



THE REFORMULATION CHALLENGE

A GUIDE TO DELIVERING HEALTHIER
AND SUSTAINABLE PRODUCTS



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INTRODUCTION

A GUIDE TO DELIVERING HEALTHIER AND SUSTAINABLE PRODUCTS

With the growing policy pressures to address the rising epidemic of obesity and non-communicable diseases (NCDs), the food industry has been working to deliver solutions through product innovation and reformulation to nudge healthier behaviours by improving the nutritional quality of its food products, for many decades.

However, as innovation and reformulation efforts are carried out behind closed doors, AFBA with the support of Focus Insights set out to showcase the structured process(es) of product innovation and reformulation through the main routes of reformulation – Reduction, Addition/Fortification and Modification, to enable more industry players, including Small-Medium Enterprises (SMEs) to get started and/or accelerate their reformulation journeys.

This guidebook will be valuable for the industry, governments and other stakeholders to understand the processes and timelines driving research and development, assess progress and recognise the areas of support businesses are seeking, to advance the positive public health agenda in the Asian region.

I'd like to thank our industry members and local industry associations who have contributed to the development of this document, through the provision of case-study examples presented in this guidebook.

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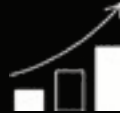


OVERVIEW

THE FOOD & BEVERAGE INDUSTRY IN ASIA



Total spending on food is expected to reach US\$8 trillion by 2030 in Asia.



Growing consumer demands for healthy, fresh, safe, sustainable and convenient products.



Over 8 in 10 Asian Consumers are receptive towards reformulated products made to be healthier, but maintain taste.



Economic contribution of the agri-food sector in five key SEA markets (MY, TH, VN, PH and ID) – US\$808.7 billion in 2021 contributing to a large GDP share.



Over 126 million jobs supported by the agri-food sector in key SEA markets which is expected to grow with economic recovery in these markets.



96% of food and beverage businesses have embarked on, or have plans to drive reformulation efforts in Asia.



Sugar and sodium reduction are two of the biggest reformulation priorities for the food and beverage sector.



Top Industry Reformulation Challenges – Budget, Consumer Acceptability, Technical Expertise.



The global market for sugar alternatives was estimated at US\$16.5 billion in 2020 and is projected to reach US\$20.6 billion by 2025.



Almost 9 in 10 businesses would carry out more R&D with fiscal incentives from governments.



Almost two-thirds (62%) of consumers in Asia believe that companies informing consumers of its approach to sustainable packaging will motivate them to be more sustainable.



Almost 3 in 4 Asian consumers are willing to pay 10% to 20% more for food products with an eco-friendly label.





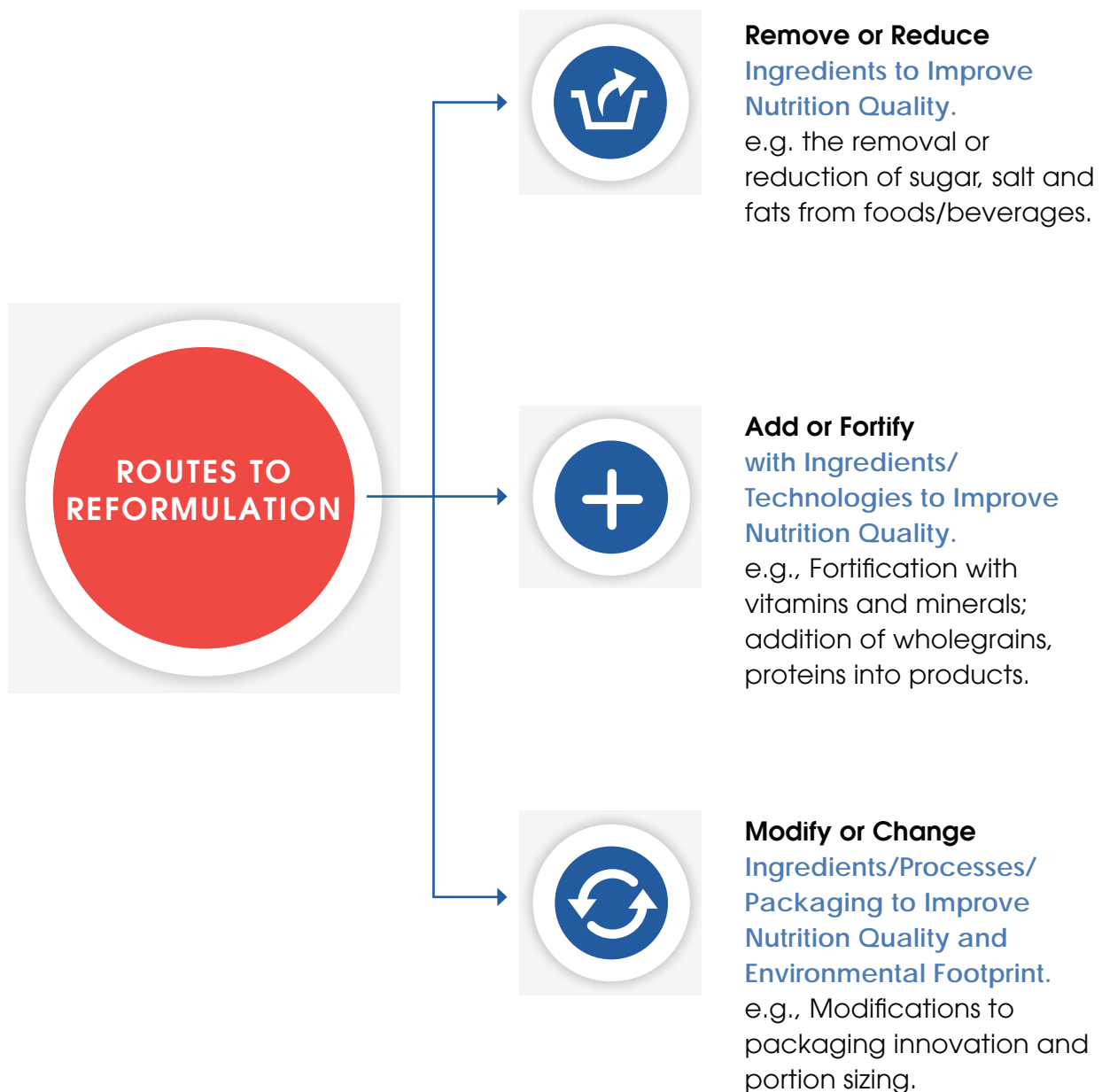
ROUTES TO REFORMULATION

WHAT IS REFORMULATION?

Reformulation is the process of modifying a food/beverage product by changing and/or substituting ingredients and/or the processes to improve the overall nutrition quality, while striving to maintain the taste, flavour and functional properties of the product.

Broadly, there are 3 primary routes to product reformulation.

These include:



WHY REFORMULATE?

Asian consumers are shifting to healthier lifestyles and consumption habits. They are increasingly seeking new avenues to maintain a healthy diet - looking out for products with less sugar, salt, fat, but also consume more fruits, vegetables, wholegrains and foods that are fortified with dietary fibre, vitamins, minerals and so on.

This presents a wide range of opportunities for food and beverage companies to support consumer efforts, with various approaches for product development, catering to changing consumer demands.

In fact, the food environment can be restructured by making small, incremental positive changes to product formulations, often referred as 'health by stealth', providing consumers with a wider access to, and a larger number of, more healthful products. For the general population, a significant proportion of daily energy intake is likely to come from manufactured foods, exemplifying that the actions of the food industry hold great potential in influencing the diet of a population, in terms of scale and reach. Moreover, from an economic perspective, reformulation has been identified as one of the most effective nutrition policy interventions, to tackle the growing prevalence of obesity and its associated non-communicable diseases.

ROUTES TO REFORMULATION

Challenging policy interventions have, and are, being introduced by governments around the world and increasingly in Asia.

These include fiscal disincentives, marketing/advertising restrictions, exclusionary criteria on specific ingredients and restrictive labels on products in what are considered by policymakers as viable mechanisms to tackle public health challenges. The effectiveness of these interventions in tackling the health challenges, however remain inconclusive.

And while reformulation isn't the silver bullet, it is a critical component for the industry to continually improve the nutrition quality of products while maintaining food safety, quality assurance and consumer acceptability – playing an integral role in consumers' overall diets and lifestyles.

This also extends to the environmental impact of food production, as more consumers in Asia recognise that their food and drink choices have a moderate to significant impact on the environment, and look toward businesses to nudge them, to adopt more sustainable behaviours.

As reformulation priorities are constantly evolving with public health and consumer demands, reformulation activity is spread across a wide range of nutrients encompassing the overnutrition, undernutrition and sustainability agendas.

In fact, over eight in ten consumers in Asia are receptive towards reformulated products, as long as the existing taste and flavour profiles are maintained.

To facilitate reformulation activity, a variety of techniques are employed by the food and beverage businesses. Below is a non-exhaustive list of approaches and these include -

- 1 Revising an existing product recipe without the addition/replacement of ingredients in the reformulated version
- 2 Fortifying products by adding ingredients (i.e., wholegrains, proteins) or nutrients (i.e., vitamins, minerals) that enhance the nutrition quality of a product
- 3 Substituting ingredients with lower/non-calorie ingredients
- 4 Applying a new technology to reduce the nutrient content of fat, sugar and/or salt in products by changing the structure of an ingredient molecule
- 5 Revising the serving/package size(s) to facilitate portion control and mindful consumption
- 6 Revising existing packaging materials (i.e., limiting use of plastics; introduce recyclable and/or refillable packaging)
- 7 Capitalising through rebranding
- 8 Extending product range (i.e., new food innovation)

ROUTES TO REFORMULATION – REMOVE/REDUCE

The following section provides insight into the specific mechanisms that can support the reformulation efforts of sugar, fat and salt alongside a snapshot of the work conducted by some industry players to meet the evolving priorities of the consumer.

Reformulation activity is not always as simple as it sounds. It is a complex process that can create a host of challenges, with the slightest tweak to a recipe impacting the sensory and functional properties of a product.

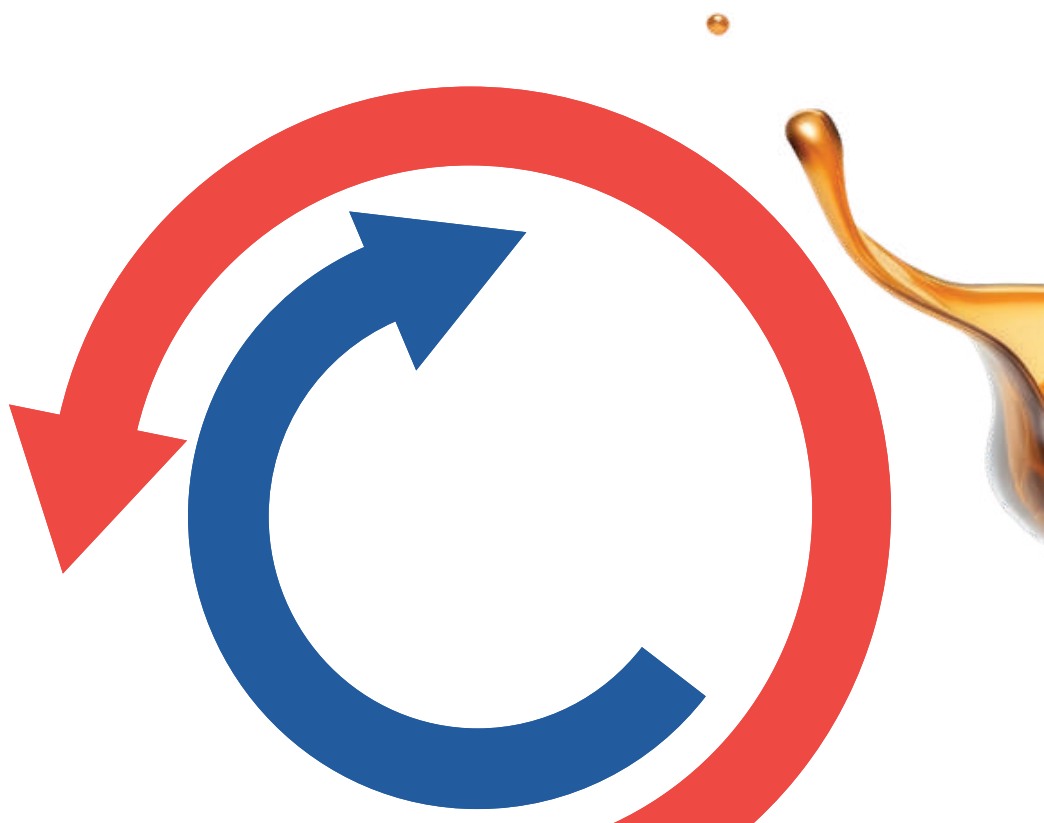
The ingredients alongside food additives added to a product can play multiple roles beyond adding taste colour and so on. Ingredients such as sugar enhance other flavours, provide bulk, texture, and improve shelf-life by reducing water activity – preventing bacterial growth. Moreover, in some products, sugars are used to improve the palatability of wholegrain-based products, amongst other reasons.

The technical feasibility of reformulating products to reduce salt while maintaining the taste and function can be challenged significantly, if not carried out using a robust approach or solution.

Often, food technologists explore the use of salt enhancers and/or replacers to facilitate salt/sodium reduction.

Salt enhancers are ingredients or substances that do not have a salty taste by itself but can enhance the saltiness in a product when used in combination with salt. Utilising herbs and spices to boost flavour would be an obvious route to enable salt reduction efforts. Salt replacers such as potassium chloride and calcium chloride, on the other hand, are recommended only when salt (sodium chloride) has been stripped out.

Additionally, salts with different crystal structures can be used in lesser amounts to achieve the same level of taste in certain applications.



In reducing fat, the prime target for most companies is to reduce saturated and trans-fats in their products.

However the key challenge is that, fat has textural functions beyond just providing taste, which is crucial to product mouthfeel. The use of fats in a food/beverage product contributes to many functional elements (i.e., aeration, shortening, flakiness, moisture retention, glaze, etc.) which makes it a challenging ingredient to reformulate, while maintaining the taste and flavours that a consumer may be familiar with.

While significant investments may be required to reformulate products, to support research and development, acquire machinery, label, and communicate the “new” product, there are also non-nutritional issues that need to be considered. These include the environmental impact, cost, availability, and stability of the ingredients, upon reformulating. Additionally, there might also be legal restrictions on some product categories which determine the product composition based on the amount of fat in a product.





Driven by the rising prevalence of obesity and its associated non-communicable diseases, the Ministry of Health and Ministry of Finance in Malaysia announced an excise tax on carbonated beverages with added sugar exceeding 5 g/100 mL.

In view of the impending government regulations at the time, PepsiCo transformed its beverage portfolio through innovation and reformulation efforts lowering the sugar level in carbonated soft drinks including Pepsi, Dew, 7UP, Mirinda, Revive to under 5% sugar levels.



With the increasing policy pressures on sugar reduction and evolving consumer demands, beverage firms such as Coca-Cola has focused its efforts on developing low and no sugar products, while reformulating its Coca-Cola Zero Sugar to be as close to the classic version as possible without any sugar in it.

Other lower-sugar options within the Coca-Cola Portfolio include Sprite and Fanta with approximately 50% less sugar, smaller servings of Coca-Cola Classic in 180ml mini cans and an upcoming sugar-free Ceylon Tea under the Authentic Tea House Range.



In 2018, Coca-Cola China launched its first unsweetened tea drink: Authentic Tea House that is sugar-free, bringing out the natural sweet flavour of high quality tea. Made of top quality tea leaves processed in the tradition honoured process of picking, steaming and brewed at a low temperature with no added sugar or sweetener. Authentic Tea House offers three flavours: Gyokuro green tea, Yunnan black tea, and TGY Oolong tea. Low temperature brewing reduces the bitterness and astringency and keeps the natural aromatic flavour of tea. Research has shown that tea polyphenols, caffeine and amino acids are the main substances influencing the taste profiles, contributing to the astringency, bitterness and a refreshing taste in tea drinks, respectively.

The ratio of tea polyphenols to amino acids is important in determining the flavour of tea drinks. The higher the ratio, the stronger the bitterness and astringency will be. Similarly, with a higher water temperature, the tea profile is affected.

Low-temperature brewing has been adopted to effectively achieve the optimum mix of bitterness and astringency.



Singapore based Hoow Foods has developed a low-calorie, sugar-free ice-cream which uses a natural sweetener known as erythritol, to maintain the sweetness and taste in an ice-cream.

Hoow Foods has also developed a proprietary technology platform known as RE-GENESYS, to reformulate healthier products. This breaks down and analyses ingredients in existing products, then maps novel ingredients to improve nutritional profile and generate a prototype.

OREO China has seen several nutrition improvements including gradual reduction of sodium and removal of partially hydrogenated oils, since 2009. Today, it has 30% less sodium than the original recipe and is free of industrial manufactured trans-fat.

Mondelez also launched a sugar-free range of Oreo sandwich cookies (Oreo Zero) in China that captures the original taste of a classic Oreo to enable consumers looking to cut down sugar. The Oreo Zero series has maltitol in the recipe, to replace traditional sugars like sucrose and glucose. It also adds functional ingredients, such as dietary fibre in the new series. The series also includes a portion-controlled package.





THE REFORMULATION CHALLENGE



Using TasteSense™, a taste modulation solution, Kerry developed a beverage formulation that was able to reduce added sugars by over 40% while delivering the same taste and mouthfeel as the original beverage product. This label change with the new formulation appealed to consumers, who sought for products with reduced added sugars.

The reformulated product also improved the production costs and environmental footprint of the product as a result of the significant reduction of sugar, reducing the expenditure on raw materials and transportation.

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FrieslandCampina has been focusing on sugar reduction for over a decade and it is anchored in the company's nutrition policy. In 2009, the company mounted a major sugar-reduction programme with the goal of making its products even healthier and to contribute to helping consumers avoid unnecessary overconsumption of calories. Over an eight-year period (2010-2018), the company reduced the sugar content for a large portion of its products across its dairy portfolio by up to 45 percent.

As sugar reduction has an effect on the taste and texture of products, adjustments in recipes are necessary. These efforts require significant research and development time. Consumers also often have to get used to these product changes. To this end, FrieslandCampina had opted to adjust its recipes in small steps. Sweetness levels are lowered progressively to habituate consumers and to get them accustomed to less sugar gradually.

As part of its reformulation efforts, the business continues to explore new technologies and alternatives to discover sweetness-modulating ingredients that can contribute to sugar reduction or no-added-sugar concepts. FrieslandCampina also partners with other stakeholders that are able to add value in creating better products for the consumer.

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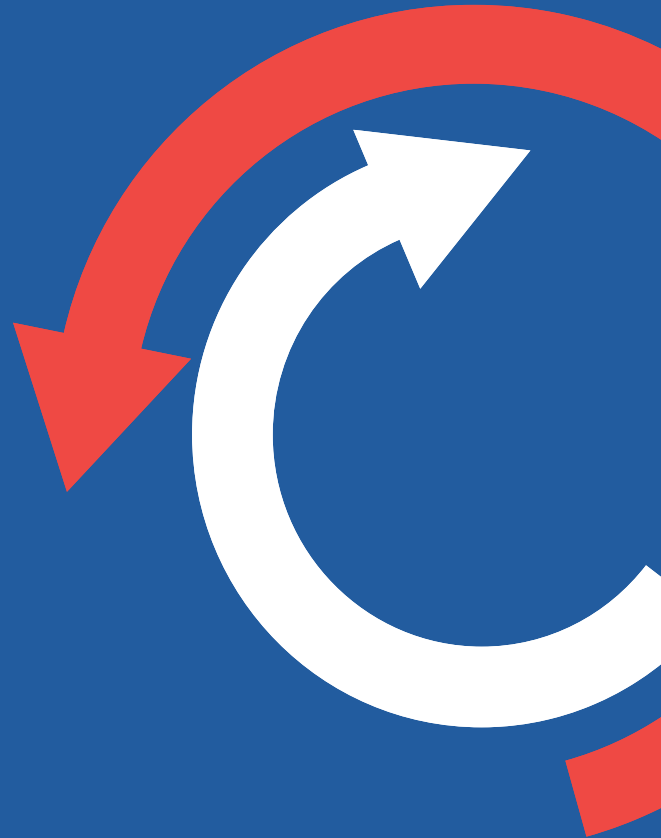
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Nestlé leveraged its in-house chocolate expertise to develop a patented natural approach which allows it to extract the pulp and produce a dark chocolate that captures the pulp's intrinsic sweetness and texture.

The unique approach has enabled the company to produce Cocoa in high quantities with no compromise on taste, texture and quality.



Hershey's has expanded its portfolio to include products that deliver reduced sugar, organic and plant-based alternatives. They have launched Zero sugar Reese's, Thin Reese's, and organic Reese's as a part of this strategy.



Unilever met their commitment in 2020, with 77% of foods portfolio being compliant with the 5g salt per day target. This exceeds their 2020 target of 75% compliance that was set in 2013. Unilever removed more than 37 million tons of salt, the equivalent of almost 15,000 swimming pools. As part of its Future Foods commitments, Unilever has pledged to help by ensuring that 85% of global foods portfolio will support consumers in reducing their salt intake to no more than 5g per day by 2022.

Unilever has offered a broad range of products that are lower in salt across Asia – reformulating salt in Knorr products led to a huge impact. In Philippines, Knorr Cubes meet sodium benchmarks that enable the 5g daily intake recommended by WHO and Knorr launched Knorr Crab and Corn Soup that is 21% less sodium compared to previous formulation; while in India, half of Knorr Cup-a-Soup variants meet sodium benchmarks consistent with WHO recommended salt intakes. In Thailand, Knorr Instant products have been renovated to reduce sodium and to meet the Healthier Choice Logo (HCL) guidelines.

The launch of Knorr's Zero Salt bouillon cubes is an amazing example of Unilever's Future Foods commitment to helping people transition to healthier diet.

In 2020, Knorr created Brazil's first zero salt bouillon range. These new cubes challenges the 'no salt, no taste' mindset with a new approach to flavour. The range is now being introduced in other markets.

To promote reduced salt options to consumers and to help facilitate their purchase decisions, Unilever displays logos and/or claims such as the Knorr product(s) in Thailand which displays the claim 'Provide delicious taste with lower sodium' while in Singapore, the Knorr cubes meet the Healthier Choice Symbol (HCS) guidelines and sport a logo with a lower sodium tagline.

To offer a wider range of healthier choices to consumers, Britannia has been focused on reformulating its Bakery Products such as Biscuits, Cakes, Rusks alongside its dairy product range – particularly milk.

Around 5% of the products have been transformed in terms of reductions in sodium, sugar and fat levels across different brands over a five-year timeframe. As of 2021, the company achieved a 5% absolute sugar reduction and reduced the sodium content by 1% within its product portfolio.

The company has also invested into adding positive nutrients such as dietary fibre into its biscuits, launching new products such as digestive cookies and 5 grain biscuits. These efforts have been recognised by the consumer and driven Britannia's sales upwards, indicating consumer acceptance of its reformulated variants.



In the UK, the food industry was looking to reduce the sodium content of their products, both to meet demand from customers and to prepare for new government guidelines on sodium to be achieved by 2024. In response, Peacock Salt decided to develop a lower sodium salt blend to help the food industry reduce their sodium content while keeping the great taste, look and feel of their products.



Instant noodle giant Nissin is also taking initiative to reduce the salt content of its products. In response to consumer demand, in 2020 the firm launched a reduced salt product under the "Cup Noodles, Salt Off" brand, which is 28% to 42% lower in sodium compared to its original cup noodle soup and noodles respectively. Nissin rejected potassium chloride due to its harsh and metallic taste and analysed 173 types of salt as a replacer. The company conducted sensory evaluations and component analysis & through the process it found that magnesium chloride was the most suitable and used it as sodium replacement.



AJINOMOTO

In Japan, Ajinomoto offers Yasashio, a salt alternative which uses a blend of sodium chloride (salt) and potassium chloride to achieve a 50% reduction in salt. As potassium chloride can have a bitter taste, amino acid technologies are employed, to mask its undesirable taste profile.



Wall's Ice Cream saw the significance of reducing calorie content while preserving taste, and has established a goal to accomplish this by 2025.

95% of its packaged ice cream will contain no more than 250 kcal per serving.

In Southeast Asia, Wall's Asian Delight range is inspired by local ingredients, such as coconut, corn, black bean, and passion fruit, and offers only 90-110 kcal per serving. In 2020, Wall's introduced Yogurt Smoothie in Thailand and Malaysia, which blends real fruit, jelly, and yogurt and provides 80-90 kcal with low fat and high vitamin C. The Yogurt Smoothies in Thailand carry the Healthier Choice Logo (HCL) logo. In Indonesia, Wall's Solero Mango is a delicious mango ice stick made with real fruit, containing only 70 kcal per serving and displays the "less calorie" claim.

In 2021, Kwality Wall's Ice Cream in India introduced three new varieties of traditional Kulfi - Creamy Kulfi, Desi Kulfi, and Desi Twist Creamy Kulfi, in traditional Kulfi and Cardamom flavor and enriched with nuts (cashew and almonds). Wall's also offers a range of ice creams in Pakistan that include Wall's Mango, Pistachio, Vanilla, Strawberry, King Kulfa, Chocolate, Cookies & Cream, and Caramel Vanilla, which not only refresh but also meet Wall's calorie and sugar commitment. Furthermore, they meet Wall's sugar commitment - 95% of its packaged ice cream to contain no more than 22g of sugar per serving by 2025.

Delmonte began its reformulation journey with the focus on sugar and fat reduction across its products. In 2018, the company adopted a "health by stealth" approach with the goal of reducing sugar in its fruit drink portfolio. This led to the reduction of added sugar levels by 10% by the end of 2020. On fat reduction, the company reduced fat in mayonnaise and its variants between 36% to 54% from the base recipe through its Eggless Mayo. With the launch of Eggless Mayo, the company has seen a 12% jump in its value.



ROUTES TO REFORMULATION – ADDITION / FORTIFICATION

While taste and texture preservation are necessary for maintaining appeal, food fortification—or the addition of new or more readily absorbable nutrients—is an area ripe with growth opportunities.

The Asia Pacific (APAC) food-fortification market is projected to grow enormously at a CAGR of more than 18% from 2022 to 2027. Countries like India, Australia, and Vietnam now mandate fortification across widely consumed food staples like wheat, rice, edible oil, and milk, with vitamins and some minerals such as iron and iodine. This, alongside the high consumption rate of fortified food accounts for about 60% market share within APAC.

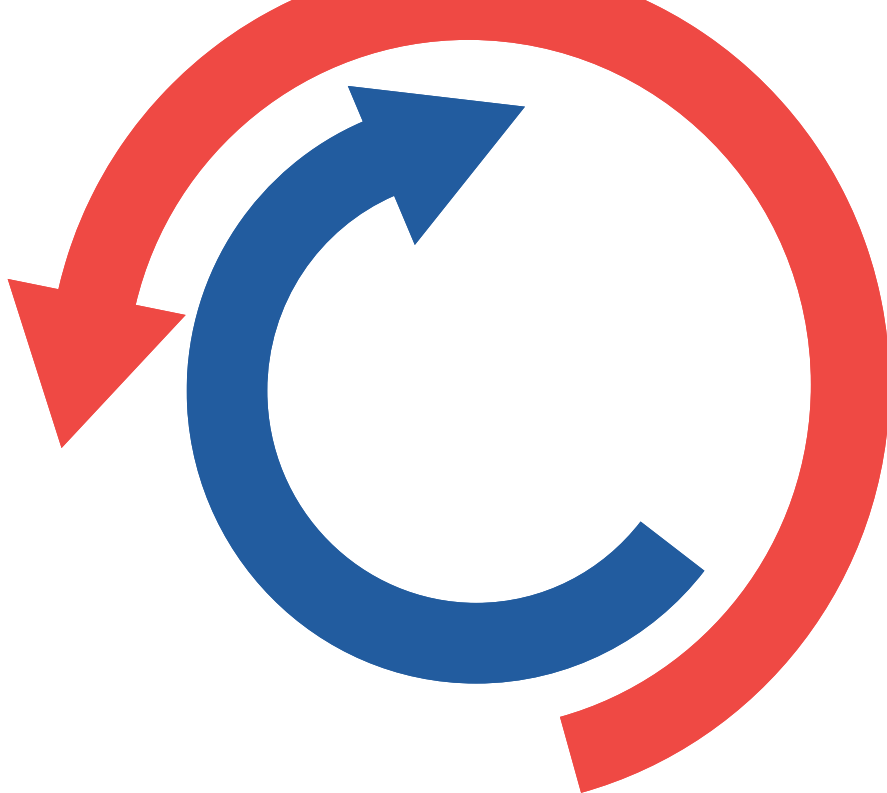
The ingredients industry has also become a major player for premixes of ingredients containing vitamins, minerals, protein, and amino acids. However, the market does face restraints in terms of high raw material and processing costs.

Economies such as China and India are likely to witness soaring demand for vitamin-rich foods. These countries are further expanding their fortified-food production capabilities with enhanced raw material supply such as for premixes.

In Asia, there is a growing demand for fortified products, including a new interest in replacing nutrients lost during manufacturing and improving food to address undernutrition and micronutrient deficiencies within a population.

TYPES OF FORTIFICATION

MASS FORTIFICATION	TARGETED FORTIFICATION	MARKET DRIVEN FORTIFICATION	OTHER TYPES
Fortification of a food consumed by general public E.g., Cereals, Condiments, Milk, Oil, Vegetables Usually mandated by government	Aimed at specific sub-groups of a population E.g., Infant food, foods for pregnant and lactating women, special biscuits for children etc.	Food manufacturers adopt business-oriented initiatives to fortify the food with certain micronutrients Voluntary but manufacturer must abide by the government set regulatory limits	Household and community fortification Bio fortification of staples



CHALLENGES IN FORTIFICATION

RESEARCH AND DEVELOPMENT

Vitamin and mineral salts may influence the properties of the final product in terms of taste or texture and in some cases colour and scent. This is because many vitamins are susceptible to stress factors that occur during a production process such as heat, humidity and oxygen. For example, Vitamin B1 is heat sensitive so the losses after baking can be high. In the baking industry especially when adding any of the nutrients to batters or doughs, bakers may encounter various challenges. Areas of concern include dosage, dispersion, bioavailability, and sensory attributes.

Therefore, a host of precautions need to be undertaken to prevent such challenges. For example, losses in vitamin activity can be compensated by adding overages. Minerals come in a variety of forms or compounds, so it's important to select the one best suited for an application. Nutrients may also be encapsulated to delay or prevent interactions. Masking flavours may also be necessary to cover up off-notes.

SUPPLY CHAIN

The fortification process varies from factory to factory, and from small batch production plants, to large plants with continuous production processes. Supply chain stability to ensure the potency of vitamins and minerals is crucial through the journey, from production to retail.

SIDE EFFECTS TO CONSUMERS

Vitamin and Mineral Overdose

Consumers, especially children might get too much vitamins and minerals in their diet, which can be harmful. Hence, food needs to be fortified in line with local regulations and standards so that there is no associated risk.

Gastrointestinal Side Effects

High concentrations of iron and fibre fortification can also lead to gastrointestinal side effects. Flatulence and bloating are common side effects after increasing fibre in the diet, suddenly.



Mars Wrigley launched its latest chocolate innovation that is high in fibre. The fruit and nut based Triple Treat will be available in four variants – Snickers, Mars, Galaxy, and Bounty, and launches against the backdrop of imminent government legislation in the UK.

Triple Treat is jam-packed with over 75% fruit and nuts, and will be exempt from UK's new regulations on HFSS foods. Over an 18-month period the R&D team worked on every minute detail of the bars, with the aim of providing great taste to the consumer.



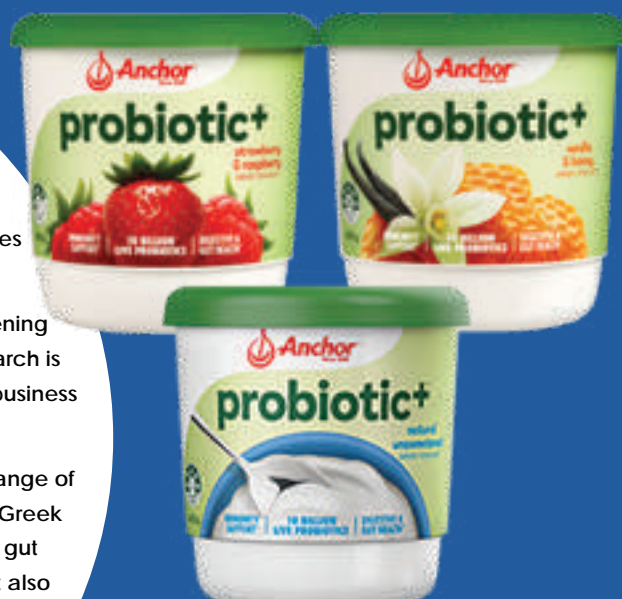
Fonterra launched three new versions of its Fernleaf™ Yogurt in a 450g pack size: Fernleaf Natural Yogurt, Fernleaf Greek Style Yogurt and Fernleaf Protein+ Yogurt in Malaysia. All these products are made with New Zealand milk and with no sugars are added.

The Fernleaf Protein+ Yogurt variety is formulated with 100% more protein, giving consumers higher levels of good quality dairy protein to help them spread their protein intake throughout the day, supporting optimal muscle health.

Probiotics are living organisms and proactively including them in our diet can support immunity and digestion by improving gut integrity and barrier function. Probiotics can help improve digestion process time, protect against tummy upsets and reduce the risk of certain types of infections.

Fonterra began this research programme over 20 years ago, screening over 2,000 bacterial strains to identify potential probiotics. This research is ongoing, tapping into Fonterra's extensive culture collection, as the business sought for improved strains.

In 2022, Fonterra Brands New Zealand launched an innovative new range of Anchor Probiotic+ yoghurts. Each tub of the new thick and creamy Greek yoghurt is packed with 10 billion live BB12™ probiotics to support gut health by improving digestive regularity as part of a healthy diet. It also contains prebiotic fibre, plus vitamins A and D for immunity support. With robust science backing the product, the Fonterra team satisfied the rigorous requirements of the regulators to include the link between live BB12™ probiotics and gut health benefits as a claim on pack.



Over one-third of Unilever's fortified products are sold in developing and emerging countries where malnutrition is most prevalent. It aims to offer fortified foods at an affordable price to bring them within the reach of as many people as possible.

In Philippines, Knorr launched its chicken and pork cubes that is source of Iron (per 100g), Knorr Sinigang with Vitamin C added and Knorr Ginataang Gulay with Calcium; and Lady's Choice Mayonnaise which is source of Omega-3 has been introduced; furthermore, all of Knorr products are a source of Iodine with use of iodized salt according to local regulation. In Thailand, Knorr rice porridge instant products have been introduced, which is fortified with vitamin B1, B3 and B6. In Indonesia, Royco Chicken and Beef have used Iodized Salt since 2020 to help Indonesian families meet micronutrient intake.

Some ice cream products are also fortified with micronutrients to offer consumers a greater selection to choose from. For example, in Indonesia Paddle Pop Choco Magma has been reformulated in 2021, now with vitamin D which is beneficial for bone & teeth development; While in Thailand Paddle Pop Yakoo has been reformulated since 2020 and it's now claiming as source of vitamin C.





Instant Noodle

Giant Nissin created a low carbohydrate, high protein version of cup Noodles containing 15.2 g of protein and 15.3g of carbohydrates compared to 10.5g of protein and 44.2 g of carbohydrate in the original version. This was done by blending collagen peptide in the soup and kneading dietary fibre into the noodle's inner layer before frying and drying the noodles to lower the saccharide level.

The Coca-Cola Company has developed several beverages with added fibre including Coca-Cola Fibre Plus and Sprite Fibre Plus, satisfying about 30% of the daily fibre requirements for a Chinese adult.

The added fibre comes from a Japanese patent resistant dextrin which is widely used in Japan's Food for Specified Health Uses (FOSHU). It has been proven that the fibre not only adjusts the intestinal environment, but also helps to lower the increase in postprandial blood glucose and triglyceride levels.

The market performance for these products have been positive, with the sales of Sprite Fibre Plus at ten-million-unit cases within five months after its launch in 2018.



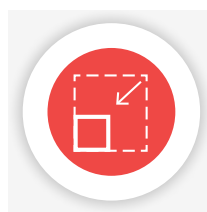
ROUTES TO REFORMULATION – MODIFICATION

There are many other routes for reformulation which do not include adding or removing nutrients in a product.

In this section, the following approaches related to packaging and portion sizing, alongside relevant case-studies will be highlighted.



Packaging



Portion Sizing/Control

PACKAGING

In a recent study that Food Industry Asia (FIA) carried out in 2022 - Asian consumers expect food and beverage businesses to take action on sustainability. At the same time, consumers also realise that it's a shared responsibility and they need to act on being more sustainable, as their food and drink choices have a moderate to significant impact on the environment.

As such, consumers highlighted a few mechanisms that will help them act more sustainably - this includes purchasing products that use sustainable packaging among other approaches -

- 1** Consider packaging materials which are recyclable, biodegradable or compostable & demonstrate environmentally friendly values.
- 2** Reducing the number/presence of allergens named, or listed as "may contain", in the product can be a positive move as consumers are increasingly seeking out for more "natural" and "free from" products.
- 3** Recognisable certifications from awarding bodies can be a great way to communicate the values of the brand and the integrity, ethics, and sustainability of its products.



PORTION SIZING/CONTROL

Buying foods and beverages in large portion sizes or being served large portion sizes can nudge people to eat beyond their satiety (sense of fullness).

Selecting smaller portion sizes is a practical and effective way to help consumers reduce their intake. When selecting smaller portion sizes of foods and beverages is not an option, practicing mindful eating may be another strategy that can help people more easily identify when they feel full, even when faced with a large portion.

Choosing smaller portions and practicing mindful eating can address two important issues: reducing the number of calories we eat as well as cutting down on the amount of food wasted.

Portion sizing/control is seen as both effective and sustainable for reducing obesity. Perhaps even more beneficially, reducing portion sizes may aid the re-normalization and acceptance of smaller portion sizes in our diets. According to a 2014 report from the McKinsey Global Institute, portion control was identified as one of the most cost-effective interventions for promoting behaviour change and reducing obesity.

Larger policy changes to help make smaller portion sizes a reality at the population level could amplify the effect of positive changes achieved at the individual level.

Food companies are incorporating portion sizing into the product formulation efforts to nudge the consumer towards mindful eating habits.

Mondelēz for example, has committed to placing Snack Mindfully Portion icon on packs to enable consumers better understand portion size and expanded its range of portion control options with snacks that are 200 calories or less and are individually wrapped (e.g., Oreo Portion Packs). Individually wrapped products can help consumers to enjoy the treats they love, become more mindful when they eat, and help them manage calories.

Other smart downsizing approaches include -

1

Downsizing in 3D or through Elongation

Tweaking the quantity of a product by revising the packaging size in terms of height and diameter or by elongating the packaging size.

2

Extending the Product Range towards Small

By the introduction of a smaller product size to the existing product range, companies can tap onto potential/new consumers and access the product with a smaller quantity, nudging people to downsize their portions with the higher perceived value for money.

3

Better Size Branding of Smaller Portions

Companies need to be creative in terms of branding its smaller product versions.

Branding a product using terms such as “mini” or “small” might influence the consumer to pick a bigger portion in view of value-for-money. Instead, re-branding the smaller quantity products using terms such as “regular” or “gourmet” can nudge the consumer to select a product with a smaller quantity, with the perceived value for money alongside managing the calorie intake.

4

Product Partitioning

Partitioning products to indicate serving size can lead a consumer to believe they are getting a larger quantity as a result of the partitioning approach known as the numerosity bias.



Portion Sizing

From Magnum, Cornetto, Twister and Wall's to Ben & Jerry's, Calippo and Breyers, ice creams are giving joy – and choice – to ice cream lovers across the globe. Mini Magnum, for instance, is available in 48 out of 53 Magnum countries, with most retailers offering standard size and minis, enabling Magnum pleasure seekers to treat themselves, with fewer calories. In 2022, the new snacking range in bite-sized of Wall's Bites have been introduced in Southeast Asia.



Packaging

Kelloggs will launch a new type of cereal bar with less air space and packaging. This means the company will use almost 190 tonnes less cardboard and plastic annually, which combined with transport efficiencies, will remove 700 tonnes of carbon a year.

Sustainability

Mondelēz aims to achieve net zero waste by 2025 and support development of a circular pack economy by 2050. The business introduced an enhanced strategic approach to continuously improve its packaging, focused on three key areas: less packaging, better packaging, and improved systems.

Examples of packaging innovation include –
 Wrapping more Cadbury Dairy Milk in recycled packaging – block wrappers using up to 30% recycled plastic in 2022 in the UK, Ireland and Australia. 1410 metric tonnes of biscuits packaging were converted from PET to sustainable plastic in Vietnam, China and Bahrain. In India, Celebrations Gift box were changed from difficult-to-recycle High Impact Polystyrene (HIPS) to recycled polyethylene terephthalate (RPET), using 80% recycled content, and changing the colour of the plastic from black to purple to make it easy to detect for recycling at the sorting facility.



Portion Control

Portion control is recognised as one effective way to help consumers manage their calorie intake. Individually wrapped products can help consumers to enjoy the treats they love, become more mindful when they eat, and help them manage calories. Mondelez has been expanding its range of portion control options – snacks that are 200 calories or less and are individually wrapped; (e.g., Oreo Portion Packs) alongside the addition of “Snack Mindfully” portion icon on packs, to guide consumers on portion sizes.

CONSUMER PERCEPTIONS OF REFORMULATED PRODUCTS

Over eight in ten consumers in Asia are generally receptive to products that are reformulated as long as the taste of the product is maintained. As taste is one of the top considerations for consumers, it is pivotal for manufacturers to improve the nutritional quality of products without compromising the existing taste and flavour profiles, so as to not disaffect consumers. However, there are some risks that come with product reformulation efforts, especially when they involve significant reduction of sugar or salt or fat in a mainstay product.

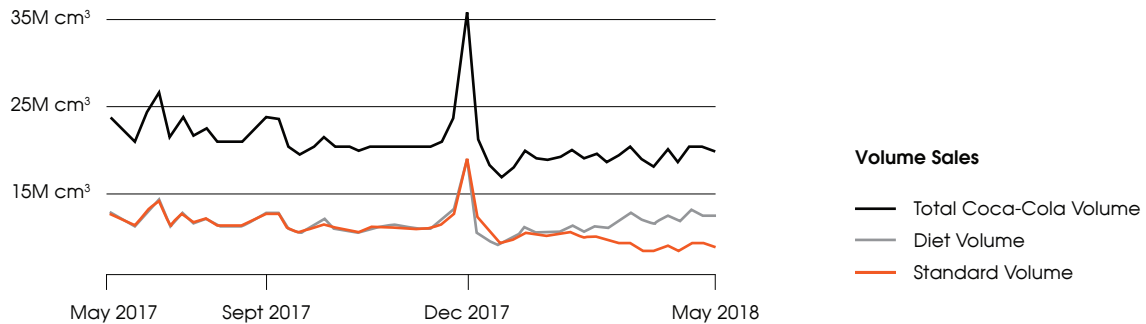
In 2016, Arnott's made changes to its popular Shapes savoury biscuit flavours as requested by its loyal consumer base that was seeking bolder flavours in its biscuit offering. Arnott's declared that the main goal of the project was on achieving greater and more authentic flavours but in the process managed to improve the Health Star Rating on nearly the entire savoury biscuit range by stripping out some salt and saturated fats.

However, post product launch, a severe backlash ensued with consumers taking to social media, slamming the "new and improved" Shapes biscuits. The company had to eventually bring back the original product, back to market.



For legacy brands, reformulation should be conducted in a phased manner to avoid consumer backlash. The alternative strategy is to create a separate offering without risking or upsetting the sizeable consumer base that still want to have access to the original/classic product(s). Many successful cases are indeed brands that launch healthier line extensions or healthier innovations alongside the original/classic versions.

Coca-Cola Volume Sales



Coca-Cola launched its Diet Coke and Coke Zero range, retaining its classic version. Through this, Coca-Cola nudged consumers towards their less/zero sugar range through marketing efforts.



Kraft Heinz took a very different approach to its reformulation of its beloved Kraft Macaroni and Cheese. The company didn't tell its consumers, for months.

Kraft removed artificial colors and preservatives from its flagship macaroni and cheese product in 2015. The new macaroni and cheese retain the product's iconic vibrant orange hue, now made with paprika, annatto, and turmeric instead of artificial dyes.

Consumers purchased and ate over 50 million boxes of the new product, unaware that there had been major changes.



Nestle is betting that futuristic technology will more than make up for any consumer hesitation about ingredient changes.

Nestle has patented a process to restructure the sugar molecule, enabling manufacturers to use up to 40% less sugar without reducing the sweetness of their products. It has started to roll out products from 2018 onwards using this process.

Milky bar was the first brand to be launched using this technology. The Milky bar range contains 30% less sugar than a comparable ordinary chocolate bar.



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MOVING THE NEEDLE ON PRODUCT REFORMULATION

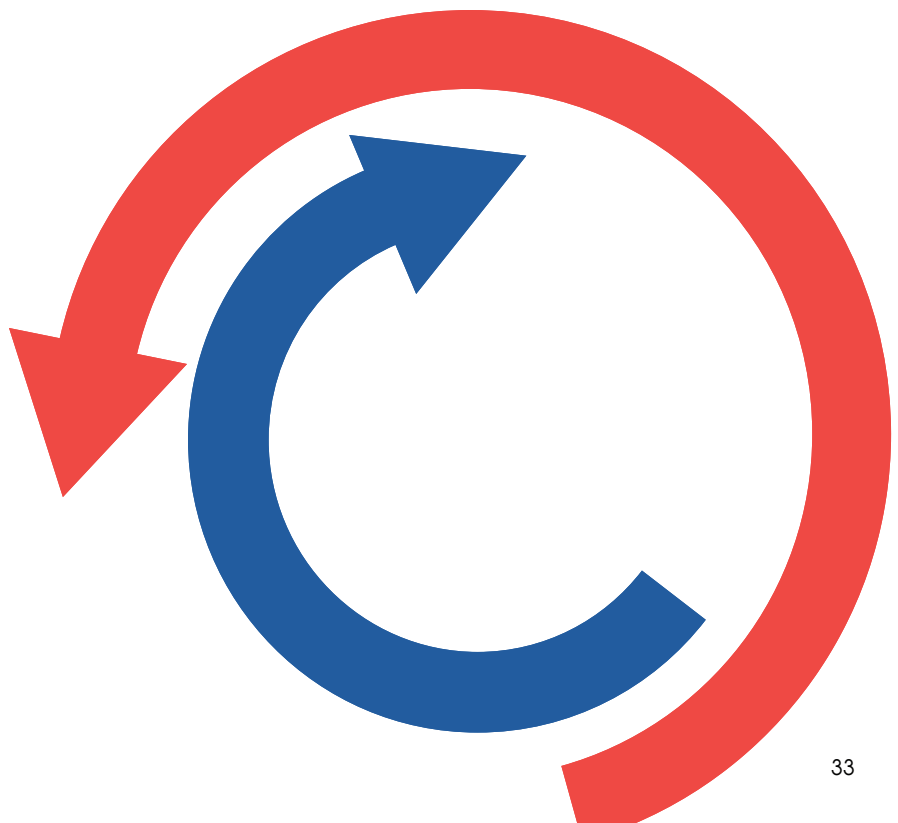
THE NEED FOR A STRUCTURED REFORMULATION PROCESS

It is imperative that a structured process is implemented to efficiently and effectively develop reformulation ideas and opportunities into successful products that generate positive returns to the business.

It is estimated 70-80% of new products fail and whilst numerous factors can cause these failures, the biggest problem encountered is the lack of preparation: Companies become so focused on developing the new product that they bypass the development, design and validation of the concept. Once a product is in the market, it is often too late to make changes to the product, and it ultimately fails due to the lack of sales.

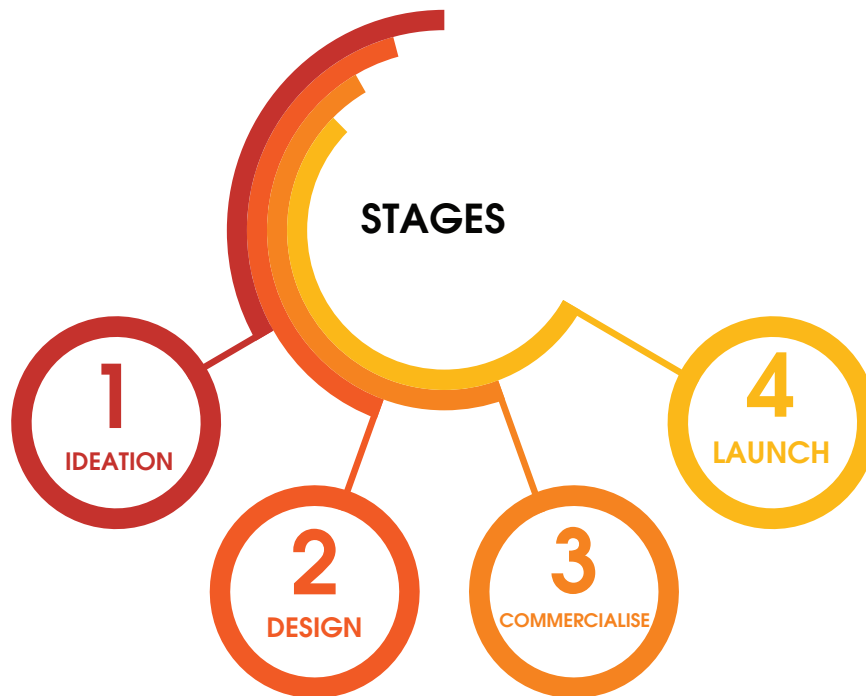
THE STAGE & GATE MODEL

A structured reformulation process that is adopted by any food and beverage manufacturer is known as the **Stage & Gate** process. This formal process helps a business assess the viability and requirements of any product reformulation by following a series of development/production **stages** which are separated by **gates**, or deliberate pauses in the process to allow the business to analyse the progress of product reformulation as well as the resources, risks and business impact before moving on to the next stage.



THE STAGES

There are four stages in this model, however the number of stages can also be adapted to meet the needs and level of detail and assessment required by each business. Many multi-national businesses with large resources at their disposal will often adopt five or six stages as this provides more rigour and structure, allowing their business to better manage the risk factors at all stages throughout the process.

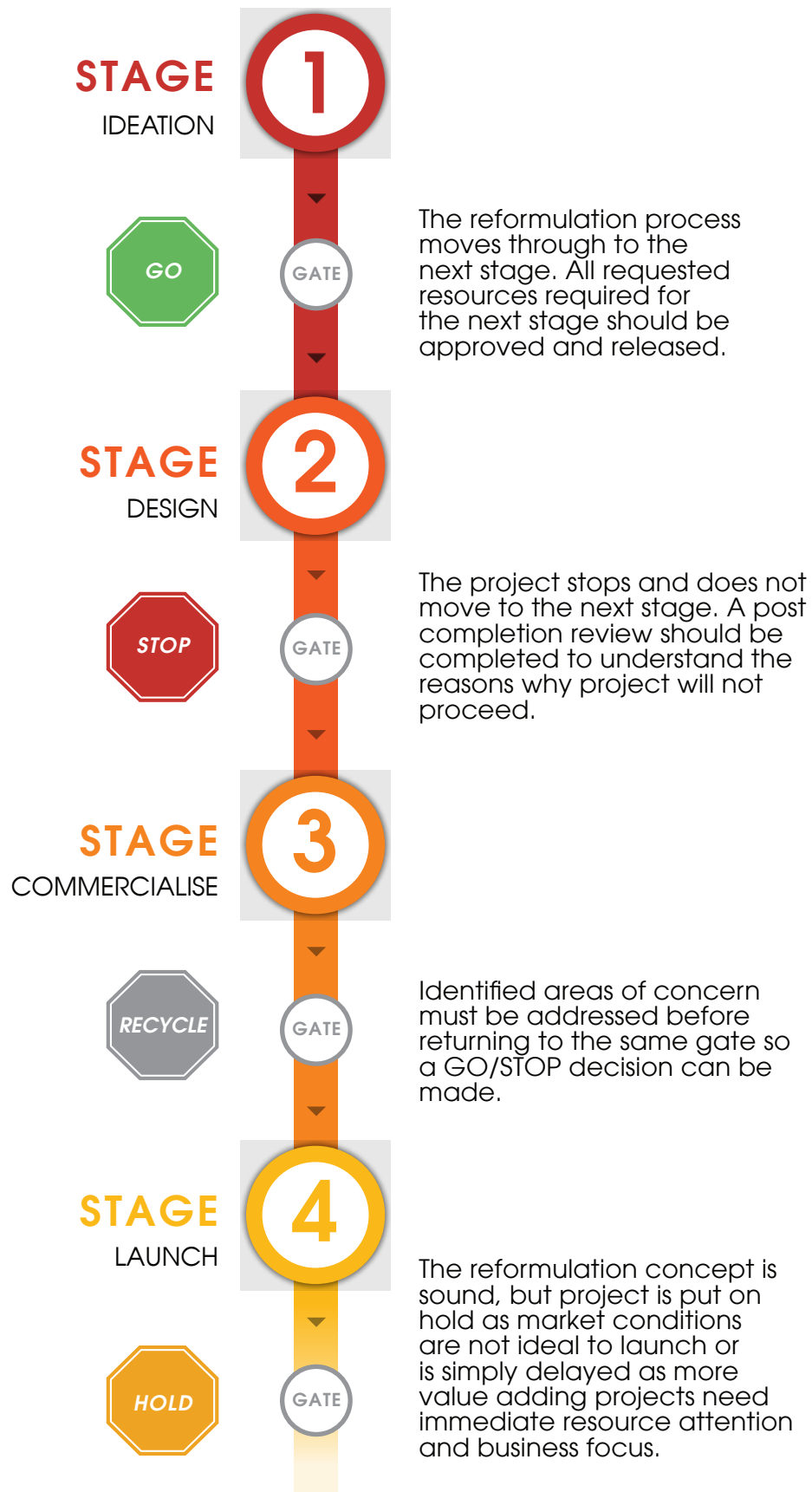


1. IDEATION	2. DESIGN	3. COMMERCIALISE	4. LAUNCH
<p>The team begins to think about reformulation ideas for the existing products and/or new products they can bring to the market.</p> <p>Brainstorming and ideation sessions are supplemented with a SWOT analysis on existing brands, competitors and categories. Consumer research on the attitudes and behaviours of the target market is also undertaken.</p>	<p>The team begins evaluating reformulation concepts that offer a clear benefit for the business.</p> <p>Through market analysis, consumer research, and product testing, the team will develop a business plan to determine the viability of the opportunity.</p> <p>The plan includes estimating the resources, expenses, and time needed to bring the reformulated product to market, and calculating the potential return on investment for the company.</p>	<p>The business develops a comprehensive production plan and conducts various tests to confirm the product's ability to be produced on a large scale. This may involve acquiring new machinery or outsourcing production.</p> <p>Beta versions of the product and packaging are evaluated by consumers to assess market potential, and to address limitations.</p> <p>Support plans for sales and marketing are also created to guarantee the successful introduction of the product to the market.</p>	<p>The product is ready to be launched in market.</p> <p>Production of the reformulated product begins.</p> <p>The sales team confirms the launch and support plans with their retailers to drive distribution in store.</p> <p>The marketing team plays a critical role in creating market awareness and exposure for the reformulated product, critical for the success of the product.</p>

An overview of the key tasks and responsibilities for each stage is outlined in the Appendix section of this report.

THE GATES

Each stage will need to surpass “a gate” or a major decision point on whether or not the business should move to the next stage in the reformulation process. At each gate, the business must make the decision before moving on to the subsequent stage based on –





WHO IS INVOLVED?

The Stage & Gate process is made up of 2 distinct groups;

1. THE PROJECT TEAM

Made up of cross functional experts from within the business and often outside of the business who are tasked with taking a product concept from ideation to launch. The goal of a project team is to provide the best analysis and recommendations possible for the stage of work currently being performed. The goal of a project team **is not** to see the product through to completion at any cost but to follow a clear and consistent process which guides the development of a new product or product reformulation.

2. THE GATE KEEPERS

Are the decision-making group that comprises of senior management executives. They are usually leading different functional areas, and are responsible for making the decision on whether or not to proceed the project through the various development stages. They also are responsible for allocating the appropriate human resources and capital to the project to ensure product success.

PROJECT TEAM	GATE KEEPERS
<p>WHO: A cross functional group from within (and outside) the business, led by the project leader.</p> <p>WHAT DO THEY DO: Responsible for developing and executing against the innovation objective.</p> <p>WHY: An effective project team is the principal driver to reducing recycle time and generating break through ideas.</p>	<p>WHO: A cross functional group of senior executive leaders from within the business (e.g., finance, operations, marketing, managing director).</p> <p>WHAT DO THEY DO: Responsible for approval of projects to proceed, and allocating human and financial resources.</p> <p>WHY: An engaged and aligned gatekeeper team is critical to ensure that roadblocks are removed and that the organisation executes the agreed strategy.</p>

FAIL FAST FAIL EARLY

A Harvard Business Review article written by Joan Schnieder and Julie Hall stated; “The biggest problem we’ve encountered is the lack of preparation” and whilst many companies put a lot of effort into designing, manufacturing, launching and supporting new products into the marketplace, they often fail to put the necessary time and investment into validating the product and concept before it starts to gain traction through the New Product Development Process(es). We need to be willing to fail fast and fail early so the losses related to such failures are minimised. This is a key premise of the gates that exist in the Stage & Gate process. Make a decision at any of the gates to Stop, Recycle or Hold. Besides, these gates should not be seen as a gross negative but instead a smart, justifiable and sound business decision which is done on fact and clear success metrics.

ASSESSING PROJECT MILESTONES

At each stage of the product formulation process, the project team needs to ensure the business case for development (and launch) is sound and will provide a positive return on investment for the business. At each gate, the gatekeepers need to follow a documented and consistent scoring criteria which is applied to all reformulation projects. The scores determined by each gatekeeper is then consolidated into a single project attractiveness score.

During the scoring process, issues are identified, discussed, and a decision is made with regards to the next steps for the project (i.e., proceeding to the next stage). This ensures that the decision is based on clear and consistent business objectives that aren’t influenced by individuals or any one department who may want to pursue the product development, for specific reasons without considering the value proposition for the business.

POST LAUNCH EVALUATION

An area often overlooked by businesses is completing a post launch evaluation. After so much effort put in place to develop and launch a product, many do not evaluate how a product is performing against the objective and key performance indicators that are set in the Stage & Gate process.

By completing post launch reviews at 1 week, 1 month, 6 months and 12 months after the launch, will ensure the business unit’s ability to “course correct” if needed, as well as document any learnings which they can then refer to, for future launches ensuring a successful product launch in the market.

Example(s) of the post-launch review templates are available in the Appendix section of this report.





Case Study:

A leading beverage brand decided it needed to make their product “healthier” and changed its sweetener from fructose and sugar to stevia and sugar. No consumer or sensory research was conducted and the product reformulation went ahead. As soon as the “healthier” product hit the shelves, there was an immediate consumer backlash with many taking to Facebook with comments such as “The new taste is nasty”; “You just lost a customer. I can’t drink it now.” And within a few months the beverage company had to bring back the original formula.

Whilst the case study showed the implications of jumping straight into execution mode before the idea was validated with their target market, what it does not show is the enormous cost in terms of man hours, packaging and materials and often equipment that was wasted in heading down an unsuccessful reformulation path.

A central image showing a group of people's hands clasped together in a huddle. The image is overlaid with a futuristic, circular digital interface featuring concentric rings and glowing blue and green light effects. The overall color palette is dominated by blues and purples.

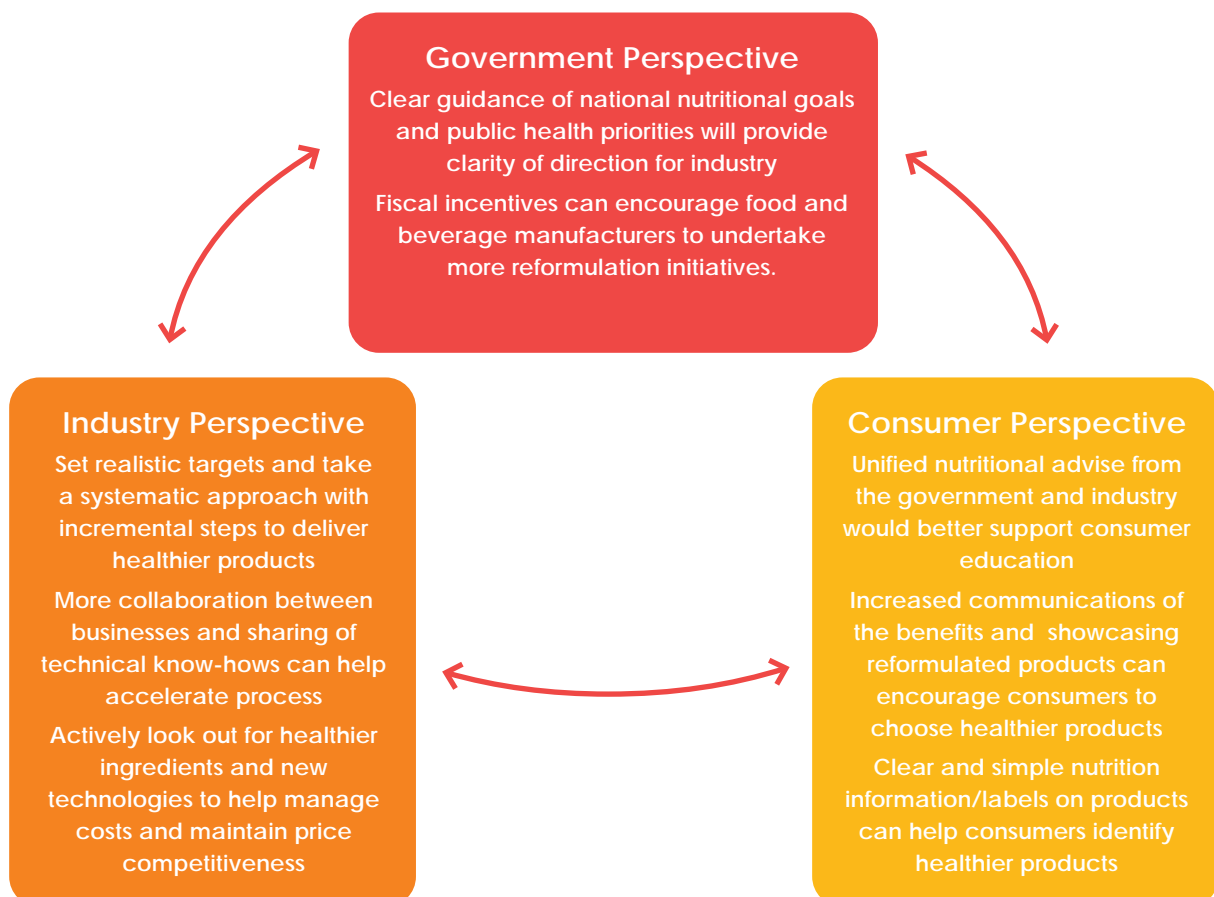
KEY CONSIDERATIONS

KEY CONSIDERATIONS

With regards to product reformulation efforts, a gradual, step-wise “health-by-stealth” approach is required to ensure that consumers continue to enjoy the product and benefit from the changes made, often without realising the recipe has been altered. While it is apparent that plenty of reformulation activity is already underway and will continue to accelerate with evolving consumer and public health priorities, it is important that a structured process such as the “stage-and-gate” model is applied to ensure the investments and resources used in the development process(es) see the ROI, post-launch.

A structured process can lead to a concise development with fewer errors and more successful launches, with higher customer satisfaction and brand loyalty.

With a greater understanding of the research and development process, businesses and governments alike can work collectively to meet the overarching objectives of delivering better health and sustainable outcomes to its population as a collective.



WANT TO GET STARTED/ACCELERATE YOUR REFORMULATION EFFORTS?

To get access to more insights on the Stage-and-Gate Process(es) and/or support from R&D experts of the F&B industry to guide your company’s reformulation journey, please contact the team at AFBA contact info - info@afba.co

ABOUT THE ASEAN FOOD & BEVERAGE ALLIANCE

The ASEAN Food & Beverage Alliance (AFBA) is a group of national industry associations in Southeast Asia supporting manufacture, distribution and the sale of a broad range of food and beverage products.

AFBA is a dedicated non-profit body committed to helping grow a profitable and sustainable food and beverage industry by being a trusted partner and intermediary between business and the public sector in the Association of Southeast Asian Nations (ASEAN).

Find out more about us at <https://afba.co/>



ABOUT FOCUS INSIGHTS

This report was developed by Focus Insights with the support of the ASEAN Food & Beverage Alliance (AFBA). Focus Insights is a dynamic Market Research & Consumer Insights Agency partnering with the FMCG and CPG industries across the globe.

Focus Insights is on a mission to democratise data by providing their clients with shopper and consumer insights in days and at a fraction of the cost of traditional agencies.

Focus Insights is also able to reach 75,000,000 consumers across 94 countries, including 18,000,000 consumers across the ASEAN region and deploy research in the local languages.

Focus Insights is able to offer a full range of Quantitative and Qualitative research solutions that are tailored to the exact need and budget of their clients.

To learn more about Focus Insights go to www.focusinsights.com.au

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APPENDIX

To access sample templates to support your product reformulation journey with the Stage-and-Gate process click this [link](#) or reach out to AFBA via info@afba.co.



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