



# StrategicAllies

**AI and new product  
development - Food and  
Beverage Industry**



GROWTH THROUGH INNOVATION PARTNERING

# AI and new product development – Case Studies (1/4)



**Approach** – In 2022 Unilever established a partnership with a biotechnology company possessing expertise in microbiome research to identify food and beverage ingredients that had the potential to positively impact mental wellbeing by targeting the gut-brain axis.

**Implementation** – Unilever’s partner Holobiome developed an AI-driven discovery platform which has mapped the microbiome and its influences. Unilever used this to identify key bacteria that appear to communicate with the brain via neurotransmitter signaling in the gut. Together the companies are now screening hundreds of food ingredients to identify which ones are capable of feeding (prebiotics) and boosting production of gut microbes that generate gamma-aminobutyric acid, also known as GABA, a neurotransmitter which elicits a calming effect.

Unilever are also applying AI to other business units, for example they are using digital modelling rather than traditional recipe testing to reduce development time of new stock cubes from months to days.

**Results** – The *in silico* microbiome work identified a selection of ingredients that have now been trialed in vitro. “We now have a smaller selection that we are going to trial in [human] trials, we hope to find a measurable impact in people”.

**Partners** – Holobiome, USA [2]



# AI and new product development – Case Studies (2/4)

## MARS

**Approach** – In August 2022 MARI (the Mars Advanced Research Institute) announced a multi-year agreement with their existing AI partner, PIPA. One key aim of the collaboration was to speed the discovery of new plant-based ingredients.

**Implementation** – MARI is using PIPA’s AI platform LEAP™ to unlock new discoveries allowing Mars to “develop products that meet growing consumer demand for healthier foods, beverages and dietary supplements”. LEAP™ combines AI, knowledge graphs and bioinformatics, and can discover associations among molecular and food-related items with microbes and diseases, paving the way for more functional food items to be created. The platform draws information from multiple scientific sources including biomedical databases, scientific publications, clinical trials and datasets from studies dealing with biological molecules.

**Results** – MARI will roll out the LEAP platform to different innovation teams during the next two years. The technology will be used to formulate food for both humans and pets. Through the partnership with PIPA, Mars can double down on its goal to create better food products for people and animals.

**Partners** – PIPA (Process Integration & Predictive Analytics) - founded with a \$20 million grant from the National Science Foundation. [2]



# AI and new product development – Case Studies (3/4)

**Approach** – Coca-Cola has launched Coca-Cola Y3000, a beverage the company said is the first flavor co-created with human and artificial intelligence.

**Implementation** – Coca-Cola said it created the Y3000 experience by tapping into human and artificial intelligence to understand how people envision the future through emotions, aspirations, colors and flavors, among other factors. It then used consumer perspectives from around the world, and combined them with insights gathered from artificial intelligence, to create Y3000. To enhance the consumption experience, consumers can scan an on-pack QR code to access the Coca-Cola Creations Hub, where they can filter photos through the custom Y3000 AI Cam to envision what their current reality could look like in the future.



**Results** – The Y3000 is available for a limited time in regions including the United States, Canada, China, Europe and Africa. The company believe “Coca-Cola Creations has created new pathways to deepen our engagement with existing fans and those who may not have considered the brand before”. Released on September 12 reviews to date have been mixed with many seeing this as an example of a big name ‘jumping on the AI bandwagon’.

**Partners** – Stable Diffusion (image synthesis) [2]





# AI and new product development – Case Studies (4/4)



**Approach** - Nestle have streamlined their new product development process, in part by incorporating an AI concept generator to use social media data to generate new food and beverage concepts.

**Implementation** – Nestle established an artificial intelligence concept engine, which is transforming social media insights into concept proposals, which are then evaluated by the company’s employees. Concepts that are approved are then prototyped and tested. As part of the prototyping process, another AI module that streamlines the formulation development process may be used. Nestle have also developed a clinical data mining approach that allows them to do new discoveries based on existing clinical studies. In this way they valorize much more of what we they already done in terms of clinical studies, and use that to create new discoveries and new inventions. The company argue that AI and machine learning are now necessary product development tools to address the growing complexity of the product development process where products must taste good, be perceived as healthy, be sustainable and be affordable.

**Results** – The use of AI in product development has reduced the average project duration from 33 months to 12 months (average across the company’s various categories). In food and beverage specifically projects sometimes only take 6 – 9 months (faster than many start-ups).

**Partners** – None listed

