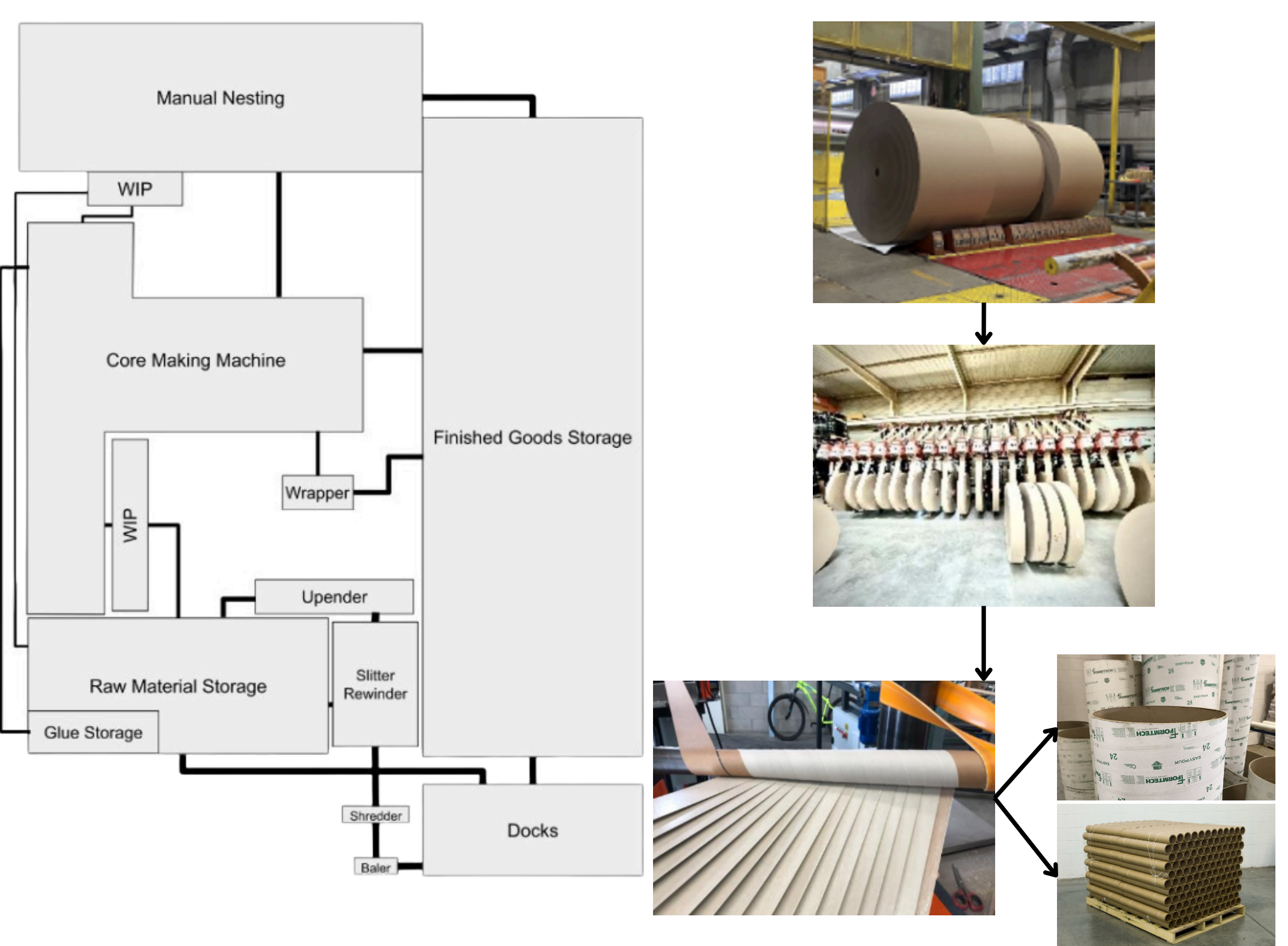
CLIENT BACKGROUND



PROBLEM STATEMENT



SYSTEM MODEL



SOLUTION

Layout Proposal

Developed optimal layouts using heuristic methods

- MATERIAL FLOW**
 (Distance) x (trips) x (weight)
+15%
- STORAGE AVAILABLE**
 # Pallets
 # Days of production
+212%
- CONGESTION INDEX**
 Flow disruptors per operator hour
-43%

Material Flow diagram showing layout with Manual Nesting, Raw Material Storage, Glue Storage, Core Making Machine, Wrapper, Slitter Rewinder, Finished Goods Storage, and Existing Quality Lab.

Operations Calculators

- Automatically calculates **system capacity and profit**
 - Scenario Testing
 - Sensitivity analysis
 - Profitability calculation
- Guide future **decision-making**

	Machine Speed	
	Core	Tubes
Core Line Speed	200	38.5 ft/min
Machine Availability	90%	90%
Utilization	91.25%	91.25%
Scrap Rate	10%	10%
Change-overs per day	2	2 #/day
Average Time per change over	0.75	0.75 hrs
Working Days	8	8 days
Production Hours per day	6.6	6.6 hours
Operational hours	1.5	1.5 hours
Time lost to changeovers	4.6	4.6 hours
Effective Production Time	54,756	10,541 ft

Example 1 of 7 calculators
 Tool automatically calculates relationships between variables including machine speed, inventory turnover, raw material, and demand

Plant Manager, Sales Representative, Project Manager

System Capacity Analysis

- Conducted bottleneck analysis to find **total system capacity**
- Identified **areas for future growth** such as:
 - Change-overs**
 - Material Handling Systems**
 - Wrapper**

Product Type 1: Cores

5 day inventory turn over	58,869	90%	65,556	91,320
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Product Type 2: Tubes

Material Handling Speed (3 workers)	12,820	36%	35,183	49,107	91,715
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METHODOLOGY

Systematic Layout Planning

- Define the system
- Define relationships
- Space-Relationship
- Initial Placement
- Iterative design changes

System Analysis

- Material Use:
 - Surface area
 - Volume
- Production System principles
 - Overall Equipment Effectiveness
 - Bottleneck Analysis
 - Time analysis for material handling tasks
- Engineering economics principles

IMPACT & FUTURE

- Visibility of new process and system insights
- Organized and automatically analyzed data
- Enabled data driven decisions
- Optimized Layout

System Capacity: +180%

Possible Profit: +197%