



Food Waste Reduction Solutions for Retail

Less Waste, More Value



1/3 of all food gets wasted: this is everybody's problem!

Retailers face a once-in-a-generation opportunity to transform their food value chains, reduce food waste and unlock business potential.

Here's how you can:



Improve business performance



Meet your customers' changing needs

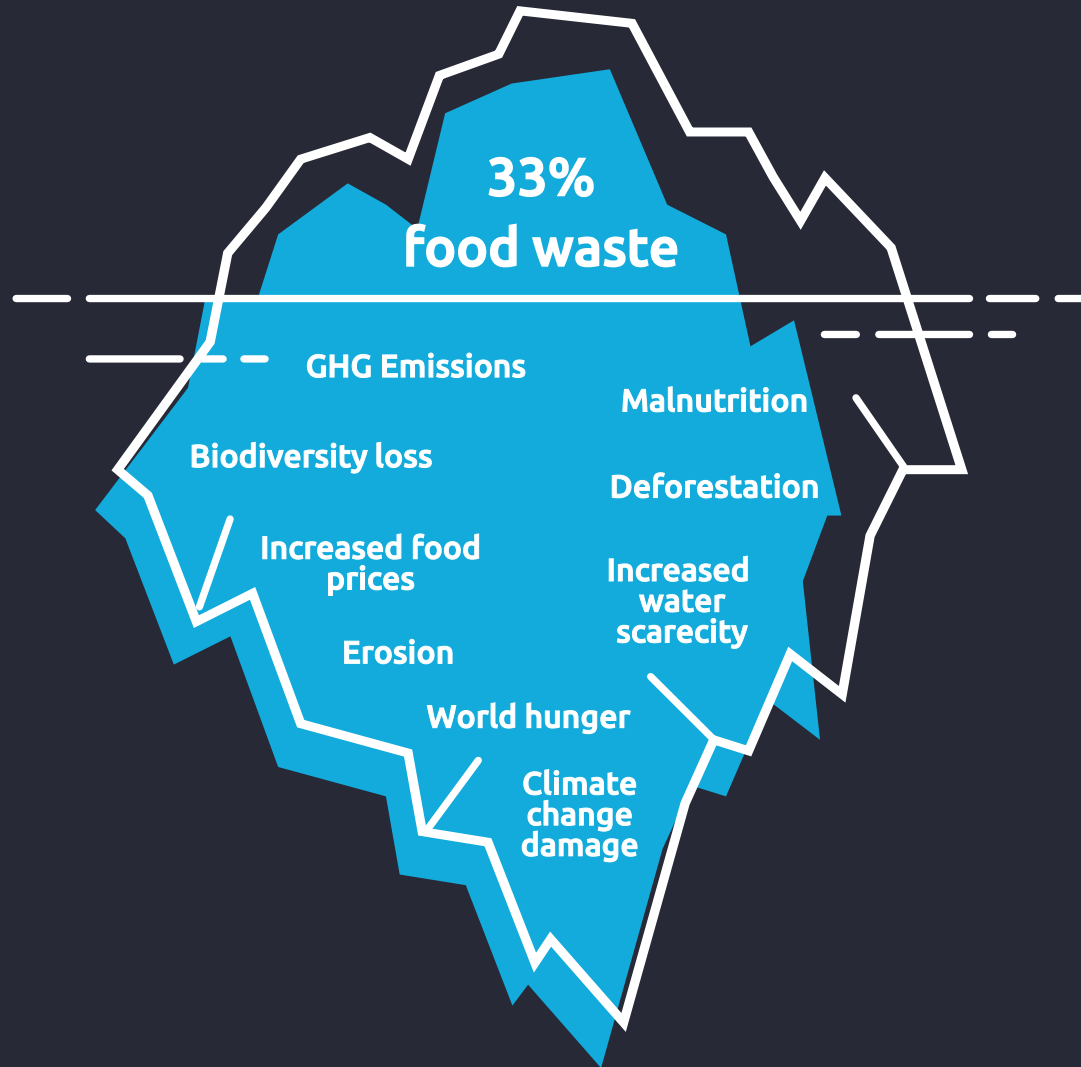


Contribute to a better world





This waste brings substantial seen and unseen consequences



Economic impact

\$ 1 trillion is lost due to food waste

Environmental impact

8-10% of global GHG emissions

Biodiversity is threatened

Resources are depleted

- Up to 21% of freshwater, 19% of fertilisers, 18% cropland, and 21% of landfill volume is devoted to food that no one will ever eat.

Social impact

Saving 50% of the food currently lost or wasted could **end world hunger**

Sources: UNEP; FAO; WWF, Capgemini Research Institute



Food is wasted throughout the value chain



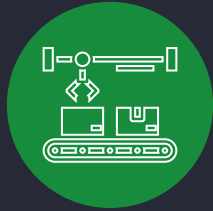
Agricultural Production



Post-Harvest Handling



Upstream Distribution & Storage



Manufacturing, Processing, & Packaging



Downstream Distribution & Storage



Wholesale & Retail



Food Service & Household Consumption

Food loss

Food waste

48%

~1.2 billion tons are lost in farms and post-harvest stages

15%

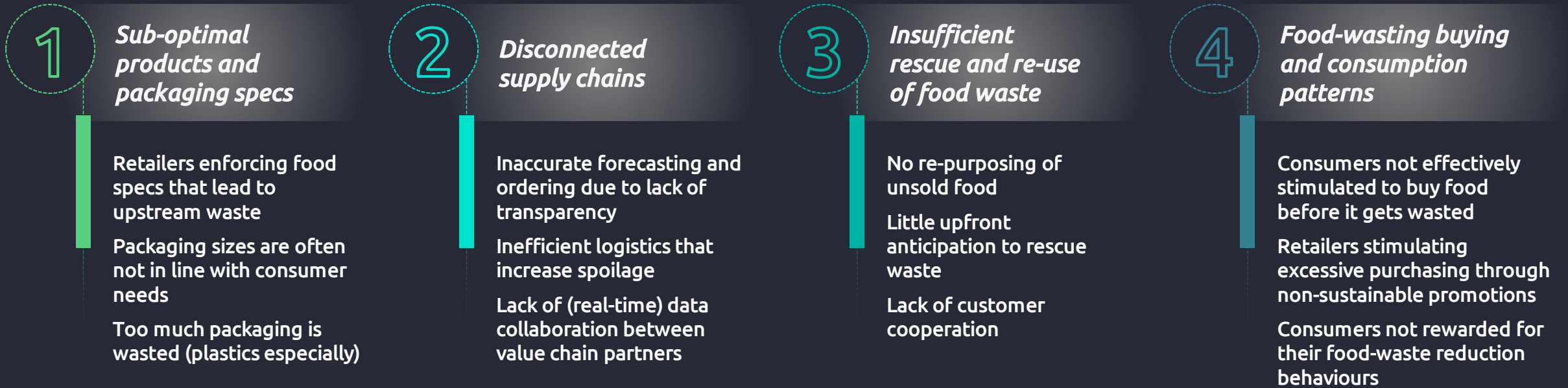
~370 million tons are lost in processing, storage, and distribution

37%

~931 million tons are wasted at the retail and consumption stages



Retailers play a pivotal role in addressing the root causes across the value chain



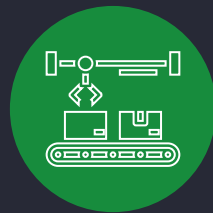
Agricultural Production



Post-Harvest Handling



Upstream Distribution & Storage



Manufacturing, Processing, & Packaging



Downstream Distribution & Storage



Wholesale & Retail



Food Service & Household Consumption



Retailers will benefit from the taking the lead across the value chain

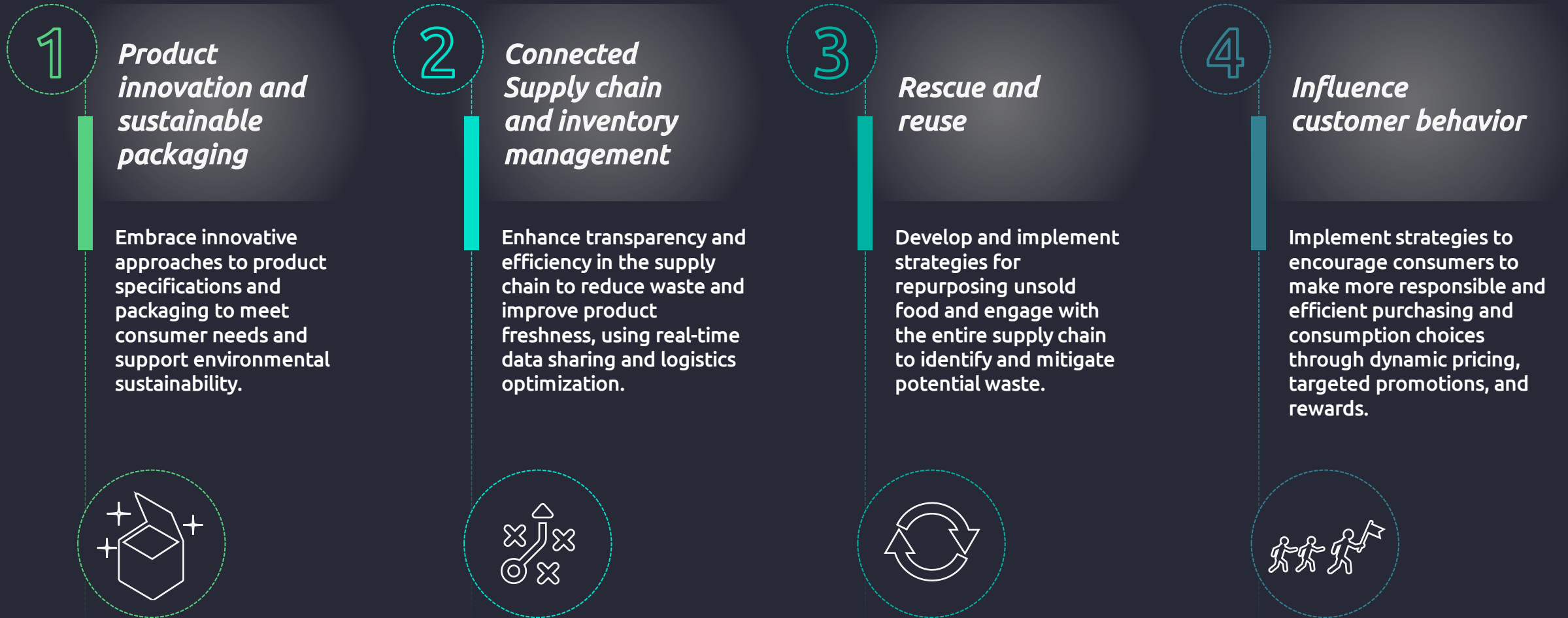
Baseline explanation

KPI's to celebrate





Retailers can use a palette of solution to address the root causes.





1

Product innovation and sustainable packaging

Solutions

- 1. Realign food specs**
Today, “natural,” “unique” and “diverse” are strong selling points. Work with stakeholders to redefine food specs.
- 2. Resize packaging**
Use data science to learn consumers’ actual consumption patterns, and design packaging that meets their needs.
- 3. Circular packaging**
Switch to circular packaging using Life Cycle Analysis (LCA), sustainable packaging design criteria and data analytics

Positive impact

Financial improvement

Reduced climate impact

Better compliancy

Improved brand image & customer satisfaction

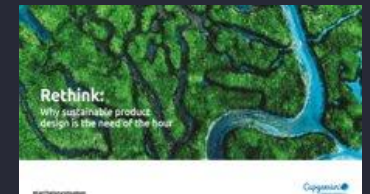
Example: Client success story

REWE



Thought leadership

Sustainable product design



Offerings & Partners

- Sustainable product design
- Life cycle assesment methodology
- Design to value





1

Client success story: Sustainable packaging strategy

REWE



Client problem statement

REWE, a German supermarket chain, wanted to redesign their packaging to reducing waste.

Their objectives were to:

- Minimize plastic and maximize recyclability
- Focus on private label products, as these are directly tied to the corporate brand
- Restructure their earlier pilot projects launched in 2018
- Increase their sustainable packaging toolset



Approach

- Together we defined a clear ambition and roadmap
- We analyzed their complete private label assortment
- We helped prioritize sustainable suppliers
- We supported the development of prerequisites for strategy implementation, including definition of KPIs, concept monitoring & reporting, systemic integration, empowerment of employees
- We implemented necessary tools, templates and guidelines



Results

- Definition of a clear strategic ambition:
 1. 100% recyclable plastic private label packaging by the end of 2025
 2. -20% plastic by 2025 for private label packaging
 3. 100% certified paper private label packaging by 2025
- Potential plastic savings of 240 tons per year
- New tools, processes and ideas for further IT developments



2

Connected supply chain

Solutions

- 1. Traceable and transparent supply chains:**
Increase transparency, enabling quick waste identification
- 2. Efficient Logistics (accelerate)**
Optimize logistics to minimize transit times and storage, reducing waste and increasing freshness.
- 3. Foster real-time data sharing**
Establish real-time communication channels among stakeholders to facilitate swift responses to changes, preventing delays and minimizing waste.

Positive impact

Financial improvement

Reduced climate impact

Better compliancy

Improved brand image & customer satisfaction

Client success story



Albert Heijn

Thought leadership

Intelligent supply chains



Offerings & Partners

- Intelligent Supply Chain (incl partner eco-system)
- Data for Net Zero / Sustainability Data Hub
- 'New ways of Data Sharing' with Google and CGF





2

Client success story: Next-gen replenishment



Client problem statement

In 2005, a leading Dutch supermarket implemented a state-of-the-art central replenishment system.

By 2017 the market had changed, and our client came to us with a set of new goals:

1. Grow online revenue.
2. Increase online assortment.
3. More focus on quality and freshness of assortment.
4. Customer promise of 100% availability.



Approach

We set up and ran a strategic program to upgrade their replenishment solution.

The approach included:

- Analyses of existing replenishment algorithms
- Developing and testing new algorithms by combining data analytics, AI and deep retail sector knowledge for smart ordering, forecasting.
- Improving data sharing with company and with partners
- Scaling and learning
- Capgemini delivered an improved self-learning forecast model for 'number of customer per store per day'.



Results

Supply chain efficiency:

- Higher-density truck loads
- Lower transportation costs
- More responsive supply chain
- Self-learning forecast model realizing increased accuracy
- Increased freshness of products instore

Sustainability:

- Lower food waste and increasingly fresh assortment
- Reduced fossil fuel consumption
- Contributed to reaching the client's food waste reduction target
- Projected carbon saving of 6,600 tCO₂e pa



3

Rescue and re-use

Solutions

- 1. Re-purpose unsold food**
Analyze food waste data from waste collectors to upcycle the waste streams. Use data-driven solutions to connect with downstream (local) parties to re-purpose the food.
- 2. Rescue to avoid waste**
Collaborate with suppliers to identify potential sources of waste in the supply chain
- 3. Educate and support consumers**
Develop eco-consciousness of consumers with too-good-to-waste and repackaging initiatives

Positive impact

Financial improvement

Reduced climate impact

Better compliancy

Improved brand image & customer satisfaction

Example: Client success story

Global CP company

We built a data-driven solution that identified where and how to intervene to prevent waste. This resulted in automated visibility of waste risks, 50% reductions of food waste (40% of actions were taken early enough to avoid third party selling) and plastic savings of 240 tons per year.

Thought leadership

The rise of circularity



Offerings & Partners

- 'Food Waste Intelligence' solution with Microsoft
- Design to value
- Circularity in Food retail
- Food Waste repurposing





3

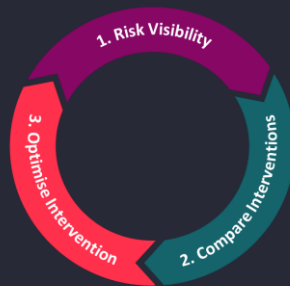
Client success story: Reducing food waste

Global CP company



Client problem statement

- Millions of Euros of expired food disposed of each year
- No effective risk visibility of when products would go to waste until it was too late.
- the client's main means of recovering COGS was heavy discounting to specialist partners
- No visibility of historical waste or waste mitigation actions



Waste Reduction Process



Approach

- Understanding the current process for waste management and data and identifying where value was destroyed
- Designing and building a custom web application to identify where to intervene to reduce or avoid waste, and prescribing the best actions to take for each waste risk
- Tracking waste interventions over time to break the waste cycle
- Live testing the solution to prove value and blueprint for scaling to different regions and product categories.

Technology stack: python web application, microsoft azure cloud



Results

- Automated visibility of waste risks and data-driven interventions
- Up to 50% reduction of waste (excl. Quality issues and raw materials)
- Up to 40% of actions were taken early enough to avoid selling to specialist discount partners
- Potential to unlock €37M over 3 years for european region, saving 5,900T of finished goods food waste (equivalent to 14,750T CO2)
- Project fees ~ 500K EUR on fixed price



4

Re-shape consumer behavior

Solutions

1. Dynamic Pricing

Data-driven and machine learning-based approach to continuously improve fresh food sales – reducing food waste with optimal mark downs

2. Sustainable promotions

Optimized promotion approach that stimulates and enables shoppers to responsibly buy and consume foods that meet their needs and leave no waste

3. Loyalty-rewards

Reward consumers for their waste-reduction behaviors via data-driven, personalized loyalty-programs

Positive impact

Financial improvement

Reduced climate impact

Better compliancy

Improved brand image & customer satisfaction

Client success story

Carrefour



Thought leadership

Consumer insights 2023



Offerings & Partners

- Partner-collaboration with Wasteless for dynamic pricing
- Data-driven CX (incl loyalty)
- Digital Core for Retail (incl. Promotion mgt)





4

Client success story: Dynamic Pricing



Client problem statement

For every €10B of fresh food revenues* the client was losing:

- €250-€400M in food waste
- €150-€250M in markdowns

Carrefour wanted to cut that in half

Markdowns for fresh food needed to be optimized to achieve their full revenue potential

* Based on European Average



Approach

A data-driven and machine-learning based solution that optimizes markdowns and reduces food waste to continuously improve fresh food sales

Stage 1

- BusinessCase, solution and data-preparation

Stage 2: Pilots (H2 2023)

- 4 pilot stores and 3 control stores
- Covering the meat category (high waste & value, 600 SKU's)
- 2 weeks to launch first store
- 4 month pilots with measured results

Stage 3: Full-scale deployment (Jan 2024 onwards)

- Starting first with 200 stores
- Expanding to more SKU's and categories
- End-2-end automations (towards automated shelf management, including 2D barcodes, full POS integration and electronic shelf labeling)



Results

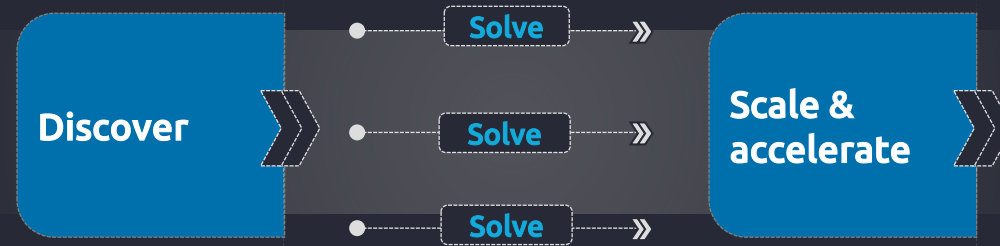
- Pilot store insights show strong performance of the pricing engine, increasing margins by +68% and reducing markdown costs by 40%, while reducing waste
- Full deployment is focused on achieving:
 - More profit
 - Less waste
 - Less store operation
 - More Customer Value



You build a portfolio of capabilities based on specific solutions...

... tailored to each food category...

- Bread and baked goods
- Fresh meat and fish
- Fruit and vegetables
- Dairy
- Ready meals
- and more...



...for lasting results.

- Food waste: - 50%
- Lower costs / Higher margin
- Lower CO2 emissions
- Increased Customer loyalty

Top five food waste categories (As % of purchase volume retailer)





What are the critical success factors ?



Dedicated focus on food waste

(Retailers have not yet embedded food waste reduction as a priority within their organisations and value chains)



Leverage new data & tech

(Retailers are lacking the data and technology foundations and advanced tooling to measure and improve their food waste efforts)



Drive impact at scale

(Though retailers have already had many small successes, it's proven difficult to scale to all food assortments, stores and suppliers)



Value chain collaboration

(As retailers tend to focus on what's nearby, they need new approaches and breakthrough collaborations with upstream trading partners)



Capgemini is your *perfect partner* in this journey



The value that Capgemini brings

- We help manage the change (processes, ways of working, waste-mindsets, KPI measurement)
- We enable and accelerate your initiatives by building and leveraging fit-for-purpose data, AI and technology capabilities
- We partner with you end-to-end to drive innovations across your enterprise. We're with you from your initial pilots, all the way to reducing food waste at scale, measuring those reductions, and continuously improving your performance
- As independent player across the value chain, we help shape improved trading partner collaborations to jointly take responsibility in reducing food waste

Focus on
Food waste

Advanced
Data & tech

Impact
at scale

Value
chain
collaboration

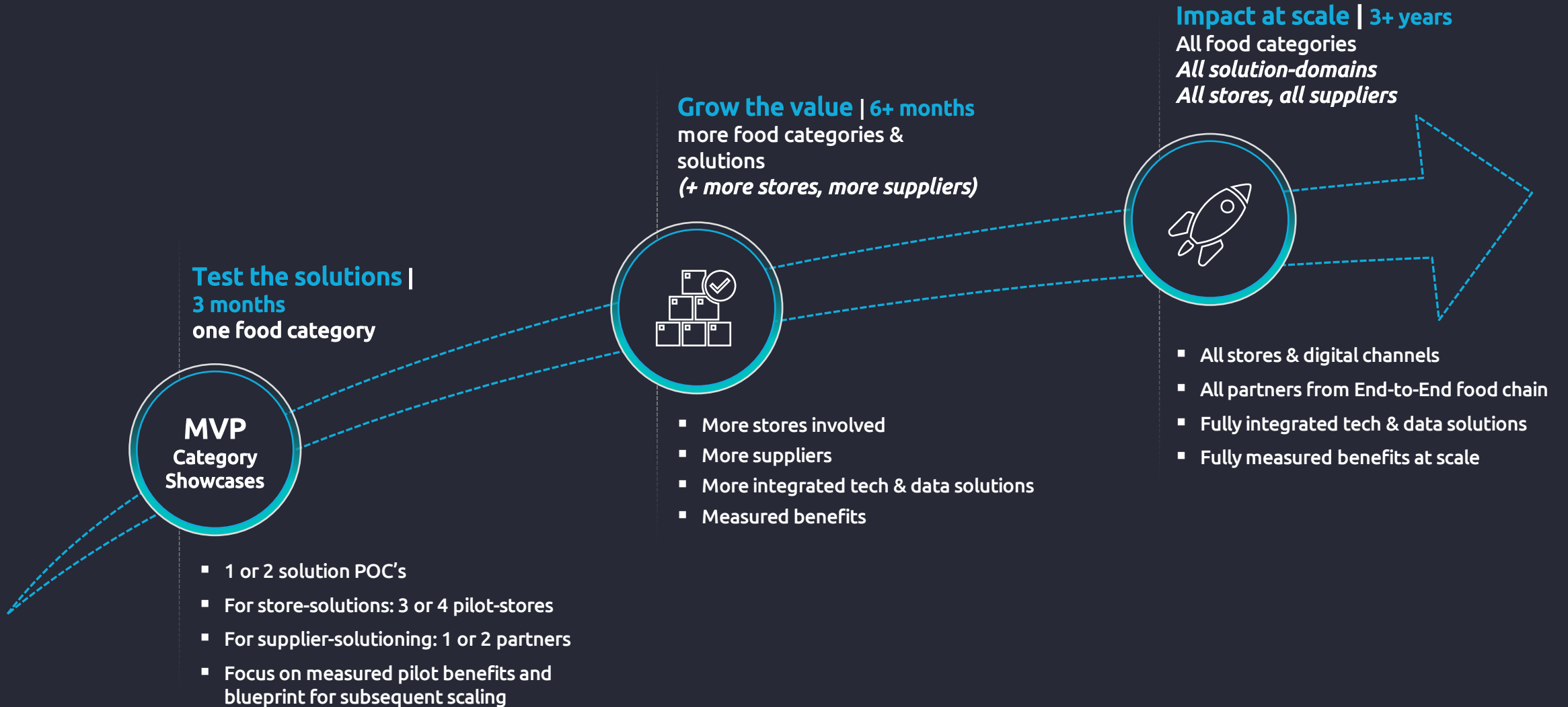
How Capgemini is different



- Our business transformation capabilities are based on our deep understanding and extensive experience (and thought leadership) within the grocery business
- We are masters in data, AI and technology, with a strong track-record in leveraging those skills to achieve business goals
- We are an end-to-end partner with the full set of capabilities you need to reach your goals. We support you from initial strategy and POC's to full-scale, enterprise-wide transformation
- We are deeply connected with key players across the whole food value chain (Agri, CP, distribution, Retail), and have extensive experience in facilitating and accelerating value chain collaborations

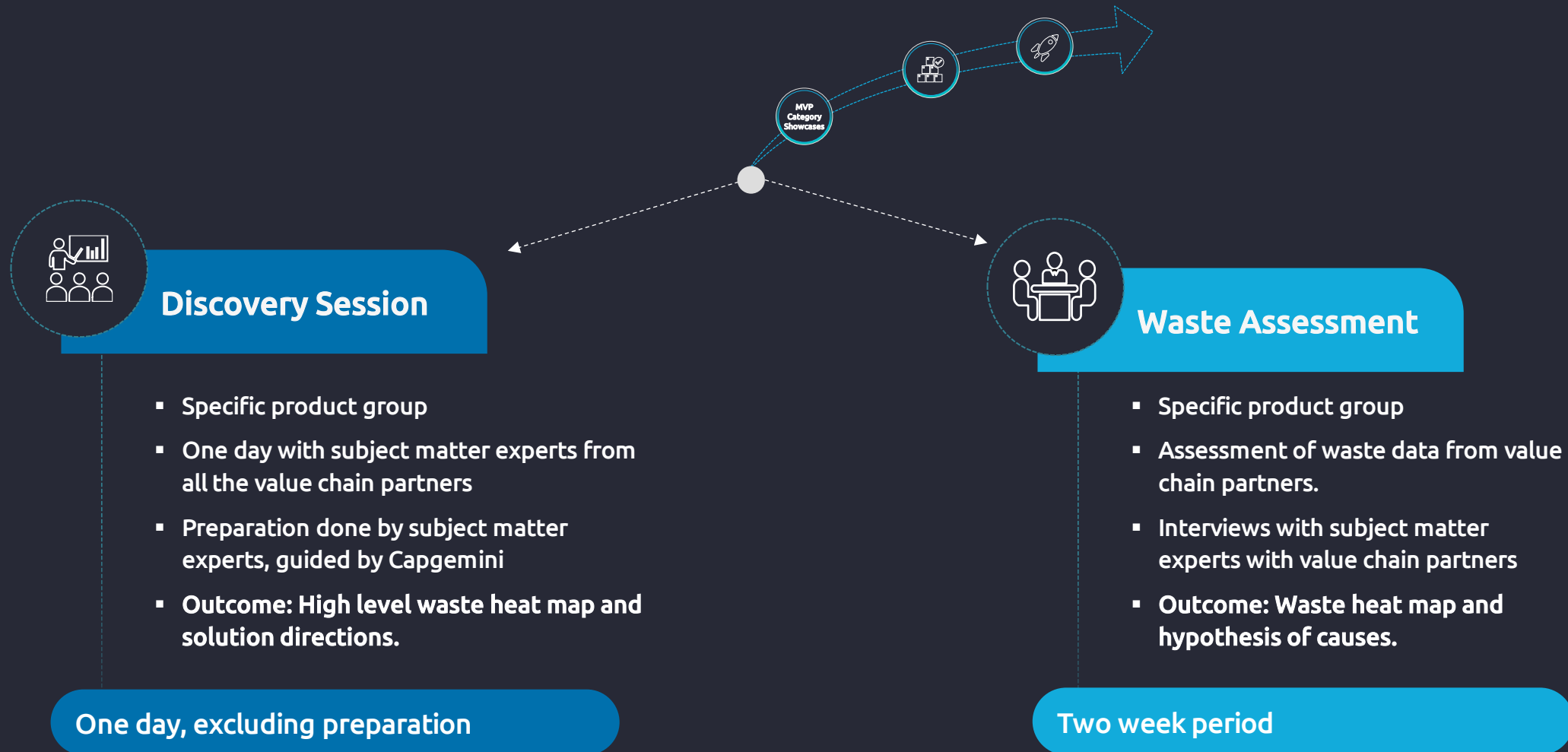


Think Big, Start Small”: We can help *orchestrate the transformational journey* to reduce food waste at scale





Act now! Choose one category...Let's demonstrate how we can start incrementally reducing more food waste.



About Capgemini

Capgemini is a global business and technology transformation partner, helping organizations to accelerate their dual transition to a digital and sustainable world, while creating tangible impact for enterprises and society. It is a responsible and diverse group of 340,000 team members in more than 50 countries. With its strong over 55-year heritage, Capgemini is trusted by its clients to unlock the value of technology to address the entire breadth of their business needs. It delivers end-to-end services and solutions leveraging strengths from strategy and design to engineering, all fueled by its market leading capabilities in AI, cloud and data, combined with its deep industry expertise and partner ecosystem. The Group reported 2023 global revenues of €22.5 billion.

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