



Sector futures

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Over the past 50 years, Europe's food and drink manufacturing sector has experienced significant transformation. It now faces a crossroads. Food is plentiful and affordable but there are growing concerns about diet, public health, food safety and the environment. Science and technology holds out the promise of improved efficiency and new kinds of foods, with possible health benefits. Will this approach continue? Will the sector embrace biotechnology or will the concerns of nutritionists and environmentalists prevail? This article explores some alternative future scenarios.

The first article on the future of Europe's food and drink manufacturing sector painted a picture of a healthy industry making a significant contribution to Europe's revenue and employment. The trends and drivers identified showed the industry at a crossroads. While it has undergone gradual but significant transformation over the past 50 years, further change in the production, distribution and consumption of food will be inevitable in the 50 years to come.

This article builds on the previous one, [The future of the food and drink sector](#)¹, concentrating on possible future scenarios.

Europe's food industry in transformation

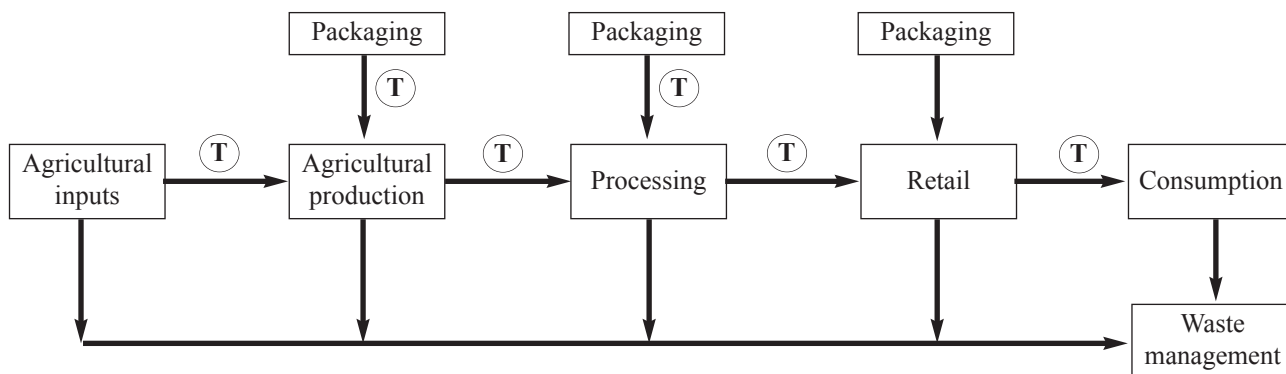
Europe's food industry has changed dramatically since the second world war. The war highlighted the need to ensure security of food supplies. As a response, the Common Agricultural Policy (CAP) became one of the foundation stones of the European Community. While one could argue its faults, the CAP ensured plentiful supplies of affordable food. Hunger, if it still exists in Europe, does not result from any failures in the food supply system.

Over the past 50 years, Europeans have become wealthier and enjoy a higher standard of living which provides much greater consumer choice. Demographic and social change has significantly altered the way people live and work and how they spend their leisure time. This in turn, has caused huge shifts in shopping and eating habits with the expectation of ever-cheaper food, and increasing variety all year round (Taking Stock, 2004, p.1).

In response to our demands, production has taken an industrial and technological approach. Some would argue that it is this industrialisation of the food system that is now shaping consumer demands. As a result, the balance of power within the food chain has shifted (see Figure 1 below). Farmers, who wielded significant power in the past, have given way to food manufacturers who have greater influence over production. But with increasing urbanisation and globalisation, it is the supermarkets which exercise the greatest control – with the power to dictate to farmers and food manufacturers as well as influence consumers.

¹ http://www.emcc.eurofound.eu.int/publications/2004/sf_fd_1.pdf

Figure 1: Food supply chain



Key:

Ⓣ Transport stage

□ Process stage

Notes:

1. Agricultural inputs include machinery, pesticides, feed, fertiliser, seed and packaging.
2. There are many variables associated with agricultural production, including: whether crops or livestock are produced, the degree of specialisation, field and holding size, machinery use, dependency on external inputs.

Source: *Taking Stock, 2004, p. 1.*

So what exactly is the problem? After all, if no-one is going hungry, the sector is thriving, and consumers are benefiting in terms of choice, convenience and value-for-money, surely the system is working well? At first sight, it is, but there are several causes for concern. Some of these issues may turn out to be inconsequential but others could well become major issues for health, the economy and the environment.

This article explores possible future scenarios in greater depth with predictions for the industry from other studies. There is plenty of material describing trends and drivers of change, issues of food safety, the possible impacts of genetically modified (GM) foods, the rise in power of the supermarkets, changing diets and their impact on health. There has, however, been little work done on constructing future scenarios for the food and drink sector. This is surprising given the importance and prominence of the sector and its current state of uncertainty.

Some studies do provide a useful framework for this project; though not conclusive they illustrate a way forward and point to the need for further research.

Possible futures of the food and drink sector

Lang and Heasman's view of the relationships between the supply of food, nutrition, diet and health is considered here (Lang and Heasman, 2004a; 2004b). Their analysis is not solely on food and drink but also on agriculture, food processing, distribution, nutrition, and health education. Their wide-ranging and thoughtful report provides the best framework available for considering possible futures for Europe's food and drink industry.

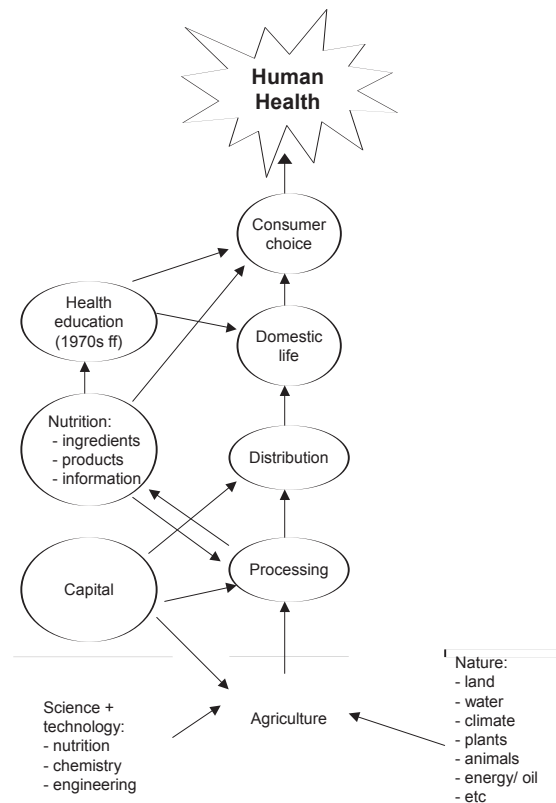
A production-oriented paradigm

Lang and Heasman argue that food and nutrition policy is now a source of serious public health concern. They point to mounting evidence of health problems but lament lack of policy and government intervention. Problems such as heart

disease, obesity, cancer, diabetes, and diet-related diseases are no longer the prerogative of rich, developed societies but are increasing in low and middle-income economies that can ill-afford to treat these diseases or lose workers prematurely.

They believe that current policy frameworks are locked in a paradigm that may have been appropriate in the past but no longer makes any sense. The driving forces of this old paradigm were insufficiency and hunger. The need for efficiency reinforced the 20th century pursuit of quantity over quality. This 'production-oriented paradigm' assumed that the main problem was the lack of sufficient food, illustrated below in Figure 2.

Figure 2: Production-oriented approach to health (1950s ff)



Source: Lang and Heasman, 2004a, p. 2.

This emphasis on production has been modified slightly, but significantly, with the emergence of health education from the 1970s. This was a response to mounting evidence that unhealthy diet is a key factor in premature death when linked with a widespread and significant reduction in physical activity over the last 50 years. Other factors include:

- increased consumption of fats, salt, added sugars;
- consumption of more processed foods;
- snacking;
- more global brands;
- less fruit and vegetables in the diet.

Lang and Heasman believe 'science' has now recognised that over-consumption and mal-consumption are major contributors to population ill-health. Nevertheless, they assert that:

The dominant food and health paradigm, focused as it is on raising output to resolve under-consumption, cannot deal with this new health analysis, nor with its sophisticated understanding of nutrition.

(Lang and Heasman, 2004a, p. 2)

This production-oriented paradigm can be seen as a 'business-as-usual' scenario. If we consider this scenario as a future possibility, diet, nutrition and health education will continue to be seen as peripheral and we are likely to see health problems increase, particularly in terms of obesity, diabetes, heart disease and cancer.

Farmers and food manufacturers take the view that as long as there is sufficient food and people are not starving, they are doing their job. Until recently they ignored nutrition completely, but have increasingly had to defend themselves against criticism that products are unwholesome and cause obesity. Some food manufacturers have realised the considerable potential in the 'health market' and therefore have positioned themselves to supply 'foods for health' in the form of 'nutraceuticals'.

Meanwhile, the power of food retailers continues to grow as they further consolidate: the global grocery market is now dominated by just five companies. Supermarkets deflect criticism by claiming they are supplying an ever-increasing range of foods, with more and more choice. For those who want 'healthy' foods, they are also available. However, the less well-off and the less well-educated continue to buy the cheapest and most processed foods containing high levels of sugars and fats.

Continuing conflicts in the Middle East have had an adverse impact on the price of oil – a barrel of oil now costs over \$100. In this scenario, with long 'food miles', the system is vulnerable to sharp price fluctuations in energy prices. Some products, like fruit and vegetables flown in from Africa, become too expensive for the supermarkets to supply. Consumers, used to all-season supplies, become frustrated that they cannot always buy the products they want.

If the production-oriented scenario represents *business-as-usual*, what other scenarios can we imagine for the food sector? Lang and Heasman refer to the developing relationship between diet, nutrition and health that has occurred over the past 10 years (WHO and FAO, 2003). This means that nutrition is placed firmly at the centre of what agriculture and the food-supply chain deliver. In 21st century Europe, if agriculture is not for nutrition and health, what is it for?

In Europe's affluent countries, there is also increasing concern that agriculture should take environmental concerns and issues of sustainable development more seriously. From such a perspective, issues such as amenities, wildlife and environmental diversity should also be on the policy agenda. Consequently, a policy divide is emerging in which two distinct paradigms offer different analyses of the role of food supply in nutrition and health. These paradigms suggest two different scenarios for the future.

Life sciences integration scenario

The first, a *Life sciences integration scenario*, is described in Figure 3. The focus is on the individual, the personalisation of diet, and the exercise of individual consumer choice to determine health. Life sciences act on many elements within the system in terms of understanding the individual's genetic make-up and body chemistry. In this way, food manufacturers and retailers are able to test individuals for their predisposition to certain diseases and offer personalised medicine and diets through the growing science of 'nutrigenomics'.

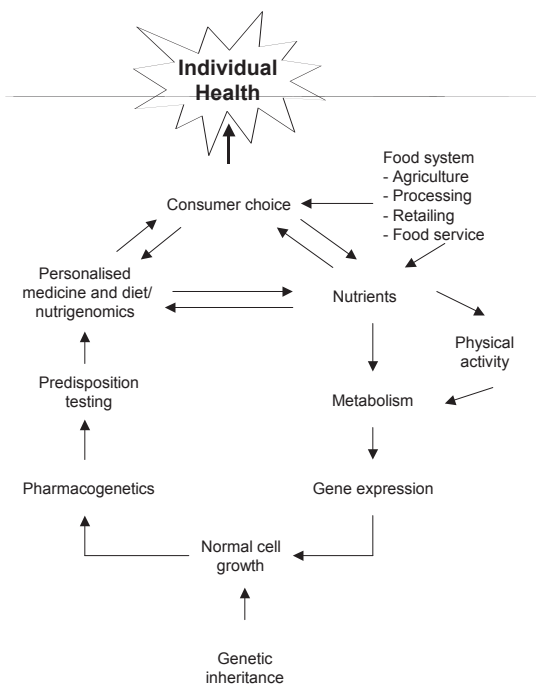
Nutrigenomics enables us to predict those who can tolerate a diet high in fats and not get cancer or heart disease. The ability to understand the interaction of genes, diet, ingredients and lifestyle has made it possible to deliver a personalised approach to food and health.

Unsurprisingly, this scenario creates a growing divide between, on the one hand, those who are sufficiently well-educated and who have the necessary income, and the less well-educated and the less well-off. Those able to partake of the services and products on offer enjoy healthy lifestyles, take more physical exercise, become ill less often and live longer. However, in this scenario, a growing proportion of those without the necessary resources become increasingly unhealthy, overweight and die younger.

The scenario emerged because of the considerable investment in research and development into functional foods, biotechnology, gene therapy and nutrigenomics by food companies and governments in the early 21st century. The lobbying power of some vested interests, notably the meat, grain and sugar industries and the processed food industry, enabled food companies to successfully deflect criticisms from some nutritional and environmental scientists. They argued in favour of more public intervention to support both societies' health as well as the environment. Even so, the *Life sciences integration scenario* has been able to incorporate social and biochemical approaches to nutrition. Nutrition science tends to be based on an individualised model of health, rather than at the level of populations. It therefore lends itself naturally in support of this scenario with its emphasis on the individual.

Governments generally support the life sciences integration approach for several reasons. First, it offers the promise of a quick, technological fix. Second, it frees them from having to introduce potentially unpopular policies that try to change the behaviour of a large proportion of the population, such as long-term policies promoting a lot more physical exercise.

Figure 3: *Life sciences integration approach to health*



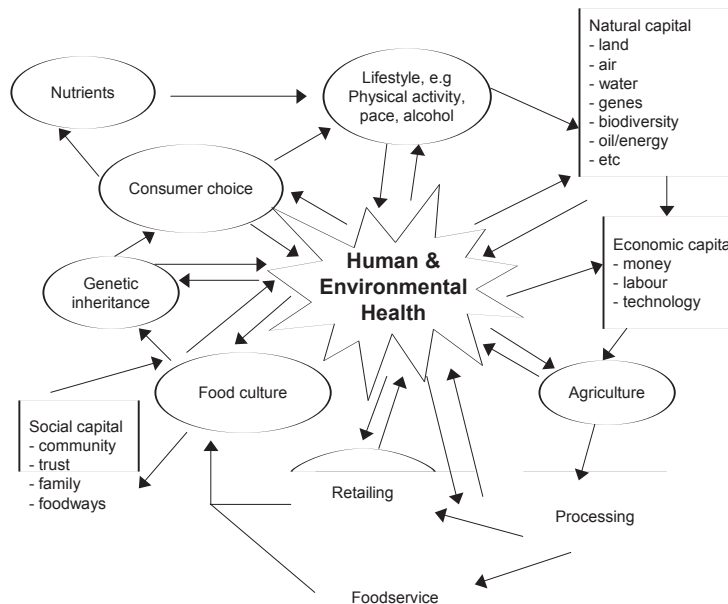
Source: Lang and Heasman, 2004a, p. 6.

Ecological integration scenario

The second, *Ecological integration scenario*, is described in Figure 4, and is based on a very different set of criteria. Here the emphasis is on the concerns of nutritionists and environmental scientists. Rather than focusing on individual dietary and health needs, the food system has been viewed as a whole to improve human and environmental health.

Ever-increasing levels of obesity, other diet-related diseases and continuing concerns about poor public health prompted this change in direction. This approach gained widespread popular support after a succession of food safety crises in the early 21st century. The public became alarmed at food contamination scares, the discovery of a virulent new variant of Creutzfeldt-Jakob Disease thought to be caused by contamination of cattle feed, and contamination of organic foods with GM organisms (GMOs). All of these concerns challenged the neo-liberal assumption that the role of the state in food supply should be one of ‘hands-off’. The litany of food safety scandals persuaded both suppliers and consumers that public health is in the interests of all. Of course, some complained about the dangers of a ‘nanny state’, but the majority of the population favoured government intervention.

Figure 4: *Ecological integration approach to health*



Source: Lang and Heasman, 2004a, p. 7.

With human and environmental health at its heart, all elements in the system now take a more responsible approach to improving public health and sustainable development. Governments adopt a ‘carrot and stick’ approach. Public policies have been introduced to build exercise into our daily lives. This has meant significant investment in sport and leisure facilities and much greater emphasis on physical education in schools. Food manufacturers and retailers support the policy and there are many company-sponsored initiatives to encourage more exercise – e.g. health and fitness centres at supermarkets, sponsored ‘fun runs’ and school sports. Tax incentives encourage membership of health clubs and other sports-related organisations.

In terms of health education, the focus has been on improving individual nutrition and diet. Television commercials daily encourage more exercise and a balanced diet with less sugar and fat. Companies now require their employees to have an annual health check-up. Overweight persons are given a programme of physical activity as well as dietary advice. National health services introduce ‘top-up’ charges for those who are deemed to be clinically obese.

Following a number of successful legal actions taken by overweight customers against fast-food restaurants, the fat content in hamburgers has been reduced and healthy options are both readily available and encouraged. Food manufacturers and retailers, worried that they too could be subject to similar claims, introduced warning signs on foods containing high levels of fat, sugar and salt. Television advertising on certain foods is banned, especially during children's programmes. Labelling of food has become of key importance and food manufacturers are prosecuted if their products are incorrectly labelled. Ensuring that a product is free of genetically modified organisms (GMOs) is increasingly difficult and this has led food manufacturers and supermarkets to avoid GMOs altogether. Realising that there is no market for GM foods, the biotechnology companies have gone out of business.

This new approach is not a quick fix however, and there are still complaints about the 'nanny state'. But there are indications that these policies are beginning to work, if slowly. Levels of obesity are falling and fewer people are dying of coronary heart disease.

Conclusion

Given the importance of food in our lives – to the economy, public health and the environment – and the significant challenges and uncertainty facing the sector, it is surprising that neither the public nor private sectors seem to have explored the future through scenario planning in any significant way. This article has drawn on our earlier feature which identified trends and drivers of change and adopted a framework provided by Lang and Heasman (2004a) to outline some possible scenarios for the future. However, these should be considered as not fully formed – there is considerable scope to develop and enrich them, or, indeed, to construct a completely different set of scenarios.

The next article on the food and drink manufacturing sector will focus on the policy implications resulting from the scenarios outlined here.

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² All links accessed on 20 October 2004.