

TOTAL COST OF OWNERSHIP

How Smarter Packaging Drives Enterprise Value

Pregis®

It's Time to Rethink the True Cost of Packaging

Business leaders are challenged to maximize output while minimizing resources. They must simultaneously control costs, accelerate fulfillment, advance sustainability goals and strengthen customer loyalty. The key to turning this complex challenge into an attainable goal is evaluating total cost of ownership as a strategic approach.

What is Total Cost of Ownership?

Sourcing decisions often emphasize the upfront purchase price yet overlook the costs beneath the surface that can reduce profitability. Total Cost of Ownership (TCO) captures the complete cost of a product or service across its life cycle, looking beyond the initial investment to include direct and indirect expenses in the short and long term.

Why TCO Matters?

TCO strengthens decision making by breaking down silos and evaluating purchasing decisions from an organization wide perspective. This broader approach helps organizations uncover true cost drivers, reduce redundancy and align on solutions that improve efficiency and long-term profitability.

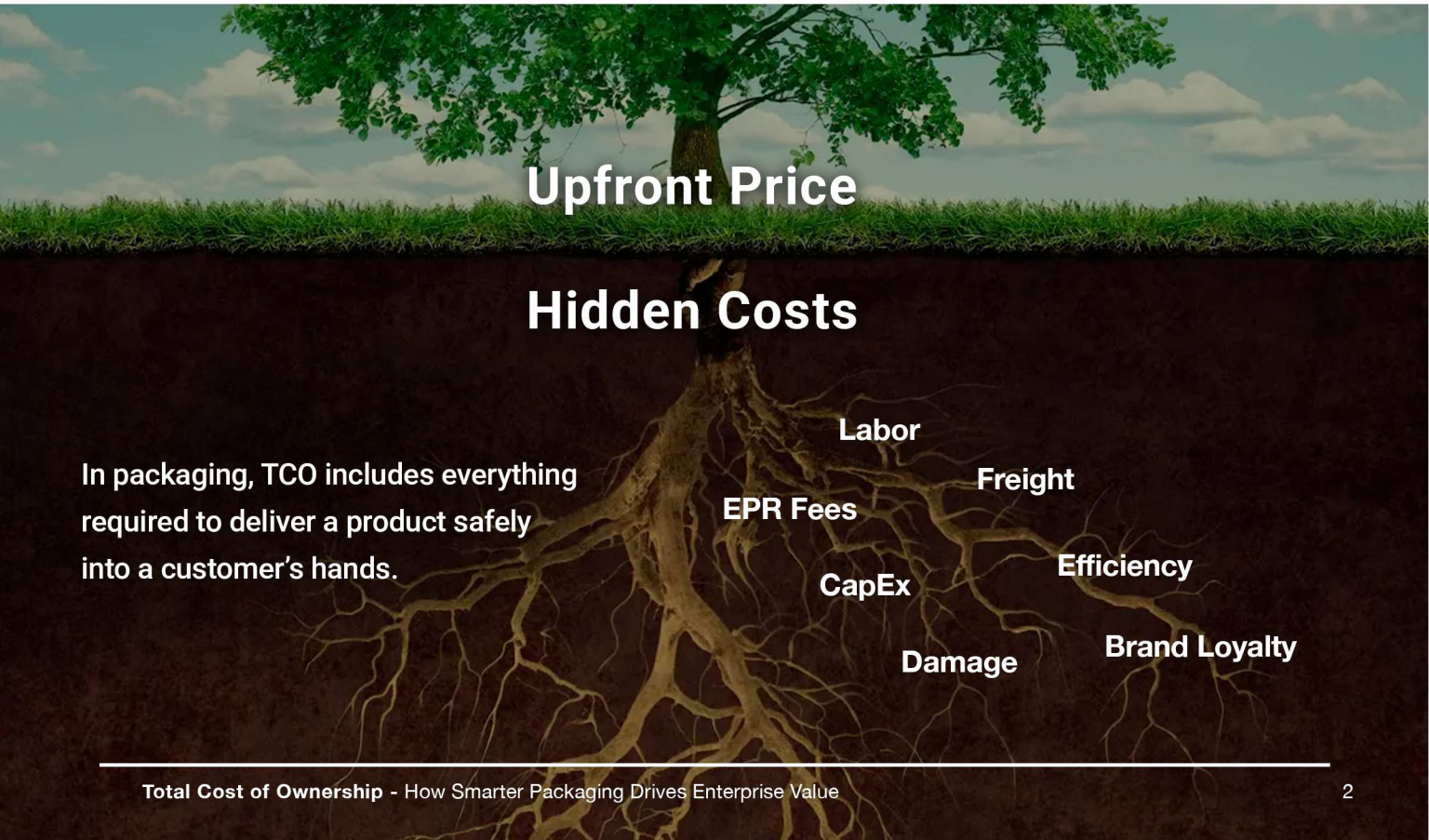


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This e-book lays out the key considerations for implementing a TCO approach to decision-making and provides practical steps you can put into action today. It explores five essential areas where smarter packaging choices can deliver measurable results.



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Chapter 1

Product Selection – Driving Performance and Profit Through Smart Packaging

KEY STAKEHOLDERS: Packaging Engineers and Sustainability Teams

Why It Matters

Packaging design and engineering are pivotal to smarter operations. Your strategic decisions in this area influence cost, protection and downstream performance. They also shape sustainability outcomes by reducing material waste, lowering damage and enhancing recyclability. Together, these factors make packaging design an efficiency driver for more than operations, including environmental responsibility and customer loyalty.

The TCO Consideration

How can packaging design balance product protection, cost-effectiveness and environmental responsibility?

How to Take Action

Action

Leverage return and damage data to refine packaging strategies.

Impact

Data-driven insights reveal over- or under-performing packaging, enabling improvements that enhance protection, reduce waste, lower environmental impact and cost of returns and improve the customer experience.

Action

Consider validating packaging performance using standardized, industry-recognized methods like ISTA-certified testing.

Impact

Simulated shipping tests reduce the risk of in-transit damage, costly returns and customer dissatisfaction.

How to Take Action

Action

Explore downgauging and right-sizing to reduce material waste without compromising performance.

Impact

Using thinner, higher-performing materials or optimizing dimensions, such as switching from boxes to mailers, lowers material waste while minimizing storage space needed.

Action

Evaluate opportunities to shift from rigid packaging formats, such as squeeze bottles or aluminum cans, with flexible packaging options.

Impact

When validated through testing, flexible formats reduce material usage and storage needs, while maintaining product protection.

Action

Assess packaging options that incorporate recycled content or are approved as widely recyclable.

Impact

Incorporating post-consumer recycled materials or curbside recyclable formats can strengthen brand perception and help meet sustainability goals, regulatory requirements and mitigate potential Extended Producer Responsibility (EPR) related fees.



73%

The cost of damage, returns and replacements often outweighs any material savings. According to a study conducted in partnership with Package Insight, **73% of customers** indicated they would be unlikely to repurchase from a company if they received a damaged product.

Chapter 2

Operational Efficiency – Unlocking Peak Productivity and Increasing Output

KEY STAKEHOLDERS: Operations and Warehouse Management

Why It Matters

Packaging operations **directly shape labor efficiency and throughput**—affecting both cost and customer delivery speed. Manual, inconsistent or poorly integrated processes quietly inflate labor costs and slow operations. In contrast, well designed workflows lead to fewer delays, lower fatigue and drive more consistent, high-quality output.

The TCO Consideration

How can packaging processes be configured to maximize efficiency?



How to Take Action

Action

Provide clear, easy-to-follow application instructions and evaluate packing station configurations to ensure ergonomic, efficient and consistent workflows.

Impact

Proper training and ergonomic design reduce waste, minimize fatigue and improve safety and throughput, preventing errors that lead to rework, downtime or dissatisfaction.

Action

Validate that your packaging suppliers offer technical service to maintain equipment performance through preventative maintenance programs and real-time support.

Impact

Technical service validation can prevent disruptive downtime in your production schedule and unnecessary maintenance costs.

Action

Identify manual steps that can be simplified or automated.

Impact

On-demand and automated packaging solutions can enable quick material placement, improve efficiency and streamline the packaging process.

Action

Monitor throughput and downtime data.

Impact

Performance data helps managers fine-tune workflows, prioritize equipment upgrades and, pivotally, identify process bottlenecks.

Action

Consider implementing modular systems that can flex with seasonal labor demands or operational expansion.

Impact

These systems allow facilities to scale without major infrastructure changes and capital intensive investments.

4x Automated mailing and bagging **can be up to 4x faster than manual processes**, reducing the cost per pack.

Chapter 3

Footprint Optimization – Optimizing Space to Maximize Capacity

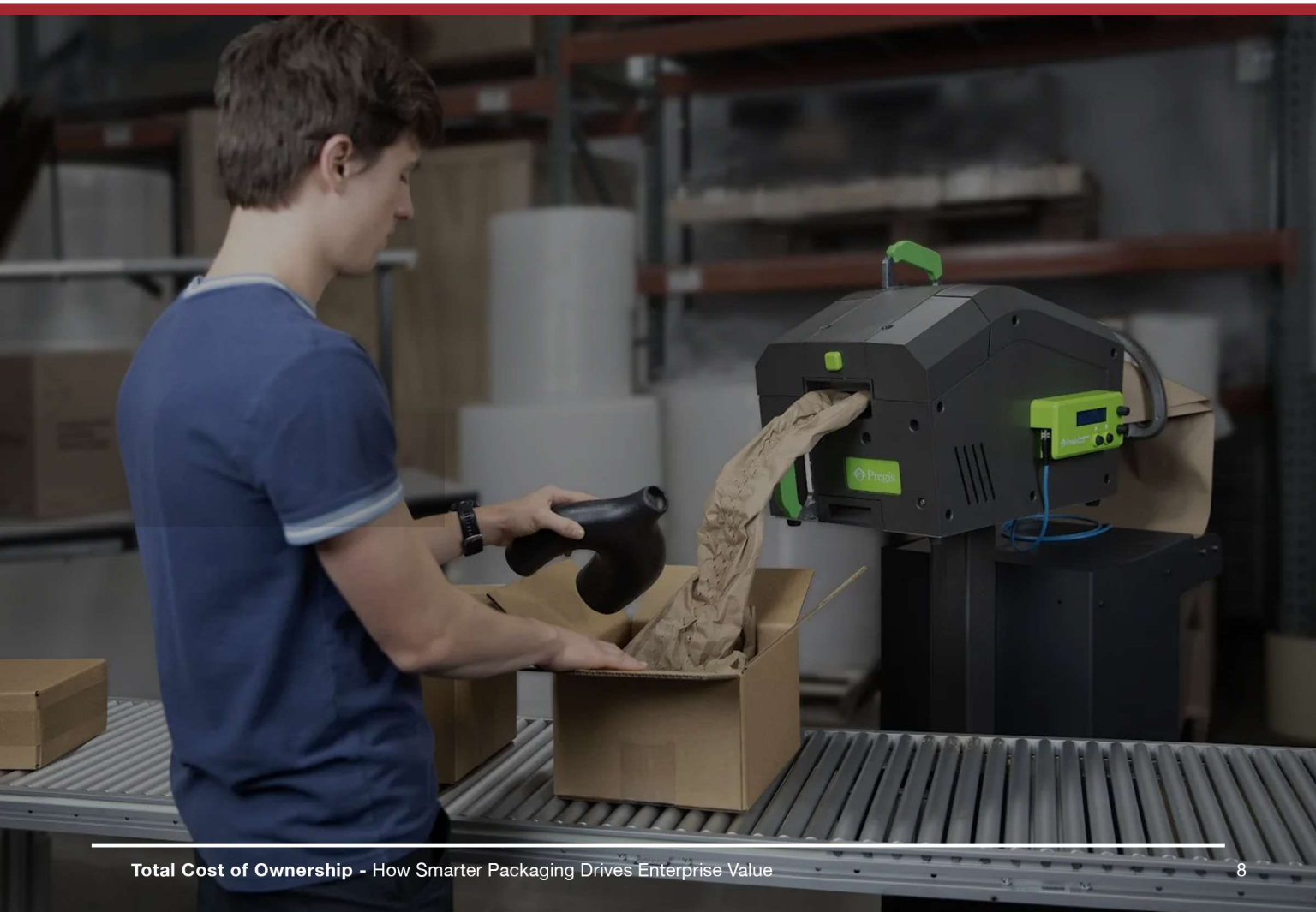
KEY STAKEHOLDERS: Operations and Warehouse Management

Why It Matters

Warehouse space is a limited and often expensive resource. Smarter packaging solutions free up space, reduce overhead costs and make room for revenue generating activities.

The TCO Consideration

Are packaging formats maximizing space and efficiency—or are excess materials taking up storage, limiting flexibility and driving up carrying costs?



How to Take Action

Action

Evaluate opportunities to reduce bulky packaging by adopting on-demand formats that produce packaging only when required.

Impact

On-demand systems lower storage requirements, reduce inbound pallet volume and the frequency of material handling activities, and help decrease overall operational costs.

Action

Consider optimizing packaging storage layouts by storing nested or stacked inventory to reclaim valuable rack space and prevent overstocking.

Impact

Optimized layouts increase usable storage for fast-moving, revenue-generating inventory and improve overall warehouse productivity.

Action

Explore right-size packaging to reduce inventory sprawl and increase package density.

Impact

Packaging that fits the product more closely leads to tighter stacking and more efficient storage.

Action

Identify opportunities to standardize packaging SKUs.

Impact

Standardization reduces complexity, streamlines procurement and cuts down on material waste. It also reduces the space required to manage excess packaging inventory.

80%

On-demand packaging systems—where materials are expanded at the pack station—**can reduce storage needs by up to 80%** compared to pre-inflated alternatives, helping operations reclaim space.

Chapter 4

Sourcing and Logistics – Sourcing Smarter to Shrink Supply Chain Waste

KEY STAKEHOLDERS: Procurement Teams

Why It Matters

Supplier selection and sourcing strategies directly impact freight, flexibility and the ability to respond to shifts in demand. Strategic sourcing can lower risk and increase efficiency.

The TCO Consideration

Are suppliers selected for total value and alignment with business needs, or solely on pricing?

How to Take Action

Action

Evaluate opportunities to consolidate and strategically source suppliers to improve efficiency and reduce logistics costs.

Impact

Fewer suppliers reduce inbound deliveries, freight charges and management time, while closer sourcing lowers fuel use, shortens delivery times and minimizes disruption risk.

Action

Analyze freight and logistics programs to identify cost drivers and anticipate peak-season surcharges and dimensional weight impacts.

Impact

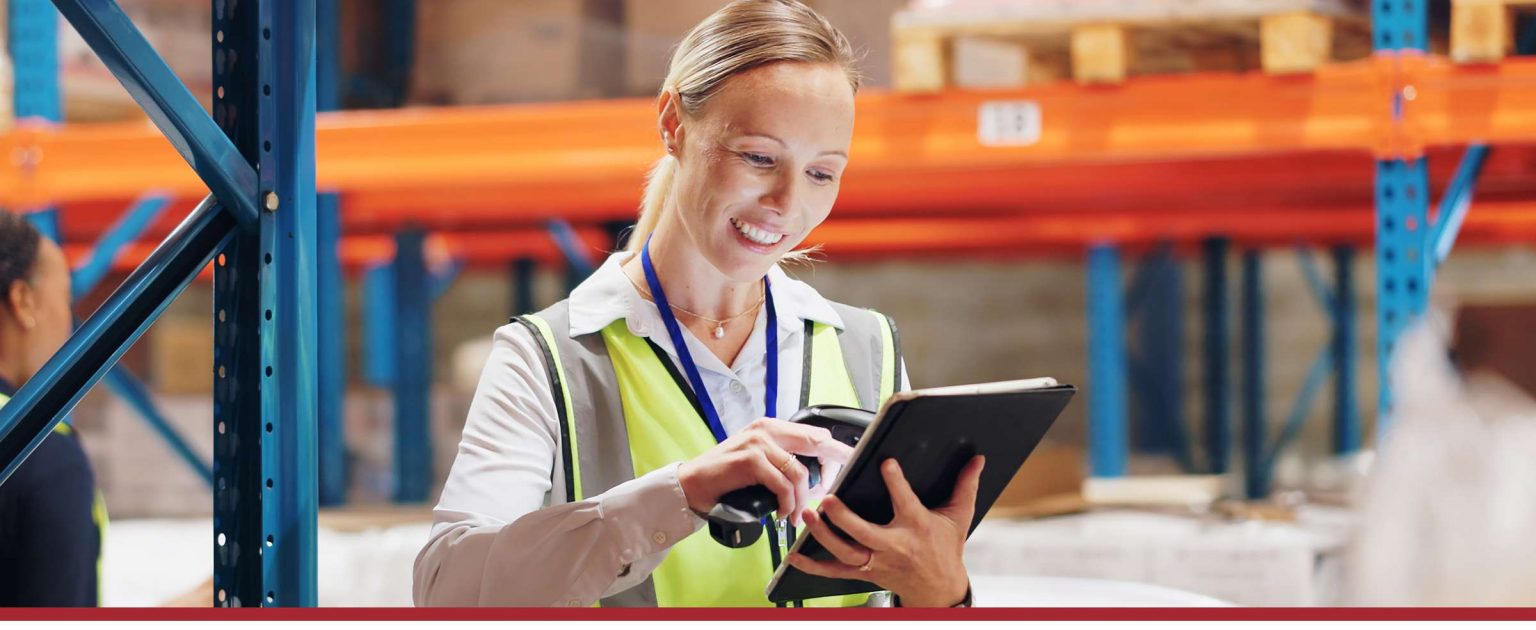
Greater visibility into cost drivers supports proactive planning, minimizes freight surcharges and strengthens efficiency of logistics.

Action

Assess last-mile strategies, such as ship-from-store, 3PL partnerships and packaging systems compatible with rate-shopping software.

Impact

These strategies help reduce outbound shipping costs and accelerate delivery performance through smarter fulfillment optimization.



How to Take Action

Action

Explore partnerships with suppliers that offer both design and integration support.

Impact

These suppliers help accelerate change by offering testing, prototyping and supply chain consulting.

Action

Partner with suppliers to uncover opportunities that optimize shipments and improve truckload efficiency.

Impact

Data sharing helps align order patterns with truck optimization goals.

Action

Research non-product fees or additional costs outside of price. For example, Extended Producer Responsibility (EPR) fees, import surcharges or waste removal.

Impact

These insights help anticipate and mitigate hidden costs by uncovering supply chain variables that influence total cost of ownership.

15%

Strategic planning and transportation sourcing **can deliver up to 15% in savings** by addressing root causes through smarter logistics coordination.

Chapter 5

Customer Experience & Brand Impact – Strengthening Loyalty Through Packaging

KEY STAKEHOLDERS: Marketing & Sustainability Teams

Why It Matters

Packaging is often the first physical impression of your brand. It affects loyalty, repeat purchases and brand perception, while also contributing to your sustainability story.

The TCO Consideration

Is packaging aligned with customer expectations, while clearly communicating recyclability and responsible material use? Are we delivering "wow" moments that will strengthen brand loyalty?

How to Take Action

Action

Investing in the right protective materials helps you reduce damage rates, improve customer satisfaction and prevent landfill waste.

Impact

Smarter packaging minimizes damage and frustrating returns, while aligning with sustainability commitments.

Action

Explore strategies to educate customers about material choices and recycling instructions.

Impact

Clear, concise packaging communication boosts consumer trust, while increasing visibility and engagement with sustainability initiatives.

Action

Explore ways to elevate the unboxing experience with thoughtful design and messaging to reflect brand quality.

Impact

Packaging is often a customer's first physical interaction with a brand. A great first impression drives loyalty, while a negative experience takes several positive touchpoints to overcome.

Action

Adopt a purposeful packaging approach— for amount and material—designed to protect products effectively while reducing unnecessary waste and creating a better unboxing experience.

Impact

Efficient design reduces environmental impact and reinforces

45%

Premium packaging led consumers to expect a retail price **45% higher than the same product in economy packaging**—showing how presentation directly shapes perceived value.



Take the TCO Self-Assessment

Use the following checklists to evaluate where your current TCO strategy stands. Identify quick wins, uncover hidden costs and pinpoint opportunities to enhance protection, efficiency, and customer satisfaction while driving measurable value across your supply chain.

Product Selection

- [ ] Are we leveraging return and damage data to continually refine and improve packaging performance?
- [ ] Have we validated our packaging through standardized testing methods, such as ISTA-certified performance testing?
- [ ] Have we explored opportunities to downgauge or right-size our packaging to reduce material waste?
- [ ] Could shifting from rigid to flexible packaging formats deliver material and storage savings?
- [ ] Do our current packaging specifications align with our sustainability goals?

Operational Efficiency

- [ ] Are teams trained and provided with helpful instructions?
- [ ] Have we evaluated work station configurations to minimize steps and repetitive motion?
- [ ] Do our packaging suppliers offer service and real-time maintenance support to match our needs?
- [ ] Is our packaging system scalable for seasonal labor demands?
- [ ] Are we actively monitoring throughput and downtime data to uncover workflow inefficiencies and identify process bottlenecks?
- [ ] Could modular packaging or automation systems help us flex capacity?

Footprint Optimization

- [ ] Have we evaluated opportunities to replace pre-made or bulky packaging with on-demand systems that produce materials only when required?

- [ ] Have we optimized packaging storage layouts by storing nested or stacked inventory to reclaim rack space and prevent overstocking?
- [ ] Are we right-sizing packaging to better match product dimensions, enabling tighter stacking?
- [ ] Have we identified opportunities to standardize packaging SKUs to reduce complexity, cut material waste and minimize excess packaging inventory?

Sourcing and Logistics

- [ ] Have we evaluated opportunities to consolidate and strategically source suppliers closer to our distribution hubs to reduce management time and lower transit costs?
- [ ] Have we analyzed our freight and logistics programs to identify key cost drivers, seasonal surcharges and dimensional-weight impacts?
- [ ] Are last-mile strategies optimized through approaches such as ship-from-store models, 3PL partnerships or packaging compatible with rate-shopping software?
- [ ] Do our supplier relationships include both design and integration support to accelerate packaging innovation and operational improvements?
- [ ] Are we collaborating with suppliers to optimize order patterns and truckload efficiency through shared data and shipment planning?
- [ ] Have we reviewed all non-product costs across our supply chain—such as EPR fees, import surcharges or waste removal charges—to identify hidden expenses?

Customer Experience and Brand Impact

- [ ] Are we investing in the right protective materials to reduce damage rates, improve customer satisfaction and prevent unnecessary waste?
- [ ] Have we implemented clear strategies to educate customers about packaging material choices, recyclability and disposal instructions?
- [ ] Are we elevating the unboxing experience with thoughtful design and messaging that reflect brand quality and care?
- [ ] Does our packaging design balance purpose and experience by reducing waste while reinforcing a responsible, premium brand image?

Turn Packaging Into a Business Advantage

Utilizing a Total Cost of Ownership approach through smart packaging opens a world of opportunities for business leaders. It creates a ripple effect—shaping how your teams work, how products move through your operation and how customers experience your brand. It influences everything from labor and freight to space and sustainability.

Organizations that lead with a TCO mindset move beyond chasing quick, short-term savings. They invest in packaging systems that deliver measurable value at every point in the supply chain. They bring their companies to new heights. By aligning teams and setting the right performance metrics, these organizations turn packaging into a true business-wide advantage: one that drives greater value, increases customer retention and helps fuel overall business growth. Big wins and optimizations that can change the course of your company's trajectory are within reach—it all starts with TCO!

Ready to take the next step?

Connect with Pregis to explore how a **Total Cost of Ownership** approach can help you uncover hidden efficiencies and unlock long-term growth.

