



SOFTWARE | STRATEGY | MANAGED SERVICES

AMERICAN PACKAGING SUMMIT

MAY 14, 2025

PROCUREMENT | SUPPLY CHAIN | SUSTAINABILITY



Krish Vengat
Vice President, Consulting

- Vengat brings 20 years of experience in procurement, supply chain, product development, design, and engineering. He has served many Fortune 500 and Global 2000 companies across multiple sectors.
- He has a proven track record of driving cost efficiencies, optimizing processes, and leading global teams. His expertise spans design-to-optimization, data-driven strategies, supplier relationship management, and digital transformation. Vengat also holds patents in inventory management and optimization.



AJ Rohan
Sr. Director, Solution Design

- AJ has 15 years of experience in designing and implementing procurement and supply chain strategies, particularly in Manufacturing, Consumer Packaged Goods (CPG), and Retail. Known for building strong stakeholder relationships in fast-paced environments, he excels in helping clients reduce cost and build resiliency in their supply chains
- He focuses on creating tailored solutions grounded in a foundation of previous success to support GEP's global clients ensuring effective partnerships with lasting impact.



Gauranga De
Vice President, Consulting

- Gauranga brings 30+ years of consulting and industry experience from McKinsey, DuPont, LG, HCL-HP, in procurement, supply chain, design and engineering. He served 100+ fortune 500 companies across the globe in multiple sectors.
- His core expertise are around direct materials; especially on design-to-value, should cost modeling, rapid costing, consumer insights & sustainability. Gauranga developed and deployed multiple digital tools to enable rapid cash release.

PIONEER AND LEADER IN AI-FIRST SOLUTIONS

A trusted strategic partner to the world’s best companies

<p>650+ CUSTOMERS</p>	<p>\$450 BN SPEND MANAGED</p>	<p>6,000+ EMPLOYEES</p>	<p>26 OFFICES</p>	<p>25+ YEARS</p>
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WHO WE ARE

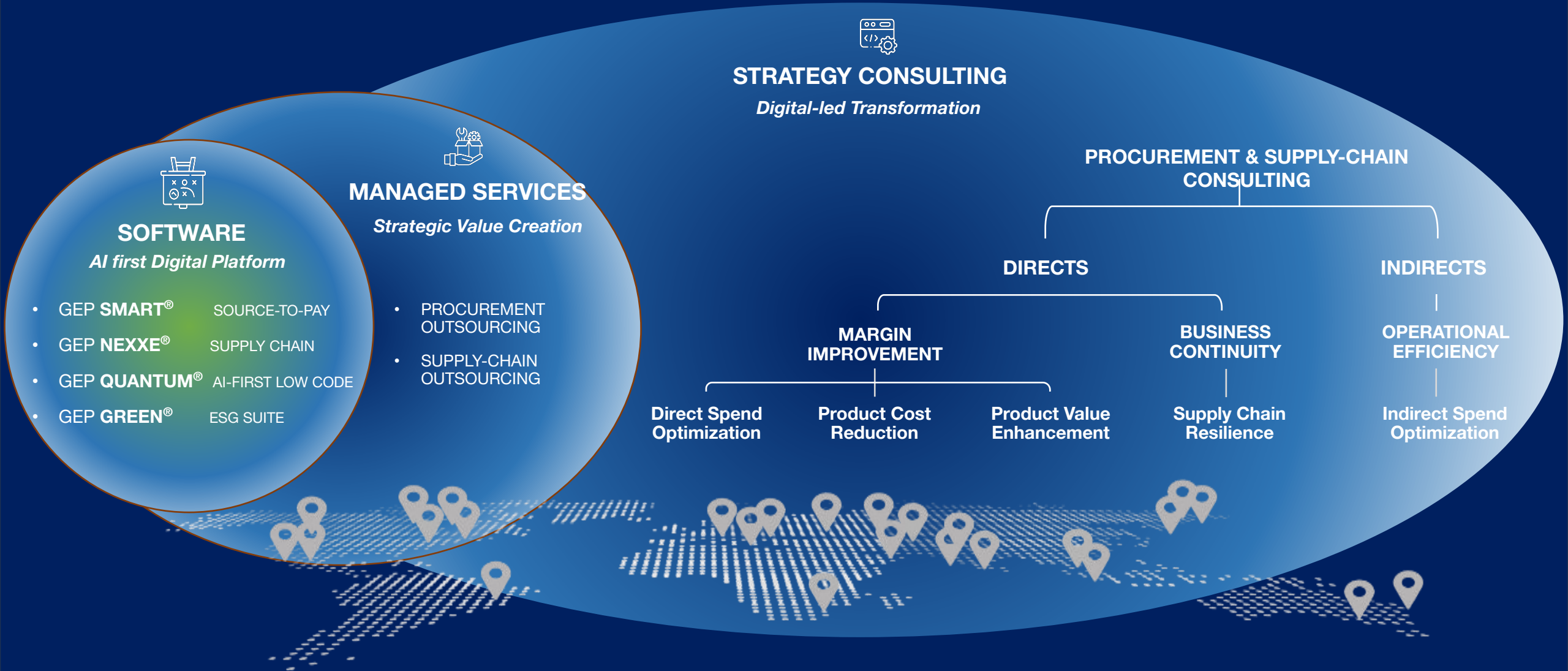
- Procurement and Supply Chain Specialist: Strategy, Services and Software, unified with one partner**
- Digital Transformation Powerhouse with Market-Leading AI-Powered Digital Solutions**
- Trusted Partner for several leading Automotive, Industrial, CPG and other enterprise organisations**
- Diverse Partner and Sustainability Champion**

OUR DIFFERENTIATORS

- Deep Expertise and Experience delivering end-to-end Procurement and supply chain solutions – This is all we do**
- Unmatched Flexibility – Tailored Solutions instead of one-size-fits-all approach**
- Journey Partner with Single Accountability – One-Hand-to-Shake for end-to-end procurement solutions**
- Privately Held – Founder level commitment**

RECOGNISED BY ANALYSTS AS A GLOBAL LEADER

<p>Gartner Magic Quadrant for Strategic Sourcing Application Suites, Sourcing Services and P2P</p>	<p>Winner - The World Procurement Awards 2024</p>	<p>Everest PEAK Matrix for Supply Chain Management</p>	<p>S2P Value Leader – Spend Matters SolutionMap</p>	<p>Leader – Strategic Sourcing, Cat. Management, Procurement Operations & Software Platforms</p>	<p>Best Procurement Consultancy at CIPS Supply Management Asia Awards</p>
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Key Highlights



\$20 B+ Spend Addressed



5 - 15% Savings Delivered

Categories Addressed and Managed*

- Corrugates
- Pallets
- Folding Cartons
- Rigid Containers
- Drums
- IBCs
- Seals
- Caps
- Closures
- Flexibles
- Flexibles
- Glass Bottles
- Glass Vials
- Metal Cans
- Labels
- Leaflets
- Inserts
- Packaging Supplies
- Plastic Bottles
- Bottles
- Canisters
- Crates
- Bags
- Sacks
- Folding Box
- Packaging Inserts
- Films
- Foils

* Partial List

Key Transformative Strategies Applied

Demand Management & Process Improvement

- Pooling Programs
- Recondition & Refurbishment
- Returnable Packaging
- Ordering & Logistics Optimization
- Inventory Optimization
- Distributor Models & Catalog Buying

Value Engineering

- SKU Rationalization
- Product Simplification
- Design Optimization
- Material & Format Substitution
- Bio-alternatives
- "Make-ready" friendly tech. (digital printing, on-demand production, etc.)

Sample Deliverables in Packaging Category



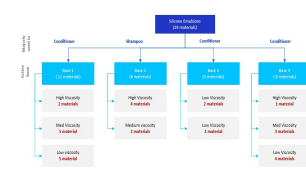
Value chain Analysis



Should Cost & Predictive Pricing



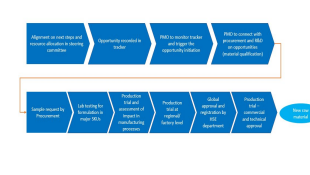
SKU Rationalisation



Alternate Supplier Identification



Material Qualification Plan



TCO Models

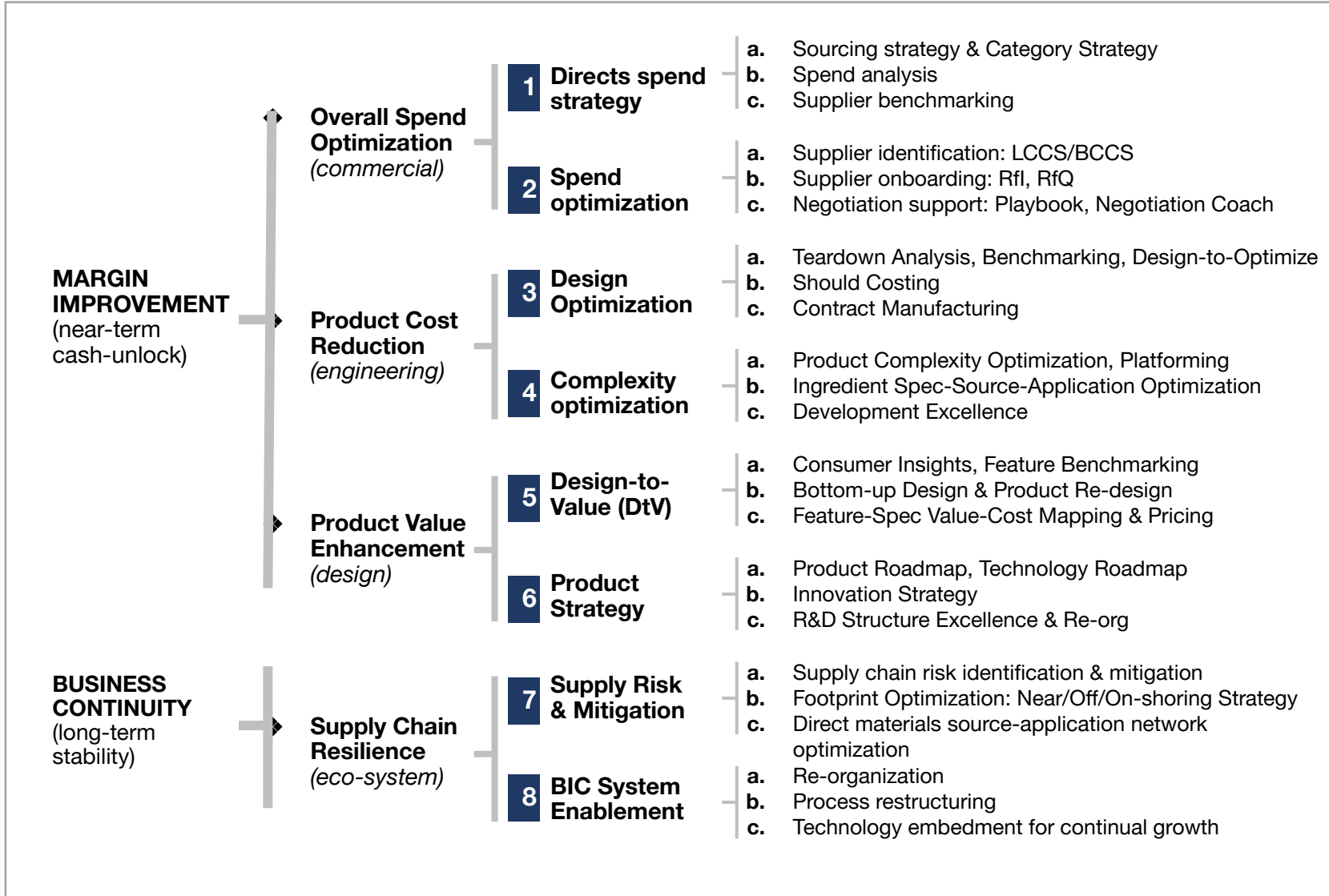


GEP offers wide spectrum of services on 'packaging/ direct materials cost & value optimization' and is working to help industry majors on multiple margin improvement and business continuity



GEP services on direct materials offers near-term margin improvement till long-term organizational eco-system development for supply chain resilience

Supported by 50+ SMEs on direct materials topics across the globe & assisted by global infrastructures

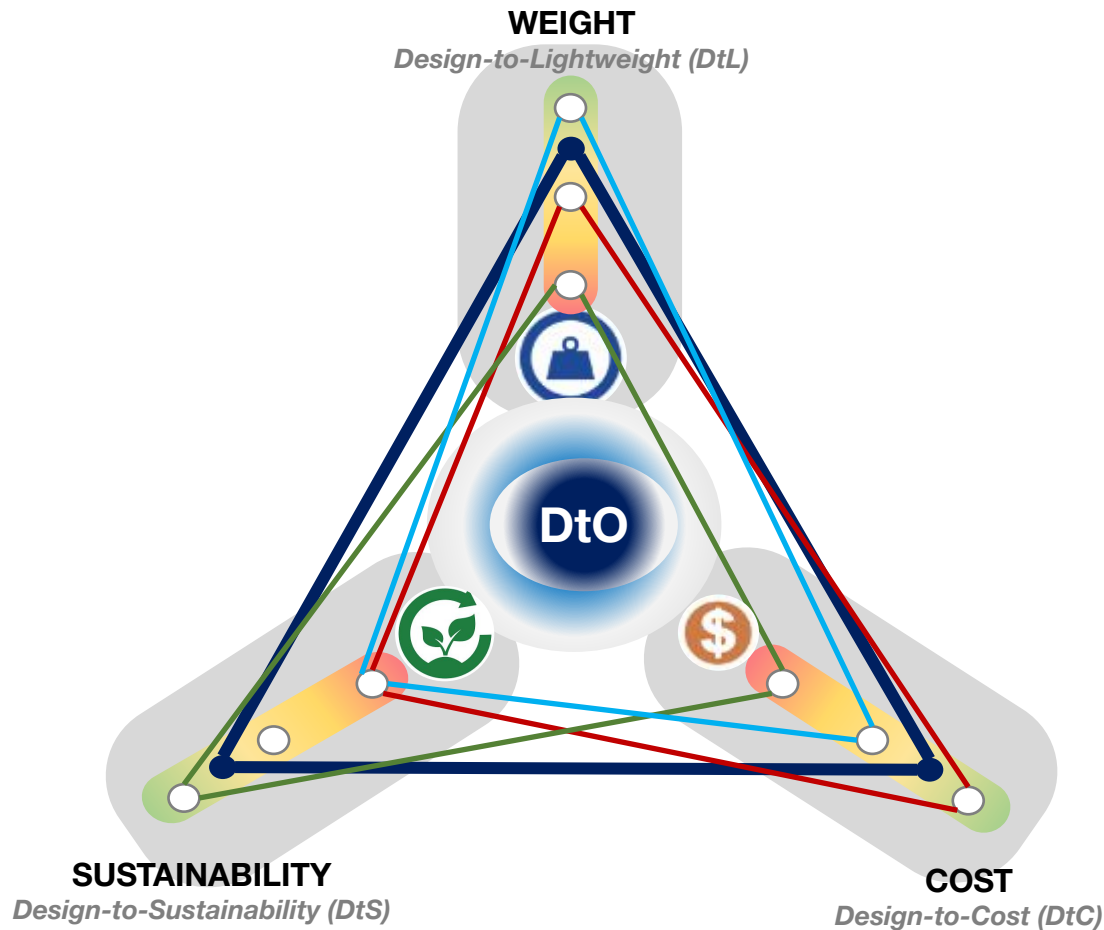


 Gauranga D Design-to-Optimize expert	 Vengat N Directs expert on Cost Analysis	 Sriram N Design-to-Value/ Cost expert
 Balaji Chassis/ Automotive & SM expert	 Prasad Forgings & Fabrication expert	 Kiran K Engine & PowerTrain expert
 Raphael F Ingredients expert	 Rinka B CPG Recipe expert	 Pravin P CPG Packaging expert
 Rakhi M Digital & Tech expert	 Christine N Ingredient expert	 Vasant M Should Costing expert



- Teardown Lab
- Chem lab
- Opto Lab
- Mech Lab
- Digi-Lab

While most of the companies tries to solve for 'one-dimension' , GEP's proprietary Design-to-Optimize (DtO) approach solves it holistically resolving for product cost, weight and sustainability, together.



- Design-to-Cost (DtC):**
 - Heavily focuses on cost reduction; without giving much consideration for 'weight' or sustainability (ESG).
 - PROS: Rapid 'cost reduction'
 - CONS: Product/Part focused; typically, not holistic
 - USAGE: Mostly used in CPG, Automotive, Appliances

- Design-to-Sustainability (DtS):**
 - Focus is on carbon-footprint. Weight, cost are 'after-effects'.
 - PROS: Better ESG, Carbon-footprint score
 - CONS: Often 'cost impact' makes scale-up prohibitive
 - USAGE: Food & Beverage, Transport, Manufacturing

- Design-to-Lightweight (DtL):**
 - Product weight focused. Material choices are primary play.
 - PROS: Fair bit cost reduction and sustainability scores
 - CONS: Heavily skewed towards product/parts.
 - USAGE: CPG, Automotive leveraged this meaningfully

- GEP's Design-to-Optimize (DtO):**
 - Holistic approach to ensure 'optimum' result across cost-weight-carbon
 - Design, environmental, supply boundary conditions
 - Product/parts cost – material, specification optimized to design
 - Logistics linked design optimization for weight
 - Linked to organizational sustainability goals

DESIGN-TO-OPTIMIZE (DtO) looks at primary & secondary drivers and influencers to optimize cost-weight-carbon



Discover

Identify:

- Define part/product under review; 'stakeholders', 'optimizers', 'owners'
- Collect baseline data including the following
 - Targets on weight, cost, sustainability (near/mid-term)
 - Design – present boundaries, material choices, specifications
 - Ecosystem – manufacturing, supply, distribution
 - Logistics details – average truck size, travel distance, road condition, shock level by design (g-shock), RH considerations
 - Annual volume, value, velocity details

Baseline:

- Develop three distinct baselines on cost, weight, carbon score to understand existing state. Baseline with stakeholders

Align:

- Align on mutual weightage of three factors, i.e, cost, weight, carbon (CWC) to bring in focus for weighted score.
- Co-develop 'design factor-of-safety (FoS)'
- Co-develop 'logistics boundary conditions'
- Develop part 'optimization score card'
- Design 'decision tree', 'risk matrix', idea validation & maturity framework

Analyze

Analyze weight, cost, sustainability (carbon) parameters along with design degree of freedom & logistics efficiency, to understand opportunities:

PRIMARY	COST 	To understand major cost optimization levers & their dependency on L1/L2 cost driver/ influencer	COST Bridge / Should-Cost 	COST Driver Mapping
	WEIGHT 	To understand major cost optimization levers & their dependency on L1/L2 cost driver/ influencer	WEIGHT Bridge Analysis 	Strength-Rate Analysis
	CARBON 	Develop 'cost-of-air' perspective + volumetric fill-ratio across SKUs to find optimization point	CARBON Bridge Analysis 	MATERIAL Carbon Footprint
	SECONDARY	DESIGN 	To develop bottom-up design options based on BIC FoS for a defined boundary condition	BOTTOM-UP Design
LOGISTICS 		Develop 'cost-of-air' perspective + volumetric fill-ratio across SKUs to find optimization point	Vehicle FILL RATIO 	COST-OF-AIR: Vol. vs Actual

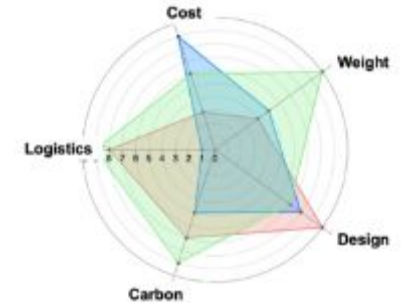
Optimize

Part optimization score card gets developed along with supply risk matrix and decision tree; to help decide on

- Design
- Material choice
- Spec

The approach ensures

- Most optimized weight
- At least possible cost
- Of least emission rate

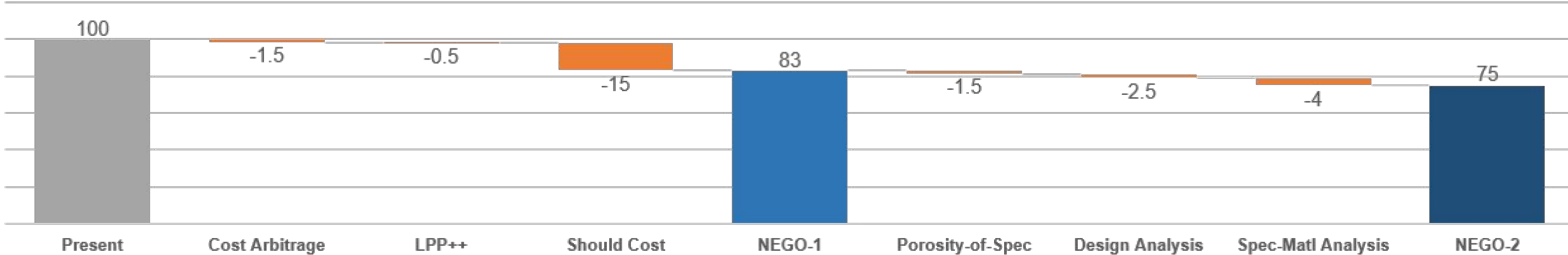


Selected combination:
 Weight = 10.2 gm (22% low)
 Cost = \$0.42 (16% low)
 Log = \$0.12 (18% low)
 Carbon= 0.02T (12% low)

Comprehensive Savings Levers: Leverage both commercial and DSM levers



We drive end-to-end cost reduction leveraging commercial as well DSM levers; to help ensure best impact on overall spend-base



COMMERCIAL LEVERS

DESIGN-SPEC-MATERIAL (D-S-M) LEVERS

For the 'SAME' part, where design (D), specification (S) & material (M) are same, cost across different plants should be 'SAME'

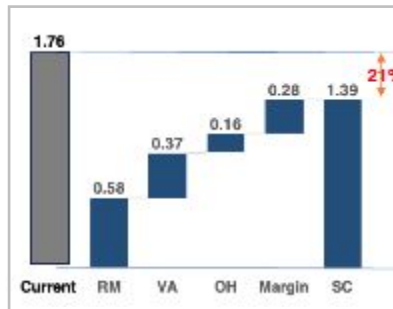
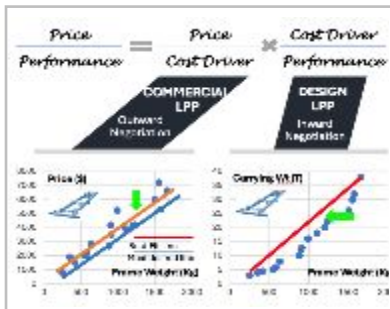
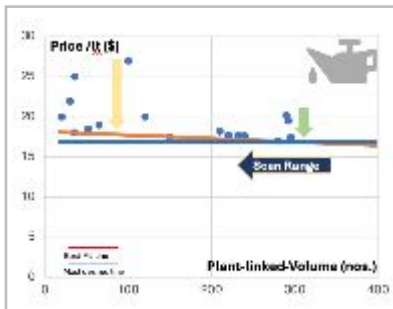
Price of a part shall be proportional to its desired performance (or cost driver, whichever is having stronger association)

A bottom-up costing to understand lower limit of negotiation; often broken into raw material, value add, overhead & margin

Challenge supplied part spec backed by design spec. Find alternate part from same supplier or alternate supplier

Challenge design itself. Develop bottom-up design based on boundary conditions. Most useful for multiply corrugated box

Challenge choice of base specification-material (SM). Often leads to 'big savings' if exercised along with R&D or Product Development.



Item	Spec	Material	Plant	Unit	Price
...
...

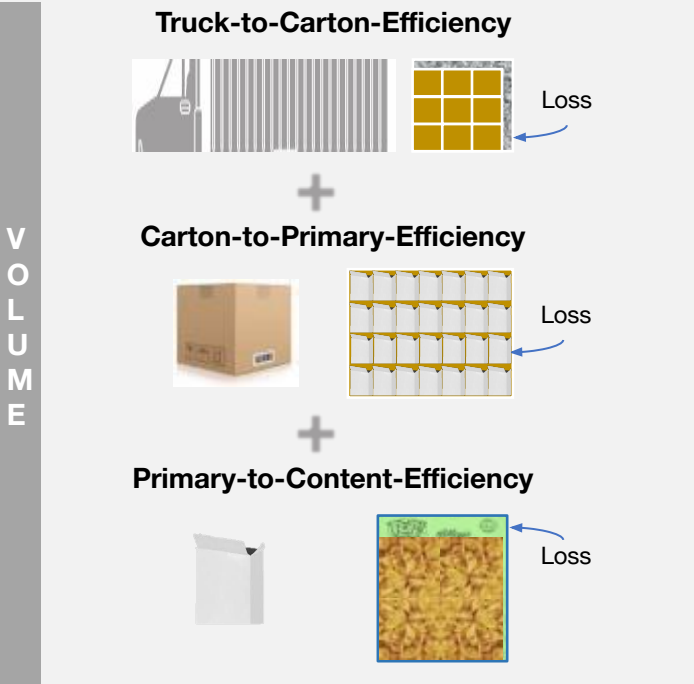
Item	Spec	Material	Plant	Unit	Price
...
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Material	Spec	Material	Plant	Unit	Price
...
...

Identify Competition	Understand Consumer	Conduct DtO Benchmarking	Ideate & Evaluate
<ul style="list-style-type: none"> ▪ Decide on target market ▪ Understand product portfolio and major focus ▪ Decide on types of packaging for DtO analysis ▪ Find competition who plays with 'similar packaging' for similar or near-similar category ▪ Decide on 'SKU's to benchmark across all selected set 	<ul style="list-style-type: none"> ▪ Conduct rapid consumer sentiment analysis leveraging 'Buzz Analytics' ▪ Find Baseline, Threat, USP and Opportunity ▪ Decide whether the focus topic falls under USP or Opportunity and accordingly decide approach especially for <ul style="list-style-type: none"> ▪ Cost, Weight, Carbon saving for margin improvement ▪ Developing feature to drastically uplift margin 	<ul style="list-style-type: none"> ▪ Acquire all target SKUs in bulk pack ▪ Do a complete 3-level DtO benchmarking as a whole and at granular detail at <ul style="list-style-type: none"> ▪ Carton level ▪ Primary level ▪ Content level ▪ Analyze to understand <ul style="list-style-type: none"> ▪ Cost-of-Air ▪ Material, spec choices ▪ Bottom-up design ▪ Alternate design options to optimize consumption ▪ Orientation cost-benefit analysis 	<ul style="list-style-type: none"> ▪ Ideate to find best cost saving ideas from <ul style="list-style-type: none"> ▪ Fill ratio optimization ▪ Alternate Specification-Material choices ▪ Design options ▪ Triangulate over from-to for cost, weight, carbon ▪ Evaluate savings on CWC and margin improvement ▪ Develop 'value-enhancement' hypothesis on target parts ▪ Evaluate additional margin enhancement / uplift

Dimensional Analysis

A Intent is to find best combination of carton & primary to minimize payout for 'air-volume shipment'; thus, logistics efficiency.

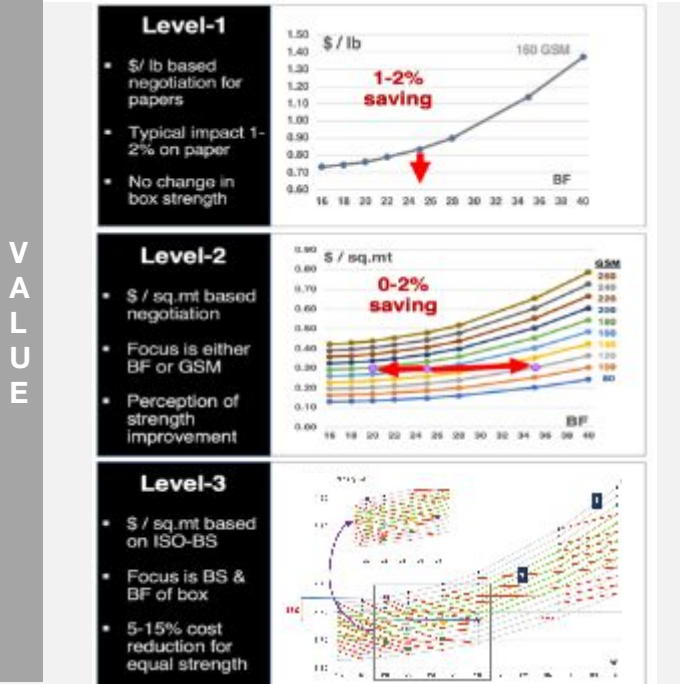


- It's an iterative process, backed by
- scientific best-in-class fill ratio. (*Millimeter Analysis*)
 - Manufacturing limitation/ boundary condition
 - Benchmark of competition

The outcome is best dimensions for carton & primary for **optimum "Content Fill-Ratio"**

Specification-Material Analysis

B Find out the 'right BS' from bottom-up design to come to specific GSM-BF understanding for best-cost scenario for Carton & Box.



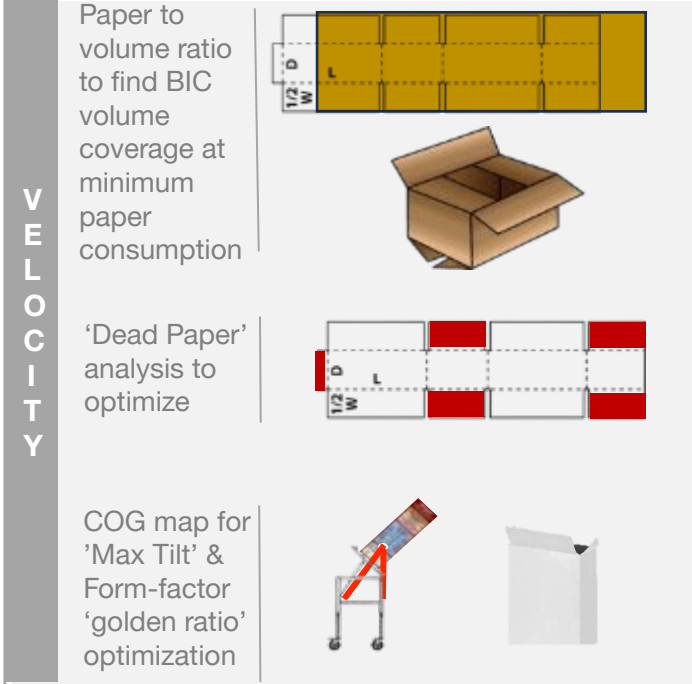
Key is to find critical BS using GEP proprietary algorithm.

- Bottom-up design for FoS, CS, ECT, BS, GSM
- Map market available papers to develop options
- Triangulate for 'best fit' from Cost-Weight-Carbon

Finally, conduct a regression to arrive at cost-weight-carbon **"optimized paper spec"**

Design Analysis

C Find out the optimum paper usage to cover full volume for the primary & tertiary. Find and optimize 'dead paper area'



Approach is to optimize design for min. consumption.

- Find BIC paper to volume ratio
- Re-design to minimize 'dead paper' scenario
- Optimize shelf-presence with best CoG & aspect ratio

Objective is to find most suitable alternate design with **"optimum paper usage for best shelf-presence"**

Secondary Analysis



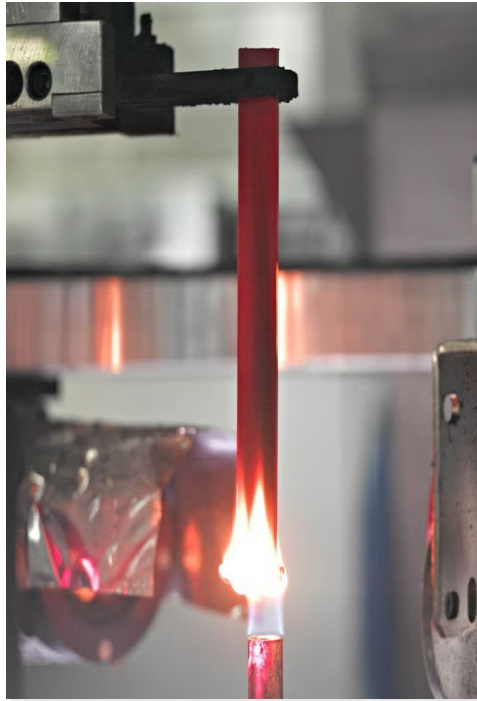
Primary Analysis



Multiple measurement, data collection, analysis and experiments been carried out at 'GEP PRODUCT DEVELOPMENT AND PROCUREMENT CENTER LABS'



Forensic
Analysis Tools
for Packaging



Combustion
Test for Plastics
& Optimization



Deep Ideation
Sessions with
SMEs

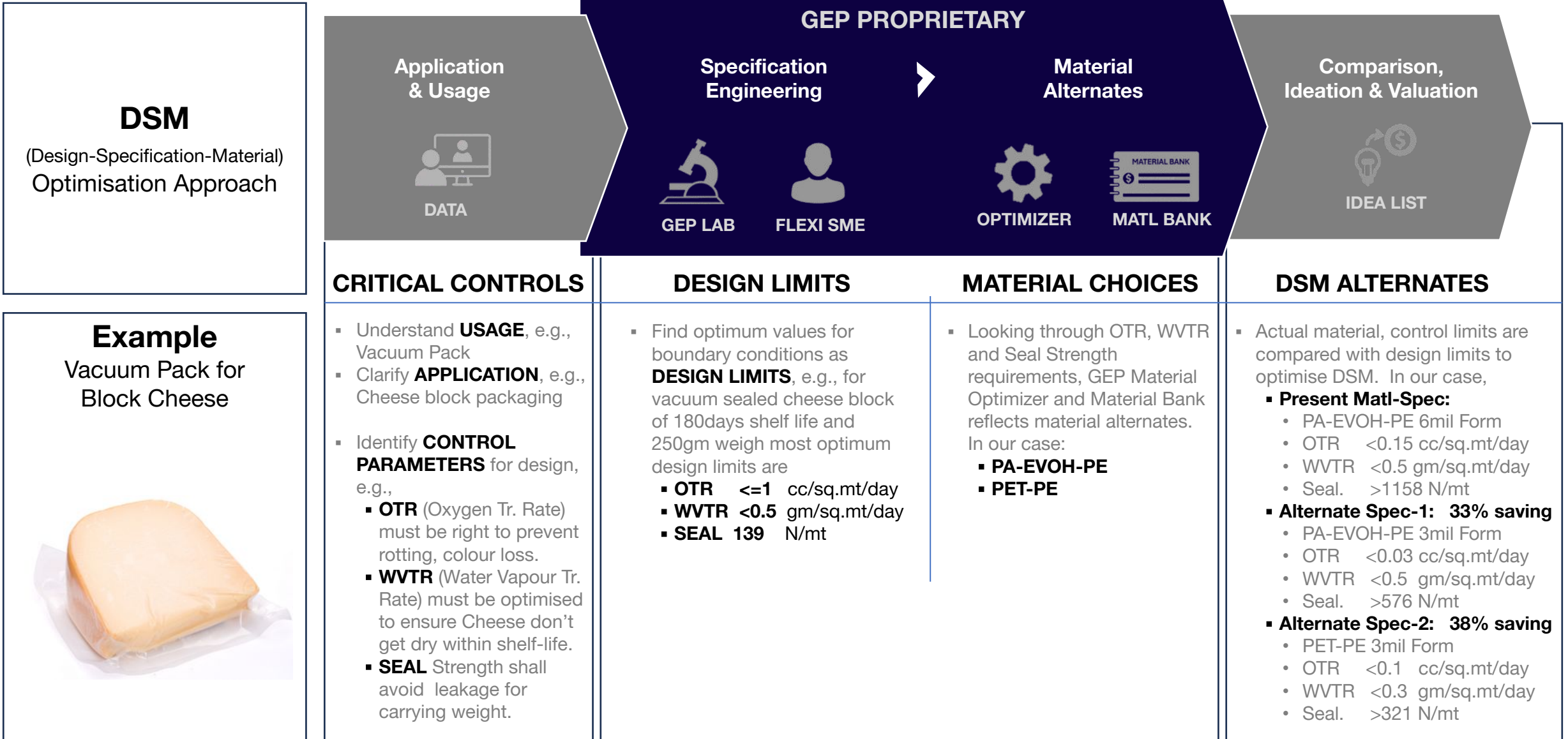


Printing Opto-
Assessment with
400X microscope



Material
Disintegration
Assessment





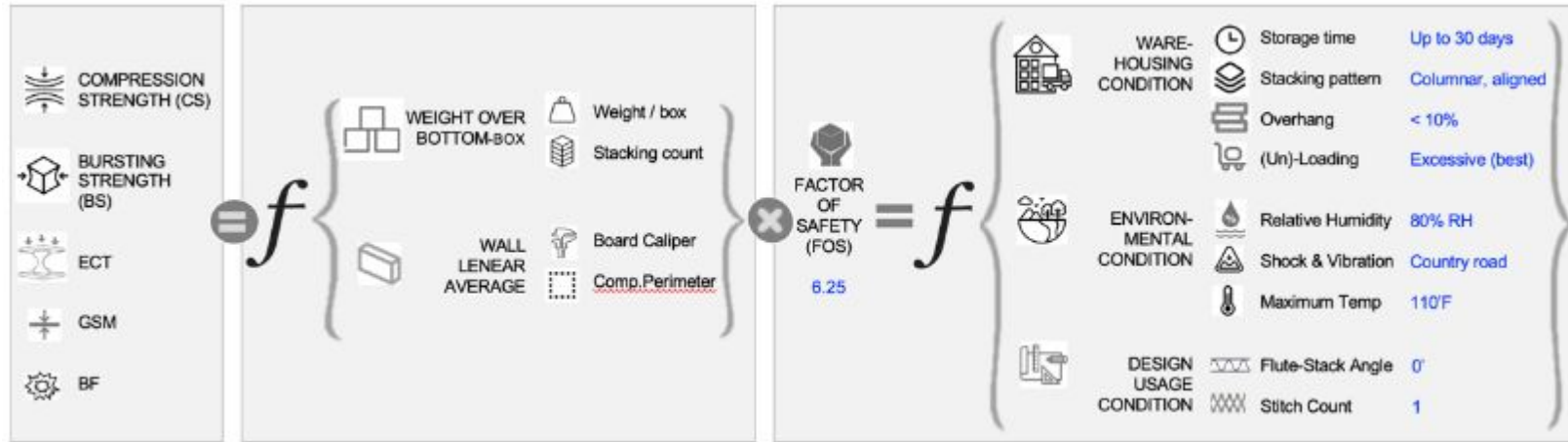
A central graphic featuring a black cross shape. The top and bottom arms of the cross are replaced by a dark blue, glowing, rounded rectangular shape. The text 'Q&A' is centered in white within the horizontal bar of the cross.

Q&A

Bottom-up-design of Carton

A scientific bottom-up design considered to integrate

- Warehousing conditions
- Environmental conditions
- Design-usage condition to understand bottom-up optimum CS, BS, ECT, BCT, GSM for papers



Optimum Metrics

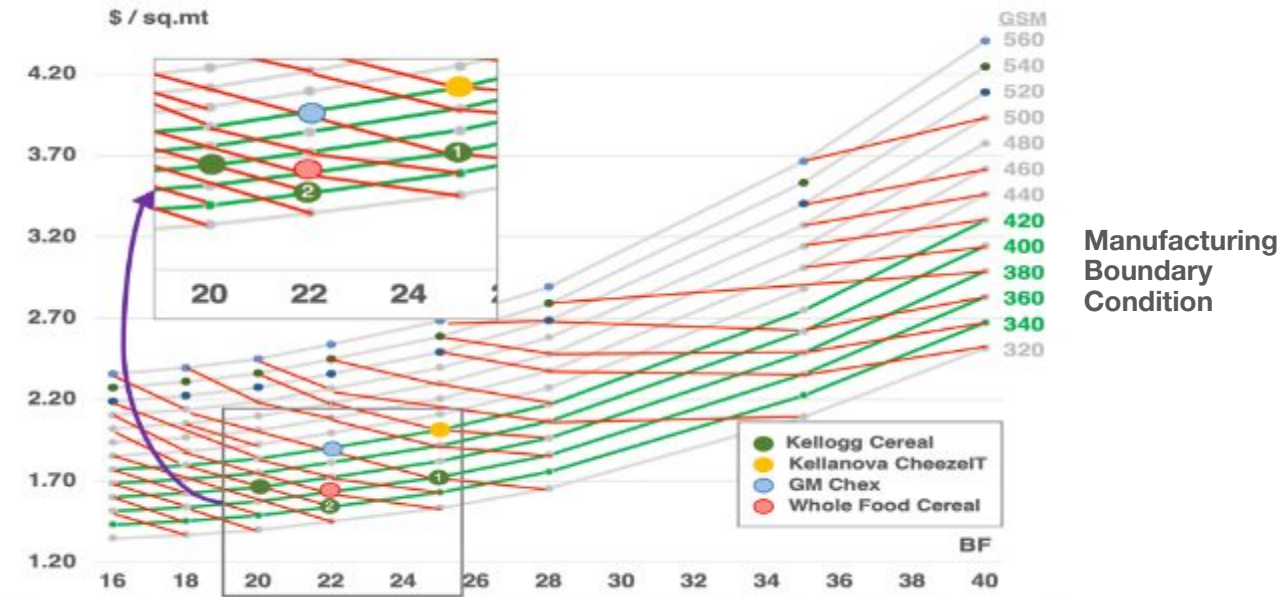
Factor of Safety = 5
 CS = 47 lb
 BS Index = 376
 BF = 20
 GSM = 380

A manufacturing boundary condition superimposed opens up alternate options to optimize CWC.

CAPEX:
 - None

PROCESS:
 - No change

Manufacturing boundary condition imposed over Isometric BS lines



Assuming manufacturing equipment boundaries can process 340-420 GSM, bottom-up Compression Strength (CS) and Bursting Strength Index (BSI) indicates two possibilities:

- Increase BS without any increase in cost
- Reduce cost by 7% keeping the strength of the box same

SAVINGS

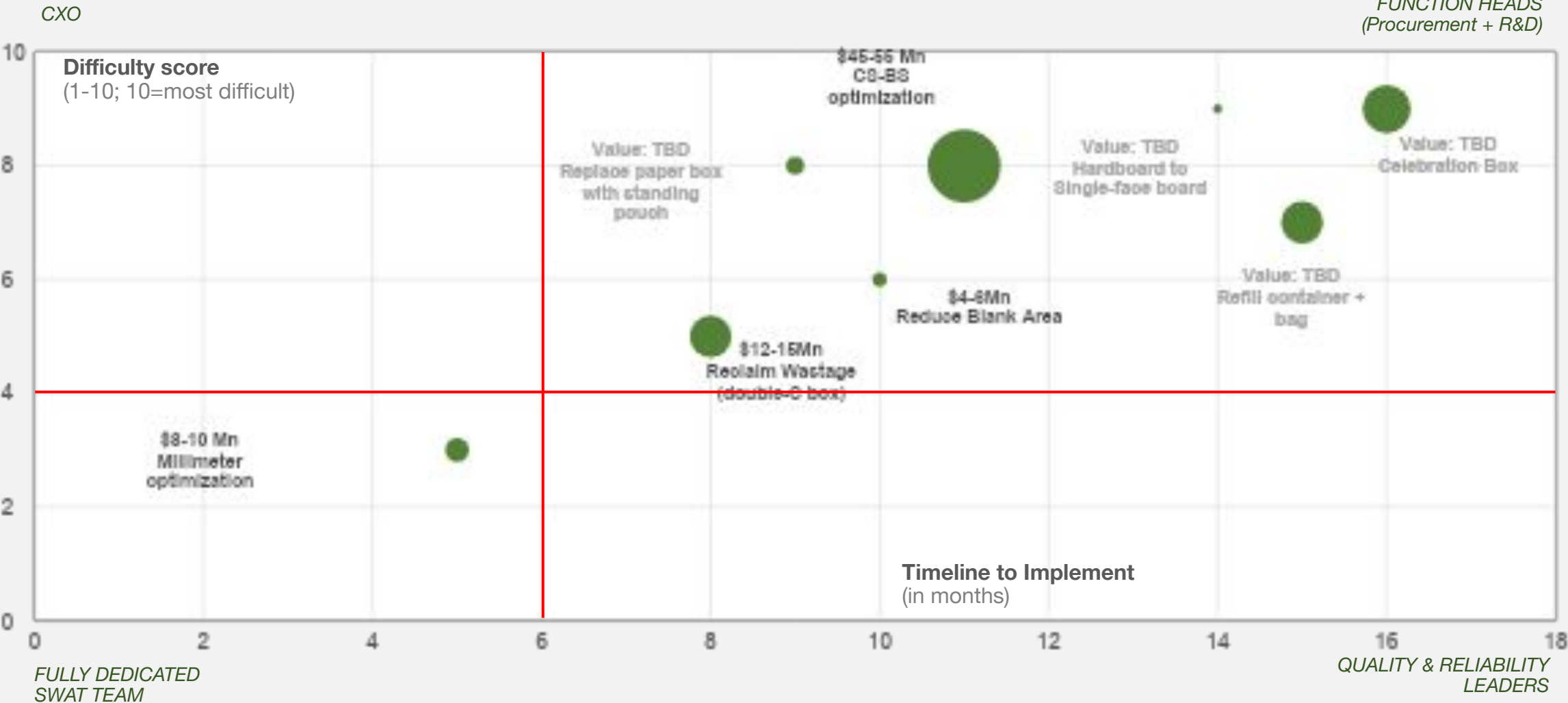
COST: 5-7%

WEIGHT: 8-9%

CARBON: 4-5%



PTD SCAN





GEP® delivers AI-powered procurement and supply chain solutions that help global enterprises become more agile and resilient, operate more efficiently and effectively, gain competitive advantage, boost profitability and increase shareholder value.

Fresh thinking, innovative products, unrivaled domain expertise, smart, passionate people — this is how GEP SOFTWARE™, GEP STRATEGY™ and GEP MANAGED SERVICES™ together deliver procurement and supply chain solutions of unprecedented scale, power and effectiveness. Our customers are the world's best companies, including more than 550 Fortune 500 and Global 2000 industry leaders who rely on GEP to meet ambitious strategic, financial and operational goals.

A leader in multiple Gartner Magic Quadrants, GEP's cloud-native software and digital business platforms consistently win awards and recognition from industry analysts, research firms and media outlets, including Gartner, Forrester, IDC, ISG, and Spend Matters.

GEP is also regularly ranked a top procurement and supply chain consulting and strategy firm, and a leading managed services provider by ALM, Everest Group, NelsonHall, IDC, ISG and HFS, among others. Headquartered in Clark, New Jersey, GEP has offices and operations centers across Europe, Asia, Africa and the Americas. To learn more, visit www.gep.com.



GEP SMART™ is an AI-powered, cloud-native software for direct and indirect procurement that offers comprehensive source-to-pay functionality in one user-friendly platform, inclusive of spend analysis, sourcing, contract management, supplier management, procure-to-pay, savings project management and savings tracking, invoicing and other related functionalities.



GEP NEXXE™ is a unified and comprehensive supply chain platform that provides end-to-end planning, visibility, execution and collaboration capabilities for today's complex, global supply chains.

Built on a foundation of big data, artificial intelligence and machine learning, GEP NEXXE is next-generation software that helps enterprises make supply chain a competitive advantage.



GEP GREEN is an AI-powered, comprehensive ESG management solution that helps enterprises measure, track and report their sustainability performance.

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