

# How to Implement AI in Your CPG Innovation Workflow to Maximize Outcomes



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The  
Deciding  
Factor

**Design,  
Formula,  
Taste  
All powered  
by AI**



# Agenda

- 1** | **Evolving CPG challenges necessitates a revamped approach**
- 2** | Taxonomy of AI in Food: what use cases and what success stories do I need to know?
- 3** | Strategies for CPG to implement AI



## New product failure after launch

About 75% of CPG and retail products fail to earn even \$7.5 million during their first year

*“We haven’t done the research yet, but we know anecdotally that it works and is totally safe.”*

Partner in a firm that specializes in product launches



## Inefficient design of experiments

New product formulation or reformulation can sometimes need 50-250 experiment trials.

*“Implementing AI reduced the development time for new products by 60%–65%, and we have been able to schedule our R&D pipeline on a quarterly basis.”*

Senior Director & Head of Data & Analytics at a leading CPG company



## Inventory mismanagement and product loss

Retail stores are either losing money or leaving potential revenue on the table just for the lack of predictive inventory management.

*“By leveraging AI-powered demand forecasting, CPG companies can make better-informed decisions about production levels, promotional activities, and distribution strategies.”*

A leading demand forecasting startup



**It's time to  
revamp your  
strategy**

# Three key questions for every CPG company to answer before diving deep into the realm of AI



## Question 1

What are the AI use cases across different stages of a full life cycle of product development?

## Question 2

How are leading AI startups and CPG companies interacting with the space?

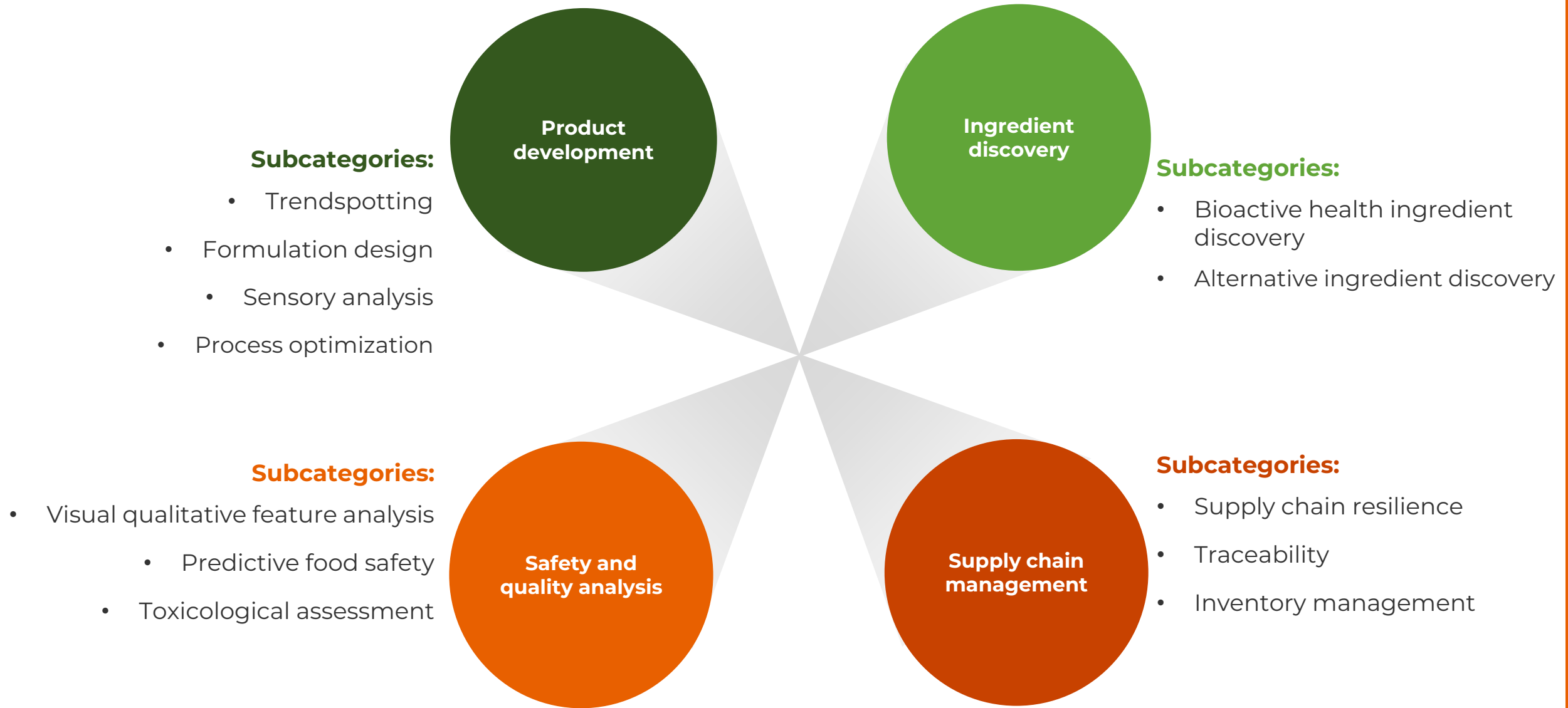
## Question 3

What criteria define the right implementation strategy for my business?

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# AI in food and beverage





# PRODUCT DEVELOPMENT

**Trendspotting:** Analysis of public data like social media to predict future trends

**Formulation design:** Efficient design of experiment (DOE) for matching of ingredients

**Sensory analysis:** Automated sensory panel to predict the sensory panel results

**Process optimization:** Making processes (like precision fermentation) more efficient

## AI IN PRODUCT DEVELOPMENT

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## AI IN PRODUCT DEVELOPMENT



### FOODPAIRING

#### Formulation Design-

Digitizes products to understand flavor profiles and creates a flavor preferences map for target consumers.

# Kellogg's applies Foodpairing's AI platform to launch a new Pringles flavor

## Challenge

Kellogg's team was in search of launching a uniquely flavored Pringles that matched well with popular beverages.

## Approach

Utilizing Foodpairing algorithms, millions of flavor combinations were generated and evaluated through digital twin technology, leading to the selection of the top three flavors in collaboration with the Pringles new product development team.

## Impact

A new **line extension was launched in an expedited manner**, featuring a unique roast beef and bursting mustard flavor, which targeted pairings with beers.



# INGREDIENT DISCOVERY

**Bioactive health ingredient discovery:** Combining publicly available data with metabolomic analysis for discovering new compounds

**Alternative ingredient discovery:** Pertains to the alternative protein/meat space for discovering new sources of alternative ingredients.

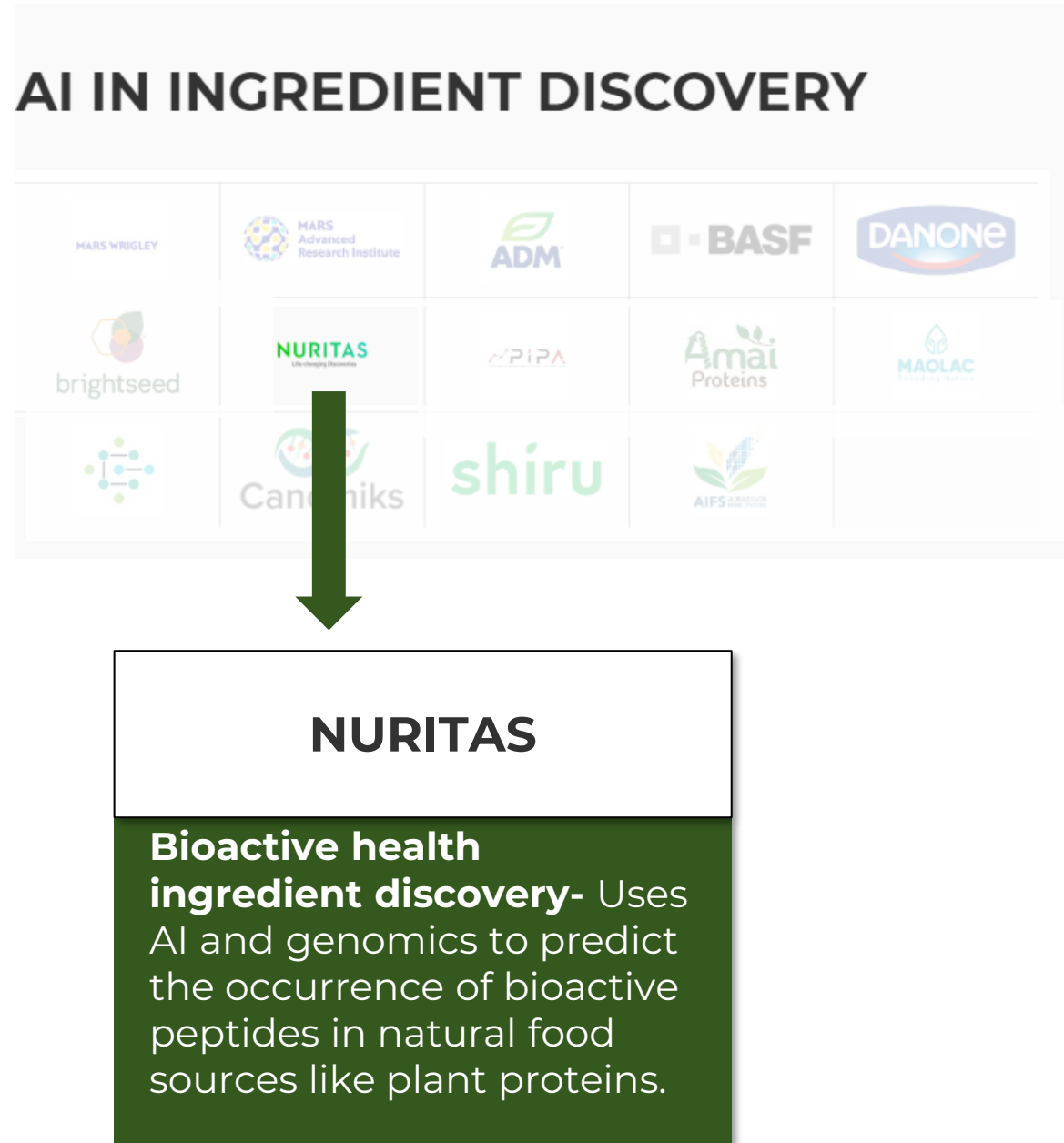
## AI IN INGREDIENT DISCOVERY

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# BASF leverages AI to rapidly design novel bioactive ingredients

## Challenge

BASF was in search of a new bioactive compound with antiinflammation feature to launch a new sports nutrition line.

## Approach

BASF used Nuritas' AI platform, which employs a combination of AI and genomics to predict the occurrence of bioactive peptides in natural food sources.

## Impact

The two were able to launch a novel rice protein-based bioactive ingredient, "PeptAlde", **within only two years** from discovery to launch.





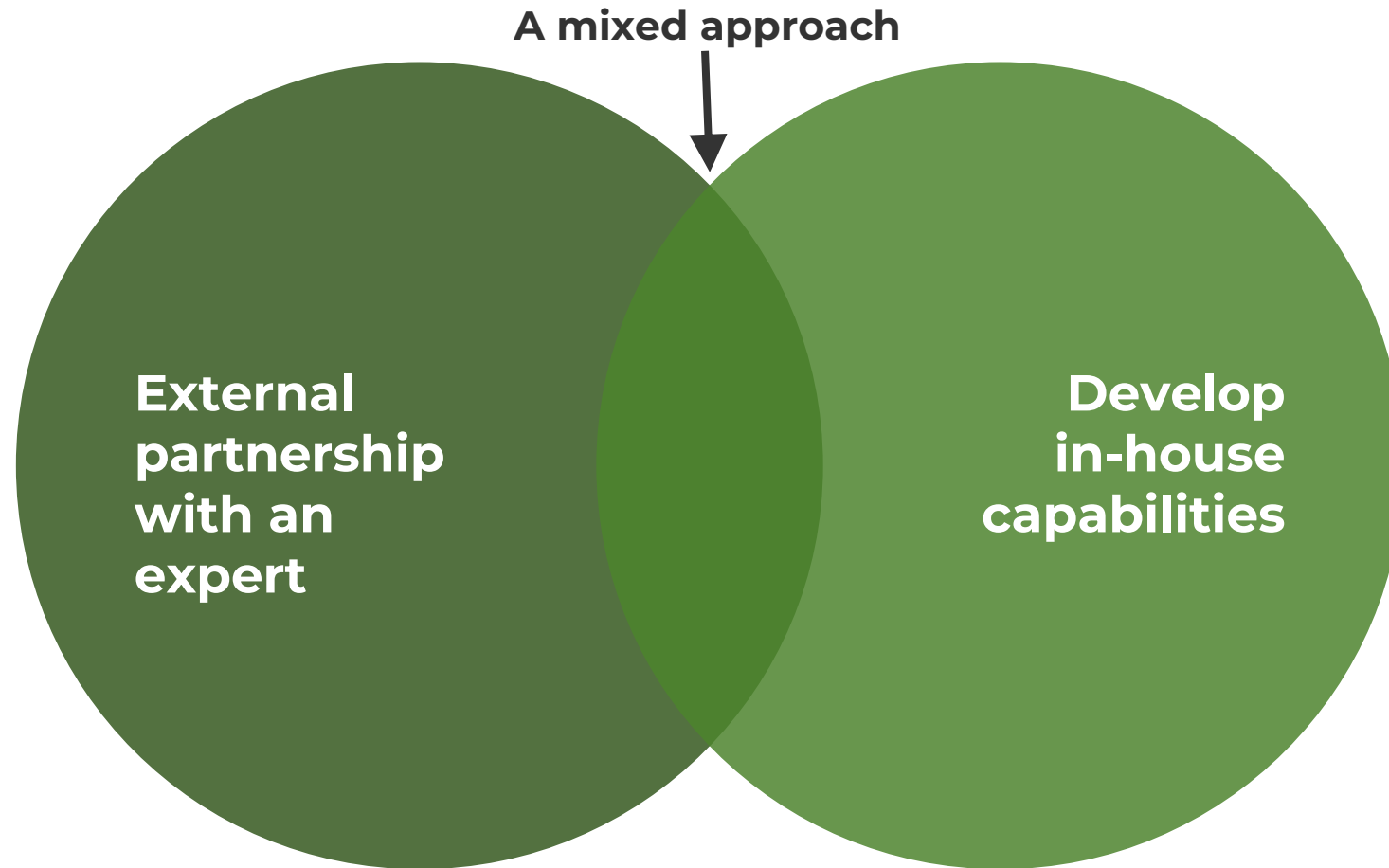
**How can I  
implement AI  
use cases in  
my  
organization?**

# Agenda

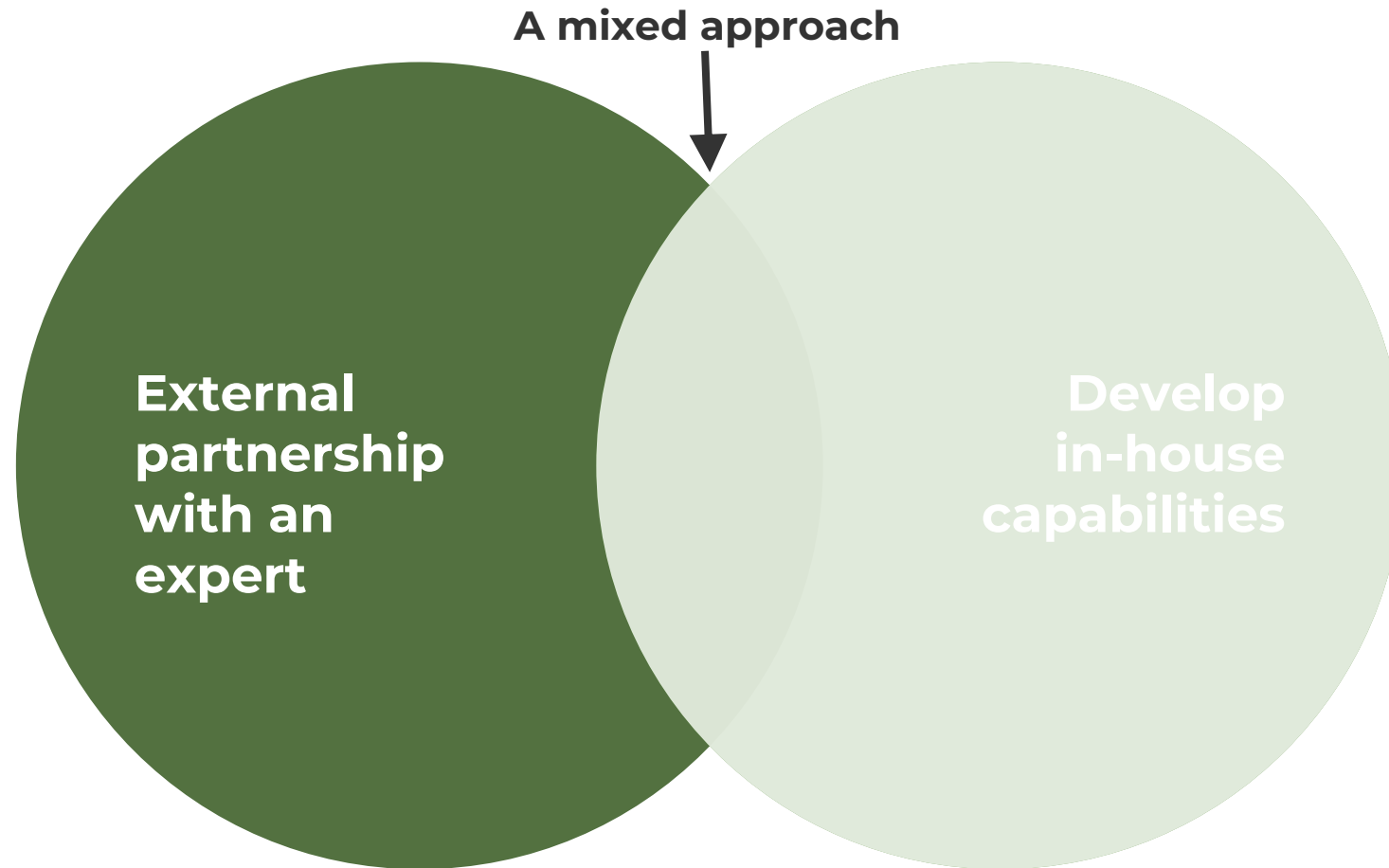
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- 3 | **Strategies for CPG to implement AI**



**Your implementation strategy depends on multiple factors, and will require a combination of internal development and external partners**



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# If any of the following three criteria holds true, then “outsourcing” is the right strategy for you

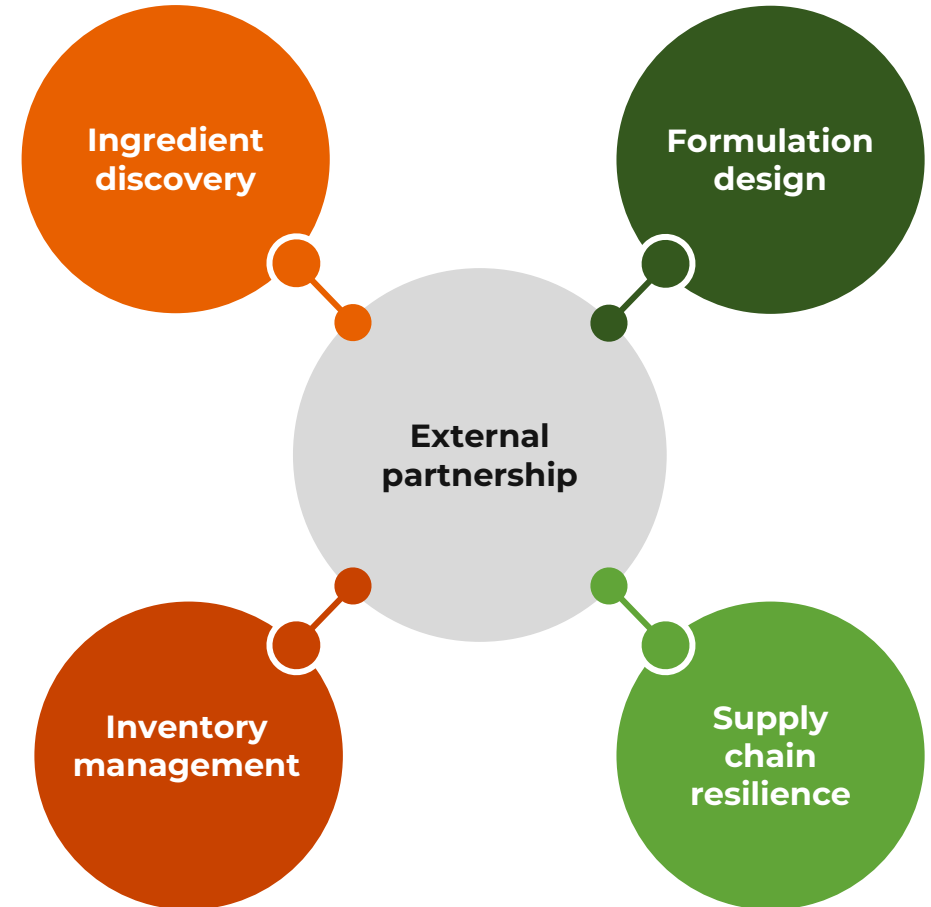
If the target product is out of the scope of your company’s focus/expertise

OR

If you have resource and infrastructure constraints within your organization

OR

You are just entering the use case and need to run pilot trials first

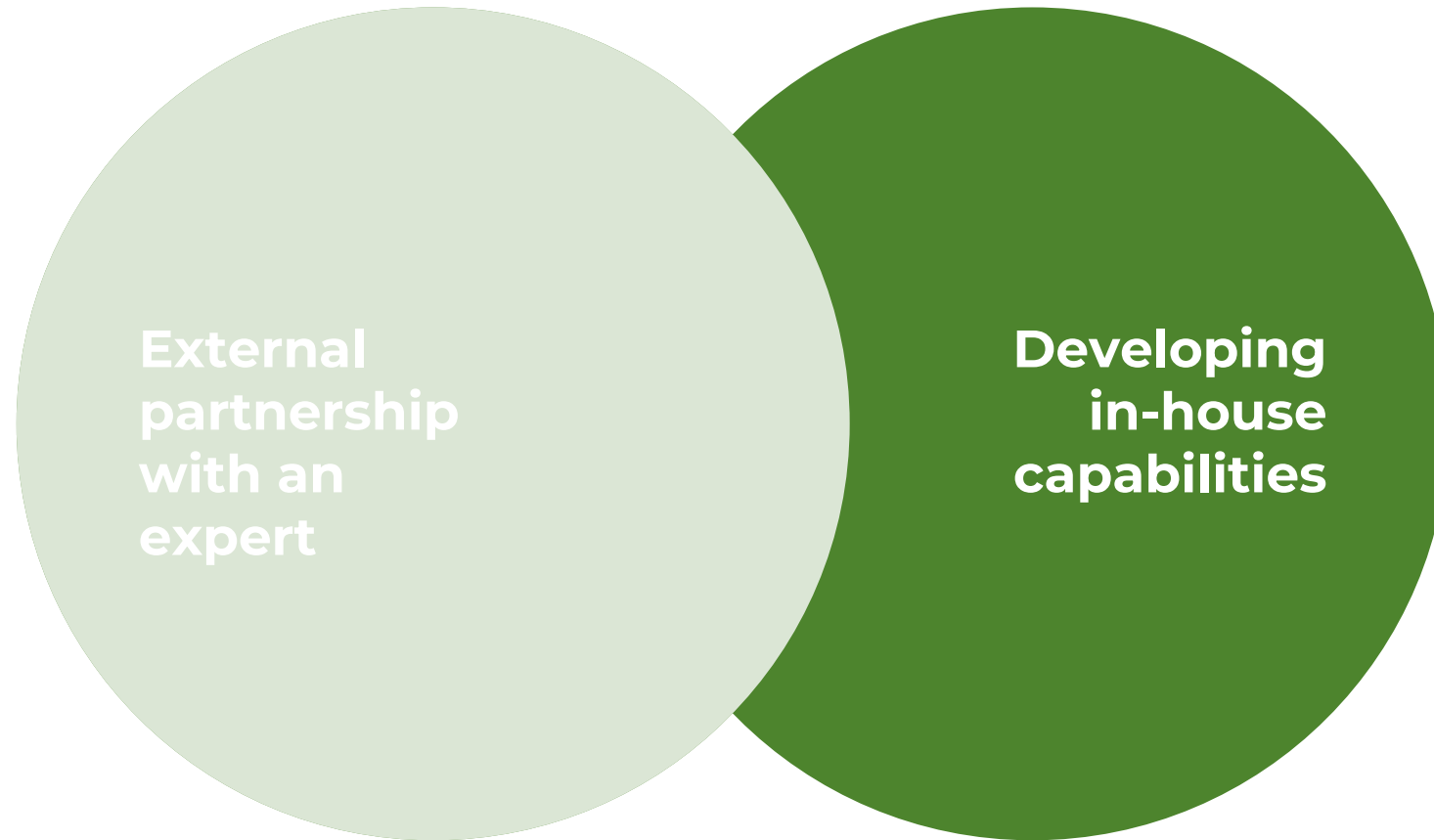




**Bel Group partnered with the AI startup, Climax, to make plant-based versions of its popular cheese products (e.g., Laughing Cow)**



**Your implementation strategy depends on multiple factors, you need to identify those now!**



If any of the following three criteria holds true, then “in house development” is the right strategy for you

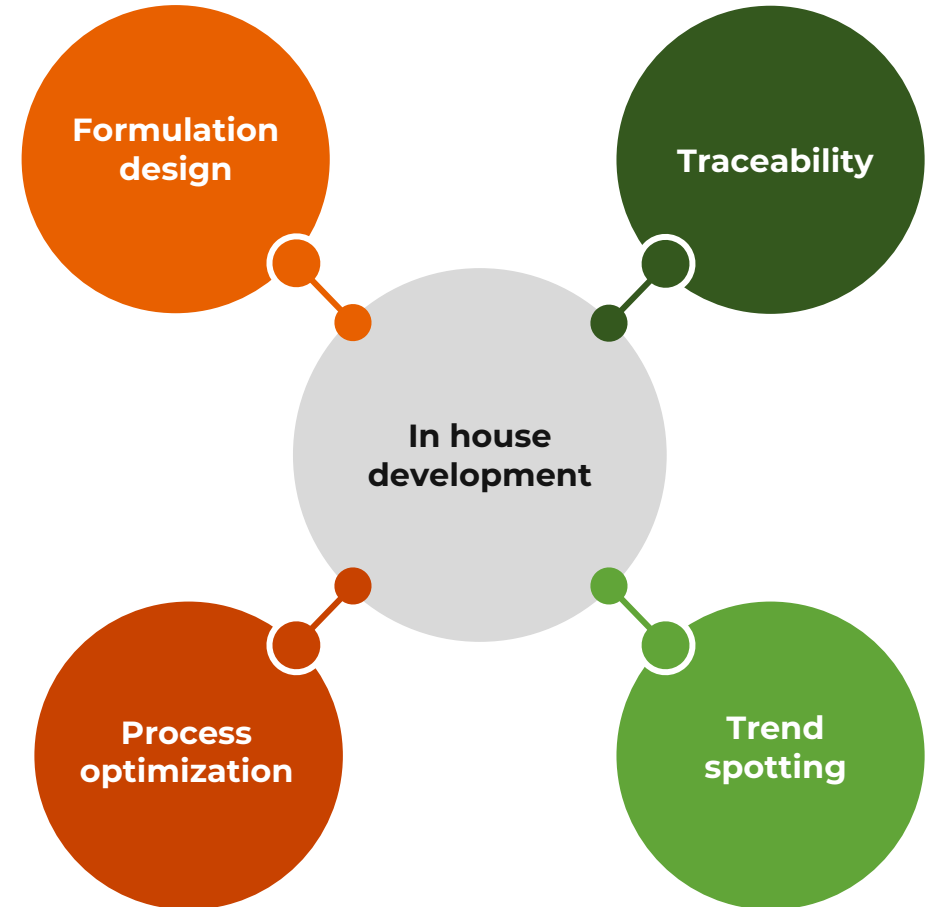
If the target product is part of the core IP of your organization

OR

If you need more versatility to implement AI capability across all product categories

OR

If you want to restructure your company-wide data strategy to be fundamentally ready for future AI innovations

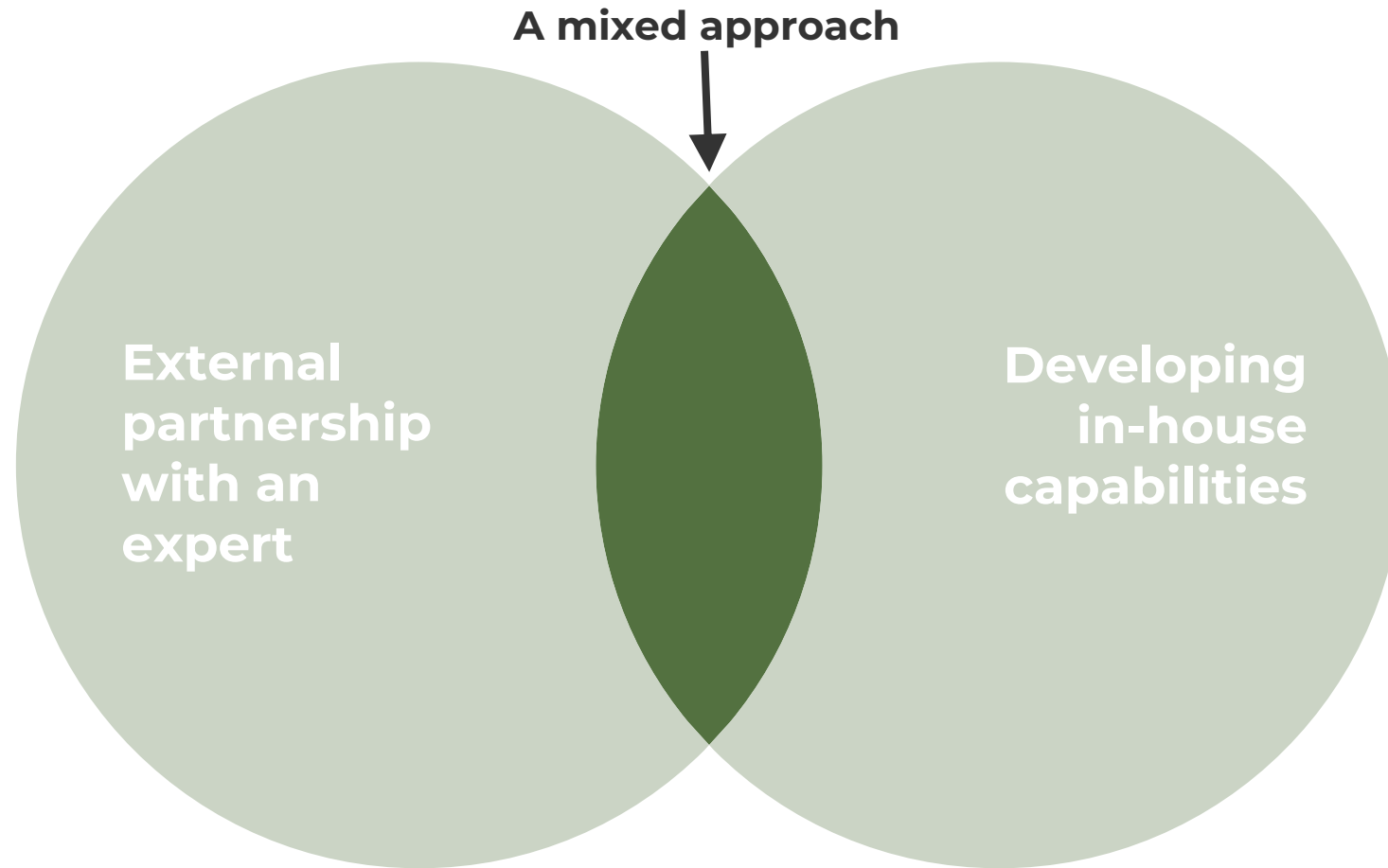




**Unilever has in-house AI capabilities across all categories:**

- **Business operations,**
- **Consumer engagement,**
- **Product formulation, and**
  - **Reformulation**

**Your implementation strategy depends on multiple factors, you need to identify those now!**





## Givaudan<sup>®</sup>

- **Givaudan started its journey back in 2019 by building its first digital factory in France and has completed quite a few internal projects**
- **To broaden its AI implementation to more specialized areas, recently, it partnered with Nuritas for novel ingredient discovery.**

# Key Takeaways

1

**You should pursue these AI tool capabilities as they add value in shortening product development timelines and will potentially evolve into more advanced areas.**

Companies are seeing positive outcomes with these tools but note that they started their digital investments and data strategy over five years ago and are just now seeing the benefits.

2

**With either strategy of in-house vs. outsourcing, your first step must be to have the right data infrastructure that will allow these tools to be valuable**

The data produced must be in high quantity and of superior quality, with repeatable data generation methods to create reliable AI models.

3

**For each application area, you likely need a bespoke approach, which potentially poses scale-up limitations for these AI models.**

Changes in production systems, data collection methods, ingredient suppliers, equipment upgrades, etc., are likely to disable your AI model in predicting accurately.

# Thank you

A link of the webinar recording will be emailed within 24–48 hours.



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