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Introduction & Programme Structure
As part of Bord Bia’s role in assisting Irish food and drink companies with consumer-centric innovation and new product development, this programme ‘The Future Landscape of Food and Drink’ was undertaken in the Spring of 2008.

The programme was undertaken with the assistance of INNOVARO, an expert firm of innovation specialists led by Dr. Tim Jones, Principal.

The primary objective for Bord Bia when undertaking this futures programme was to identify key future trends and opportunities for growth over the next 10 to 15 years that will occur in the food arena.

By doing so Bord Bia would be able to assist food and drink companies:

• See the future and identify major new opportunities ahead of its peers
• Prepare for the future and be ready to pre-empt and react to the future

And hence:

• Keep ahead of the market, competitors and global changes
Introduction (II)

Across the food sector there are a number of issues that are already evident and many companies are facing current / accelerating sector challenges including:

- Leading the wellness / health / obesity management agenda
- Using new key ingredients for evident functional foods / super foods
- Reducing overall eco-footprint including embedded energy / water
- Managing rising material costs of key ingredients globally and locally
- Enhancing shelf-life, convenience plus, product quality and consistency
- Building closer co-development relationships with value chain partners
- Accommodating increasing diversity of points of sale and consumption
- Ensuring improved customer engagement, experience / product access
- Managing synergies across premium / mainstream / economy segments
In order to seed significant future growth for food and drink companies, this futures programme wanted to identify new drivers of change in the food sector.

Many firms are now looking for higher growth to meet expectations:

- Current short term activities within the core brands are not enough
- Companies need to see more high revenue / margin opportunities
- This demands looking over the usual horizon and outside the core
- In doing so they need to see and act on the future ahead of peers

Within an increasingly competitive global marketplace, these apply to many food and drink companies both domestically and internationally.

We therefore need to identify, scope and detail new opportunities outside the existing core of Irish food and drink.

Programme Structure (I)
The programme developed a vision of future drivers of change on food production and consumption over the next 10 years.

The insights, maps and pathways from the programme provide a unique view that links together future food design, production and consumption globally. It is designed to identify and detail likely incremental, next generation platforms and break-through innovation opportunities across a 10 year timeline; and create a framework that shares the new insights and opportunities across as wide an audience within the food and drink industry.

A core focus of the programme was to bring together expert views on technology, society and consumers to gain future unique insights with the aim to complement existing insights with new views to enable a future view to be created and new innovation opportunities identified.

The programme examined the 10 year horizon examining major global drivers of change across:
- Changes in global consumer needs, attitudes and behaviours
- Emergent and accelerating technology from inside and outside food
- Social changes and demographic shifts
- Ingredient supply and supply chain management / security
- The core macro drivers of change on food creation and consumption
- Future innovations that will impact food manufacturing and distribution
The main programme event involved two and a half days of workshops that brought together a unique mix of leading edge sources of insight to identify and scope major future changes.

**External organisations included:**
- Arup
- Corus
- Danone
- DSM
- General Motors
- Premium Catering
- Medical Research Council
- Reckitt Benckiser
- Sainsbury’s
- Shell

**As well as experts from:**
- Semiotics
- Human Nutrition
- Premium Catering
- Food Media
- Technology trends

**Who were mixed with Irish Companies:**
- Cadbury Ireland
- Dawn Farm Foods
- Glanbia
- Green Isle Foods
- Irish Distillers Pernod Ricard
- Kerry Foods
Current Global Food and Drink Environment
The global food and drink market is in some respects today at high tide and perhaps even at the flood. And while tides do ebb and flow as this one surely will, the indications that the era of cheap food is at an end are fairly compelling.

It is in modern parlance the perfect storm as a confluence of factors, both structural and cyclical, some with a lasting effect some not, have brought us rapidly rising world food prices, sparking protests, riots and export bans in many countries around the world.

This first section will attempt to outline how those factors are already defining the future landscape of food and drink.

As the parallels between food and energy grow closer, food as a resource will be seen in a new light, bringing new challenges for our food and drink industry but also may lead on to fortune.
World Population 1950-2050

Population (billions)

Year

3 Billion, 4 Billion, 5 Billion, 6 Billion, 7 Billion, 8 Billion, 9 Billion

Source: U.S. Census Bureau, International Data Base, July 2007 version
World Population

• The fundamental factor driving global demand for food is of course the relentless growth in the world’s population (6.7bn to 9.2bn).
  • >200,000 persons every day
  • >75m persons every year

• Every five years a market in population terms equivalent to the size of Western Europe

• And still almost 1 billion people (854m undernourished) do not have enough food to eat.
Projected Annual Net Number of Migrants for major world regions from 2005 to 2050

Source: UN Population Division 2006
Migration East to West

- Virtually all of the growth is concentrated in the developing world...

- The only reason the developed world will maintain its population is through migration.

- During 2005 to 2050 the net number of international migrants from the less to the more developed regions will be 103 million or 2.2 million a year. They are the *Global Nomads*, as old as history itself.

- The biggest net receivers will the US (1.1m a year), Germany (150,000), Canada (200,000), the UK (130,000), Italy (139,000) and Australia (100,000). China (-329,000), Mexico (-306,000), and India (-241,000) will contribute the largest numbers.

- Chinese, Mexican, and Indian cuisine will remain in demand.
Predicted annual rate of change of the population in age groups, 2005-2050

Source: UN Population Statistics 2005
The Ageing Population

• Part of the reason the population is expanding is that people are living longer.

• Globally the number of persons aged 60 years or over is expected almost to triple, from 705m (11%) in 2005 to 2 billion (22%) by 2050. (80+ years will increase nearly 5 fold).

• Ageing is a feature the world over. Whereas 6 out of 10 of those over 60 live today in developing countries, by 2050 8 out of 10 will do so.

• Over 50s in the US already control 70% of disposable income.
In 2008 for the first time in history the proportion of the population living in urban areas will reach 50%.
Growing Urbanisation

• Older and urban, during 2008 for the first time in history the proportion of the population living in urban areas will reach 50%. Virtually all of the world’s population growth will be absorbed by the urban areas of the less developed regions.

• Globally the level of urbanisation is expected to rise to 70% in 2050.

• Europe’s level of urbanisation will rise from 72% today to 84% while urbanisation in North America, Australia and NZ will grow from 80% to exceed 90%.

• By mid-century most of the urban population of the world will be in Asia (54%) and Africa (19%), although urbanisation levels will still be lower than in the developed regions.
Growing Urbanisation

• Of course the real significance of urbanisation is the shift in diets that accompanies it.

• The pattern of diversification of diets from starchy foods towards more meat and dairy products is intensifying demand for feed grains and strengthening the linkages between different food commodities.

• According to the FAO, it takes seven to nearly eight and a half kilos of grain to produce one kilo of beef and five to seven kilos of grain to produce one kilo of pork.
  • During 1980-2007 the growth rate of cereal production increased on average by 2% a year while the increase for feed use has averaged over 3.5% a year.

• If for example one were to make the broad assumption that the consumption in Hong Kong is where China might be sometime in the future one could expect that demand for meat is set to more than double in China.

• The USDA expects China’s exports of corn to fall to one-tenth of last year’s levels, to just 0.5m tons as more corn is used for domestic livestock feeding.
Global Food Prices

• Population growth, income growth and the income effect of migration from low to high income regions, ageing, urbanisation and a shift in dietary habits are fundamental factors driving global demand – and underpinning food commodity prices.

• However, the kind of acceleration in food prices we have seen is hardly consistent with the more gradual lift that might be expected from demand factors alone – unless we have reached some kind of tipping point.

• The UN food commodity price index is a reasonable benchmark of the trend in global prices and while we can see here that prices appear to have reached a turning point.

• The USDA’s Chief Economist, addressing the Joint Economic Committee of the US Congress in May 2008 drew attention to the fact that “futures market prices suggest that grain and oilseed prices will remain high over the next few years”, adding that tight supplies will keep markets volatile with much attention paid to growing conditions worldwide”.

Supply and Demand

• There is a question mark over the growth in agricultural productivity. The global grain harvest has nearly tripled since 1961, during a time when world population doubled. As a result, the amount of grain produced per person grew from 285 kilograms in 1961 to a peak of 376 kilograms in 1986. In recent decades, as the growth in grain production has matched population growth, per capita production has hovered around 350 kilograms.

• Since the previous high-price event in 1995, global stock levels have on average declined by 3.4% per year such that by the close of the season ending in 2008 they are expected to fall to their lowest level in **25 years** when the level of utilisation was much less than it is today. At this level, the ratio of world cereal stocks to utilisation falls to 18.8 percent, down 6 percent from the previous low in 2006/07.

• They are set to rebound in 2008/2009, however, USDA are forecasting record wheat prices in the coming harvest season notwithstanding global wheat production will reach record levels. There have been a number of changes in the policy environment after the Uruguayan Round Agreements that have been instrumental in reducing stocks in major exporting countries: the size of the reserve held by public institutions; the high cost of storing perishable products etc.
Future Challenges to Food and Drink
“Is the cure worse than the disease?”
Biofuels

• In an OECD paper published last year, “Is the Cure Worse than the Disease?” the notion of bio-fuels as a “champion energy source” is hotly contested in terms of cost and environmental impact, and government policies to support them are strongly challenged.

• The USDA forecasts US plantings for biofuels will account for 24% of the corn crop this year having earlier suggested it will eventually peak at 30%.

• The EU currently only uses 1% of its cereal production for ethanol and 2/3rds of its rapeseed production (the EU only contributes 2% of world oilseed production).

• The combined cereal shortfall in Europe, North America, and Australia in 2006 was more than 60m tones –relative to the 17mt increase in cereal use for bio-ethanol production seen in those countries.

• Nevertheless biofuels will not be going away, they have built up a momentum, an infrastructure that must now be fed, and they are regarded as an important bridge to the next generation of biofuels, which according to Shell, are five to ten years away before substantial volumes of second generation biofuels become available.
Avian Flu— a potentially far greater threat to humanity than
global warming, nuclear terrorism and natural disasters
Biosecurity

• Avian Flu has been described as a potentially far greater threat to humanity than global warming, nuclear terrorism and natural disasters.

• We have seen the havoc that the spread of animal disease can create, and particularly when an animal disease mutates into a human one. BSE is now thankfully in the distant past but the spread of avian influenza and more recently Bluetongue amply demonstrates it is a wild card that respects no borders particularly when it involves creatures that fly above them.

• The need for ever greater vigilance and a continuing focus on risk management and the role of biosecurity policies can hardly be overstated.
Some 70% of the world’s water is used in agriculture.
Water

• “Streams of Blood, or Streams of Peace” was the headline over a piece on wars over water in an edition of the Economist in May 2008 – it is a renewable but finite resource that is also increasingly highlighted as a supply constraint that will loom ever larger in the future.

• Some 70% of the world’s water is used in agriculture.

• 20% of the world’s cropland is irrigated but produces 40% of the crops.

• Water use has been growing at more than twice the rate of population increase in the last century, and, although there is no global water scarcity as such, an increasing number of regions are chronically short of water.

• By 2025, 1 800 million people will be living in countries or regions with absolute water scarcity, and two-thirds of the world population could be under stress conditions. The situation will be exacerbated as rapidly growing urban areas place heavy pressure on neighbouring water resources.

• Embedded water as in the carbon footprint? Issue of bottled water!
Climate Change: impact of disruptive weather and precipitation patterns on long-term agricultural output
Climate Change

• As the oceans rise, the ice melts, and lakes shrink, the reality of climate change is universally accepted. Increases in the frequency of “freak weather” have potential implications for agriculture and food supplies.

• Whether due to drought or floods, farming is more vulnerable to weather conditions than ever before, with a potential for market and price volatility not previously experienced.
As other sectors aim for 100% recycling of product and packaging, the way we manage supply chains and waste needs to fundamentally change.

Renault’s new Twingo is 95% recyclable.
Supply Chain Sustainability

- By the same token climate change will ensure that there will be a continued focus to achieve sustainability in supply chains with full recyclability - example here is the Renault Twingo.
A third of all food purchased in the UK is wasted according to WRAP and costs UK households £10 billion a year.
Sustainability

• A third of all food purchased in the UK is wasted according to WRAP and costs UK households £10 billion a year.

• Researchers found that more than half the good food thrown out, worth £6 billion a year, is bought and simply left unused or untouched and that £1 billion worth of wasted food is still “in date”. It costs local authorities £1 billion a year to dispose of food waste.

• Stopping the waste of good food could avoid 18 million tonnes of carbon dioxide equivalents from being emitted each year – the same as taking 1 in 5 cars off of UK roads.

• It will spark a major debate about the way food is packaged, sold, stored at home, cooked and then collected when it is thrown out.
The parallels between today’s food market and the energy market five years ago are striking: growing demand, rising prices, climate change and security of supply.
The Energy Template

• The parallels between today’s food market and the energy market five years ago are striking: growing demand, rising prices, climate change and security of supply – albeit these issues are far greater in consequence for a lot more people than in the case of energy.

• And indeed maybe what is happening in the energy sector will be seen as a template for food, where a combination of post-Kyoto cooperation, individual taxation and alternative programmes are being employed to address the challenge.
Futures Findings
Context for Futures Findings (I)

As a general context for the main future findings, there was a view that in the future we would see New Citizens and New Food Cultures.

By 2020:

• There will have been key shifts in attitude and behaviour across key stakeholder groups that has raised awareness in today's youth / tomorrow's parents and other demographic and attitudinal groups regarding the nutritional / health aspects of food.

• This will have been achieved through a combination of drivers from proactive state legislation, the dividend from today's corporate and retail sustainability policies, demonstrable benefits from nutri-food products and the active bottom-up community initiatives from an emerging New Citizen culture.
The key impacts across stakeholder groups from seeing New Citizens and New Food Cultures would be:

**Retail:** More responsive to ethical and social objectives as commercially attractive. Responsibility for what is sold through stores. Fragmenting lifestyles, local / global retailing, consumer activism combined with smart personal data mining shifts the economic model from centralised procurement only to new distributed supply / buy models. This feeds consumer demand for more local choice, revitalises local manufacture, reduces distribution costs and opens a pathway for new healthy food products.

**Business:** Food globalisation continues a pace generating new commercial collaborations, introducing new cross cultural ‘fusion’ food innovations and catering / retailing concepts. Some good food practice / ingredients reverse introduced from developing cultures back into the West. Retailers new buying model allows for greater scope for ‘good food’ innovation, more flexible manufacture and stronger innovation leadership.
The key impacts (continued):

- **Consumer**: Educational message around nutrition creates a new awareness, combined with clearer on pack information - helps to shift attitudes and behaviours toward a new cost : value equation where convenience plus healthy, tasty food is achieved at affordable levels. Portion control, authenticity, bold flavour / texture foods thrive and tasty natural, organic, local ingredients trends continue.

- **Government**: Economic cost of obesity drives a more proactive state involvement to change behaviours faster. Governments start to make the shift in health care model toward cause / prevention policies. This requires greater engagement and management of key food chain stakeholder groups through positive intervention (carrot / stick measures - like the introduction of a fat tax!) Cross party policies follow through.

- **Parents**: Communication technology advance allows easy mass market wireless connections across everyday locations and institutions currently disconnected. This links up ‘docking points’ for joined up communication opportunities - for example across local GP practise, local retailers, and schools that accelerates the educational and implementation activities. Helps make the direct link in peoples minds between nutrition and health at the practical, everyday level. This stimulates self help activity to take greater personal control of many aspects currently processed by institutions. Revitalises the building blocks of food understanding; links to clear benefits so that issues such as obesity, exercise, diet and school policies can all be influenced.
The key impacts (continued):

• **Communities:** Local shared interest ‘clans’ also become more interconnected and active. Peer group information and experiences becoming highly rated by consumers and in many ways start to play the educational role traditionally fostered by the extended family, employers and the State. Growth in clan clubs including wellbeing, health and exercise activity.

• **Media:** The explosion in media channels provides an open network for individuals to self selects what information they receive. A variety of personal data security and multi level filters are emerging allowing individuals to manage and even create their own communication. Food education in all its manifestations will become accessible with personalised interaction.
Futures Findings (I)

From the varied discussions and debates during the programme there were ten future findings.

Each of these are summarised and detailed in the following pages.

*Key Future Findings:*

1. Nutrigenomics will fundamentally change consumer healthcare

2. Food processing will move into urban environments and support localised economies

3. Biotechnology will offer healthier food and address problems such as obesity and climate change

4. Consumers will become discoverers

5. Over 50s will become multiple clans
Futures Findings (II)

Key Future Findings:

6. New Affluence will enter the World Order

7. New proteins: Advanced food technology will make up a substantive part of food supply and distribution

8. Deep Thaw will become as common as Deep Freeze

9. New snack-able real foods will be a major global growth area across the sector

10. Nutritionists will be the New Chefs
Nutrigenomics will fundamentally change consumer healthcare

Healthcare costs will reduce as nutritional screening becomes a standard part of health check-ups and, consumers readily provide their genetic profile.
Nutrigenomics

By 2020: Nutrigenomics will be a key part of non-invasive health prevention and treatments; individual diets to fit genetic profiles will be mainstream

• We all want to live longer and healthier. Nutrigenomics is the study of how foods affect our genes and how individual genetic differences dictate the way we respond to nutrients in foods.

• It is based on the premise that improper diets are risk factors for diseases and that knowing a person’s genetic make-up allows a nutrition regime to be developed that will protect against conditions to which we may be vulnerable. It is set to lead to "Individualised nutrition"- diets based upon genotype, nutritional requirements and status.

• Dr. Kaput said, "we foresee that the application of nutrigenomics to the consumer food market will be occurring over the next five to ten years. The applications may appear to segment the consumer market, but the products that will be developed will be of high value; they will be capable of delivering the right nutrients to the right person at each stage of the life cycle."

• The role of dieticians will be much more important as science based diet advice becomes mainstream, while nutrition will become integral to GP practices and pharmacies.

• Food will be considered a delivery platform for pharma led initiatives. Food companies will use pharma channels to market their products to healthcare professionals.

• The potential increased cost of such products will likely be offset by reduced costs for health care for the individual and for society. Nutritional screening will become part of health check-ups and consumers will readily provide genetic profiles. Greater differentiation of health insurance as risk profiling becomes more predictive and accurate.

• Business models will be changed as healthy people ultimately pay less; pressure to change unhealthy lifestyles will be much greater. The concept of health as a ‘currency’ will be developed. New financial investment products related to longevity and health risks will be commonplace.
Urban farming and localised processing of food will be driven by a combination of top down lower eco-footprint regulation and bottom up community interest.
Urban Farming

By 2020: Food processing will move into urban environments and support new localised economies

- There will have been key shifts in the economics of cities and local environments, and how they are used, through a combination of bottom-up community driven interests and top-down city food strategies.

- Integrated production of goods / foods and residential at an industrial scale e.g. glasshouses located nearer to houses / energy suppliers to share balance and carbon mitigation.

- Urban farming will be driven by an emotional attachment to supply rather than absolute need.

- The images show designs for vertical farms, which would combine water reclamation with high nutrition food products, within cities. An example given is orange juicing to exemplify that the finishing part of processing will be a reality because shipping finished products long distances is more carbon intensive than shipping semi-processed materials that can then be finished in smaller scale facilities within the environs of cities.

- Improved harvesting of waste food, energy and brown water.

- Also facilitated by changes in mindsets, e.g. self-supply as key philosophy.

### Drivers/ Enablers:
- Smart metering of water and energy through embedded infomatics
- Growing technologies and philosophies including vertical farms in cities
- Long term food strategies currently under development by key cities, e.g. London
- Carbon reduction (transport) imperatives
- Shift of economic balance giving more power to consumers

### Barriers:
- Fast development of supply chains bringing water in and out
- Reliance on well worked infrastructures
- Requirements of strong economic growth for funding
- Conflicts with need for quality open spaces
Biotechnology and the next green revolution
Biotechnology and the next Green Revolution

By 2020: Biotechnology will offer healthier food and address problems such as obesity and climate change

• GMOs have struggled to achieve consumer acceptance and have so far failed in Europe.

• Nevertheless, the attraction of varieties of crops that are drought resistant and require less energy to produce them in this changed world is clear and next generation GMOs may offer just that.

• GM crops it is argued will be essential to feed the world population. Proponents of current genetic techniques as applied to food plants cite the benefits that the technology can have, for example, in the harsh agricultural conditions of Africa. They say that with modifications, existing crops would be able to thrive under the relatively hostile conditions providing much needed food to their people.

• Proponents also cite golden rice and golden rice 2, genetically engineered rice varieties (still under development) that contain elevated vitamin A levels. There is hope that this rice may alleviate vitamin A deficiency that contributes to the death of millions and permanent blindness of 500,000 annually.

• Also set to offer consumer benefits such as high-oleic soyabean oil in 2009 so that it tastes better, is healthier and produces no trans-fats during cooking.

**Drivers/ Enablers:**
• Rising global population
• Potential scarcity of commodities
• Proven GM science and production capabilities
• Bio-fuels and associated demand for sugar and corn
• Influence of Cargill, ADM and Monsato

**Barriers:**
• Regulatory issues around GM and supply issues
• European Union resistance
• Lack of consumer understanding in key markets
• Legacy and lethargy in some countries
Consumers will become discoverers
Consumers will be Discovers

By 2020: The shift in power from manufacturers to retailers will move to consumers.

- Eric von Hippel is an economist and a professor at the MIT Sloan School of Management, specialising in the nature and economics of distributed and open innovation. He is best known for his work developing the concept of user innovation – that end-users, rather than manufacturers, are responsible for a large amount of new innovation. In order to describe this phenomenon, he introduced the term lead user in 1986. This is perhaps taking the concept of open innovation that Procter and Gamble currently employ and that of co-creation, evident in many sectors (e.g. M&Ms).

- As an evolution of the shift in power from manufacturers to retailers, we would expect to see consumers becoming more powerful particularly in terms of their influence on products and brands, largely because many have now learned how to be influential through movements including participatory design and fan bases.

- LEGO for example embraced both of these ideas, using lead customers who were willing and able to adapt early stage concepts to suit individual image, needs and preferences. Lego made their customers part of the creative process and LEGO Mindstorms (incorporating programmable bricks that can perform very complicated and useful tasks, sensors, cameras and motors) is testimony to this. Over 20,000 people in 79 different countries have been involved.

- The expectation is that in the next ten years consumers will become much more responsible for a significant part of the brand experience. Through the growth of networking sites through the internet and increased global affluence they will shape who sees a brand and how they see it.

- Brands themselves are going to have to go looking for them and/or become much more interconnected with the consumer base at large.

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<th>Drivers/Enablers:</th>
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<td>Development of on-line in ‘developed’ countries and mobile technology in developed &amp; developing regions</td>
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<td>Communication will move more from text to visual as bandwidths increase</td>
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<td>Increased global affluence (albeit manifested and implicated in different ways)</td>
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<th>Barriers:</th>
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<td>Differing rates of technological and change adoption by different clans</td>
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<td>Potential perpetuation of class and religious divides</td>
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The over 50s will become so large in number that they will become multiple clans rather than being seen as a single group as happens today.
The Over 50s

By 2020: The notion of age as a singular affiliation will decline as connections across generations increase.

- As the proportion of over 50's grows it will begin to exhibit the characteristics of other large groupings of people, in that smaller and more discrete groups will become evident.

- There will be 177 million over 50s in Europe by 2025 (Datamonitor).

- People will fully retire at 75 and 2\textsuperscript{nd}, 3\textsuperscript{rd} and fourth careers will be evident as common stages of working life for many.

- Understanding over 50s will become more complex as clans and social units will emerge. The term clan is used deliberately because it relates to social units that can be traced to a particular range of attitudes, values or interests. It is difficult to predict exactly what they will be but the experts say that we can expect to see groupings that are distinctive for reasons other than conventional behaviours expected and associated with age.

- Saga Louts, Radical Wrinklies, and New Adventurers are examples of what we might expect to see in 10+ years time based on trends evident today. I.e. anti-social behaviour, radical political attitudes and groups and the need for escape and adventure.

### Drivers/Enablers:
- Economic need to support living longer
- Pensions crisis in many economies
- Strains on dependency ratio especially Japan / N Europe
- Positive encouragement from society and media

### Barriers:
- Entrenched attitudes across generations in many countries and cultures
- Have vs. have not expectations across Europe and US
A new global affluent class will appear from India and China but their motivations will be less about money and more about aspiring to new values.
New Global Affluence Classes

By 2020: There will be a larger global middle class as emerging markets in the Far East grow

• Choices of lifestyle and values of the new affluent will seem paradoxical to a Western liberal view of the world. New affluence is about the emerging middle classes in the Far East - as incomes rise their disposable income increases. Experts feel that there is no particular reason why these classes would have the same interests or affiliations as their Western counterparts, after all they come from a completely different culture.

• Decreased sense of importance attached to material things and more emphasis on intensity of experience; experience will be the new currency. Their cultural references are different, their values of individual vs. collective very different and so on. Just as the Western Middle Classes had travelled to Asia and come back with a more exotic palette (though readapted to their Western palette); as the East becomes more wealthy so too will they experiment in the West.

• In an imitation of the Western trips to Asia, we would see Easterners coming to the West, picking up some of the culinary tastes, and re-adapting them to their local palette - hence “Cheddar in China” - Chinese people starting to experiment with Western type foods.

• In the Western developed regions, there will be much less concern over wealth accumulation and more about how to release built up equity.

• The Indian economy is now growing at a rate of 9% a year, three times as fast as its Western competitors. The most visible result is that the Indian middle class has doubled in size in the last 7 years and now numbers 100 million, bigger than the entire population of Germany.

Drivers/ Enablers:
• Growth in disposable incomes in emerging markets
• Increasing global migration and global nomads
• Transparency of cultural values via film and media
• Resurgence / retention of traditional values

Barriers:
• Differing rates of technical adoption in different economies
• Alternative rates of social vs. economic development
• Influence of global aspirational brands
• Role of influential middle classes
The new proteins
New Proteins

By 2020: Advanced food technology will make up a substantive part of food supply and distribution

• New Proteins can and are being developed now. The debate is how widespread they may become.

• A three-day meeting of the In Vitro Meat Consortium, held at the Norwegian Food Research Institute, was held in April 2008. It brought together biologists, engineers, government officials and entrepreneurs seeking - for both environmental and ethical reasons - to move from animal husbandry to technology as a means of providing an alternative that would have all the characteristics of “muscle meat”.

• The costs of cultured meat cannot come close yet to competing with, for example unsubsidised chicken but there is a reality to face as countries move out of poverty and climb up the protein ladder, with global meat consumption at about 270 million metric tons in 2007 and growing at about 4.7 million tons per year.

• The environmental impact of meeting this forecast demand from existing livestock systems is significant. Cultured meat technology offers an alternative production route for a proportion of this consumption. This would then allow a downsized livestock production system to continue to be ecologically sound and to meet basic animal welfare needs.

• A model is envisaged of a solar-powered facility in southern California or Singapore, turning sunlight and desalinated seawater into growth medium and then tons of cruelty-free, sustainable pieces of chicken essence.

• Jesse Ausubel, the director of the programme for the human environment at Rockefeller University said 'there is no reason to doubt that a long-term trend toward more concentrated food production will eventually lead to manufactured meat.' In fact, he said, 'there is essentially little choice on a crowding planet to pursue technological solutions to feeding ourselves, shifting away from carbon-containing fuels, and otherwise limiting our ecological imprint but...human nature is probably harder to change than technology.'

Drivers/ Enablers:
• Growth of protein requirements will outstrip conventional supply
• Increasing dependency on meat based diets
• Science is already there

Barriers:
• Consumer fear of cultured protein development and consumption
• High development costs
• Consumer acceptance of lab based foods
Deep thaw will become as common as deep freeze

Induction heating will speed up and provide more even thawing of frozen food than microwaves – thus enabling more nutritious and popular ready-meals
Deep Thaw

By 2020: Deep thaw will become as common as deep freeze, solving a long standing convenience issue

- The expected growth and much vaunted benefits of frozen food will have a consumer ‘outlet’ and convenience motivation; quicker and more even thawing.

- Non-synthetic preservation technologies (including cryogenics) will complement / replace freezing.

- Induction heating, (the method that uses ferro-magnetic materials above an induction coil) for deep thawing is safer and uses only half the energy of electric cooking and transfer heat much more effectively than gas stoves.

- The price of induction cookers has been reducing significantly in recent years - a trend that is expected to continue. A key driver will be the insatiable appetite for ready-meals, the consumption of which is expected to double in the next ten years in Europe and the US.

**Drivers/ Enablers:**
- Frozen food has consumer acceptance as closest thing to fresh
- Displacement of cooking time sits well with convenience trends and behaviours

**Barriers:**
- Rate of adoption of new behaviour difficult to predict
- Key technological assumptions as yet proven
- Sustained global acceptance / demand for ready meals
New snackable real foods will be a major global growth area across the sector.

Mainstream convenience formats will evolve to encompass easy-to-eat portion sizes, taking the lead from tapas, meze and korokke from Japan.
Real Food made Snackable

By 2020: ‘Real Food Fast’ at arms length will be a reality as convenience food evolves fast

- Convergence of foodservice and retail will have taken place and serve to drive divergence of tastes and experiences. More restaurants will have meals to take away and there will be branded opportunities for leading restaurants to integrate with retail outlets.

- Personalisation of convenience meals will be advanced; e.g. selection of meal elements that are then brought together and heated / cooked in-store.

- Today the sandwich is the dominant mainstream convenience food. Experts suggest that new forms of convenience food formats will emerge that will be in easy to eat formats like tapas (a wide variety of appetisers in Spanish cuisine), meze (same from the eastern Mediterranean) and korokke (not unrelated to the Japanese deep fried dish shown).

- These types of food may be very similar but they may be different. The expectation is that the sandwich itself will also evolve most probably into smaller sized and different shaped formats that make it easier to hold and eat.

- One driver of these changes will be a desire for more nutritional food on the go and more 'on-the-go'. Dashboard dining is on the rise (25% of US drivers eat breakfast in the car) and the Fourth Space will develop as out of home eating becomes more segmented. Even now car companies are designing vehicles for multi-use including food and drink consumption.

Drivers/ Enablers:
- Consumer demand for better convenience food
- Growth in obesity conflicting with pressure on time
- Fulfilling need state based eating occasions

Barriers:
- Cost of experimentation can be high
- Consumer inertia
- Love of existing convenience formats
Nutritionists will come more to the fore, approving and designing food and meals relative to dietary and your individual nutritional needs.
Nutritionists as the New Chefs

By 2020: Personally assigned nutrition will become commonplace and a major influence on diet

• Currently chefs talk about healthy eating but this is not the same as nutrition which is more grounded in science.

• Experts tell us that professional nutritionists will rank alongside celebrity chefs as the benefits of understanding nutrition and the ability of technology to assign it to you personally experts towards 2020.

• Switch to what is right at a personal level vs. what is good for you at a generic level.

• Personal portion sizing relative to dietary and nutritional needs; small plate movement will thrive.

• Convergence with mobile and internet technologies will allow providers and core consumers with access to personal dietary requirements e.g. at restaurants.

Drivers/ Enablers:
• Health imperatives to improve diet
• Low risk attitudes and desire for transparency
• Strong consumer curiosity in DNA based profiles
• Role of healthcare insurance and pharma costs

Barriers:
• Data protection regulations
• Consumer fears regarding access to personal details
• Science and consumption uneasy bedfellows
• Visibility of genetic / nutritional certainties
Appendix: Preparation and Research
Initial research mapped key residual, dominant, accelerating and emerging trends in food and drink to highlight key themes:

<table>
<thead>
<tr>
<th>Residual</th>
<th>Dominant</th>
<th>Accelerating</th>
<th>Emerging</th>
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<tbody>
<tr>
<td><strong>Society</strong></td>
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<tr>
<td>Individualism</td>
<td>Third Space</td>
<td>Fourth Space</td>
<td>Male Influencer</td>
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<tr>
<td>Increasing affluence</td>
<td>Breakfast on-the-go</td>
<td>Global Nomads</td>
<td>Islamisation</td>
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<td>Time Starvation</td>
<td>Regional Migration</td>
<td>Over 50s Food</td>
<td>Decline of Lunch</td>
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<tr>
<td>Household Fragmentation</td>
<td>Asian Fusion</td>
<td>Kids Nutrition</td>
<td>Epicurian Kids</td>
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<td><strong>Health &amp; Wellness</strong></td>
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<tr>
<td>Low Calorie</td>
<td>Superfoods</td>
<td>Superfruits</td>
<td>Sleep (F&amp;D)</td>
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<tr>
<td>Salt/Fat Labelling</td>
<td>Non-Carbonated Drinks</td>
<td>Brain Food</td>
<td>Nutrition Indexing</td>
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<tr>
<td>Low Fat</td>
<td>Obesity Control</td>
<td>Weight Management</td>
<td>Chemical Free</td>
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<td>Digestive Health</td>
<td>Neutrauticals</td>
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<td>Steam</td>
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<td><strong>Science &amp; Tech</strong></td>
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<tr>
<td>Shelf Life</td>
<td>Functional Food</td>
<td>Traceability</td>
<td>Edible Oil Enzymes</td>
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<td>Long Life Foods</td>
<td>Ingredient Labelling</td>
<td>No-Cal Sweeteners</td>
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<td>Bigger Cookers</td>
<td>Clinical Foods</td>
<td>Smart Materials</td>
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<td>GM Foods</td>
<td>Induction Heating</td>
<td>Ingredient Tracking</td>
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<td>Food safety</td>
<td>Clear Labelling</td>
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<td>Packaging Re-Use</td>
<td>Waste Recovery</td>
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<td><strong>Sustainability</strong></td>
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<td>Fair Trade</td>
<td>Food Miles</td>
<td>Pace Setters</td>
<td>Lagom</td>
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<tr>
<td>Glass/Paper Packaging</td>
<td>Carbon Neutrality</td>
<td>Embedded Water</td>
<td>Karma-Capitalism</td>
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<td>Green</td>
<td>Eco-Design</td>
<td>Embedded Energy</td>
<td>Transparency</td>
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<td>Waste Management</td>
<td>Ingredient Prices</td>
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<td>Organic</td>
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<td><strong>Consumption</strong></td>
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<td>Fast Food</td>
<td>Seasonal</td>
<td>Small Plate</td>
<td>Niche Restaurants and Bars</td>
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<td>Convenience</td>
<td>Global Retailers</td>
<td>Vintage</td>
<td>Mobile Ordering</td>
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<td>On-line Purchasing</td>
<td>Head-to-Tail Dining</td>
<td>Egg Revival</td>
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<td>Premiumisation</td>
<td>Casual Dining</td>
<td>Short Product Life</td>
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<td>Gourmet</td>
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<td>Prepared Foods</td>
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<td>New Age Fusion</td>
<td>Beautiful Food</td>
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Core Themes

Five core themes were identified from the initial research and used as discussion stimulus at the start of the cross-sector programme event.

The five core themes were:

• Maintaining Equilibrium
• Enhanced Living
• New Convenience Plus
• Marginal Mainstream
• Supply and Demand

These five themes are detailed on the following pages.
Maintaining Equilibrium

The speeding up of everything is making many people feel uneasy. Finding how to achieve equilibrium through a better relationship with the planet and our place in it.

Future Implications

- Embracing the philosophy of Lagom (just enough) in design and consumption
- Buying and eating locally grown produce in season will change how local economies for food and drink operate. (Locavores)
- Deliberate short product lifespan where the emphasis will be on trial rather sales become the norm
- Authenticity and a desire for value-laden food products and experiences
- Waste recovery will be the natural extension to waste reduction
- Water guilt will perpetuate a bottled water backlash
- Karma-Capitalism: the recognition that every act of consumption has a cost and a consequence beyond the transaction becomes central to corporate social responsibility

Signals from Today

- Calorie Restriction: the philosophy of eating to 80% satiation is a growing trend
- Portion control in both packaged food and the small plate movement in restaurants (tapas; meze etc.)
- Digestive health: Fibre, pro-biotics and pre-biotics now moving into products beyond yoghurt e.g. P&G ‘Align’ supplements
- Steam cooking and cookers to eliminate fat in foods
- Corn based polymers for food packaging
- Packaging re-use: 6 weeks for drinks can to recycle and potential for 80 times reuse of materials
- Product labelling will show embedded water and some sectors are agreeing options now
- Farm Friendly movement now has mainstream acceptance
Maintaining Equilibrium

Key Drivers:

1. Regaining and maintaining equilibrium is something of a response to what is described as a ‘world of worries’ and their increasing impact on our lives. There is a perceived need for changed philosophies, one of which is a return to collectivism:

   • a shared sense of purpose would counter the more self-centred trend evident in the past 10-20 years
   • it pushes back against the current obsession with security and CCTV vigilance
   • it connects with a need to feel part of something broader than self and a desire for a greater sense of control of outward pressures on modern future living

2. Maintaining equilibrium also demands some changes in lifestyle:

   • changes in ways of dealing with and managing stress
   • merging of work and life
   • focus on experience rather than just owning material things
   • a rise in spirituality as a calming agent
   • aspiring to have just enough (lagom) rather than as much as possible
   • greater reliance on food as a preventative force in life and lifestyle
Maintaining Equilibrium

Key Drivers:

3. Developing more sustainable ways of leading our lives was identified as an important means to regaining and maintaining equilibrium:

• building communities that are much more self-sustainable in terms of water and energy use
• embracing karma capitalism (the recognition that every act of consumption has a cost and a consequence beyond the transaction) in the wider consciousness, both business and consumer
• developing education to play a much greater role in building sustainable attitudes and practices

Enablers:

• Technology enables people to become more rural
• Sustainability and its core components being taken more seriously on a global basis
• Growing guilt culture around greed and obesity in developed nations

Barriers:

• Government policy remains controlling in nature
• Increasing fragmentation and inequality in societies
• Increase in natural disasters and terrorist threats
• Credibility of politicians and authorities
Enhanced Living

Enhancing living and lifestyles remains a strong aspiration. Achieving this is borne out of a combination of new science, experimentation and going back to basics.

**Future Implications**

- Food & drink to aid healthy sleep develop in the face of average sleep hours reducing around the world
- Consumers demand and require proof of Chemical Free food
- Nutra-ceuticals and Edible Oil Enzymes
- Vintage Cuisine will revive, adding new twists to foods of yesteryear that predate factory farming and mass production
- Egg revival predicted across menus in and out of home
- Sweet meets savoury will feature as the new convention in restaurants
- Smart materials used in packaging for reasons safety, manufacturing and recycling
- Phytonutrients: naturally occurring compounds with a health benefit beyond basic nutrition e.g. lycopene in tomatoes
- Kids nutrition to build into a much larger sector

**Signals from Today**

- Super-fruits for the masses including the Yumberry from China
- Brain Food featuring Omega 3s and plant sterols used to reduce risk of Alzheimer's
- Weight Management is the new weight loss
- Functional Food is a market worth £1billion in the UK alone
- Natural No-Cal Sweeteners (including plant based food safety, stevia) beginning to be used in soft drinks
- Clinical Foods are moving over the counter
- Smart Cooking enables the cooker to 'communicate' with active / passive food labels

---

*Bord Bia*

Irish Food Board
1. Pharma Food vs. Farmer Food

There is a key debate around the balance / conflict between using drugs within food to help both prevent and cure diseases, and using food more naturally as ‘medicine’ to enhance and perpetuate healthy lifestyles.

Nutrigenomics (the merging of medical science and food) is gradually becoming more influential as a key means to solving health issues, in particular through genetic profiling.

**Key Drivers:**

**Enablers:**

- Open innovation as an accelerator
- Pharmaceutical business models are changing to become more image led
- Genetic profiling advancing quickly
- Genome technology perceived as being beneficial and applicable to all

**Barriers:**

- Impact of ethnicity increases complexity
- Moral resistance in some markets/cultures
- Costs of research and development very high
- Questions over how far this can go to curing / significantly impacting serious diseases
Enhanced Living

2. Living Longer

As people in most developed nations are living longer, they will seek ways to try to stay younger (in looks and feel) and to live more fulfilled lives. As this happens we will see more contradictions developing:

• more interconnectivity (particularly through social networking via the web) vs. more fragmentation in societies and families

• more body enhancing surgery (including surgical tourism) vs. extension in the desire to be more natural

• more affluence vs. pressure on incomes / pensions to go further / last longer

• more segmentation within older generations vs. fewer but more influential younger generations

**Key Drivers:**

**Enablers:**

• Lower costs of less invasive surgery
• Lifestyle enhancing drugs
• Growth of mobile internet in more markets
• Philosophies and practices of Asian societies and cultures, especially on natural longevity
• On-line diagnosis and virtual doctors
• Replacement of key organs (inc. eyes and ears)

**Barriers:**

• Income and costs pressures for many
• Spread of serious disease is spreading faster than cures
• The Care industry under pressure
• Limited long term governmental planning in the care sector
Enhanced Living

**Key Drivers:**

3. Work : Life balance

Achieving work : life balance is seen as perhaps the main influence for enhanced living. It is a long running issue and one with changing dynamics.

- Free agents are increasing in number in many markets and may impact the longer term model of work
- More blurring between work and leisure evident and much more working from home
- Flexibility of careers and more than one career in a lifetime will afford more control to the individual
- Increased difficulties (and growing guilt) of moving around will impact how and where work and consumption will take place; moves to localised production and especially finishing of goods
- Trend towards 3-4 day working week and value based payment systems

**Enablers:**

- Open source innovation
- Benchmark new cities in China
- C40 mayors sharing information and acting quickly
- Ability to buy part of lifestyle communities

**Barriers:**

- Increasingly limited space in urban centres
- Regulation expected to stifle progress
- Sustainability of key resources e.g., conventional fuels
New Convenience Plus

The age of the active consumer is exemplified by the notion of convenience. This emphasises the need to extend and revitalise it as New Convenience Plus.

Future Implications

• The Fourth Space (in car) will develop as out-of-home eating becomes more segmented; car companies designing vehicles for multi use including food and drink consumption

• Decline of Lunch will impact on other eating occasions: 15% of people skip lunch in US; 14% are eaten in the car

• Mobile ordering and payment using mobile phones becomes much more widespread

• Only one third of evening meals are prepared from scratch; ready-to-eat meals will grow and segment further

• Consumption forecasts doubling of prepared meals in next 10 years in Europe and US

Signals from Today

• On-line purchasing growing in every sector including grocery shopping: food makes up the majority of £12.8bn on-line sales in GB

• New Age Fusion: Japanese food now moving mainstream; newer influences on cooking and eating include Africa, Korea and South America

• Commuter Couples: significant increase in couples living apart for reasons other than separation

• Eating on the go commonplace for many. Seen as the 3rd space (after home and destination).

• Dashboard dining on the rise – 25% of US drivers eat breakfast in the car

• SMS menu guidance on trial in Florida
New Convenience Plus

Key Drivers

1. Time Pressures

The trade-off of time vs. quality of experience is central to new convenience plus. People want to achieve more in less time and are seeking out the means to make this happen. For example services that ‘come to me’; home delivery; on-line ordering, development of vending per se and healthy meal vending in particular.

Enablers:

• Technological developments including robotics and active RFID in vending
• RFID product tracking
• Urban vertical farms
• Cashless technologies

Barriers:

• Local availability of new services
• Combining natural and convenient is counter intuitive to many
• Provision of expertise and knowledge around new convenience brands
New Convenience Plus

*Key Drivers*

2. Health education and communication will need to address some important issues in order to ‘manage’ new convenience plus, in order to curb potentially unhealthy and damaging consequences. These would include; dietary advice; continuing to fight the growth of obesity; understanding the benefits and implications of personalised diets; nutritional screening and portion control by the food industry; changing the dynamics of life insurance.

*Enablers:*

- Genetic and genome technologies
- Nutritional screening
- Biometric developments and controls

*Barriers:*

- Political and commercial will in and across different markets
- Consumer inertia
- Regulatory difficulties
- Trust in advice and food brands
Key Drivers

3. The changing nature of fast food. Fast food will change significantly to adapt to the needs of new convenience plus. Major influences will be:

- Use of more sophisticated packaging materials; e.g. no mess/edible wrapping
- Growth of healthy formats; e.g. liquid health foods; pills; shots
- Impact of food from and on Asian cultures and the growth of ‘fast fusion’
- Health initiatives including portion control
- Re-cyclability of all packaging and embedded energy details on packaged food

Enablers:

• Cashless technologies
• Decentralised supply chains
• Increased consumer power and control over brands and product choices

Barriers:

• Disposability issues around increased packaging
• Trust in brands
• Decreased influence of retailers
Marginal Mainstream

What was once considered too small or un-important are presenting themselves as significant opportunities. How can we predict and exploit them better?

**Future Implications**

- Men will have much more influence in household purchase decisions as they spend more time with kids and divorce rates increase. (Male Influencing)
- Islam-isation will impact many markets (c.35m Muslims in Europe by 2015)
- Epicurean Kids; the value of great cooking and food will grow amongst kids and impact household eating habits
- Niche Restaurants and Bars will flourish; expect chocolate lounges and dessert only offers and one spirit centred bars
- Over 50s: as the worldwide population ages, expect much more direct targeting of over 50s tastes
- Calorie Restriction: the philosophy of eating to 80% satiation will become the formula for life

**Signals from Today**

- Men adapting more to the reality of family life. ‘Goodnight My Angel’ a best seller- it features a Dad
- Bold flavours and emphasis on food texture is developing to counter impact of low fat, low sugar and low salt
- Increasing popularity of Lebanese food
- Over 50s Food: over 50s are the fastest growing segment of many populations
- Over 50s are for the most part un-targeted: 95% of advertising spend is on under 50s
Marginal Mainstream

Key Drivers:

1. As populations increase and age, societies begin to fragment further and more subgroups and niches develop. In addition as cultures change so do attitudes, such that some large groups become more influential.

   **Enablers**
   - Ageing and growing populations
   - Increased cultural diversity
   - Consumer generated media content

   **Barriers**
   - Fragmentation may reduce the notion of mainstream

2. Immigration and migration are important drivers for the marginal mainstream theme. The move to cities in the next 20 years is predicted to be the biggest movement of people in history. International migration is also intensifying so we can expect currently marginal factors such as the role of particular religions to become much more mainstream. ‘Islamisation’ will impact many markets significantly and influence food and diet.

   **Enablers**
   - Ease of cross border movement
   - Open source / Open innovation growth
   - Awareness and access to other lifestyles

   **Barriers**
   - Immigration backlash
   - Government imposed limits
   - Disease
Marginal Mainstream

Key Drivers:

3. Environmentalism is predicted as the most obvious trend that will become more internationally mainstream in the next 10 years, as consciousness is raised further and regulation impacts the lives of individuals through taxes and other mechanisms.

<table>
<thead>
<tr>
<th>Enablers</th>
<th>Barriers</th>
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<tbody>
<tr>
<td>• 100% recyclability</td>
<td>• Increased air travel</td>
</tr>
<tr>
<td>• Higher values placed on green credits</td>
<td>• Industrial development in China and India</td>
</tr>
<tr>
<td>• Next generation - no choice but green</td>
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</table>

4. Although not marginal in some developed markets, obesity will become a significant mainstream problem directly related to food, as many western countries and developing nations eat more than is required.

<table>
<thead>
<tr>
<th>Enablers</th>
<th>Barriers</th>
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<tbody>
<tr>
<td>• Popularity of Western convenience foods</td>
<td>• Health scares</td>
</tr>
<tr>
<td>• Speed of obesity problem as countries climb the protein ladder</td>
<td>• Reduction in key obesity food supplies</td>
</tr>
<tr>
<td>• Limited regulation</td>
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</table>
Supply and Demand

Supply & Demand of food is probably the key future factor on price and choice: Technological developments will be a driver.

**Future Implications**

- Food prices become a political hot topic again
- Ingredient Tracking takes over from traceability
- RFID will become all pervasive in packaging and logistics
- Eco-footprints (energy / hectare) measured widely
- Food-Prints are individualised; the amount of land required to provide one person’s nutritional needs for one year
- Nutrition Indexing: the next development for food labelling
- Increased adoption of GM foods to raise land use productivity
- Introduction of carbon and eco-taxation
- Vertical urban farms

**Signals from Today**

- Global Nomads: international migration is intensifying and global population expected to reach 8bn by 2025
- Traceability to farms, fields and growers already established
- Clear Labelling is being used to identify what is not in packaged food
- Ingredient and commodity prices are already prescient factors
- Global Retailers are already a presence e.g. Tesco operating in E Europe, SE Asia and US
- Grain prices rising due to biofuels growth – food vs. fuel conflict
Supply and Demand

Key Drivers:

1. Sustaining supply of food in the face of ever increasing demand from a growing global population is the main driver of this theme. A number of issues were raised in relation to this:

- Supply through conventional methods is perceived as unsustainable
- Europe in particular will have to overcome its reluctance to adopt GM crop production on a wide scale
- A greater willingness is required amongst leading nations to invest in conversion technologies; in particular around brown and saline water
- Re-appraisal of policies regarding land use is necessary especially for bio fuels vs. food
- Means of measurement of fuel use, carbon, waste and recycling required and the introduction of related Green Taxes in heavy user / polluting markets
- Packaging reduction is seen as essential with RFID perceived as one of the main answers

Enablers
- Green and carbon taxes
- Smart packaging materials
- Active RFID technologies
- New models for packaging (e.g. rental)
- Increased adoption of GM crops to raise land use productivity

Barriers
- Government regulation and policy
- Population growth and its distribution (50% of world live in cities)
- International migration
- Consumer fears and mistrust of GM
- Increase in food and fuel prices coupled with restriction in supply
Supply and Demand

Key Drivers:

2. ‘Localism’ was cited as an important driver and outcome in the context of supply & demand. De-centralising production and finishing is viewed as a key means to developing a new model of supply for urban areas; one that minimises movement of goods, and maximises local economies within urban environments. Key elements are:

- Reduction of the need to transport finished products through localised finished
- Reducing the need to move primary supplies long distances; urban vertical farms on a large scale identified as one approach to achieving this
- Electronic ordering and home delivery to be a much more widespread behaviour
- Development of supply chain economies through global retailer initiatives
- Large supermarkets to identify regional / local community needs and then supply using regional/local provision

Enablers
• Vertical urban farming technology
• Consumer embracement of localism as driving philosophy

Barriers
• Consumer trust in internet (security fears)
• Consumer trust in retailers
• Level of required investment may be prohibitive
Futures Platform Map

The Future Platform Map summarises some of the key findings from each of the five themes on a single diagram.
The Future Landscape of Global Food and Drink

Spring / Summer 2008