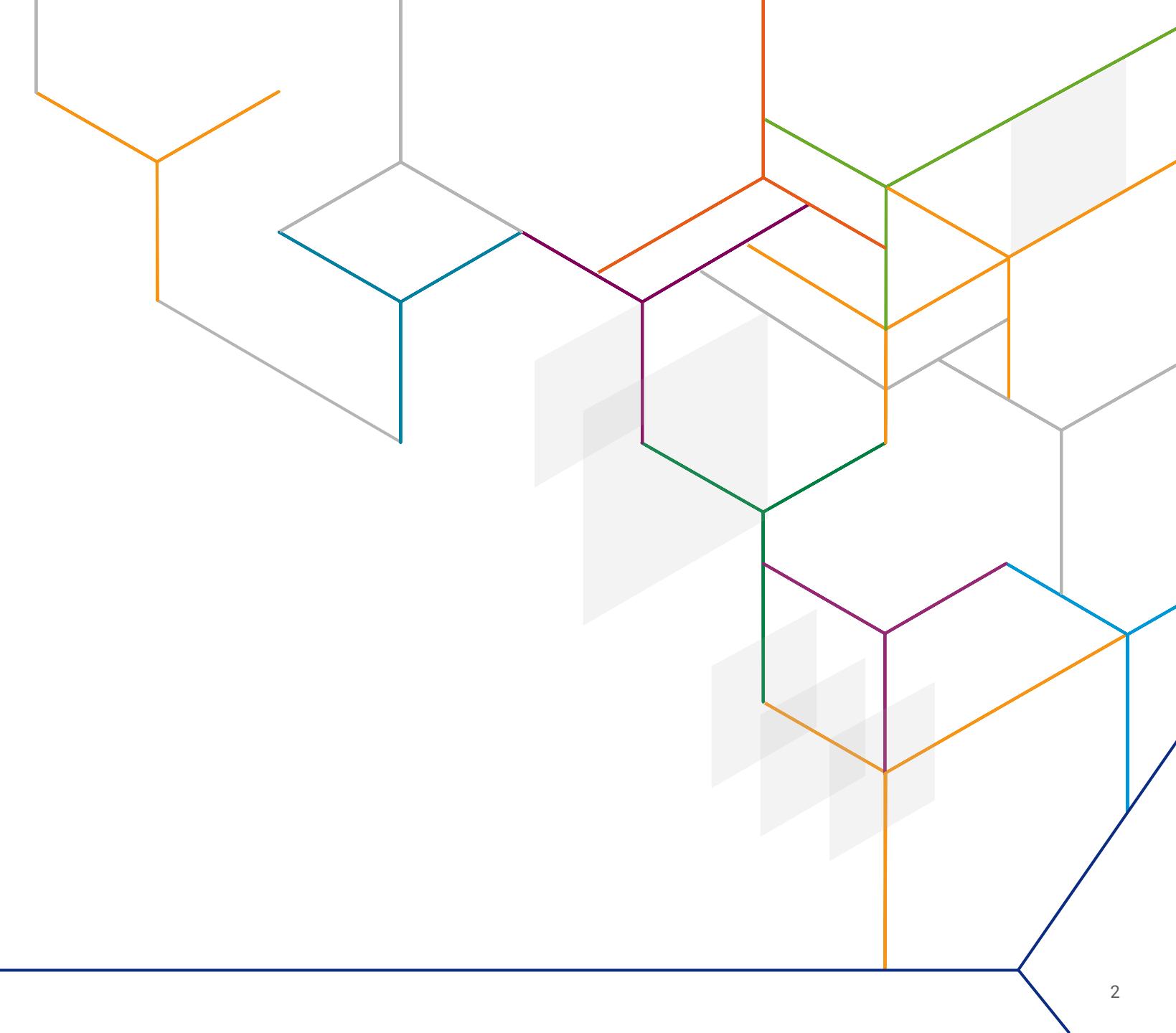


PepsiCo R&D External Innovation

Dianne Ripberger

PepsiCo Overview



About PepsiCo

PepsiCo products are enjoyed by consumers more than one billion times a day in more than 200 countries and territories around the world. PepsiCo's product portfolio includes a wide range of enjoyable convenient foods and beverages, including many iconic brands that generate more than **\$1 billion** each in estimated annual retail sales.

Global beverages



Performance

More than
\$79 billion
net revenue in 2021

Brands

Many iconic billion-dollar brands

Global convenient foods



Scale

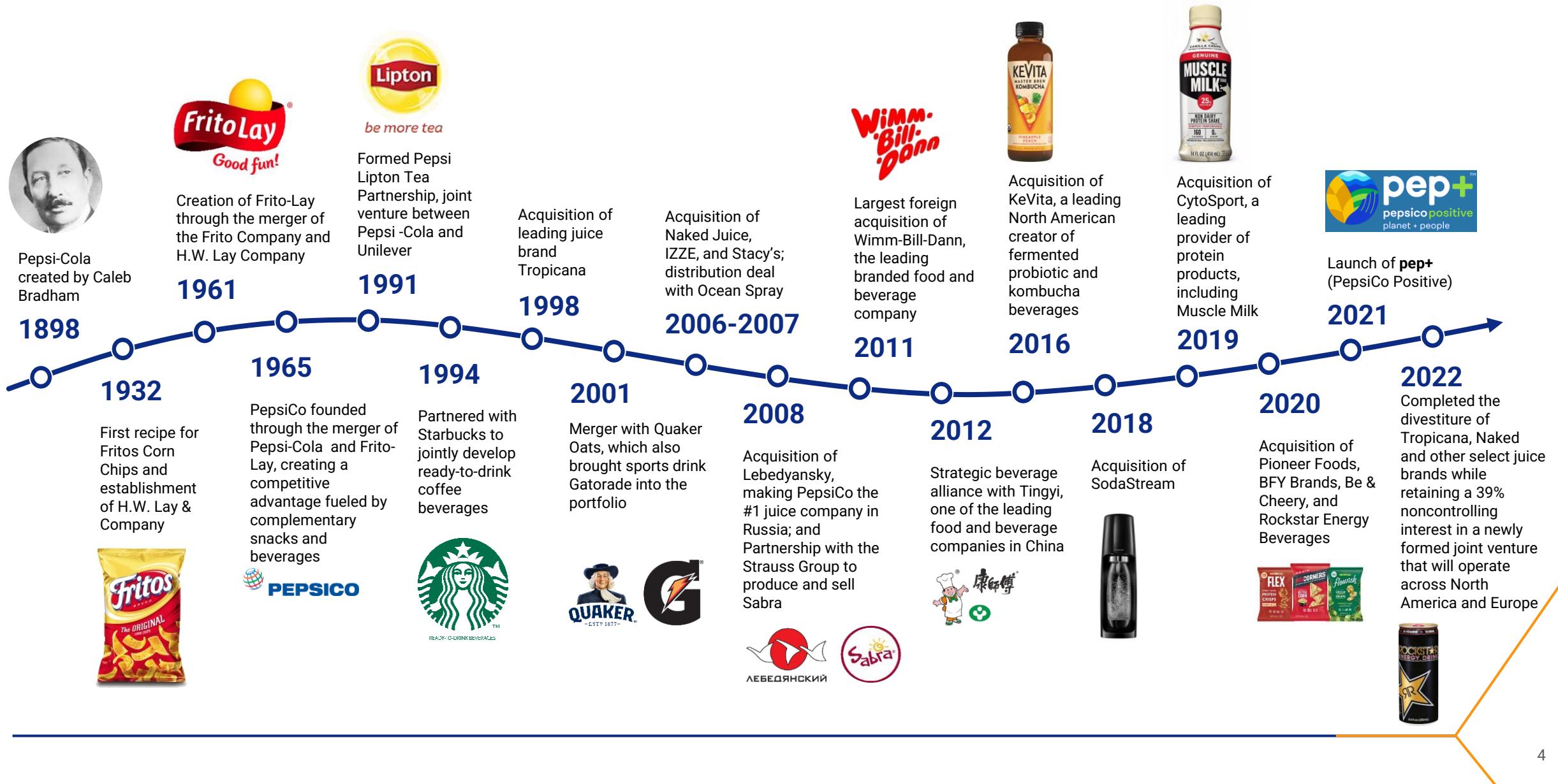
More than 200
countries
& territories



People

Approximately
309,000
employees

Our History



Our Mission & Vision

MISSION	Create more smiles with every sip and every bite						
VISION	Be the global leader in convenient food and beverages by winning with 						
THE PEPSICO WAY	FASTER Winning in the marketplace, being more consumer-centric and accelerating investment for topline growth		STRONGER Transforming our capabilities, cost, and culture by operating as one PepsiCo, leveraging technology, winning locally and globally enabled		BETTER Creating growth and value by operating within planetary boundaries and inspiring positive change for the planet and people		
							
	BE CONSUMER CENTRIC	ACT AS OWNERS	FOCUS & GET THINGS DONE FAST	VOICE OPINIONS FEARLESSLY	RAISE THE BAR ON TALENT & DIVERSITY	CELEBRATE SUCCESS	ACT WITH INTEGRITY

Strong Portfolio of Iconic Brands

Many iconic \$1 billion brands



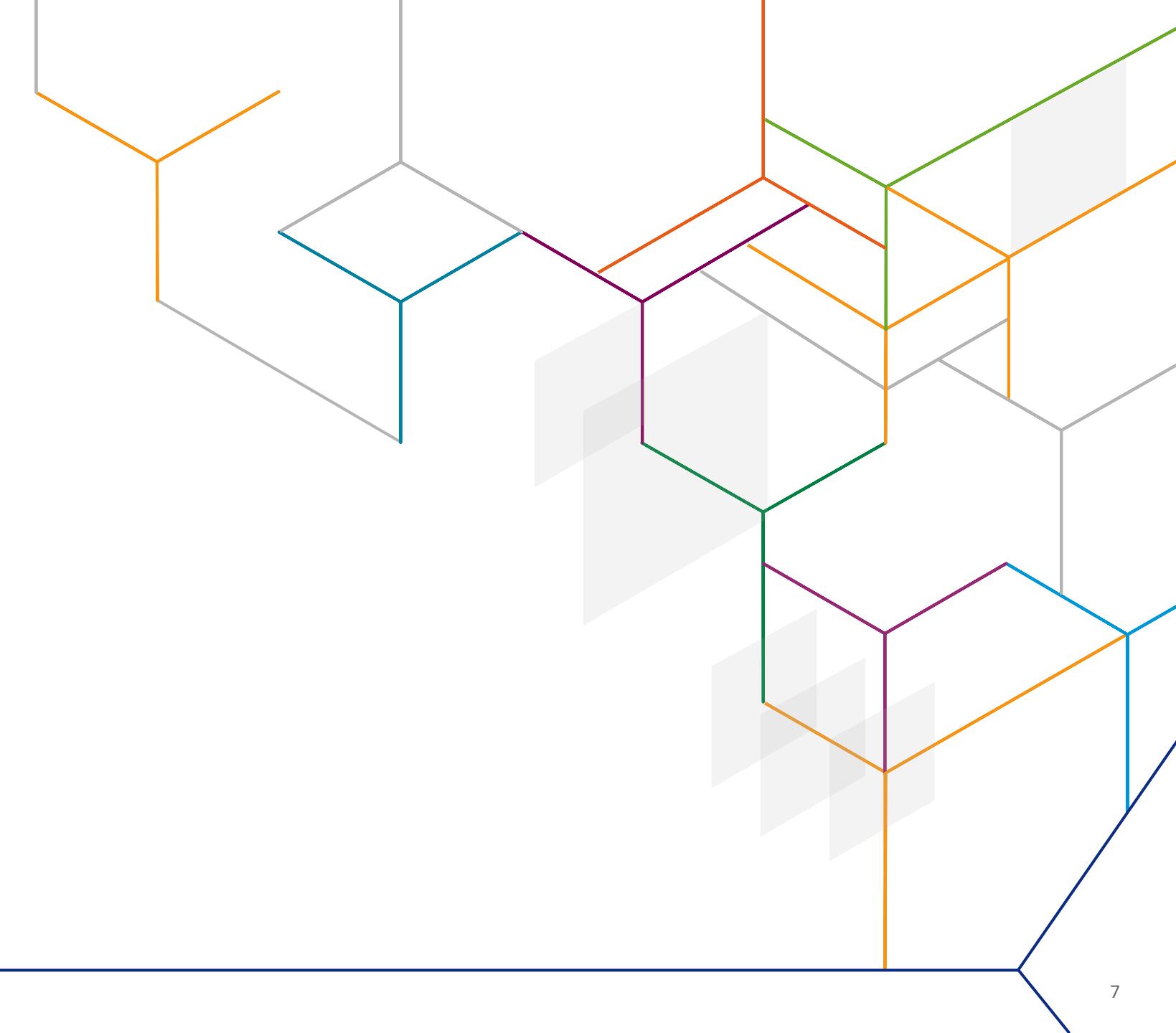
More than 30 \$250 million–\$1 billion brands



These brands generated more than \$1B or \$250-\$1B in 2021 estimated annual retail sales.

*Logos shown are not all inclusive.

Introducing pep+



PepsiCo Positive (pep+)



Strategic end-to-end transformation, with sustainability at the center of how PepsiCo will create growth and value by operating within planetary boundaries and inspiring positive change for the planet and people



POSITIVE AGRICULTURE

SOURCE crops and ingredients in a way that accelerates regenerative agriculture and strengthens farming communities



POSITIVE VALUE CHAIN

MAKE products in a way that builds a circular, inclusive economy



POSITIVE CHOICES

INSPIRE people through our brands to make choices that create more smiles for them and the planet

pep+ Key Pillars



POSITIVE AGRICULTURE

Spread regenerative agriculture across

7 million acres

by 2030

Sustainably source



100%

of our key crops + ingredients by 2030

Improve the livelihoods of more than

250,000 people

in our agricultural supply chain and communities

by 2030



POSITIVE VALUE CHAIN



Achieve

Net- Zero emissions

by 2040

Cut virgin plastic per serving by

50%

across our global food & beverage portfolio by 2030



Continue to invest more than

\$570 million

towards our Racial Equality Journey



Net Water Positive

Reduce use + replenish more by 2030



POSITIVE CHOICES

Evolve our portfolio of products so they are better for the planet + people, by:



- ✓ Diversifying ingredients
- ✓ Expanding position in nuts & seeds category
- ✓ Accelerating science-based targets
- ✓ Scaling little to no single-use packaging platforms

Leverage our iconic brands to inspire positive choices

Lay's will support farmers moving to regenerative practices



2020 Sustainability Progress Highlights

As of 2020, we met nearly **60%** of our current global electricity needs from **renewable sources**



As of 2020,
71% of our foods portfolio volume in our top 23 foods markets met our 2025 saturated fat reduction target, progress toward our goal of 75%



In 28 countries, we achieved **100%** **sustainably sourced direct-sourced crops** (potatoes, whole corn, oats and oranges) in 2020



Reduced our absolute GHG emissions across our value chain by **5%** in 2020, measured versus a 2015 baseline



22 global markets now offer a PepsiCo product in **100% rPET packaging**



Delivered safe water access to

55M



people, progress toward our



Together with The PepsiCo Foundation, we invested over \$71 million in COVID-19 relief globally and provided over



145M

meals to communities and families impacted by COVID-19 in 2020



In 2020, we replenished in excess of

3.2B

liters of water into local watersheds working in collaboration with local and internal partners and stakeholders



In 2020, together with The PepsiCo Foundation, we committed to **investing**

\$570M+

over the next five years to support Black and Hispanic businesses and communities, address issues of inequality and create opportunity





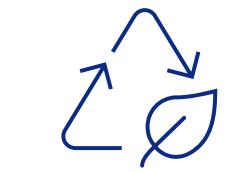
Introduction to XI



Internal PepsiCo R&D Capabilities – Seed to Shelf



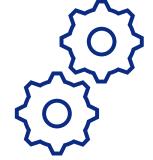
INNOVATION
MANAGEMENT



SUSTAINABILITY



CULINARY



EQUIPMENT
DEVELOPMENT



CLINICAL SCIENCE



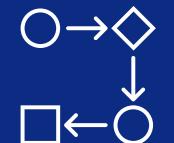
SENSORY



AGRICULTURE



FOOD SCIENCE



PROCESS
ENGINEERING



NUTRITION
SCIENCE



PACKAGING



FOOD SAFETY
& QUALITY



REGULATORY

FLAVORS



WATER
TECHNOLOGY



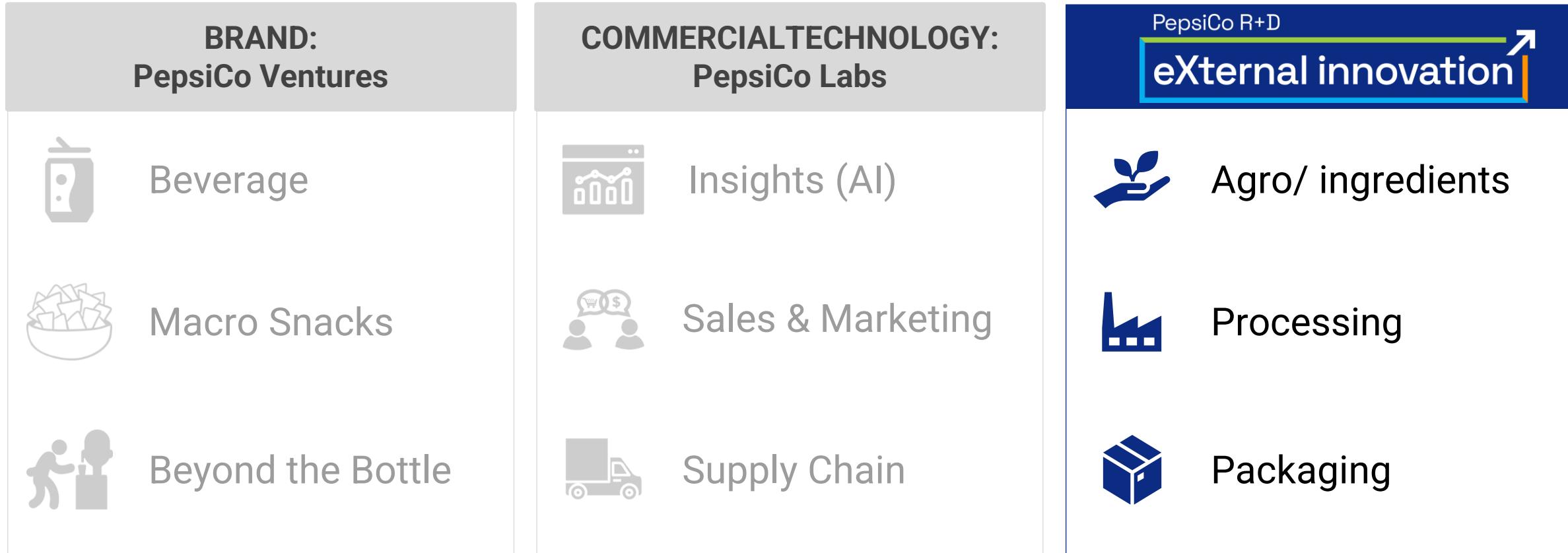
SPORTS SCIENCE



DATA SCIENCE



3 PepsiCo teams engage externally to solve critical needs



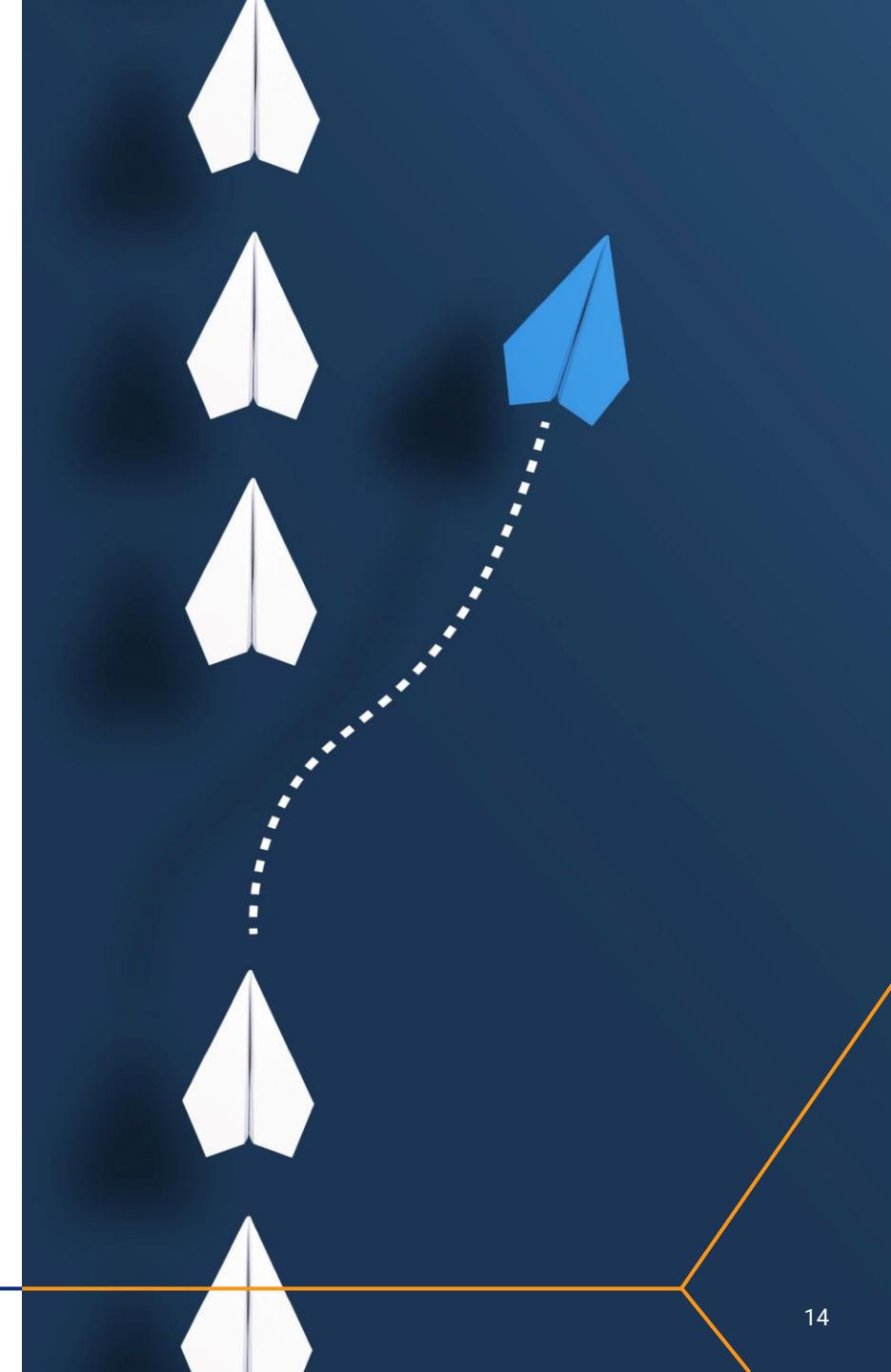
IDENTIFY | NURTURE | PARTNER

MINORITY INVESTMENTS | STRATEGIC PARTNERSHIPS

XI Mission

XI complements & augments internal R&D capabilities

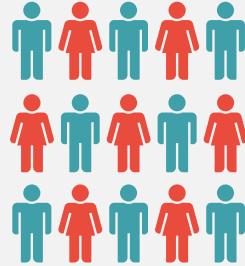
Provide a seamless **external partnering** capability to accelerate PepsiCo's **innovation** agenda, **mitigate development risk** and uncover unique **new business opportunities**



XI is part of PepsiCo R&D



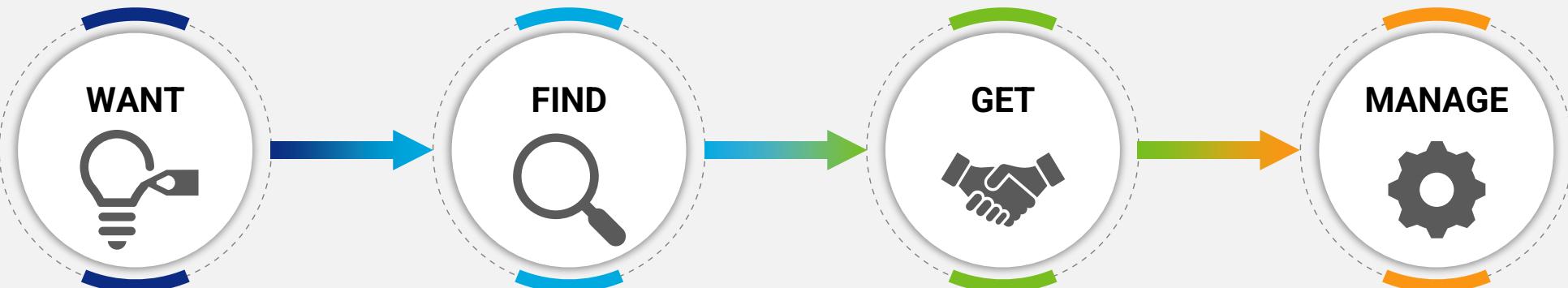
WHO



15-person

Global team comprised of Technology Scouts & Analysts

How



Where

XI manages the partner ecosystem across the following pillars

Academic Partners

Universities, Research Organizations

Commercial

Strategic Suppliers, Customers and Peer Companies

Venture

Startups, Funds, Accelerators

Invention Networks

Open Innovation
Intermediaries, Consultants, Trade Organizations

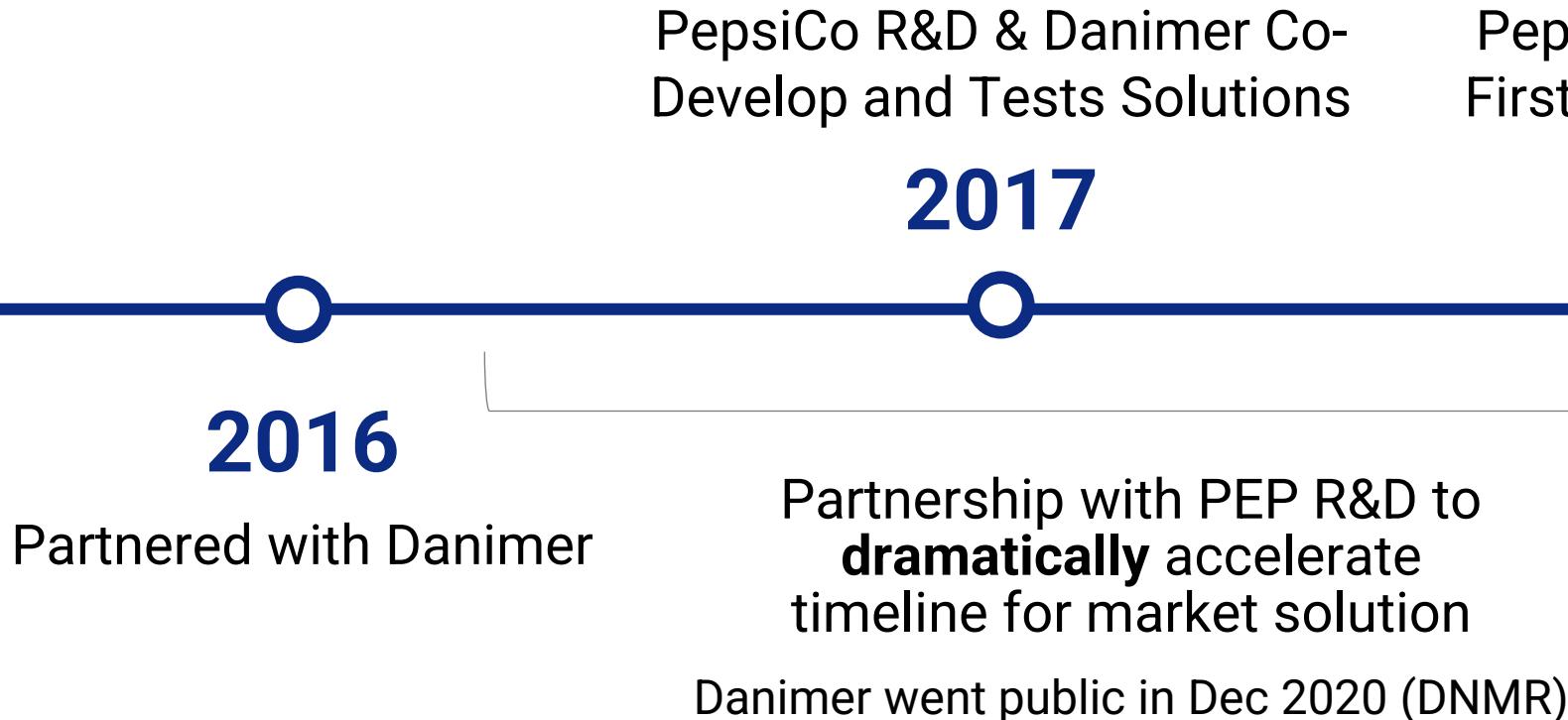
Consortia

Public/Private Partnerships

XI – A Successful Story: New Packaging Technology



ADVANTAGE SUSTAINABLE RESINS FOR FLEX BAGS





Needs and Opportunities



Focus Areas for PepsiCo R&D



Process & Equipment	Ingredients & Flavors	Packaging & Materials	Sustainability & Agriculture	Digital Transformation
Process Digitalization	Sugar/Salt/Fat Reduction	Biodegradable & Other Disruptive Materials	Regenerative Agriculture	Consumer-based Product Insights
Novel Food Manufacturing Processes	Flavor Technology	Bio-based, Reduced-carbon Plastics	GHG Reduction Technologies	Automated Sensory Analysis
Rapid Food Safety & Quality Testing	Functional Ingredients	Advanced Recycling	Water Footprint Reduction	Connected & Smart Technology
Biotransformation	Label Simplification (e.g., flavor, color)	Enhanced Consumer Experience	Manufacturing Efficiency (speed, water, energy, etc.)	Health Management & Monitoring
Retail Equipment (dispensers, coolers, vending)	New Substrates	Gas/Moisture Barrier	Zero Waste/ Circular Economy	Provenance/ Traceability

2022 Technology Needs



- **Zero sugar tools** (new ingredients, aftertaste mitigation, mouthfeel modification, etc.)
- New **natural preservatives, colors, flavors, and functional ingredients**
- **Differentiated packaging** (e.g., multi-sensory, connected, functional)
- **Advanced recycling** (e.g., non-bottle PET, multi-layer films)
- **Biodegradable polymers** for food and beverage packaging
- Economical **gas/moisture barrier for PET, paper & films** while maintaining recyclability or compostability
- **High efficiency heating; gentle dehydration; novel biotransformation** (e.g., enzymatic modification)
- **Circular water, minimal liquid discharge; Atmospheric water generation; Improved water efficiency**
- Economical and/or advantaged **cooler/vending solutions**
- **Rapid allergen or pathogen detection**
- Microbiome understanding/improvement and other **wellness & health management** technologies
- Solutions to **reduce GHG emissions** across the value chain (e.g., agriculture, processing, packaging)
- Technologies to enable **process digitalization** (e.g., sensors, controls, AI platforms, etc.)

PepsiCo Open Innovation Portal

The **External Innovation (XI)** team within PepsiCo R&D provides seamless **external partnering** capability to accelerate PepsiCo's **innovation** agenda, **mitigates development risk**, and uncovers unique **new business opportunities**.



SPOTLIGHT



About External Innovation



Operating Model

External Innovation (XI) is part of PepsiCo R&D comprised of 15-person **Global** team of Technology Scouts and Analysts that leverages the **Want/Find/Get/Manage** open innovation Framework



WAYS OF WORKING



Want

XI works with internal R&D stakeholders to define high priority technology needs.



Find

Leveraging our vast external partner network, XI determines the best method to source solutions.



Get

XI works with R&D and potential partners to plan, structure and execute deals.



Manage

From start to finish, XI remains an integral part of the team.

PARTNER ECOSYSTEM



Academic

Universities, Research Organizations



Commercial

Strategic Suppliers, Customers and Peer Companies



Venture

Startups, Funds, Accelerators, etc.

About XI

PepsiCo's External Innovation (XI) team, part of the company's Global Research & Development (R&D) organization, actively scouts for, identifies and develops strategic partnerships with external collaborators. The goal is to locate key external insights, business models, technical unlocks and new capabilities that, when partnered with our robust R&D expertise, will yield disruptive innovation in our core products and new and emerging products. We are currently exploring novel technologies that have the potential to dramatically impact our food and beverage portfolio. We are interested in improving all facets of our value chain - from raw material inputs all the way to the consumer experience - and identifying global efficiencies in areas including crop science, ingredients, processing, packaging, equipment, distribution/fleet, retail and eCommerce.

MISSION

Provide a seamless external partnering capability to accelerate PepsiCo's innovation agenda, mitigate development risk and uncover unique new business opportunities



"PepsiCo R&D is committed to being at the forefront of innovation, which is why we created the Open Innovation Portal to be a central hub for R&D's external innovation efforts. By unlocking new capabilities and leveraging the value of external partnerships, the portal allows the R&D organization to become Faster, Stronger and Better and deliver breakthrough innovation for PepsiCo."

Rene Lammers

Executive Vice President and Chief Medical Officer, PepsiCo



Submit your solutions to PepsiCo R&D's technology needs

<https://externalinnovation.pepsico.com/>

THANK YOU

