

An introduction to Sustainable New Product Development (S-NPD)

The purpose of this document is to provide introductory guidance for Brand Strategists, Product Category Managers, and others involved in NPD and reformulation to improve the sustainability of their products and address consumer expectations on such issues.

It outlines the differences between New Product Development and Sustainable New Product Development and identifies where Courtauld 2025 sustainability objectives can be integrated into the NPD process. Further guidance and support is available to Courtauld 2025 signatories.

What is New Product Development?

New Product Development is the process of bringing a new product to market or reformulating an existing product. By convention, the focus of New Product Development is on innovations which affect cost, quality and time, developing new customers and loyalty amongst existing customers.

What is Sustainable New Product Development?

Sustainable New Product Development (S-NPD) is the delivery of product innovation where additional criteria of sustainability are added at each of the stage gate processes to increase supply chain resilience and value for the customer.

It presents a huge potential for organisations to increase the resilience of their value chains, including relationships with customers. It therefore requires the inclusion of an additional set of 'sustainability' criteria in existing NPD stage-gate product innovation processes.

Why is there a need for Sustainable New Product Development?

Research from WRAP and other bodies has identified that the food and drink sector faces increasing challenges to food system resilience such as changing climate and weather patterns, competition for land, environmental regulations, pests and diseases, inadequate infrastructure and changing global consumption patterns. Failure to respond to these new challenges will leave businesses exposed to disruptions or left with business models that are unresponsive to changing societal and consumer demands.

Mintel (2015) have identified a range of consumer trends which are becoming mainstream across the UK, Europe and the globe (see section 1.1). Together, these trends represent a **pull**, a growing consumer desire for food which is sensitive to environmental and social issues. A food system which is able to articulate how products have been designed to benefit all involved in the value chain has the potential to attract new consumers to a category and increase the Customer Lifetime Value, aligning with business objectives.

The concept of S-NPD entails the integration of not only **product** but also **process** design with ingredient / material selection systems and development of **business models** to provide products or services to consumers. It considers approaches for integrating sustainability criteria into existing

NPD processes in order to meet customer / consumer demands and expectations e.g. enhancing product storage (e.g. shelf-life), use (e.g. reduced cooking requirement), disposal or recycling.

How does S-NPD differ from NPD?

There is no universally accepted model of New Product Development, and the structure of activity undertaken varies between organisations. However, many models are based on the work of Booz, Allen and Hamilton Inc. (1982), which sets out seven stages of New Product Development, and Cooper (1990), which outlines the concept of stage gates.

Figures 1 and 2 provide an overview of the NPD process based on these two models. The difference between NPD and S-NPD is highlighted in the green boxes. It is not in the process itself, but in the issues which are considered at each stage. This is described further in the following sections. The differences become fewer through the stages of the NPD process.

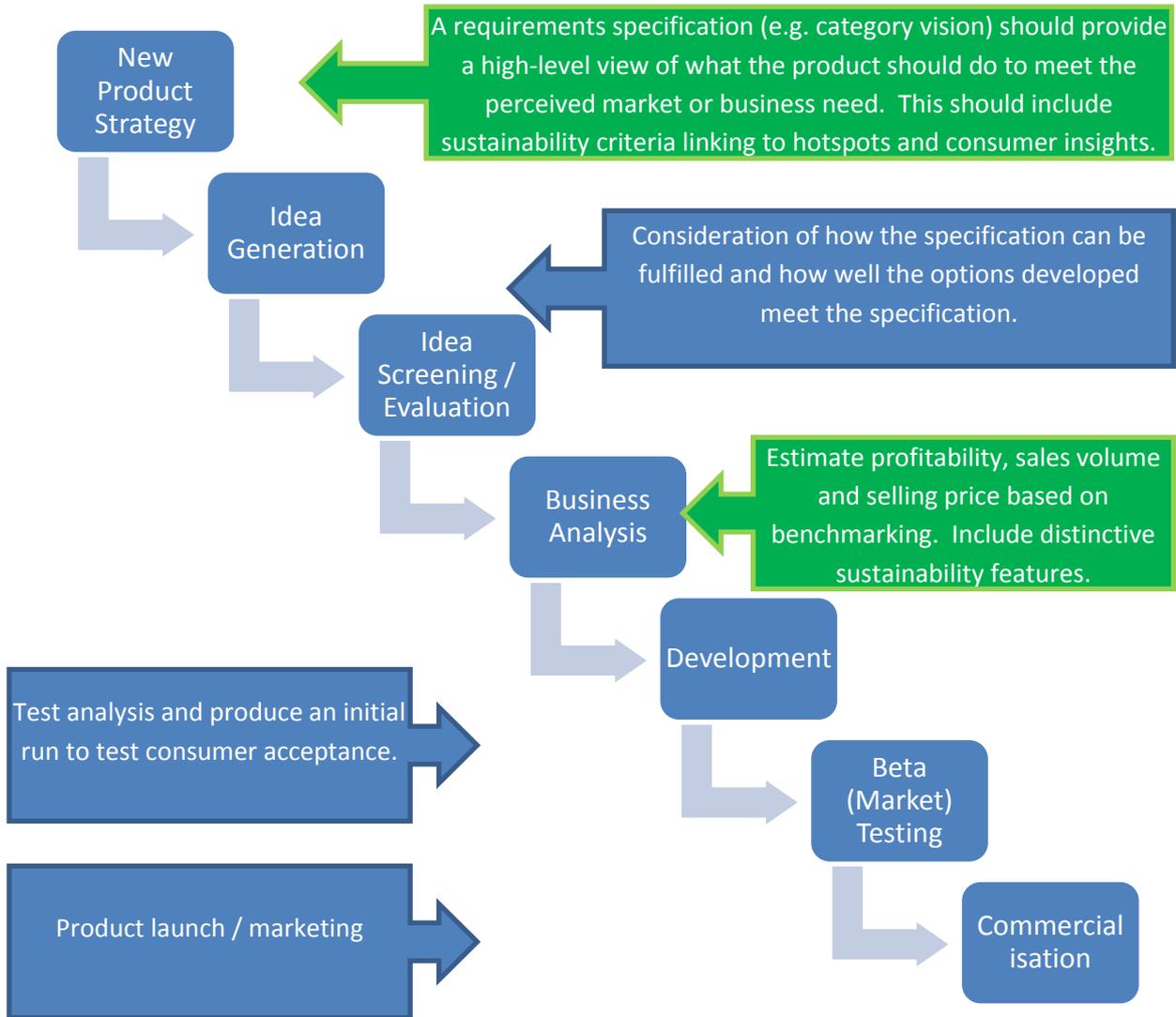


Figure 1: New Product Development Process (after Booz, Allen and Hamilton Inc. 1982)

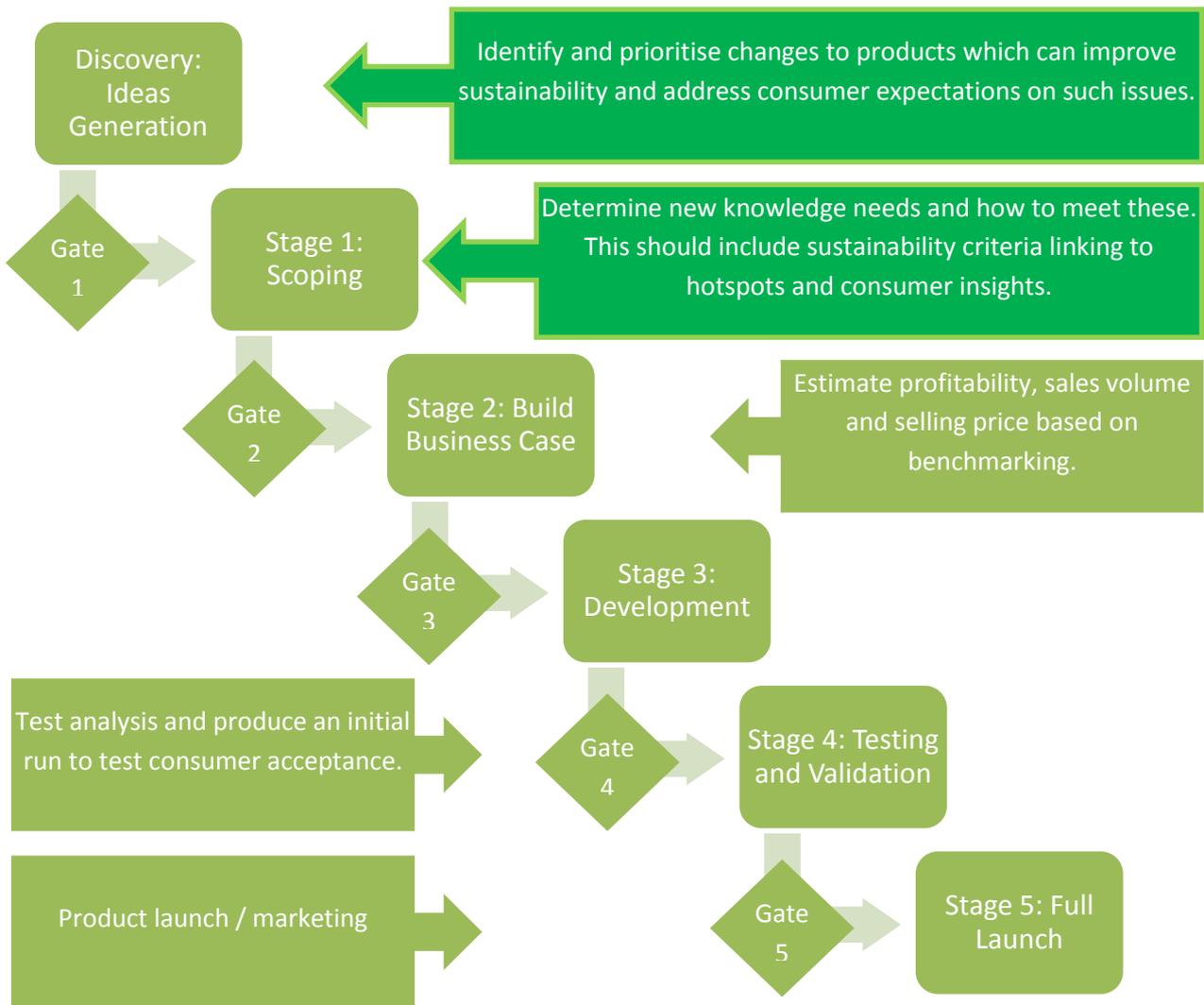


Figure 2 Stage Gate Model (after Cooper, 1990)

As with existing NPD practices, S-NPD should deliver commercial benefits and support corporate reputation. However, it should also go beyond this to increase brand equity through improving a product’s sustainability credentials in line with identified consumer trends and expectations.

1. New Product Strategy

In the following sections, we describe how to add sustainability criteria into the main stages of an NPD process in order to achieve S-NPD.

At the start of a conventional NPD process, a definition of “what good looks like” should be established by the organisation. This may be described in a New Product Strategy / Requirements Specification / Category Vision / Product Attributes or similar documentation. This should fully capture the vision for the category and establish a set of key principles that underpin this vision.

In S-NPD, these principles should also reflect the relevant sustainability commitments from corporate strategies, plans, goals or targets, such as:

- Corporate-level targets or goals to reduce GHG emissions, waste, energy, water or materials use;
- Corporate sustainability targets that have a link to product performance or attributes (e.g. recyclability or recycled content of packaging; sustainable sourcing / certification requirements for raw materials and ingredients).

In addition to the above, and in order to embed sustainability criteria in their supply chain, an organisation should include sustainable new product design criteria in product and packaging specifications, design briefs, policies and procurement practices.

1.1. Consumer Pull

The requirements for products and services should recognise innovation which increases the sustainability of a product or service. S-NPD should align with business requirements. The majority of food and drink businesses prioritise two economic drivers:

- to foster customer loyalty, and
- to achieve sales volume and growth.

The purpose of any business is to “grow customers”, i.e. to increase their economic value to the organisation. This can be measured through the Customer Lifetime Value (CLTV). CLTV is an indicator of the present value of future cash flows attributed to each customer’s purchasing pattern. It helps to focus on long-term customer equity, rather than simply maximizing short-term sales. This enables businesses to know how much each customer is worth and how much future cash flow will likely be (European Commission 2014).

Research by Dixon et al (2010) indicates that delighting customers does not create much more loyalty, but reducing their efforts does. In short, re-engineering processes in order to create an almost effort-free customer experience is an important innovation opportunity.

S-NPD should link to these drivers, identifying how improvements to product sustainability can deliver against these objectives. For example, Mintel (2015) have identified that the top 12 trends for food and drink in 2016 include *Eco is the new reality, Based on a True Story, From The Inside Out and Alternatives Everywhere*. These are described by Mintel as follows:

Eco Is the New Reality

Drought, worries about food waste and other natural phenomena not only affect the worldwide food and drink supply, but influence preparation and production. In 2016, sustainability evolves from being good for the bottom line to being a **necessary new product development consideration** for the common good.

Alternatives Everywhere

“Veggie burgers and non-dairy milks have escaped the realm of serving as substitutes primarily for people with dietary concerns, consumers with allergies and followers of vegetarian or vegan diets – and now have broader appeal.”

Europe is a hotbed for plant-based protein innovation

Based On A True Story

42% of **UK** adults aged 16+ say, ‘**I would expect food produced by smaller companies to generally be more ethical.**’ Consumers have been romanced by product origin, ingredients or inspiration stories. With similar claims made by legitimately hand-crafted as well as mass-produced products, this proliferation and occasional propagation will find both consumers and regulators seeking products with verified claims.

From The Inside Out

Consumers are recognising that diets can connect with the way they look and feel. This places new emphasis on packaged products that are formulated to help people’s physical appearance as well as their personal wellness, creating a market for products enhanced with everything from collagen to probiotics.”

Source: Mintel (2015)

Responses to these consumer demands could consider changes to **product, process and business models** as part of the S-NPD process.

1.2. Supply Chain Resilience Push

When considering the sustainability impacts of a products or service, a useful way of prioritising these is to consider the products with the greatest impact for the key criteria (e.g. greenhouse gas emissions) and then to identify the hotspots within the product life cycle which could be addressed through design. WRAP’s on-line Knowledge Base contains product life cycle-based environmental hotspots data and market information for 51 ‘priority’ product groups and key product ingredients, based on their environmental sustainability impacts and physical materials flows and sales volumes in the UK economy.

NOTE: other useful WRAP resources include a [Raw Material Risk and Opportunities Screening Tool](#);

Supply chain resilience can also be addressed in NPD by reference to published analyses of major issues and opportunities facing the food system. For example, in Food Futures, WRAP identify three key trends that will shape the food system (outlined below). These link to the issues identified by Mintel (2015) and address both push and pull for S-NPD. These could inform a category vision for NPD.

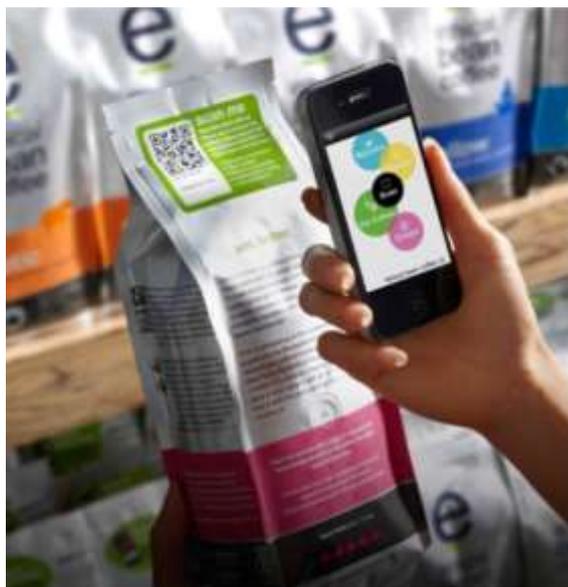
1.2.1. Increasing challenges to food system resilience



The food systems developed in the last century will not be fit for dealing with the increasing complexity and volatility of environmental, social and economic systems. To respond to the challenges outlined above, future supply chains will need to be FIT for the future: flexible (F), intelligent (I) and transparent (T). Flexibility will come from a range of attributes that encourage resilience, such as diversity. Intelligence will come from understanding and managing risks and identifying and prioritising opportunities. Finally, consumer demand for the provenance and traceability of ingredients means that transparency is needed to help uncover hidden risks that come from complexity, and opportunities that create incentives that drive the right changes in supply chains.

1.2.2. An Explosion in Data-Enabled Technology

For the supply chain, technology will be key. Businesses could use a suite of technologies and practices to provide products to consumers in new ways and improving the efficacy of the supply chain. Industry, and increasingly consumers, will have accurate data on where their ingredients and food is from and how to get the most from it. Linking the product design to its attributes, and communicating these as appropriate, is a key distinction in S-NPD.



1.2.3. The Alignment of Public Health and Environmental Sustainability Agendas



Not all opportunities are technology-based; lifestyles choices have a role to play. Consumers will help set the pace of change as they seek to have a healthier and sustainable diet. The future will see individuals driving the way in which their food is delivered not just to their door but designed to meet their precise nutritional and taste requirements. We could even see the introduction of 'food for the ages' - designed specifically to meet the needs of different age groups, from growing teenagers to older people.

By capitalising on the three trends and embedding the recommendations from the 'Food Futures' report, NPD can take a business unusual approach to the challenges and become more flexible, intelligent and transparent, 'FIT', to meet the 21st century demands. The primary demand will be to feed the growing population, which is why one of the recommendations in the report is to drive down farm-to-fork food waste.

2. Discovery, Idea Generation and Evaluation

2.1. The Product / Service Innovation Roadmap

At the ideas generation and evaluation stages, consideration should be given to how the specification can be fulfilled and how well the options developed meet the vision / specification. This should include the sustainability criteria, and identify how the solutions either improve supply chain resilience or align with consumer demand. Inspiration may be sought from identifying innovation in related and unrelated products and services, identifying a gap in the market based on sustainability criteria, or identifying an opportunity for reformulation which enhances performance against sustainability criteria.

3. Business Analysis

At this stage the estimated profitability, sales volume and selling price should be identified based on benchmarking. It is important that the benchmarking considers any distinctive aspects incorporated in the previous stages, such as improvements in sustainability performance alongside other NPD criteria (e.g. potential to grow a category / improve customer loyalty).

The benchmarking process is described in figure 3. There are usually two elements to benchmarking in NPD:

1. Benchmarking the performance of a new product or service concept against an existing product or service; and
2. Benchmarking the new product or service concept against the market (selected competitor products and services).



Figure 3 Benchmarking Process

Some sustainability benchmarking information comes from the visual assessment (e.g. ingredients lists, country of origin information, cooking and storage instructions, on-pack sustainability communications or eco-labels); whilst some is drawn from the findings from the hotspots analysis (e.g. information on energy, water and materials use; estimated wastage rates; etc.).

Sustainability benchmarking in the S-NPD process needs to remain fairly flexible according to the availability of product or service-specific information or the availability of proxy data or information for similar products and services. In hospitality and food service this may need to include consideration of both product(s) (menus) and services / facilities. The figure below provides some ideas for the range of sustainability benchmarks that could be used. The selection of benchmarks will often need to be done on a case-by-case basis.

4. Development Beta Testing and Commercialisation / Full Launch

Testing and commercialisation should include consideration of sustainability aspects as appropriate. Customer Panels may be used to test consumers' awareness, concern and acceptance of sustainability criteria. Once a product or service has been launched you should revisit your benchmarks to determine whether the performance benchmarks and attributes were met; and capture any learning from the design and development process that is useful to your future projects.

5. Conclusions

Issues of sustainability can be readily incorporated into existing NPD processes, and address not only supply chain resilience but also consumer demand. With Courtauld 2025 signatories, WRAP will develop a range of supporting tools and techniques as appropriate to help embed these issues into signatories' processes, supporting delivery of the objectives of Courtauld 2025 and wider sustainability issues.

6. Examples of S-NPD



Changes in Ingredients / Product

In Germany a 2014 Mintel Survey found almost 1 in 5 respondents aged 16 - 24 purchase meat alternative products, compared to 1 in 10 of the general population. Rügenwalder Muehler, a sausage company, launched a vegetarian range in December 2014, with a target of this accounting for 30% of sales by 2020. It accounted for 30% of sales within a year.



Changes in Process

Sun Chips California factory uses solar energy to power the production of the crisps. Sun Chips sales increased by 17.6% in the year following the 'sun-powered' re-launch



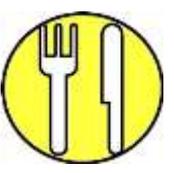
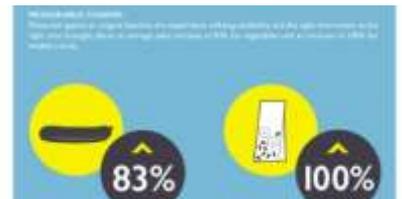
Changes in Packaging

Functional packaging - vacuum packed meat with an extended shelf life and enhanced quality. Other options include controlled permeability, oxygen scavenging and antimicrobial nanoparticles.



Shopping Experience

Danish supermarket Bilka introduced changes to the layouts that meant that consumers were nudged to buy healthier. This led to increases in customer satisfaction rates as measured by the supermarket, hypothesised as a consequence of enabling the customers to follow their ambitions, which created a better shopping experience. Measured against an original baseline, the experiment utilizing availability and the right information at the right time brought about an average sales increase of 83% for vegetables and an increase of 100% for healthy snacks



Catering / Hospitality

Sodexo are piloting a set of 10 sustainable meals. The project is part of Sodexo's partnership with WWF on LiveWell, which aims to encourage businesses and policy-makers to facilitate the adoption of diets which are both healthy and sustainable.



Changes in portion / pack size

Changes to the portion and pack size, such as half loaves, resealable containers and measuring guidance, can help to minimise food waste whilst meeting customer demands.



Making better use of resources

Yeo Valley launched left-yeovers in 2015, a variant of yoghurt made from ingredient leftovers such as unused carrot juice, orange juice and figs from the manufacturer's freezers. Changes can also be made to support customers in recycling packaging / unavoidable food waste at end of life.



Picture sources: <http://www.ruegenwalder.de/>; <http://www.sunchips.com/>; <http://www.krukow.net> <http://www.wwf.org.uk>; WRAP

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Our mission is to accelerate the move to a sustainable resource-efficient economy through re-inventing how we design, produce and sell products; re-thinking how we use and consume products; and re-defining what is possible through re-use and recycling.

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