

Any Colour You Like As Long As It's The One You Want: TRIZ and Customisable Foods

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"Customers, whether consumers or business, do not want more choices. They want exactly what they want - when, where and how they want it" (1)

"Convenience need not mean an instant meal on a plate. Growing numbers of consumers enjoy cooking but also do not have the time to prepare dishes from scratch. For them meal kits and two-stage sauces have become popular" (2).

Introduction

This paper focuses on some of the conflicts and contradictions associated with the evolution of the retail food industry, most notably the conflict between decreasing consumer time for preparation of food versus an often-corresponding desire to enjoy a product that fits their precise wishes. As quoted from (1) above, customers do not necessarily want more choice- they want 'exactly what they want'. This especially includes instances where although consumers know what they want *when they see it*, they couldn't define it for you before they've seen it (i.e. excitement quality).

This particular dilemma is examined through the perspective of the trends of evolution uncovered by researchers of the Theory of Inventive Problem Solving, TRIZ in order to see how we got to where we are today, and where the trends say consumers - and thus the products that will meet their changing needs - will go in the future. After that, we highlight a number of emerging products that appear consistent with these trends, and investigate how other TRIZ tools - most notably those concerned with contradiction-elimination - may be deployed to provide new product development opportunities.

Trends of Evolution

Although originally uncovered via analysis of the global patent database, the trends of evolution identified by TRIZ researchers have already been seen to be highly consistent with the evolution of non-technical systems (3).

The over-riding evolution trend is one towards increasing 'ideality'. TRIZ defines ideality as:

$$\text{Ideality} = \frac{\Sigma \text{Benefits}}{(\Sigma \text{Costs} + \Sigma \text{Harms})}$$

The trend states that systems will evolve to deliver increasing levels of end-user 'benefit' with decreasing levels of cost and 'harm' (environmental impact, adverse side-effects, etc). During the 20th century, the food industry necessarily focused on economic mass production of 'safe', ready-made foods. This trend was largely driven by a combination of three main factors; rapidly increasing population, increasing legal responsibility for delivering products which did not cause harm to the consumer, and decreasing desire on the part of the consumer to spend time preparing meals. In the eyes of many consumers, this increase in overall ideality has been achieved by focus on cost and harm rather than 'benefit', and in many senses the emerging trend towards mass customisation is a consumer-lead drive to redress the balance between the top and bottom elements of the ideality equation. More benefits in this case may be interpreted as increased sensory pleasurable ('home-made') food, tailored (or customised) to the specific requirements of each individual consumer. In many senses the conflict between the top and bottom halves of the ideality equation represents a fundamental food industry trade-off situation. TRIZ research has shown that this trade-off is similarly fundamental for a good number of other systems. They have also shown, however, that there are ways of beating the trade-offs. We will examine such strategies later.

More detailed evolution trends relevant to the issue at hand include:

Object Segmentation (Figure 1) - this is the trend most connected to the mass customisation trend; in technical terms the trend shows that systems evolve towards increasing levels of segmentation. The non-technical market analogy firmly suggests not just an evolution towards 'markets of one', but also further segmentation to the segmentation into different desires at different times (for example, a 'breakfast yoghurt' is different from a 'dessert yoghurt').

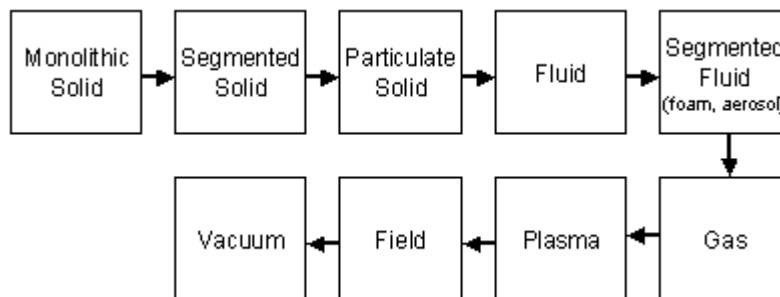


Figure 1: 'Object Segmentation Trend'

This segmentation trend is also specifically relevant to the 'home customisable' product offerings made by food manufacturers - with a growing number of emerging 'segmented' product packaging concepts. Here are a few examples of food products that have been developed and released onto the marketplace over the past few years:

Freshmade Creations (Kraft)- add meat to the contents of the box that includes rice or paste, sauce and cheese, depending on the variety. These products are marketed next to the fresh meat they require.

Nestles FrshNes Line- very similar to the above.

General Mills Betty Crocker Dinner Partners- Released in 1992- compartment of pasta and sauce and meat- stores added the meat- not very successful.

Decreasing Human Involvement (Figure 2) - the trend highlighting the increasing level of automatisation in the world as 'things' become progressively able to achieve better results than humans.

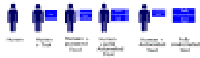


Figure 2: 'Decreasing Human Involvement' Trend

(picture courtesy CREAX)

Mono-Bi-Poly (Figure 3) - the trend towards increasing system functionality. From a food industry evolution perspective, the trend is specifically relevant to the idea of 'complementors' first discussed in 'Co-opetition' (References 4 and 5)

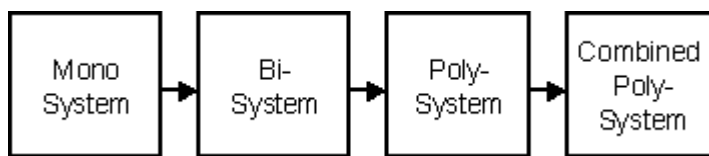


Figure 3: 'Mono-Bi-Poly' Trend

There are several existing and emerging instances of this trend in action. The underlying concept succeeds through the emergence of win-win situations when different sectors integrate their product offerings. The recent Muller/Kellogg's integrated yoghurt and cereal product - Figure 4 - is a good example of such a win-win situation in which both companies sell more of their product, and the consumer gets a 'new' and, if the market research has been done correctly, attractive product concept.



Figure 4: 'Mono-Bi-Poly' Product 'Complementors'

The other TRIZ trends will say that at some point in the future, consumers will work out that they can achieve this same - if not a more flexible - solution by buying the yoghurt and cereal separately and integrating them to suit individual taste. Kellogg's and Muller both then lose the added value (and hence price) associated with having the original idea, but should continue to benefit by selling more product.

This example, perhaps offers an important clue to the likely directions 'home customisable' evolution will travel: Muller/Kellogg's introduce a complementary product offering, the market picks up on this offering (this is probably the most uncertain part), but quickly realises they can achieve a readily home-customised version of the product that better meets their specific desires (e.g. I want strawberry yoghurt and a blend of Special K and muesli, for example) than any commercially viable range of combinations that Muller and Kellogg's could assemble; consumers eat more yoghurt and cereal; everyone's ideality increases.

There are of course several other trends uncovered by TRIZ researchers, but we will restrict ourselves to looking at just these ones due to their specific relevance to the home customisable subject.

Contradictions

"Convenient, timesaving meal solutions has improved the gap on restaurant quality".

"Many consumers enjoy the cooking process- several products (as above) required more active involvement than those that can simply be tossed into a microwave".

(Prepared Foods, April 20007)

Relating these issues and the contradiction described at the beginning of the article - that of parallel but conflicting desires for low preparation time of a product which tastes 'home-made' and is adaptable to different individual tastes, TRIZ suggests that similar conflicts have been successfully tackled in other sectors using a very limited range of inventive strategies.

In fact only 40 generic strategies have thus far been identified from the analysis of over 2 million patents. Reference 6 has discussed the use of such strategies in the context of mass customisation and concluded that of the 40 strategies, there are a distinct few that have thus far been successfully applied by companies to achieve viable mass-customised product or service offerings. At the head of this list of strategies are the Inventive Principles Segmentation, Dynamics, Taking Out and Parameter Changes.

The use of these and other Principles are examined in the design of food product and packaging concepts relevant to solving 'home customisation' related contradictions:

Thinking about people within one household having different tastes - for example a household in which one partner enjoys hot, spicy foods and the other does not - we offer an example of a product using the inventive principles Dynamics, Taking Out, Parameter Changes:

Theoretical Food Product utilising TRIZ principles:

Package: 3 Segments. 1: Segment: Basic Tomato Sauce. 2nd Segment: Chilli and Jalepeno Salsa Frozen, or Fresh. 3rd Segment: Basil and Parsley.

In other words we have 'taken out' the herbs or 'real flavourings'. It has also increased the Dynamism of the product- now each customer can mix part of the tomato sauce with the preferred mix (Chilli and Jalepeno) and different individuals can mix the base tomato sauce with the Basil and Parsley for an 'Italian' type sauce. On top of this they can also choose your preferred meat (or vegetarian equivalent) to go with it. This product also uses 'parameter changes'- in that the herbs can be frozen using already existing technologies.

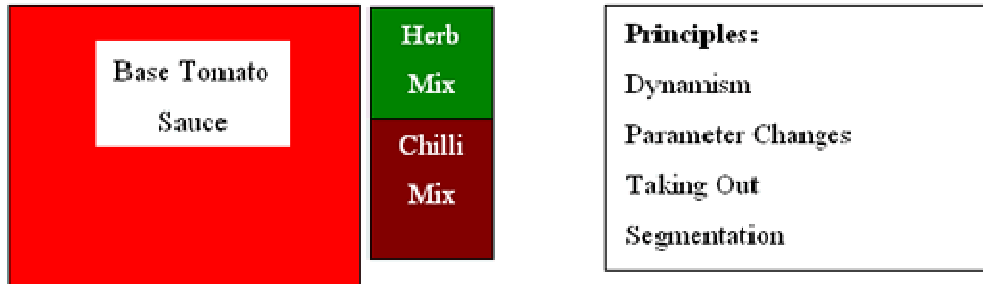


Figure 5: Segmented Ready-meal Product Concept

The product above is very much a 'fresh like' product giving the consumer choices (as in fresh food/home-based preparation) of preparation, and utilising already existing technologies (such as frozen herb products). Combination with the mono-bi-poly 'complementor' trend from the earlier Muller/Kellogg's example - for example by co-branding well known sauce brands with well known herb brand with well known chilli brand (etc) is likely to be a helpful marketing aid.

An example of another product offering 'choices' is Unox Townsend and Eine Sauce- which incorporates a concentrated sauce paste (parameter changes) to make one litre of brown, white or tomato sauce (increase dynamism). This is the only product we are aware of offering this kind of choice to the consumer (apart from our theoretical product!).

By way of another example of solutions to the home-customisable issue we might examine parallels between the soft drinks and particularly fruit squash market and the highly segmented and flexible solutions adopted by Dulux (in their ability to offer of a massive range of paint colours through in-store mixing of a relatively small number of basic paint colours) and in-store coffee blenders that allow customers to configure their own blend of different beans. A similar strategy may work well in the fruit drinks sector (Figure 6 cartoons a possible solution) given the decreasing economic viability of offering massive numbers of different flavours and flavour combinations versus the increasing desire of consumers to receive a fruit drink suited to their individual tastes. As well as offering a good sales 'gimmick', the concept would appear to generate real customisation benefits. Taken a step further towards real home-customisation, the idea of a home-blendable range of squash bottles is probably not beyond the realms of possibility (the ideality trend would perhaps suggest an ultimate evolution to a system by which we are all offered a 'personal preference blend' option that causes the dispenser (either at the supermarket, or more likely somewhere I don't need to visit) to dispense each of our favourite blends - which the dispenser either learns by recording our historical use of the machine or by matching blend to a set of acquired questionnaire responses.

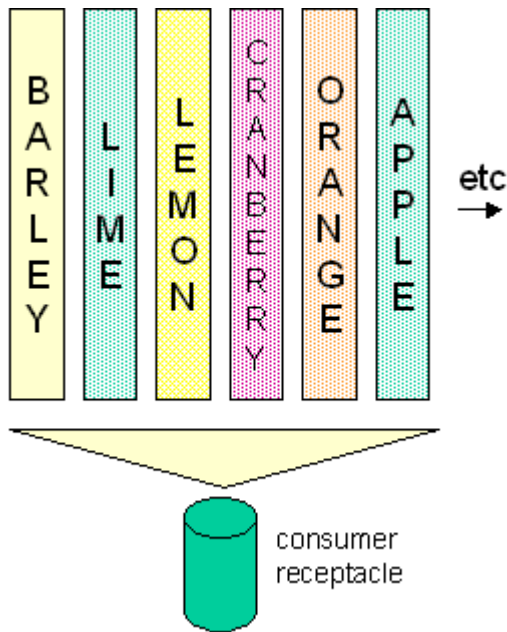


Figure 6: Segmented Fruit Squash Mixer Concept

Discussion

The Muller/Kellogg's example of complementary integration of product offerings may serve as a useful exemplar of the whole 'home-customisable' issue. The great beauty of their yoghurt plus cereal idea is not so much the merging of these two products, but the merger of two well established and respected brand names. This factor may be the trigger necessary to make this concept successful. Assuming it is, however, because the food industry operates in a rapidly evolving marketplace - in which the most successful advertising feature continues to be the word 'NEW' - consumers may be expected to quickly learn that they can increase their 'ideality' - i.e. get a more customised product and a lower cost - by reproducing the product from ingredients already existing in the home. This is not a bad thing from the perspective of either Muller or Kellogg's as they should still be selling more product. More importantly, they will (or should be) already be working on follow-on innovations before the current market peaks and declines.

This cycle of innovation may be expected to work well in other areas - for example the segmented pasta sauce product or fruit drink concepts described above - for some time, albeit with the background knowledge that one of the known characteristics of the underlying TRIZ mono-bi-poly trend is that it can only happen so many times before the marketplace tires of the concept.

If the TRIZ trends hold true then 'home-customisation' will continue to be a dominant trend in the food industry. In a rapidly evolving market like food, contradictions constantly emerge to limit the potential of a given solution concept. TRIZ contradictions and trends tools offer much to help overcome these contradictions to the benefit of both consumer and manufacturer alike.

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