

About Me

- Born in 
- Lived in 
- BSc. Chemical Eng.
- MSc. Project Management
- MSc. Chemical & Process Engineering
- MBA



-
- Global Pack Category Lead
 - Sourcing Strategy
 - E2E Supply Chain Strategies
 - Inline & Pipeline Products
 - Procurement & ESG Targets



- +17 years Procurement, Supply Chain & Project Management experience
- Worked in Pharma, Food & Chemical industries
- 9 years with MSD
- Abbott Labs, Givaudan, SPX, R&D Institute
- +10 years as a consultant



-
- Traveling
 - Football, Hiking, Skiing
 - Playing guitar
 - Listening to Music
 - Movies



Pharma Packaging Materials

Challenges & Opportunities

Aldo Cartagena

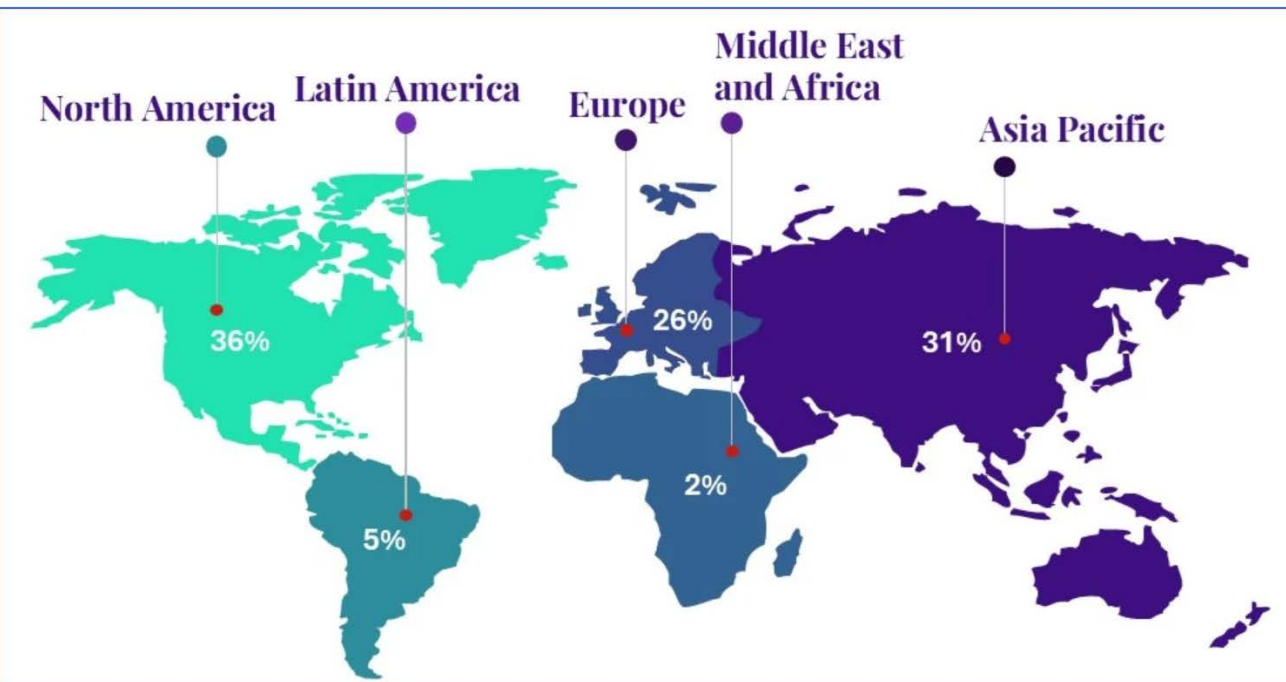
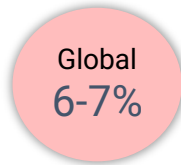
Feb 20, 2025

Agenda

- Executive Summary & Categories
- Market Analysis
- Challenges & Opportunities
- Supply Chain Management & Optimization
- Sustainability
- Category Roadmap +2030
- Overview Recap



Executive Summary



HIGHLIGHTS

- EMEA region from 51% to 41% and Asia from 25% to 33%
- Complex Category with a large amount of SKU
- Market: Oral drugs, injectables, ophthalmic, pulmonary, transdermal, IV drugs
- North America is the largest market ~36%
- China, India, Brazil markets grow at +10% (demographics, increasing disposable income, growing focus on increasing life expectancy)

KEY PLAYERS



Packaging Materials – Categories

Tertiary & Secondary Packaging

Secondary Materials



Inserts



Cartons



Labels

Tertiary Materials



Corrugate Cartons

Non-Sterile Primary Packaging



Foils



Films



Bottles



Caps & Closures



Inhalers



Desiccants

Sterile Primary Packaging



Syringes



Needles



Plungers



Stoppers

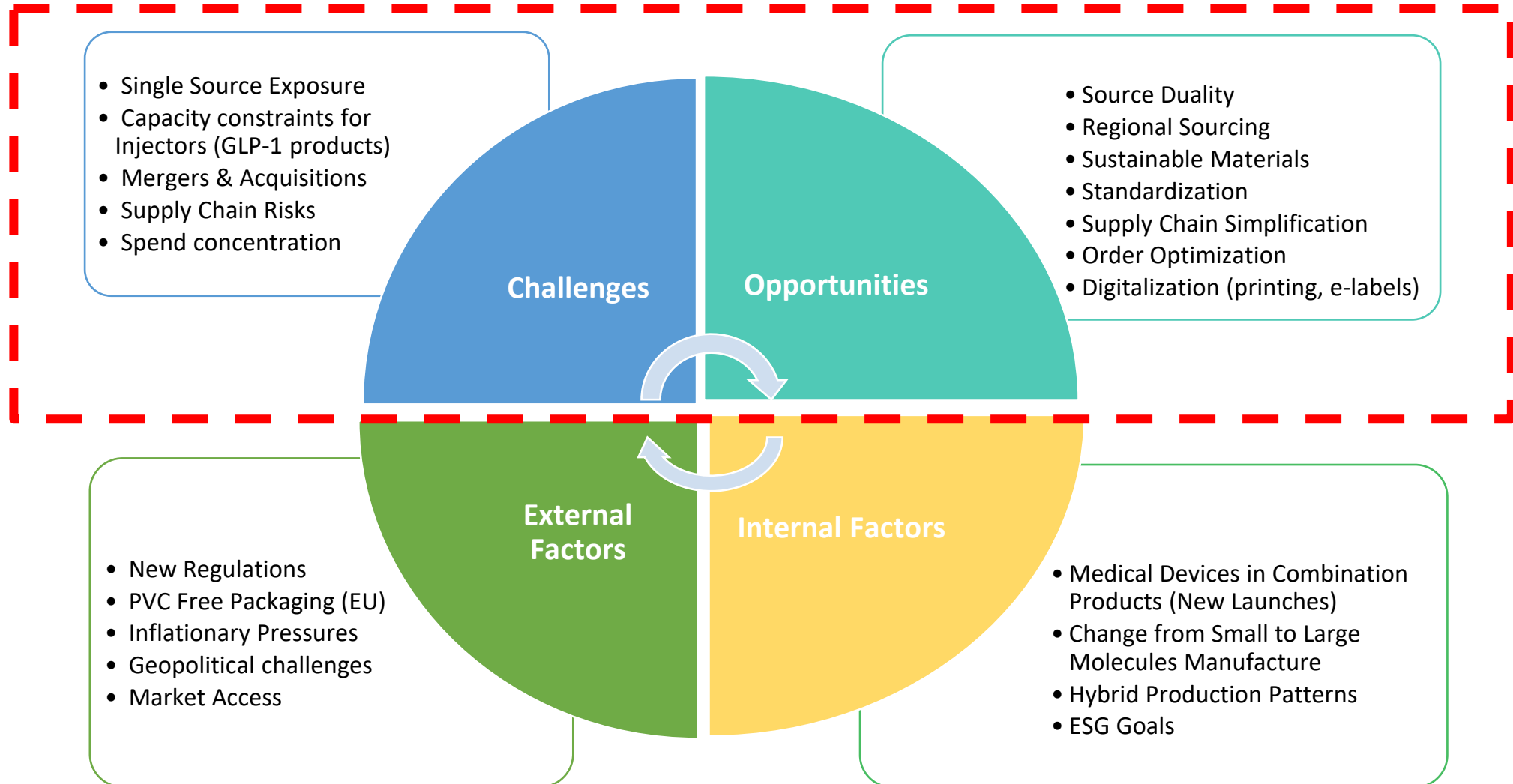


Injectors



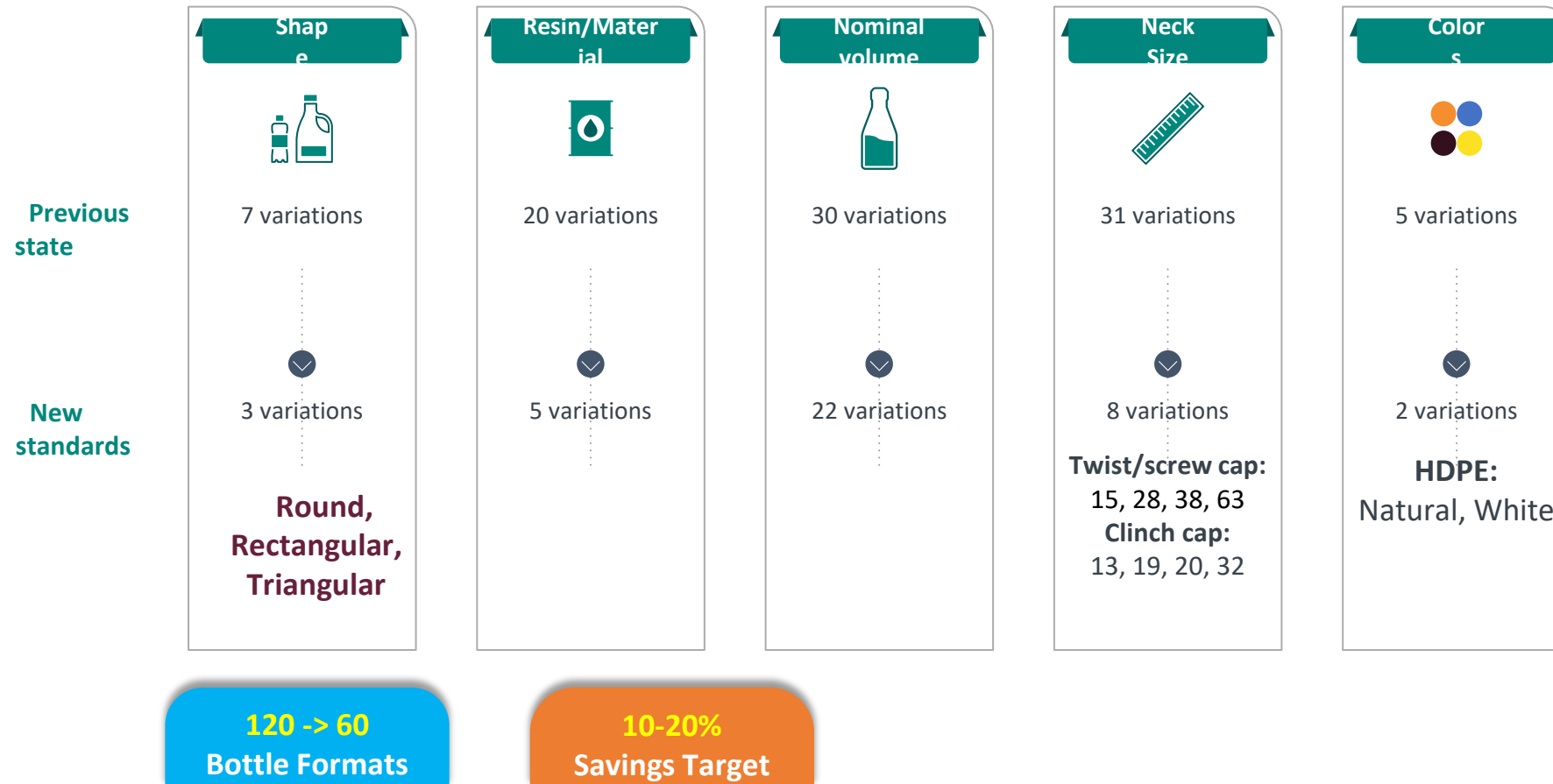
Vials

Category Landscape & Market Analysis



Simplification & Standardization

Example Project

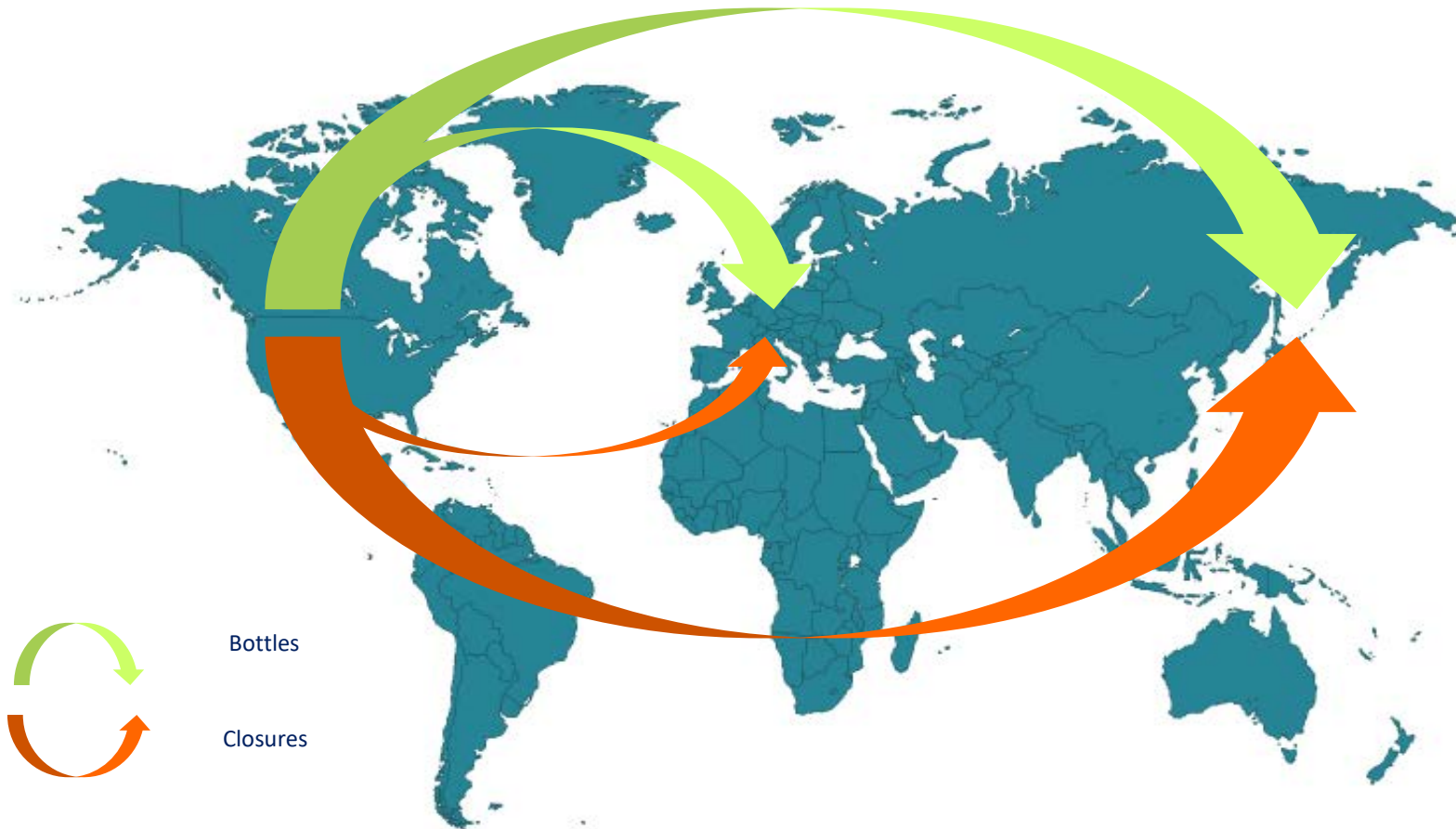


Packaging Commercialization

- **More challenging package selection**
 - Limited development data (i.e., degradation kinetics and moisture) – Decision Risk
 - Trend to launch with a 1st generation process or product, followed by other generation
 - Dose uncertainties
 - Fast development of registrational strategy
 - Stability operational speed, throughput
- **Challenge is to achieve these business needs, meet the pace, and advance primary pkg supplier strategies**
 - Bring medicines in a timely manner
 - Incorporate into our business strategies
- **Case Study 1: Fast Switch to Stand Pkg pre-FSS**
 - New Product
 - Announcement July-2019, FSS On-Station Jan-2020
 - Fast Switch to “Standard” bottle image, Al-Al blister
- **Case Study 2: Utilize Supplier Image**
 - COVID-19 Therapy Product
 - Announcement May-2020, FSS 1 On-Station Q3-2020
 - Registration strategy required use of non-standard image (non-strategic supplier)
 - Modification of equipment, securing of supply, etc.

We had to develop a “playbook” for teams on primary package selection for in-license compounds to enable fast decision making and maintain our strategy. Support Accelerated Commercialization Initiatives

Supply Chain Optimization



Past State

- Bottles & Closure shipped from US to EU and Asia
- Long Lead Times
- High environmental impact
- High Logistics Cost

Current State

- Shorter Lead Times
- Environmental Sustainability
- Cost Reduction
- Risk Mitigation

Actions

- Development & qualification of regional sources
- Optimization of filing strategy
- Spend consolidation with regional suppliers
- Cost/Benefit analysis to achieve ESG targets

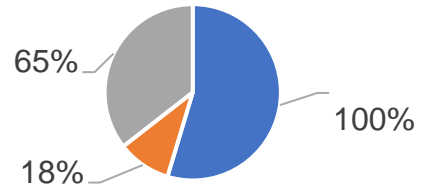
Supply Chain Risk Management



Sub- Categories

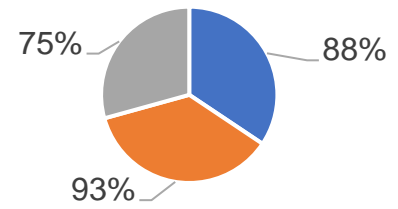
01	Aluminum Foils Aluminum
02	Films Resins
03	Bottles Resins
04	Injectors Syringes Polymers
05	Vials Glass

Single Source Exposure



■ Resin ■ Films ■ Foils

Single Source Exposure



■ Bottles ■ Films ■ Foils

Risk Exposure



- Qualification of alternate source for films to reduce tier-1 single source exposure
- Development of dual sources
- Development of more sustainable materials
- Changes in design (packaging configuration)

Sustainability: Environmental Packaging

100% of new human health products will have packaging **reviewed** for environmental impact and improvement.



Optimal packaging design protects our products in a compliant manner, and meets or exceeds customer needs, with the **minimum possible** environmental impact.

We can do more



Align principles as a company & **prioritize** efforts



Strengthen our **data** & scientific approach (IPI workstream)



Execute & drive our **impact down** tangibly, publicly

Focus & Opportunities

Landscape & Challenges

Long-established product contact materials

End of packaging life-cycle concerns regionally

Fast-shifting regs, public opinion, trends

Structure & Approach

Engaging Global Pack Strategy & Platform

Establishing team to deliver working principles & goals

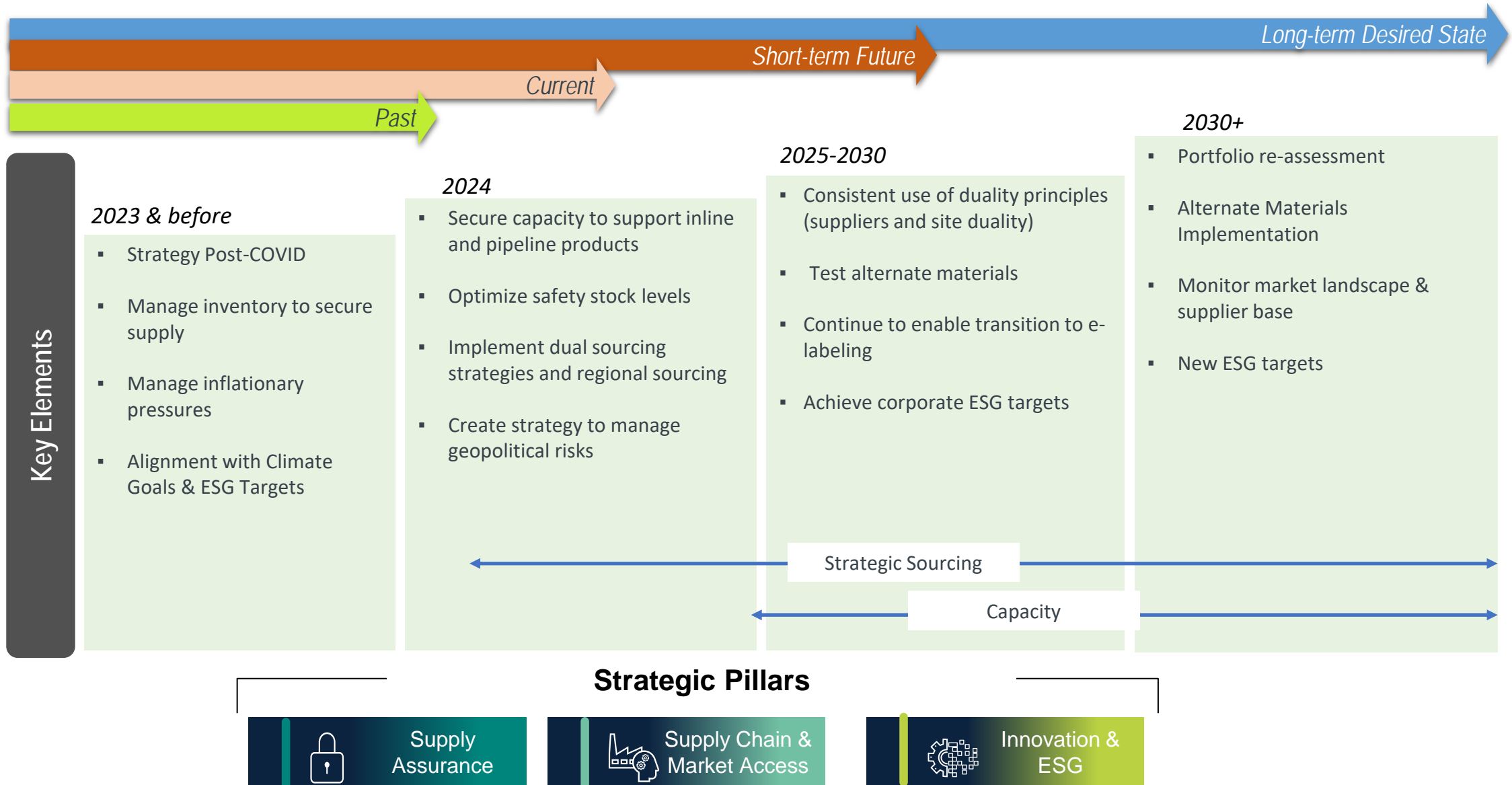
Increasing internal & external connectivity

Materials & Tech

Blister material – next gen materials (non-PVC, recyclable)

Plastic bottles – next gen material and mfg. processes

Category Roadmap Through 2030+



Overview Recap

- ✓ Complex Category
- ✓ Challenges: Supply Chain Risk, Regulations, ESG, Capacity Constraints (Injectors), Geopolitical Risks
- ✓ Opportunities: Regional Sourcing, Alternate Materials, Market Growth, Digital Transformation
- ✓ Accelerated Lunches
- ✓ New Packaging Configurations in Pharma