April and October 2018

2018
Spring and Autumn Conference Proceedings

British Society of Baking
Affiliated to the American Society of Baking

British Society of Baking
Spring Conference 2018

25th April, National Bakery School, London South Bank University

British Society of Baking
Autumn Conference 2018

17th – 18th October, Heythrop Park Resort, Enstone

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THE BRITISH SOCIETY OF BAKING

Affiliated to the American Society of Baking

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2018 SPRING CONFERENCE

Paul Turner, BSB Chairman Good morning everyone and welcome. We have a full day of excellent presentations and speakers ahead of us, as well as a tour of the wonderful facilities at the National Bakery School (NBC) during lunch time. A lot of work has gone into planning this conference and I would like to thank Elaine Thompson and Devon Petrie of the NBC for their cooperation and for the work they have done, and are still doing today, to ensure that the conference is successful. Our thanks are also due to the NBS students who will be helping us in various ways throughout the day. I will now ask Dean of School Patrick Callaghan to say a few words of welcome.

Professor Patrick Callaghan, Dean, School of Applied Science Good morning. I am the relatively recently appointed Dean of the School of Applied Sciences in that I'm in my seventh month, so be kind to me! I know little about the baking industry, but I like very much eating the wide range of quality products it produces! I'm a health scientist by background and by academic training I'm a psychologist. I was attracted to applied sciences to take me out of my comfort zone in the last few years of my career. I'm learning a great deal about baking and the food industry and about other industries associated with our school.

I've spent most of my career in the health and social care industry and in the higher education sector, as a clinical academic. As an academic I've valued enormously the links with the various industries that I've been involved with. The reason why I value strongly the links to industry in my career in health and social care, and I take a co-production or co-creation approach to my industry engagement, is to ensure we produce graduates who are fit for what you need them to do in your own industry. In the six months I've been here I have met many graduates of London South Bank University who are doing great things in industry and I find that reassuring and I will do all I can to ensure that it continues.

A warm welcome therefore to the University and to the School of Applied Sciences. We are honoured that the British Society of Baking has chosen our University to host your biannual conference. I think and hope that by the end of today, you will feel you have chosen wisely.

My childhood was infused with the aroma of baking, largely due to my stepmother and her sister, my aunt, who were both avid bakers. The aromas of apple pies baking went through my house a great deal I always looked forward to Halloween because in the West of Scotland where I was raised, we always had Clootie dumpling at Halloween. Continue to do what you're doing in the baking industry, so people like me can continue to enjoy your wonderful products.

Welcome of course to the National Bakery School. I suspect that you all know more about the NBS than I do, although I've been learning very quickly in the last few months. It's world renowned with a great legacy and it's the world's oldest bakery school.

Our vision is that will give students a course of education that will prepare them to be fit for any employment in the industry that you represent, and they will be enterprising in the broadest sense of the word when they are working with you. We are preparing people not for jobs but for careers and we want them to have a long-standing association with us, whatever they do in their life, and we want them to be hugely successful to you and your industries as well. So that's an important vision for us, through the outstanding science and technology in baking that we will expose them to while here. So outstanding science education, outstanding research and outstanding enterprise, are the three key planks of the work that we do.

We couldn't do any of these things without your input and we have varying degrees of input from the industry and from people who come back and teach other students from the industry, from industry providing placement opportunities, etc., doing research with industry partners like yourselves as well and I hope to continue that in my role as a Dean and give a steadfast commitment to continuing to progress our endeavours in baking.

I will be shooting in and out during the day and I hope to chat to more of you and learn more about your industry. We're asking people to support the National Bakery School with a pledge and to get involved in several activities, details of which are in your goodie bag. All I will say now is have a great day. *Applause*

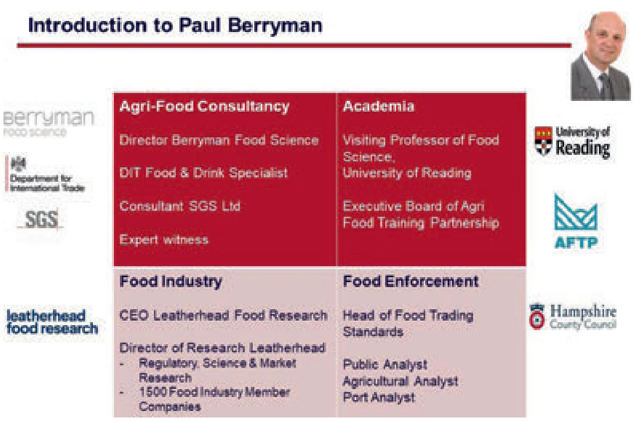
Paul Turner Many thanks Patrick for that excellent welcome. I will now hand over to our Session Chair for the day, Peter Baker. Peter has had a wide ranging and highly successful career in the baking and is currently the Non-Executive Chairman of the Finsbury Food Group.

Peter Baker, Session Chair I'm delighted to introduce to you Professor Paul Berryman. Paul is going to talk to us about the general work of the Department for International Trade and how it supports the agricultural food sector. He will then discuss some of the DIT projects as to how they relate to baking. Paul has an extraordinary background in academia, with four science degrees and two business degrees, He was at some pains to point out to me that he's not a Civil Servant but is working on contract in the Department for International Trade. I know of him CEO of Leatherhead Food Research and I'm sure we're going to have a very interesting talk from him.

DIT Innovation and Research in the Food Sector

by Professor Paul Berryman, Food & Drink Investment Specialist, Department for International Trade.

Thank you to the British Society of Baking for inviting me and to Jim, Paul and Sharon for looking after me last night at the Bread Ahead do, when we were all making focaccia and pizza and all sorts of delicious breads because after that experience, I was thinking I want to try the Great British Bake-off but when I suggested it to my son, Alex, who works for Bakels, he said it'd probably be more of a fake-off if I get involved, so I'll probably give it a wide berth.



Anyway, let's talk about what the DIT does. I'm also going to focus on a few case studies from the baking industry. First, my favourite subject, me. There's a little bit about what I've done in the past. I started off as an enforcement officer. I worked for Hampshire Trading Standards and I was a Port Analyst for London and Southampton, so checking foods and ingredients to make sure that they complied. So, I'm a gamekeeper turned poacher really. I started off in enforcement, learning all the laws and then I moved into industry and worked at Leatherhead for eight years, advising companies on how best to comply with the law. The top of the chart shows the things I've been doing over the last five years or so - various consultancy jobs. I'm also a Visiting Professor at the University of Reading where I help out with their Agri-Food Training Partnership which is a great idea. It's a way of people in industry actually topping up their qualifications in food science, either as a Master's degree or CPD or even professional PhD.

So, this is what I'm going to talk about. I've got a little bit about DIT. We do three things really. We work on exports, foreign direct investment and support innovation. Then I'm going to talk generally about the food and drink market and where bakery fits in and then I'll focus in on some NPD training in the baking sector and some R&D case studies where the Government has supported research projects in industry through the grant system. I think the beauty of working for DIT is that we have got global coverage.

We have colleagues in our embassies and consulates around the world. If you are ever interested in exporting and you want an introduction to a foreign company, we can organise introductions through our network of overseas colleagues. Or if you just want advice here in the UK, we've got 400 international trade advisors which can help with exports. We have thorough cover and local offices. I hope that people use the services of the DIT, although we're the UK's best kept secret.

These are the three key areas we work in – exports, where we really are trying to help companies enter new markets; foreign investment, where we're looking at companies overseas where we would like them to invest in the UK. Both these help with GDP and it's all about getting money into the country through exports. We get foreign investments from companies like Mondelez, which is US owned, having operations in the UK. Then the third thing is innovation. We very much feel that being at the forefront of new product development and being on top of new technologies really does give the UK a competitive advantage. Whenever I'm out overseas trying to convince companies they should be setting up business in the UK, this is one of the key things I talk about. I've got a big interest in research and development in the UK.

5 Three Key Areas

- **Exports:** DIT helps businesses export and grow into global markets.
- **Foreign Investment:** DIT helps overseas companies locate and grow in the UK.
- **Innovation:** DIT promotes R&D to improve competitiveness and market share.

Those are the three key areas – exports, foreign investment and innovation, and just looking at exports, I won't go through them in detail but these are the sorts of help that we can give you. If it's a high-level investment, we may even be able to roll out a Minister from time to time - please let us know.

6 Exports

- Leverage Government: to address barriers to trade and accelerate routes to market.
- Advice: on tax, regulation, planning & finance. 2 Export Specialists from food & drink industry. Ongoing support.
- Introductions: to new overseas markets across the DIT network of embassies and consulates. Trade Missions & Shows.

Giving advice on tax and R&D credits that some people aren't aware of. If they're doing new product development, they can get some tax relief and there's also ongoing support. We can give you introductions as well.

7 Foreign Investment

- Market Insights: to highlight key growth sectors and business opportunities.
- Advice: on tax, visas, immigration, regulation, local planning, finance and staffing. 2 Investment Specialists from food & drink industry. Ongoing support.
- Introductions: to businesses, trade bodies, research centres and government.

This is the stuff on foreign investment. Again, we do have quite a lot of people that can give you market insights. So, if you were, say, looking at a particular market sector like the Free-From sector, or you're looking at artisan bakery, for example, we can actually get market reports, working with companies like Mintel and Euromonitor. We can give advice on tax, visas, immigration – all those sorts of things if people are starting up a new business. Also, introductions to trade bodies and research centres.

8 Innovation

- Expertise: knowledge of business, academia and government from across the UK and the international Food & Drink Sector.
- Advice: on new UK Technologies, latest R&D, research funding and incubator space for spin-offs or new ventures.
- Introductions: to centres of excellence to support new R&D consortia.
- (e.g. Universities, R&D Centres & UK Companies)

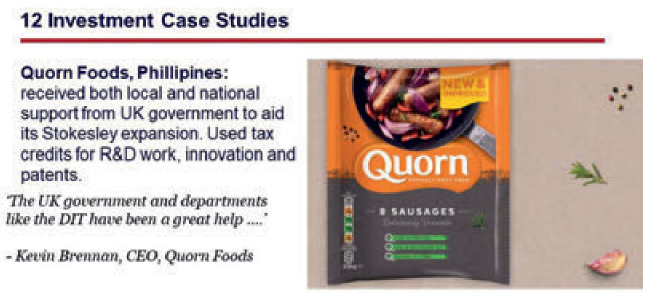
Then thirdly, innovation is a key area. We've got pretty good expertise. We've got a number of specialists like me from industry. We can give advice on new technologies. If anyone needs an introduction to a university, we can get an introduction to virtually any university in the UK and, of course, all of the research centres as well.

So, I thought I'd just give you a quick case study of where we've helped companies. Eat Natural, you've probably seen these cereal bars in the marketplace. We helped them to export to over 40 different markets through the export programmes. Claire Jackson has said something nice about us which is always good.

Here's another Company you'll probably be familiar with, Premier Foods. They developed a new type of mince pie which is packed full of cranberry and orange liqueur, and apparently is one of the market leaders in Australia. We again helped them to get into the Australian market.

There's a couple of investment case studies as well. Some of you may have heard of the French company, Brioche Pasquier. We helped them to set up a new brownfield site in Milton Keynes, 160,000sq feet, £40 million investment. This is just the sort of thing we like, foreign money into the UK coffers, and again there's the MD of the company saying something nice about us in slide 11.

You'll probably have heard of Quorn, a technologically advanced organisation. There's a big trend now towards having meat-free products and Quorn are well-known for making meat free sausages and other products. Again, we gave them support to expand their facility in Stokesley, helped them get some tax credits and helped them with some of their patent work.



So, this is the sort of stuff that we can do at DIT. Just to prove that I don't sit in an office all day, these are a few snaps from our last roadshow in 2017 where I visited several companies in the USA.

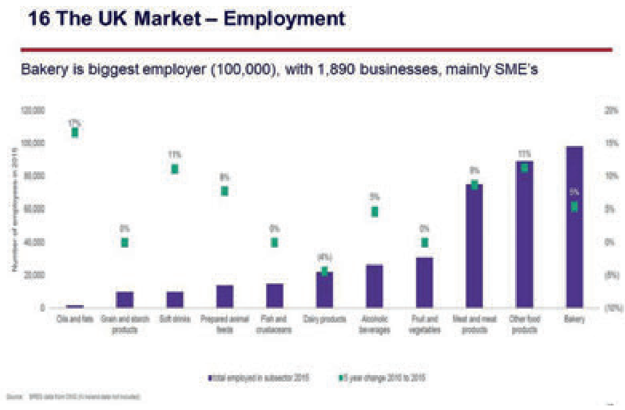
We did about five cities in five days, so it was a whirlwind tour! It was one of those times when you forget where you are. You think you're in Denver and in fact you're in Dallas. It's very interesting that at least two of these companies have done some further investments recently in the UK. I'm planning to do a similar trip in Ireland soon, another one of our major export destinations and a key investor, so maybe I'll see Kerry at some stage.

So that's what we do and just to set things into context, a few words about the Food and Drink Market.

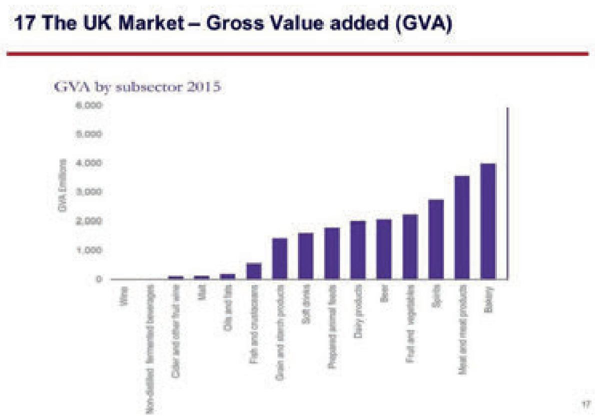
The food and drink industry is the biggest manufacturing sector in the country. It's much bigger than if you add aerospace and automotive together, but they all seem to get the headlines because perhaps they're seen as sexy areas to work in. But the Government is very conscious that the food and drink industry is a major employer. Not only does it turn over nearly £100 billion a year, it contributes nearly £30 billion to the Exchequer.

The food and drink market is a big employer as well, 400,000 people and if you look at the food chain from farm to fork, then we're really up to four million people with a value of £112 billion. We are talking big numbers here.

We do quite well on exports in the food sector with £22 billion in 2017 but we could do better, bearing in mind that £4 billion of that is whisky from Scotland. which is by far our biggest export. The other 18 billion is all the other foods added together. Our top three markets are Ireland, USA and France.



I don't particularly like using charts but I thought slide 16 would be interesting because you can see that in terms of employment, the bakery sector is the biggest.



This chart shows the employment across the different sectors and you can see that bakery is the biggest sector. If you look at slide 17, in terms of gross added value, bakery again is the biggest sector. It's not the most profitable sector. Alcoholic beverages is the most profitable sector. The government recognises that bakery a very strong sector, filled with lots of small to medium enterprises.

I will talk a little about innovation now because this is a key topic. First, I want to flag up some of the key research institutes and universities that we enjoy in the UK.

18 Innovation and R&D Facilities

- **Research Institutes:** The UK has leading food research facilities including the **Quadram Institute,** which brings together state-of-the-art research in food and health and the **Rowett Institute** for nutrition.
- **Research Associations: Leatherhead** and **Campden BRI** are two leading food research centres that work closely with industry on food safety, NPD and global food regulations.
- **Universities:** The UK is also home to some of the most influential universities in this field, including **Reading, Leeds and Nottingham.**

The Quadrat Institute in Norwich is particularly strong on gut health. Again, dairy is often quoted as good for gut health, but bakery is another sector, particularly sourdough breads, that are good for gut health. They're doing some research up there that's very relevant to the food industry. The Rowett Institute at the University of Aberdeen is very strong on nutrition. I must mention Leatherhead and Camden BRI. I think Camden's probably the favourite for the baking sector, but Leatherhead is pretty strong on regulatory advice, sensory science and NPD. Then, of course, we've got a whole bunch of universities. These are the sorts of things I talk about when I'm overseas trying to convince companies that the UK is a good place to do business because it's innovative and it's got excellent R&D facilities.

Focusing now on the bakery sector, there are quite a few new trends of which you will be aware. The Free-From sector has really taken off, particularly gluten-free bread and cakes, slide 19. We're finding lots of new gluten-free ranges. Between gluten-free and dairy-free. They're by far the two biggest sectors in the Free-From market, and we're seeing continued growth in those sectors. It's interesting that the gluten-free marketplace is much bigger than the number of people with coeliac disease or gluten intolerance. It's seen by people without coeliac disease or gluten intolerance as a healthy lifestyle choice. I'm not convinced really that from a health point of view it is beneficial but it's certainly good for business and that market continues to grow.

I mentioned gut health and the popularity of sour dough breads, which reduce phytic acids on consumption, to give better digestion and mineral absorption. I know that there has been quite a lot of research done in this area.

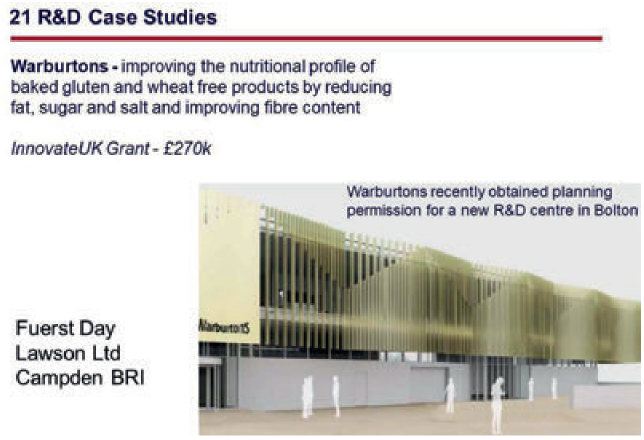
Another key area is recipe reformulation, particularly at the moment, for sugar reduction. We know the sugar tax has already hit the beverages industry but the industry has responded to the sugar tax by a heavy investment in reformulation. We're seeing a lot of reduced sugar products on the market and also salt-reduced and fat-reduced products. Snacking and on-the-go foods are another key trend, so we're seeing lots of snack bars, and more exotic pies, for example.

Of course, I must mention artisan breads as well where there's a wide range of seeded and rye and sour dough breads and the flat bread market is really on the increase. Baking is an exciting area to work in at present and that's why we're promoting it for potential investors.

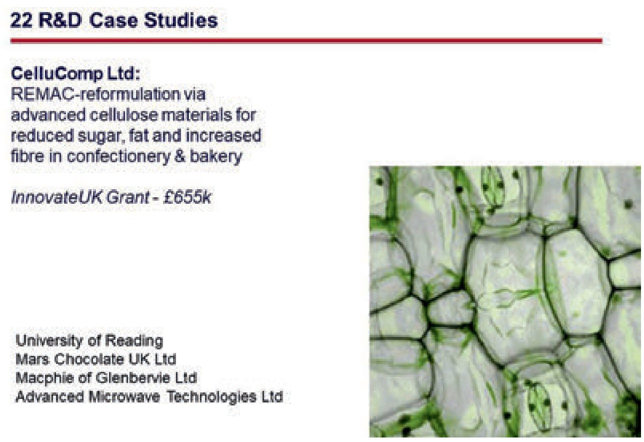
I'm going to finish off with some R&D case studies and I've tried to pick those that have got relevance to the baking industry.

Modern Baker Limited came up with this innovative salt reduction and fibre enhancement project, slide 20.

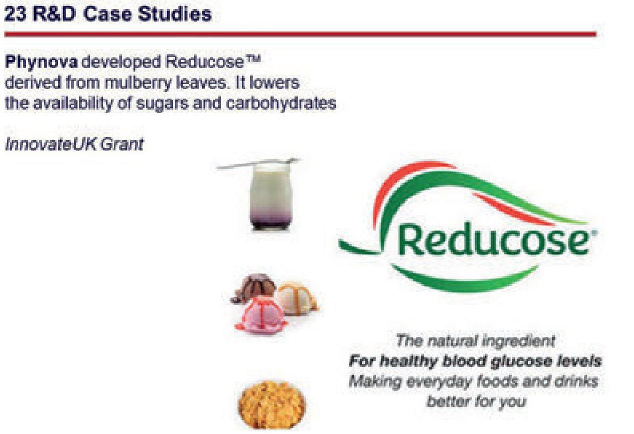
They received a Government grant of £520,000 towards this project. It's straightforward - if you've got a good proposal and good partners, in this case the Campden BRI, Newcastle University, and a seaweed company, you are more likely to get a grant. The good thing about seaweed is it can be used as a salt replacer and it also has nutritional benefits, such as its iodine content.



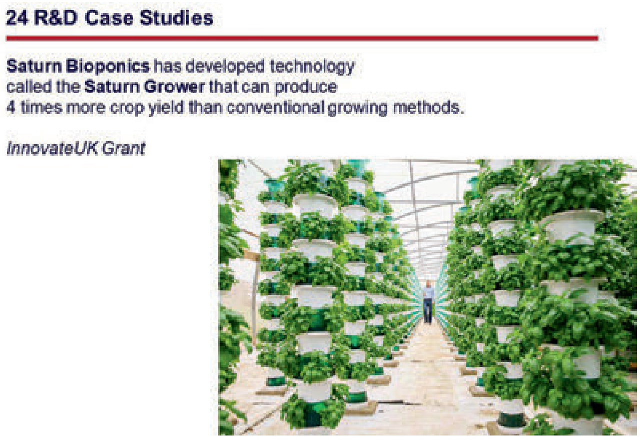
It's also worth mentioning a project that Warburtons is working on, slide 21, for which they got a £270,000 grant from the Government. The project is about improving the nutritional profile of baked gluten and wheat-free products by reducing the fat, sugar and salt content and improving the fibre content. They are using new technologies to improve the nutritional properties of free-from bread. Warburtons recently announced that they've received planning permission for a new R&D centre in Bolton, so that's something that we're keeping an eye on and I think it will be very interesting.



Slide 21 is a R&D case study, perhaps not quite so closely related to baking but it's a good way of increasing fibre in things like confectionery and bakery. CelluComp Ltd have a new product called REMAC which helps with recipe reformulation. It's an advanced cellulose material which has adhesive properties, which can help to give structure to products in which the sugar and fat have been reduced. They have managed to obtain £655,000 from the Government, in conjunction with University of Reading, Mars Chocolate UK Ltd, Macphie of Glenbervie Ltd and Advanced Microwave Technologies Ltd. Advanced microwave technologies help with the processing of the reformulated product.



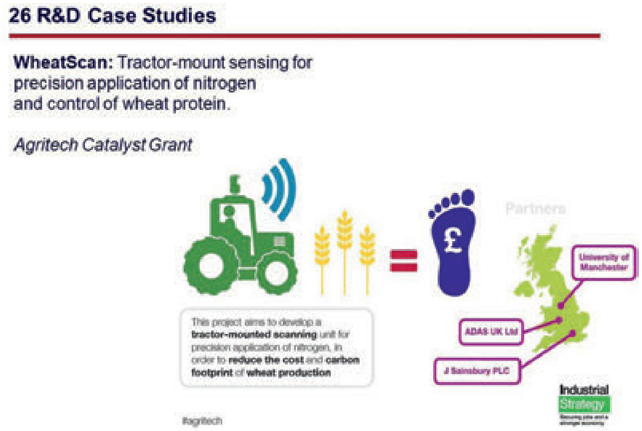
Another new ingredient, again with an Innovation UK grant involved, is Reducose, which is a natural ingredient that's derived from mulberry leaves. It can lower the availability of sugars and carbohydrates after consumption - quite a clever way of maintaining healthy glucose levels. Bearing in mind we've got a huge Diabetes Type II problem, then this is a good product to look at.



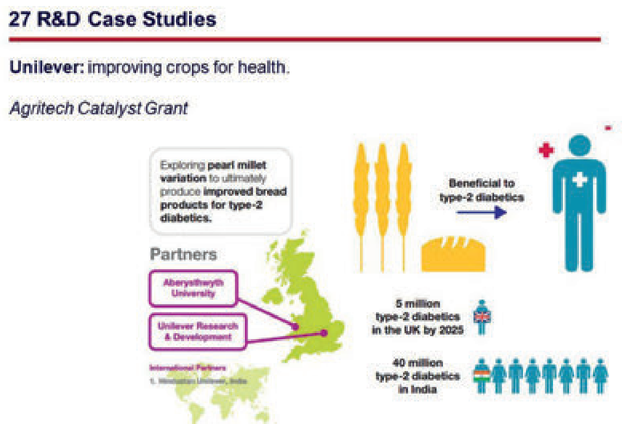
Then for pizza makers, here is a great way of growing lots of basil in a small amount of space! Called the Saturn Grower that can produce 4 times more crop yield than conventional growing methods. As you can see it's a sort of vertical farm and we're seeing quite a lot of these innovations now entering the food chain, something that the UK is particularly good at and again supported with an Innovate UK grant.

Slide 25 There is £367,000 of Government money in the project shown in the slide. Jordans and the Ryvita company are using the creation of adhesive structures from oats at lower sucrose concentrations to help reduce sugar and fat in products. They are using it on a particular snack product, and they're working with New-Food Innovation Ltd, Biopolymer Solutions Ltd and the University of Nottingham. Another case of Nottingham, one of the key food research universities, getting involved in this type of reformulation project.

I thought I'd finish off with just a couple of case studies that are a little bit further down the food chain.



There's another Government grant in slide 26, Agri-tech Catalyst Grant, where companies can get money to look at ways of improving crop production. This was quite an elegant project where the University of Manchester developed a sensor that could be tractor-mounted and then you could scan the field as you're driving round it and it will tell you the protein content of the wheat. This information is stored in a computer and you can compute whether the soil needs more nitrogenous fertiliser to get a better crop in future years. That's in partnership with ADAS and J. Sainsbury's. This is an example of what's called precision agriculture, which is using new technologies to improve crop yields.



The last case study, slide 27, was one that involved Unilever Research and Aberystwyth University and again attracted an Agri-tech Catalyst Grant. The idea here was to look at a particular pearl millet variation to use in bread. It's particularly relevant to India as a marketplace. They suffer very badly with Type II Diabetes and this is seen as a way of improving the nutritional quality of bread. That's why we've also got an international partner out in Hindustan.

Conclusions

1. The food and drink manufacturing industry is the single largest manufacturing industry in the UK. Bakery is the biggest food sector. (GVA & employees).

2. The UK Government recognises the importance of a vibrant food and drink industry, delivering safe, affordable and healthy foods to consumers.

3. DIT helps businesses export and grow into global markets and assists overseas companies to locate and grow in the UK.

4. DIT promotes R&D to improve competitiveness and market share. The sector is supported by initiatives to aid fundamental research and assist collaborative research with industrial partners, including tax relief, grants and funding.

I hope that gave you a good run through of what we do at DIT and what the Government's been doing to support innovation in the Food Industry.

Peter Baker, Session Chairman Thank you Paul, for a very interesting and informative presentation. We have some time for questions.

Question How is Brexit affecting trade?

Paul Berryman Next question please! Well, it's a mixed bag, to be honest. In terms of exports, it's quite a good time to export at the moment because of the weak pound. If you're an overseas company looking to invest for the first time in the UK, that is a slightly harder sell than it used to be, because we'll get companies saying: "We have thought about going to the UK but maybe it'll be safer to go to the Netherlands or to Ireland instead until things blow over!"

We must remember that people don't invest in the UK just because of us being a member of the EU. They invest in the UK because of all the things I mentioned: the skills base, the experience, the huge market that we have, the fact that we've got good universities and R&D facilities. Therefore, it's a slightly harder sell but not massively hard. There are some organisations that are delighted about Brexit. They see opportunities as a result of it in exploring other overseas markets. I think we'll start to see more trade with the likes of Canada and Australia and more traditional markets. In representing the Government, I'm non-partisan on Brexit but it has its advantages and disadvantages.

Question You mentioned Canada and Australia, are there any other export markets that are good for the UK?

Paul Berryman Yes, we have a number of what we call high value campaigns, where we target particular countries, and China and India are two big areas. France is big and the USA of course is pretty big. I can give you some more details if you want to contact me and I'll send you a map with all our targets on it.

Question The grants which you give and the information and projects which companies have, use public money to help fund them. Are they available to modern businesses?

Paul Berryman As with all projects that attract Government money, there's usually a condition that the findings of the project are made available to other companies. The participants do have time to take market advantage of the findings before they become openly available. Clearly some companies would prefer to keep product developments and their results secret and we're mindful of that. But if public money goes into research, then the idea is that it's for the benefit of UK Plc, not one company. If you do want to get further details on those projects, you can get reports from the Innovate UK website and similar. If there's any particular area you're interested in, I can point you in the right direction.

Peter Baker Just before we finish, it's really for me more of a practical point, bearing in mind you've given out your contact details. One of the problems is, as a smaller business, you think about the Department of International Trade and you think, how do I contact them? So rather than you being inundated, how do we get to DIT?

Paul Berryman The best thing to do is to type in 'food exports' on the website and you'll get a link to the central DIT. You'll also get links to local partners as well because we have a number of regional offices and we have people working in different areas of the UK. The staff at headquarters in London, are really a conduit between local DIT representatives and the people overseas in our embassies and consulates. So, the best way is to contact local trade advisors.

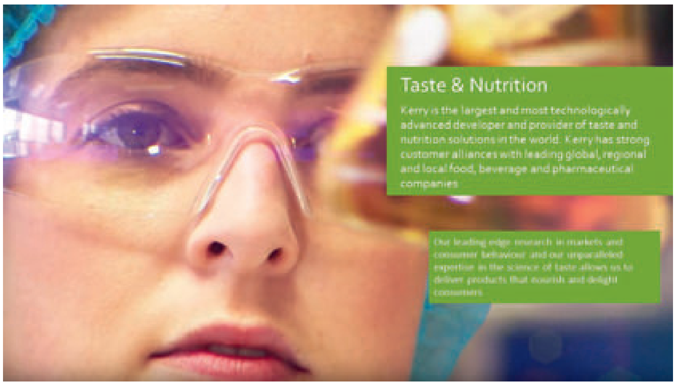
Peter Baker Please show your appreciation for Paul's excellent paper in the usual way. *Applause*

Onto the next session, which is about choosing and using functional ingredients and we have a double act for this. Martin Mullally will start the presentation. His bakery career includes 15 years with Gb Plange as Sales Director, and he was a senior lecturer here at the NBS for five years. He will talk generally about Kerry and how it's applicable to the baking industry. He will then pass us to Alireza, who has a double degree in molecular and cellular biology and in business administration from Leiden University. He will talk about how emulsifiers and how and why they used in baking. I think it will be fascinating and certainly something that I've had to contend with a few times in the baking world.

Choosing Functional Ingredients by Martin Mullally, Business Development Manager, Bakery and Alireza Jawad, Technology Business Development Manager, Emulsifiers, Kerry Group.

Martin Mullally I'm going to give a brief overview of Kerry, our ethos, our business and an insight into baking within Kerry. I make no apology for wanting to talk about Kerry as I think it's just as important to raise awareness of the businesses that service our industry as much as raising awareness about the technologies and the ingredients that we all use. In the same vein, I'd also like to be clear about our role in servicing the baking industry, what we do and what we don't do. I'd like to be clear in indicating that we do not pretend to be a Bread Improver house, we have many good customers who are excellent in that role. One of our main product areas is the supply of primary functional ingredients such as emulsifiers & enzymes into those businesses.

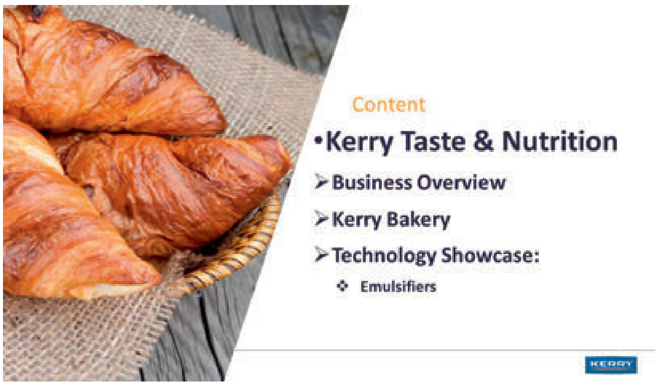
After that I'll hand over to my colleague, Alireza to talk about one of those very important functional ingredients, Emulsifiers. He'll talk about the type and range of emulsifiers we make and the way they work, as well as hopefully giving some understanding around the criteria and selection of the more important emulsifier groups commonly used in bakery but I'll leave more of that to him.

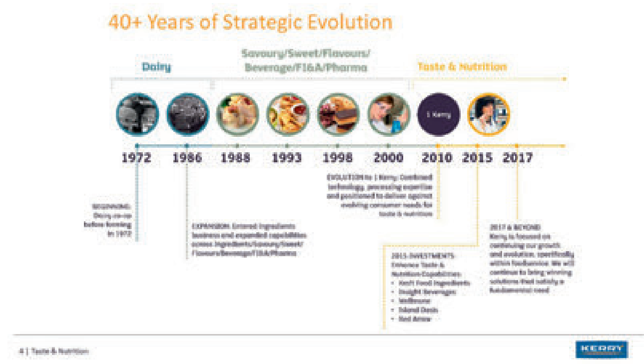


At the core of Kerry's ethos is the bringing together of science, application and market insight in order to assist our customers in a better understanding and responding to what are clearly amongst some of the most important drivers in Baking today, that of taste and nutrition. Taste is not just about flavour alone. It's that multisensorial experience which we experience every time we eat, which includes appearance, texture, aroma, flavour and, of course, that all important factor, us. When I refer to us, I mean our preference, our life stages, our culture and all that these factors bring to the taste experience we have every time we eat.

With regard to nutrition, nutrition is every bit as important as taste and clearly climbing that ladder of influence. Like taste, nutrition means different things to each of us and is very much a reflection of our individual needs and wishes.

Our aim is to assist our customers in a better understanding and responding to the vast global changes in the nutritional requirements, including the regulatory obligation which are helping shape and change the commercial landscape for us all.





I want now to give you a quick insight into our heritage and the journey which Kerry have taken in evolving into this taste and nutrition business we are today. As I'm sure many of you are aware, Kerry started as a dairy cooperative in 1972. We started in County Kerry, in Ireland. So no real prizes for guessing where our name comes and we have simply kept with that name throughout. The business grew and in 1986 the company gained its first public listing on the Irish Stock Exchange.

Over the following years, Kerry set out an ambitious acquisitions and expansion programme in which they saw growth into many new food technologies, as well as geographical areas such as the US, South East Asia, South America and the APEC countries. In 2004 Kerry acquired Quest and thus began its relationship with emulsifiers, which my colleague Alireza will talk about in a few minutes.

The other main thing to mention here in the timeline is that in 2010 we brought together and created what we called 1 Kerry. This was an acknowledgement of our vast array of businesses which we had brought together under one common focus and ethos. This in turn led to the creation of such common resources as our Global Technology Innovation Centre or GTiC as we call it. I'll talk more about that in a few seconds.

As you can see, Kerry today is a significant global player. With a turnover of around €6.1 billion. Of that €6.1 billion, around 80% belongs to our Taste and Nutrition business, 20% belongs to our consumer foods business, Kerry Foods.

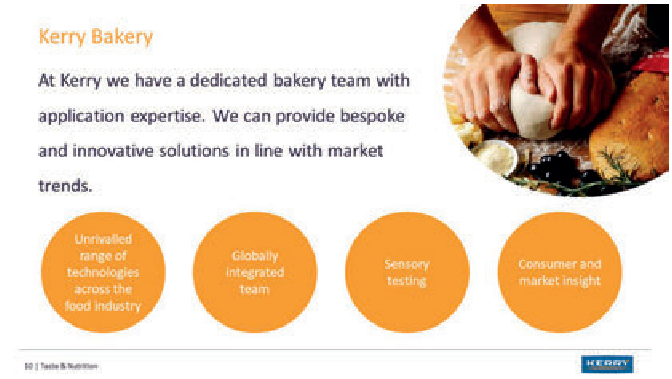
Of the Taste & Nutrition business turnover about 10% belongs to bakery. Our biggest areas are beverage, meat (Seasonings) and what we call Sweet. You can also see that we have a very significant employment force of around 24,000 people. As you can see about 800 are scientists. This number is vitally important to us and the way our business operates and responds to our customer requirements. We have a large global presence, with about 130 main factory facilities based in over 25 countries along with a sales infrastructure in about 140 countries.

What I wanted to emphasis is how the 1 Kerry approach and our GTiCs are fundamentally important to us because it's through that ethos and in in those environments that we bring together all the technologies and all the resources that's required to keep this vast business going. We have 3 GTiCs globally, in Beloit, US, in Naas, Ireland and in Singapore. What's fundamentally important in these GTiCs is the way in which the architecture is designed and common.

The centres have been so designed to allow us to bring together our research, development and application teams from across multiple backgrounds, along with people such as nutritionists, our analytical services and our regulatory support. We also have marketing support there which helps with awareness of market and insight, and last but not least, are our fundamentally important pilot plants. Each of these centres contains an array of facilities where we can bring together all those resources from all the different areas in order to test out and bring concepts to commercialisation prior to going into our final plants in order to deliver the product, and this helps speed to market as well. So how do we deliver taste and nutrition? We do so by recognising the trends that are there and, as you can see, within these major heading of taste and nutrition we have identified different pillars.

As you can see on the taste side, we have pure and simple, clean label, authentic and familiar. Not all of which are necessarily pertinent directly to bakery but these are the major pillars across our whole platform. What I wanted to focus on for a few seconds was Better for You and, of course, that has been a major trend. Better for You for us, by the way, is really about reduction – the reduction of salt, reduction of sugar, as opposed to the other one which is Good for You which is about additions, such as added nutrients & wellness and we clearly see differences in the drivers in place there.

I want to talk for a few minutes around about bakery in Kerry. Let me start by saying bakery in Kerry is very much an application area in which we bring together our different technologies as required to make the ingredient or final product work. It's quite an important facet for us.



Our focus in Bakery as a central application resource is to bring together different technologies in order to try and respond to our customers' demands. Global integration is also very much part of the Kerry culture. It's an interesting facet to see how well time placed we are in Europe in terms of that. We hold a monthly global meeting at around 2pm on the first Monday of each month. This is great for us in Naas, as our colleagues in America are just getting up at 6.00am there, while our colleagues in India and China are at the end of their day. Time wise very good for us, thank you very much!

At this stage, I want to talk more about taste and nutrition and what does that mean? Really as bakers, the one thing we tend to understand is things we can feel, we can see, we can smell.

Trying to simply understand Kerry can be quite a feat, therefore trying to explain the vast array of different technologies we have is also quite daunting. We have over 15,000 SKUS which, when you take them together with the pack sizes, involves over 45,000 different SKUs. It's impossible for any one person to truly understand all these products. Thus, we need to try and classify in the way that we have on the Kerry Bakery Technologies slide. Within that, you can see different areas such as our fermentation products, including fermented wheats and flour, emulsifiers, enzymes, through to value adding products such as glazes, sweet inclusions, toppings, wet sweet filling including low water activity fillings & jams, which is just to mention a few of the kind of product areas that we have; a vast business coming together focused on customer's needs.

Having said that, let's look at nutrition and the top trends in bakery, see the slide.

As I mentioned from the start, Kerry is a taste and nutrition company. One of the major trends of course, is sugar reduction which is part of our 'Better for You' category.

Sugar Reduction Solutions

Designed to reduce sugar while maintaining taste
Application: Cakes, Cookies, Muffins, Biscuits
Features:

- Blend of Kerry fibres for bulk replacement and improved texture
- Emulsifiers for flow and texture
- Biobake™ enzymes
- Taste**Sense**™ for flavor modulation – declared as natural flavor

Benefits:

- Reduce sugar by up to 30%
- Texture, appearance, volume and flavor of standard product maintained

Potential fibre claim (recipe dependent)

In this area we have developed solutions which take into account all the required functionalities of sugar, with no compromise on taste or quality. Our solutions deliver the same functionally as sugar, as well as the taste required. In some of those solutions we bring together several of our technologies, such as taste, fibres, enzymes and emulsifiers. This is an appropriate therefore time to hand over to Alizera to talk about emulsifiers.

Alireza Jawad I'm delighted to be here and thank you for organising this conference. Emulsifiers are, in my opinion, a simple technology which is not as complex as enzymes. It's pretty much about creating a reaction between glycerol and fat to produce emulsifiers. We can produce a range of emulsifiers in this way and the most important thing to understand is how you find an appropriate emulsifier for a particular application, because each emulsifier has different characteristics. An emulsifier consists of a glycerol head, what we call the hydrophilic, water loving part, and a fatty acid chain, the lipophilic part. If you change the combination of the two, you can create a wide range of emulsifiers.

Emulsifiers

Designed to improve processing characteristic and enhance product quality

Application: Bread, Cake, Cake Mixes, Donuts, Muffins

Features:

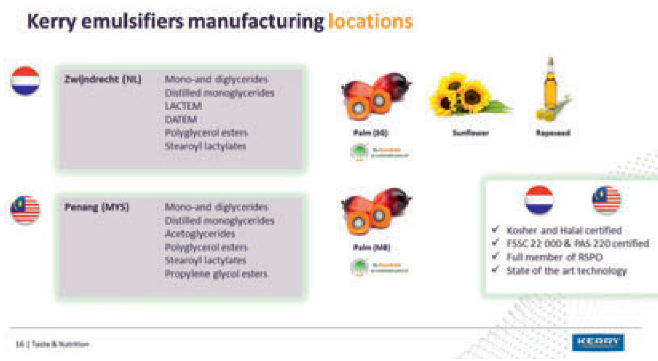
- Full range of emulsifiers and emulsifier systems
- PHO free available
- RSPO certified or non-palm available
- Halal & Kosher certified

Benefits:

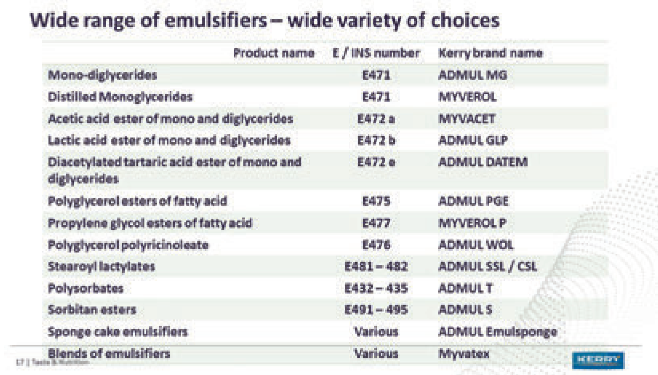
- Improved nutrition without loss of eating quality
- Improves volume of baked goods
- Improves flour tolerance
- Provides crumb softening in bread
- Improved aeration, volume & texture in cakes
- Extends shelf-life in bread & cakes
- Provides emulsion stability, aeration & texture in cake mixes

We have a full range of emulsifiers and emulsifier systems, and blends of emulsifiers that are used together, see slide. These are available as palm based emulsifiers and palm free emulsifiers. We are a full member of RSPO, which is about saving palm trees, so we can offer segregated, mass balanced emulsifiers, whatever our customers wish.

We have two manufacturing locations for emulsifiers. One is in Zwijndrecht, a small city close to Rotterdam, and the other factory is in Malaysia. Our Malaysian site predominantly produces emulsifiers based on palm oil because of the availability of the palm crop. Furthermore, we have the latest ISO and both sites are Kosher and Halal certified standards and we use state of the art production technology.



I explained to you earlier that by changing the hydrophilic head and the lipophilic tail, you can create different types of emulsifiers. You can see on the slide the wide range of emulsifiers that are available. The emulsifiers listed are used in in a wide range of applications, and a combination of two or more emulsifiers can also be used. Bakery wise you will recognise DATEM (E472e), which is used to create volume, gas retention and dough stability during bread production. Distilled monoglyceride, (E471), is also used to a large extent in the bakery and fine bakery goods production.



Wide range of emulsifiers – wide variety of choices

Product name	E / INS number	Kerry brand name
Mono-diglycerides	E471	ADMUL MG
Distilled Monoglycerides	E471	MYVEROL
Acetic acid ester of mono and diglycerides	E472 a	MYVACET
Lactic acid ester of mono and diglycerides	E472 b	ADMUL GLP
Diacetylated tartaric acid ester of mono and diglycerides	E472 e	ADMUL DATEM
Polyglycerol esters of fatty acid	E475	ADMUL PGE
Propylene glycol esters of fatty acid	E477	MYVEROL P
Polyglycerol polyricinoleate	E476	ADMUL WOL
Stearoyl lactylates	E481 – 482	ADMUL SSL / CSL
Polysorbates	E432 – 435	ADMUL T
Sorbitan esters	E491 – 495	ADMUL S
Sponge cake emulsifiers	Various	ADMUL Emulsponge
Blends of emulsifiers	Various	Myvatex

I will discuss how we can fine tune emulsifiers for particular applications, and how you choose an appropriate emulsifier based on raw material

availability and more importantly, on the functional properties of the emulsifier. A little bit about what emulsifiers can do in the production of bakery products. They can improve aeration; allow fat reduction; create emulsification; extend product shelf life, improve crumb softness; and improve dough stability.

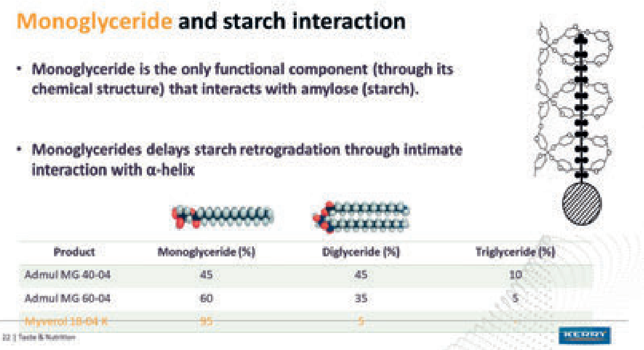
Distilled monoglycerides, E471 is one of the emulsifiers that we're going to look at in terms of how it is produced and how it works.

Why use monoglycerides in Bread?

Monoglycerides have the following benefits in bread production: produce a stronger dough; improve dough development; create a finer cell structure; Reduced balling at slicing; reduce blisters on baguettes; increase crumb softness; and have anti-staling properties which increase shelf life.

In terms of parameters I have chosen three: monoglyceride content; dispersibility - powder vs a hydrate; and palm vs non-palm, because of increasing consumer awareness around the sustainability of palm. I don't believe that using palm oil is bad, but we need to show that we can use it sustainably. This is important because moving away from palm oil is not always possible because of the effect this has on the functionality of the emulsifier.

A little bit more about monoglyceride content. During production of monoglycerides, you can have either a monoglyceride, a diglyceride or a triglyceride, but the functional component, the functional emulsifier that we are looking after, is distilled monoglyceride, which means that it contains more than 90% or 95% of monoglyceride which is a single chain molecule. Diglyceride has two glyceride chains and triglyceride will have three. If you look at starch, particularly amylose, you see it's structure in the slide.



Product	Monoglyceride (%)	Diglyceride (%)	Triglyceride (%)
Admul MG 40-04	45	45	10
Admul MG 60-04	60	35	5
Myverol 18-04 K	95	5	

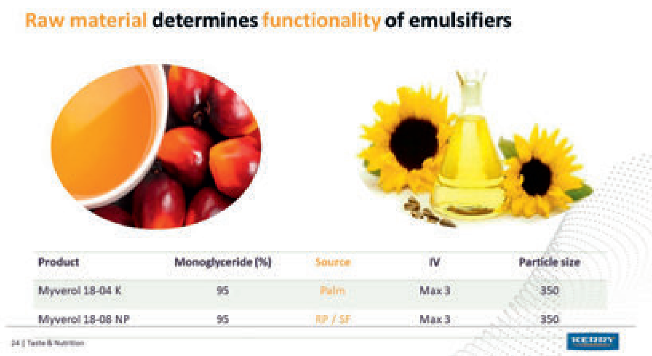
You have an alpha helix and this alpha helix is important because two starch components, amylopectin and amylose will through time will retrograde, which cause staling in bread, which is the firming of the bread crumb. Monoglyceride interferes with this process, as you can see in the slide, by forming a complex with amylose and slowing down the starch retrogradation, which in turn delays bread staling.

Emulsifier dispersibility in dough and batter

Another important aspect of emulsifier use is dispersibility. How well the emulsifier disperses in the dough and interacts with the other recipe ingredients during mixing. Hydrated monoglyceride (paste) show the best dispersibility because their surface area is 700 times larger than a normal powdered monoglyceride. The downside to (a hydrate means, an activated emulsifier, with water and heating this up to a gel), is the shelf life, typically around six to 12 months you get mould formation, but nevertheless it's an important key product in the bakery industry. For powder emulsifiers their particle size is very important to ensue fast and even dispersion in the dough.

The lower you go in terms of particle size, the faster the powder emulsifier will be taken up into the dough. The new fine powder emulsifiers with a large surface to volume ratio, results in faster hydration and has almost the same efficiency as a hydrate emulsifier.

The raw material determines functionality of emulsifiers



Product	Monoglyceride (%)	Source	IV	Particle size
Myverol 18-04 K	95	Palm	Max 3	350
Myverol 18-08 NP	95	RP / SF	Max 3	350

Why does the raw material used in its production determine the functionality of an emulsifier? We can produce distilled monoglyceride emulsifiers using palm oil and non-palm oil, but their functional properties can be slightly different.

If we take the anti-staling of bread as a key functionality for a distilled monoglyceride, we can look at the results of a study in the 1970s by Langendijk and Pennings et al shown in the graph below. They demonstrated that different types of monoglycerides, namely glycerol mono lauric (GML), myristic (GMM), palmitic (GMP), stearate (GMS) and arachidic (GMA) give different complex formations of the monoglyceride with starch, in particular with amylose and amylopectin. Lagendijk and Pennings proved that complex formation between amylose is preferred over complex formation with amylopection.

As you can see, it is the glycerol monostearate (GMS) from stearic acid, which is predominantly found in palm oil, that has the best complex formation with amylose and to some degree with amylopectin. This prevents starch retrogradation and would have an anti-staling function in bread.

The graph slide also has a table showing the C16 and C18 fatty acid chains in two of our monoglyceride emulsifiers, the top one being based on stearic fatty acids, which as I said, is predominantly found in palm oil, and below, one based on rape seed and sunflower oil, which have a totally different fatty acid composition. The functional difference between them is that the one based on palm has a higher ratio of C16, which is found to have the most active complex forming property, followed by C18. As a result, palm based emulsifiers have a better complex forming property with amylose and function as anti-staling agent in bread.

If you change the fatty acid chain source for an emulsifier you would expect the same functionality, but emulsifiers with different C16/C18 ratio will interact differently with amylose and could subsequently have a different effect on anti-staling in bread *[Lagendijk, J. & Pennings, H.J. Cereal Sci. Today 1970]*. This means that moving away from palm in some areas, perhaps being necessary because of consumers' perception of the use of palm, can be a challenge!

What are the conclusions of my talk on emulsifiers?

- If you link an emulsifier's functionality parameters against its performance, distilled monoglycerides need to have to at least 95% monoglyceride content. As monoglycerides are the main component in anti-staling of bread.
- The particle size for emulsifiers in powder form should preferably be around 75micron or less. Smaller particle size means better uptake in dough, but it also depends on type of bread, equipment and desired softness. From a production point of view there is a limitation to how much you can reduce particle size, because the lower you go in size you increase the chance of lumps in powdered emulsifiers.
- the vegetable oil source of an emulsifier can affect its functional properties.

Peter Baker Thank you very much indeed Martin and Alireza. Any questions?

Question Alireza, you spoke earlier about particle size being very important in GMS. To what extent will that affect functionality of the GMS, specifically in powder forms (as in an improver).

Alireza Jawad The smaller the particle size, the better the dispersion of the emulsifier in the dough. A large particle size emulsifier will be less dispersed into the dough and its functionality may be less, hence the particle size is a key indicator.

Question We know emulsifiers provide softness in bread. The problem we have is our customers don't want to see e-numbers on the packaging. Is there anything you're going to do in the future where the functionality is the same but without the e-numbers, clean label in fact?

Alireza Jawad I would say that clean label is one of the main discussions that we also have with our customers and with their customers on their behalf. Creating an emulsifier without an e-number ingredient present is difficult. There are certainly enzymes that can partially replace emulsifiers, and these do not have to be declared. I don't think that emulsifiers can be eliminated from the product without affecting its quality, at least not with the knowledge and science we have right now.

Martin Mullally With regard to enzymes, they are part of the whole issue around what defines a product as clean label! You may be aware that there's a study going on in a German university at this moment in time which is demonstrating that some enzymes do have some activity post-baking and under that guise, there's some concern among the trade bodies that enzyme labelling may be coming sooner rather than later. So that's a "watch this space" situation. You must counterbalance that around modern baking technology, baking processes and demands from customers. Some customers want products to be made 'clean label' but with the same shelf life and product quality as before, which is difficult to achieve.

Alireza Jawad A product with reduced e-number ingredients can be called 'lean label' instead of 'clean label', reducing rather than removing the e-number ingredients.

Question Martin, we've been overawed by the size and scale of Kerry. You have so many scientists working for Kerry and in my experience, they will all have their own opinions. My question is, how does Kerry direct its research and development projects since it must be hugely difficult across the globe.

Martin Mullally We're a commercial organisation so one of the major drivers is, by definition, commercial. G-tech has 800 employees, of which around 200 are scientists and the rest are a mixture of marketing, regulatory and other support services personnel. We have different types of groups which come together on a regular basis but by and large, we have centralised management systems. The sales force is a big driver of what out scientists do. Our senior managers can look at the efficacy and efficiency and use of our resource. Our resource is therefore monitored very closely and on a commercial basis.

Peter Baker, Session Chairman Many thanks for an excellent joint presentation Martin and Alizera. *Applause* It's now my privilege to introduce you to Beverley Dunkley, who has run the Chocolate Academy at Barry Callebaut for 22 years. Barry Callebaut has a huge expertise in chocolate and in its application in baking, so we look forward to Beverley's presentation.

Applications for Chocolate by Beverley Dunkley, Chocolate Chef, Barry Callebaut

Barry Callebaut is a large global company which has 59 factories around the world. They make: chocolate; semi-finished chocolate components such as cocoa butter and cocoa powder; nut pralines; and chocolate decorations. We have many brand names within our group and Callebaut is the main artisan chocolate brand we sell in the UK. Our other chocolate brands include Cacao Barry, Carma and Chocovic. On the decoration side you may have seen the logos of Mona Lisa and IBC. Our nut factory is called La Morella. All these brand names come under the umbrella of Barry Callebaut.

Today I am representing Callebaut and I am called a chocolate chef, which is a technical advisor. My presentation will answer three questions:

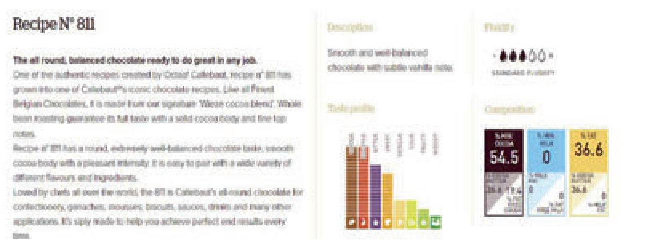
- Where do you start in choosing a chocolate or cocoa powder for your application?
- Can one chocolate do all applications?
- What are the current trends in chocolate?

The Callebaut website is a great source of information and I would like to start by looking at the information on the web site for Dark Chocolate Grade 811, which is a well-known name for anyone who buys from Callebaut.

We make more of this chocolate than any other chocolate we manufacture around the world. Things are changing however, because 811 is only a 54% cocoa solids chocolate and since people are looking at reducing sugar within their diet, we are looking at much higher cocoa solids chocolates. What do I mean by cocoa solids?

From the fermented, dried and roasted cocoa beans we get a product called cocoa liquor, which is 53 to 57% cocoa butter – the remaining percentage is free–fat dry cocoa solids. When we add sugar to the cocoa liquor, we can change the name to chocolate, with cocoa liquor having to have at least 1% sugar in it to be called chocolate. 811 is a 54.5% cocoa solids chocolate: 42% is liquor (55% of the 42% liquor is cocoa butter) and we need to add approximately 12% additional cocoa butter to give this grade its characteristic fluidity. So, in combination the cocoa liquor and additional cocoa butter, this makes up the 54.5% cocoa solids.

On the Callebaut Web Site each grade is given a fluidity drop guideline. The number of drops assist in choosing the correct chocolate for different applications. 811 has a three-drop fluidity.



The website also gives you a detailed description of the chocolate recipe and distinctive taste profile. Which is very useful when you are looking for an origin style grade with a distinctive flavour in mind. Each grade on the website has a bar graph that clearly tells you the total cocoa solids of the chocolate; the fat percentage and the free-fat cocoa content. For milk chocolate grades the bar graph tells you the total fat which is a combination of the cocoa butter and milk fat within the recipe. Under the chocolate grade information, you have underlined application headings such as confectionary, patisserie and baking. Each underlined heading links you to recipes within that category. The 811 chocolate is an all-round chocolate that is suitable for all applications.

There is only one application for which I do not think the 811 grade is quite suitable. The website states that this grade is suitable for medium enrobing. If you have a chocolate enrobing machine, then this grade is fine but if you are an artisan baker, you may find this grade too thick for coating by hand dipping.

Food Pairing For chocolate users who like food pairing and developing innovative ganaches, there is a tasting video on the website, see below, linking you to an app called the Chocolizer, which is a food pairing tool that links all the Callebaut Chocolates to a range of commodities that taste good together. Copy the link below into your web browser for access to the Chocolizer website page.
https://www.callebaut.com/en-OC/chocolizer

Chocolate content Looking at chocolate grades 70-30-42 and 70-30-38. The 70 stands for the percentage of cocoa liquor, so they are both 70% cocoa solids chocolate. The 30 stands for the sugar percentage. The last figure of 38 and 42 stands for the percentage of cocoa butter. The 70-30-38 grade is a three drop fluidity chocolate whereas the 70-30-42 grade is a five drop fluidity chocolate.

Finest Belgian Chocolate
Finest Belgian Dark Chocolate

RECIPE N° 70-30-42	Roasted well-balanced cocoa taste, pleasant bitterness.	70.3% MIN. COCOA	0% MIN. MILK	43.7% FAT	VERY HIGH FLUIDITY
	AVAILABLE IN: BLOCK 5KG | CALLETS™ 10KG				
RECIPE N° 70-30-38	Extra-bitter dark chocolate with a great boost of roasted cocoa.	70.5% MIN. COCOA	0% MIN. MILK	38.9% FAT	STANDARD FLUIDITY

Fluidity Looking at each grade in the melted state, the fluidity of the 38% cocoa butter grade is very thick, thicker than 811, even though they both state three-drops on the website. The cocoa butter % of 811 is 36.6%. The 70-30-38 grade is perfect for applications such as butter creams, cake batters and mousses

If you are looking for a chocolate where you want more fineness in moulding and hand dipping, then look at the 70-30-42% grade because it contains a high cocoa butter %. It's a much more fluid in the melted state than the 70-30-38 grade

Grades with one drop fluidity are called bake stable products. These grades include croissant sticks, chocolate chips and chunks. They take absolutely ages to melt.

CHOCOLATE STICKS	Intense taste, rich in cocoa and with a lovely snap.	45.3% MIN. COCOA	0% MIN. MILK	27.7% FAT	VERY LOW FLUIDITY
	AVAILABLE IN: STICKS 5KG				
BAKING DROPS XS	Extra-small-sized chocolate chips for baking with a subtle snap and solid chocolate taste.	43.5% MIN. COCOA		26.3% FAT	VERY LOW FLUIDITY
	AVAILABLE IN: DROPS 10KG				

When you use these grades in applications such as cookies, the chocolate melts during baking but because the chocolate is so low in cocoa butter, the chunks and chips do not flow in the product. When we eat chocolate cookies, we are eating untempered chocolate because the chocolate melts and restructures as it sets. We can make a nice shine on the chocolate even though it is untempered by raising the top heat of the oven during the last stage of baking.

Looking again at 5 drop fluidity chocolates, these are excellent for ice cream applications. If we dipped an

Callebaut Ice Chocolate / 5 drops : 45.5 % total fat

Description

Intense chocolate taste for a hard, snappy crack around ice cream.

ice lollipop in 811 chocolate it would be too thick on the lollipop. By using a 5 drop fluidity chocolate, the ice lollipop is coated with a thin covering of crisp set chocolate containing approximately 45% cocoa butter.

The 811 dark chocolate pretty much meets the spec for all applications. The milk grade for all round application is 823 and the white chocolate grade is W2. These three chocolates are the grades most people purchase in the UK due to their taste and consistent workability.

Looking at trends Manufacturers, consumers and retailers are looking for Gluten Free; Clean label; Vegetarian; Vegan; and Reduced Sugar Chocolates? The three grades I've just mentioned, 811, 823 and W2, are gluten free, have no added sugar, are clean label, are suitable for vegetarians and the dark is suitable for vegan applications.

These grades of Callebaut chocolates are from sustainable sources. We have a massive programme on sustainability, on which our CEO has stated that all our products, whether they're chocolate or non-chocolate, will be from sustainable sources by 2025.

Sugar content If you are looking for grades with less sugar than our standard 811, 823 and W2 the next three grades will be of interest.

Power 80 An 80% cocoa solids Chocolate - not for the faint-hearted, this is a very strong robust grade. This grade contains a high % of dried cocoa solids and 44 % cocoa butter.

Even though it has a high % of cocoa butter, it is only has a three-drop fluidity.

Power 41 A 41% cocoa solids milk chocolate. Our standard 823 milk chocolate grade is 33.8% cocoa solids. The Power 41 is a bit deceiving as it states the grade is a three-drop chocolate, but it behaves as a four-drop chocolate in application. It is just as fluid as the 70-30-42. Perfect for moulding and hand dipping.

Velvet A reduced sugar white creamy white chocolate with a three-drop guideline for application. Sugar has been reduced in this grade and replaced with milk powder.

Sugar free We also sell chocolates with no added sugar – using sugar replacers. The main sugar replacer we use is Malitol. Our Malchoc range is available in dark, milk and white. These chocolates are not too laxative and contain lower calories than sucrose based chocolates. They are easy to temper and use. We also sell a dark chocolate based on Stevia, which is from a natural plant source and is two hundred times sweeter than sucrose. A great chocolate of 83.9% cocoa solids. If anyone would like any more information on these grades, then please contact us.

Brownie Recipe See below a chocolate brownie recipe. By making the recipe with chocolate with different cocoa solid percentages you, can reduce the overall sugar %.

Quantity	Ingredient	Power 80 dark chocolate	70-30-38 dark chocolate	811 dark chocolate
185g	Unsalted Butter	1g	1g	1g
185g	Chocolate	30g	48g	80g
3	Eggs			
275g	Caster Sugar	275g	275g	275g
85g	Plain Flour	1g	1g	1g
40g	Extra Brute Cocoa Powder			
	Total Sugar Content	307g	325g	406g
		24% less sugar than 811	20% less sugar than 811	

With new product development there are always decisions to be made? As we go higher in cocoa solids, your product is going to taste stronger. If you go higher in cocoa butter, your product might be a bit firmer. Though our contact with our customers we are noticing peoples' tastes are changing. They are getting used to much higher cocoa solids and textures. There is a new market emerging, which is great fun and give new product opportunities.

I am going to pass around two brownies for you to taste, one made with 811, see picture, and one made with a new chocolate called Ecl1pse, which is a 51.5% milk chocolate – dark in colour, high in cocoa solids taste and low in sugar %. The brownie made with Ecl1pse contains 14% less sugar than the 811 version.

The brownies were passed to the delegates and both versions were enjoyed by all.

Cocoa powders In the next section of my presentation I will talk about cocoa powders. For manufacturers that are able to order palette drops, these powders have been available for many years. We also have a new range under the Van Houten label available in 1kg packs. Van Houten was the founder of the company, who innovated separating the cocoa liquor into its two components cocoa butter and dry cocoa solids by a hand-operated press, Cocoa powders are now manufactured by hydraulic presses. In the picture below, you can see a range of cocoa powders and their colours. They are fantastic in application, with different shades in gelato (ice cream) and biscuits. One grade is listed as a natural cocoa powder of 10/12% fat. We would call this a fat reduced cocoa powder and natural mean no alkalisation during processing.

Production The cocoa butter is removed from the cocoa liquor by hydraulic pressure. The cocoa liquor is naturally dark brown in colour but the extracted cocoa butter is crystal clear. When the cocoa butter is extracted from the cocoa liquor, the dry cocoa solids that are left are called cocoa cake. The cocoa cake is a very hard mass which we grind into powder.

Before the cocoa butter is extracted, the operators measure the percentage of it in the cocoa liquor. This will be between 53% and 57%. To achieve a 10 to 12 fat % cocoa powder, we remove the excess cocoa butter in the liquor, to leave the percentage of fat we require for the cocoa cake. When we grind the cake to make the cocoa powder, we then have the required percentage of cocoa butter.

If we look then at the full bodied warm-brown cocoa powder, which contains a much higher fat percentage of 22 / 24%. Due to the high fat, this grade produces moister final products. Cocoa powders with a fat % above 20% can be described as chocolate if the cake contains a certain amount of sugar.

The next grade is fascinating, with only 1% cocoa butter.

This cocoa powder is called a de-fatted grade. With a very low cocoa butter percentage this grade has many advantages, especially if you want to make chocolate meringues or chocolate macaroons. The fat in a high fat cocoa powder breaks down the foam that is produced when you whisk egg whites. The de-fatted cocoa powder is a good grade if you are looking at produced reduced fat products.

The de-fatted cocoa powder is much lighter in colour compared to the full bodied brown, but you cannot assess what the colour of the cake will be by looking at the cocoa it its dry form. When we are choosing cocoa powders for an application, we mix the powders with water. This gives you the true colour of the cocoa powder a baked product. As you can see when I mix water with the light defatted grade and with dark full bodied brown grade, their colours are nearly identical.

Red cocoa powder Within the range you can see we have a Red Cameroon cocoa powder of 20/22% fat. Cameroon cocoa beans naturally have a red tinge to them. I am sure you are all thinking they are a perfect natural solution in the preparation of red velvet cakes. Yes, they give a delicate redness for the purist. The Red Cameroon cocoa powder has a nice high fat percentage so you will get nice moist final products.

Powder form cocoa mass This is an interesting one, we're now the only company who supplies cocoa mass in powder form. If I cut a muffin made with the powdered cocoa mass and one with cocoa powder, you will see that the muffin made with the powdered cocoa mass has a natural more rustic look. The powdered cocoa mass contains 52 to 56% cocoa butter, so a high fat content, giving exceptional moist products. A good way to add moisture to a baked cake with no added sugar.

Cocoa Black The final cocoa powder to introduce you to is black cocoa powder. This seems to be a trend in Europe at the moment, especially in Italy. We've just launched a range of gelato (ice cream) products and they've launched a big range with this black powder inside, so it seems to be a very big trend. With this cocoa powder it looks like you have charcoaled and burnt something, as you can see it's black, because this cocoa powder is highly alkalized. You do get a bicarbonate taste if you are looking for it. An excellent cocoa powder to use in cakes for Halloween. Especially with decorations made with Callebaut's flavoured and coloured orange grade imagine orange spiders or cobwebs, that would look fantastic.

To finish I am going to pass round some of our chocolates for you to taste, and these include:

- 811 54 % cocoa solids dark chocolate and 823 33.8% cocoa solids milk chocolate. Both standard grades,
- Natural sweetened dark chocolate with Stevia – this grade is different on texture compared to standard chocolates we are used to.
- Ecl1pse, which again has a different taste profile as it contains milk powder, which gives us the sweetness. We have developed many recipes for bakery sector with Ecl1pse as it is a straight swoop in application. For confectionary we have the barrier of taste on first eating the product. It's a bit like having a cup of tea with no sugar for the first time. Once you've gone past the stage of drinking tea with no sugar, you can never have tea with sugar again. It is the same with eating Ecl1pse.
- Lastly two enhanced protein based chocolates using whey protein and pea protein - it's not for everyone, being very earthy.

Please enjoy the chocolates and I will be pleased to to answer any questions you have.

Peter Baker, Session Chair Thank you very much indeed Beverley, that was fascinating. I thought I already knew quite a lot about chocolate, but I learned a lot more from your presentation Are there any questions. whilst we're sampling Beverley's chocolates?

Question The cake you passed around with the 1% sugar. Is the 1% sugar in the chocolate or is it 1% sugar in the whole product? Do you remove the sugar from the brownie recipe or you just remove the sugar from the chocolate?

Beverley Dunkley We add 1% sugar to this grade of chocolate, so we can legally call it chocolate. Included in the chocolate is milk powder, so there is a % of lactose sugars from the milk powder. Combining the lactose and sucrose, the total sugar in this chocolate is 22%,

Question So just lactose is the sugar that you've got? And what was the sugar that you replaced it with

Beverley Dunkley Correct, the grade only contains sugars from the lactose in the recipe and the 1% added sugar, so we can legally call the grade chocolate.

Question I just have a production question, do you grind all your beans in Belgium?

Beverley Dunkley Each of our brands have their own manufacturing process. We grind all the beans for the Callebaut Belgium brand in Belgium. Callebaut roasts the whole bean in the shell. We have total quality and production control for all our grades.

Question Where are the factories?

Beverley Dunkley We have factories situated around the world. See our website https://www.barry-callebaut.com/ for more information on this and on anything else concerning our products.

Peter Baker Session Chair Please show your appreciation for a wonderful presentation and for all the very tasty samples. *Applause*

Paul Turner, Chairman We will shortly be going for lunch but beforehand, I am delighted to introduce Vice Chancellor and Chief Executive David Phoenix, who wishes to formally welcome us to the university.

Welcome to LSBU by David Phoenix, Vice Chancellor and Chief Executive, London South Bank University

Welcome everyone and thank you for having your conference at the LSBU. I want to say a few words about the University and specifically, about the National Bakery School.

The University's origins go back over 125 years. It was specifically set up to help business people and individuals in South London to develop the skills they needed to run their businesses and to prosper, and that's still the purpose today. The ethos we've adopted over the last few years has been around an educational framework that accepts that as a university, we are transferring knowledge. That's what universities do, that's what educational establishments do. We have focused on how we help our students to apply the education we are giving them, because through application you learn and through application you build the confidence to go out into the outside world and prosper. In addition to reshaping some of the curricula so that we can focus on application, we've gone back to looking at the whole time the students are with us and building into that time the extracurricular activities; everything from volunteering to working as interns and on placements, helping them to further build that confidence in their networks and their skills. A key aspect of that has been working with industry and with firms to develop placements and work experience.

That very simple approach of looking at knowledge, application and extracurricular activities to build confidence and industry input, means we have had the fastest growing graduate employment level of any university in the country for the last three years.

We have a diverse range of students but we're around the top ten for graduate employment and we're in the top twenty for graduate starting salaries, and that's independently verified by Which. The Economist did an analysis and said that if you look at the starting salaries that were expected and what graduates get, we're about thirtieth in the country in graduates getting a higher salary than would be expected. That's a great testament to the dedication and enthusiasm of the students but our staff and the way we try to engage with industry.

That's one of the reasons why I've always been very proud of what the National Bakery School does, because they have been engaging with industry for years. They'd been working with people in the baking industry to try make sure what we are teaching meets industry's requirements. As part of the discussions we've had, I'm hoping is that the Bakery School will be able to reinvigorate that approach, and engage with the baking industries and its suppliers, to get them to challenge what we're teaching to make sure it's fit for purpose. To also work with industry to make sure that we're developing the apprenticeship programmes that employers in the industry tell us they need. I think that we have the fastest growing number of apprenticeships of any university in the country at present, which is strongly supported by Southwark Council and other Councils.

We also recognise that now, as a university, it's not just about industry input into the teaching and learning, and working in partnership with industry, but it's also about research and the enterprise. This is one of the reasons why the National Bakery School is positioned in the School of Applied Science at the university, to look at the future of the Food Industry, and food technology, so we can teach students not just what's current in the industry but for what are the industry's future needs.

Looking at things like chocolate today, which I'm particularly fond of as my colleagues in the Bakery School know, it is not just looking at the chemistry of the chocolate but the impact of how things like the melting temperature affect it use, and its interaction with the sensory system. That fits well with the science based environment that's looking at food technology and with the human sciences.

As I have said already, I am proud of what the Bakery School is achieving. I hope, with support from people like yourselves, it will go on to achieve even greater things and reinvigorate those links with industry and I hope you all have a great time here with us during your conference. I would just like to thank my colleagues who've been involved in organising your conference, because there is always a significant amount of work behind the scenes and I know the team have done a lot of work to ensure it is a success.

Paul Turner, Chairman Many thanks for your welcome David. Thanks also to Professor Patrick Callaghan for his earlier welcome and to our morning speakers and Session Chair Peter Baker. Please enjoy your lunch.

Peter Baker, Session Chair Welcome back and I am delighted to welcome Tesco's Bakery Category Director Gordon Gafa to the stage. Gordon will discuss Tesco winning the BIA Supermarket Bakery Business of the Year award in 2017; where Tesco is in relation to their five year turnaround plan for the business; the importance of high quality in instore bakery products and how this is communicated to their customers; collaboration with suppliers; and a look ahead at future plans for Bakery at Tesco.

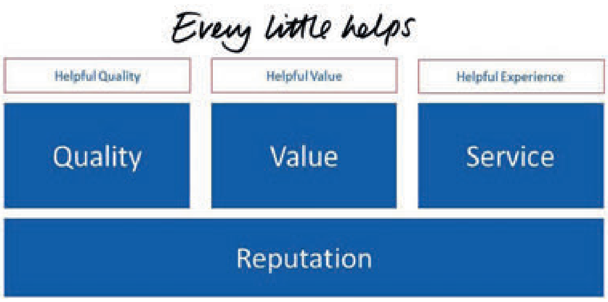
Winning Together in Bakery - Tesco's Perspective

by Gordon Gafa, Bakery Category Director, Tesco.

I've been with Tesco for seven years and in bakery for the last three years, and I've enjoyed every minute of it. My start in bakery coincided with our turnaround plan, commencing when Dave Lewis took over the helm at Tesco. I'll cover a little bit about that and where we are at present. For context, think about all of this as we're still in the third year of a five year turnaround plan for the business! Whilst we may have had some success there's still a lot of work to do to complete it. My talk will cover the following:

- Building a differentiated brand - the bakery contribution
- Looking ahead
- Open Discussion, Q&A

Building a differentiated brand The business's turnaround plan is based on six key strategic drivers and building a differentiated Tesco brand is number one of the six. It is important to us at Tesco that we are, as a brand, reaching out to customers in a far better way than maybe where we used to be a few years ago. Just again for context, when we talk about how we build a differentiated brand in Tesco, in its simplest form this is the framework that we follow.



You'll be familiar with our new core purpose which is serving Britain's shoppers a little better every day and that's basically why we get out of bed in the morning, whether we work in the office, in stores, or in a distribution centre. Every Little Helps is still core to the brand. It's not going away, it's what Tesco is all about and the three main pillars, how we deliver Every Little Helps for customers are around helpful quality, helpful value and helpful service – it's not rocket science, underpinned by a strong reputation, and my presentation will revolve around those themes and I'll cover off both from a core professional perspective as well as the Bakery's contribution, as I said, within those pillars.

Core drivers of quality perception

We are obsessed about products that work, products that look great, a fantastic store experience and comms that showcase quality. This is where I and my team are involved a lot in terms of what we do in our day jobs.

The quality challenge for Bakery is to bring it closer to home. When I started three years ago, we asked customers what they thought about their instore bakery experience in Tesco, more than their total bakery experience. Customers were telling us "it works, it's a good bakery offer" but it was a little bit uninspiring at the time and they used words like: it's a 'wall of white,' 'it's very industrial and looks quite functional as an in-store bakery'. There was limited theatre and by that we mean baking activity. A lot of plastic in the fixtures – this was three years ago, bear in mind, that's what customers were talking about – and a little bit of a low in staff presence, staff weren't visible enough to customers.

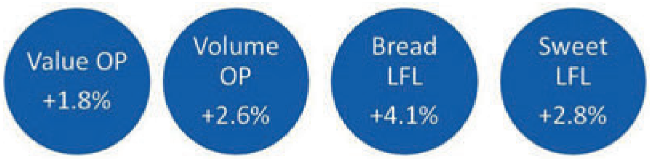
Euphorium People remind me of Tesco's involvement a few years ago with Euphorium as an instore bakery type project. It was a little bit before my time but I'm going to refer to it because with it we did try to address our customers' comments with it. It was about six years ago that we started on the Euphorium project and it sought to address some of the challenges of: customers telling us things they didn't like;

bringing more theatre and more products at the centre of the customers' instore bakery experience, but unfortunately it didn't really work. As you will probably know, we decided to quit that project in 2016 and it was sold. The main problem probably was that it didn't really focus on Tesco and the core brand that we work for and believe in as a business. We did also have a little bit of quality and freshness issues with it but having moved on from that, we weren't just going to settle for the status quo.

From that what we set out to achieve was a totally new bakery experience for customers. There is a major cross-functional effort where the restructure of Tesco works really well. It's one thing when you talk about the new bakery experience with customers, many of you will have seen our newest bakery in-store, it's in hundreds of stores now. We have invested a lot in new fixtures, new lighting, we did look at the operating model, we did look at the availability, we launched new ranges, tapping into trends, some of which I'll talk about later. this morning.

We introduced product sampling formally in our biggest shops. We're using far less packaging and we have increased staff presence, as well as investing in bakery coaches. We now have one bakery coach per Tesco Group.

The 17/18 FY Results



The results have not been goods, as you can see in the slide. When you look at value and volume, you get IRI market data and that's for Bakery in Tesco. So last year we outperformed the IRI market by 1.8% on value and we outperformed on volume by 2.6%, the LFL pure on in-store and you can see bread LFL at Tesco was +4.1% and sweet LFL was +2.8% and the reason why I put this up is not to say look how good we are, it's to point out that customers seem to like what we have been doing and they've rewarded us with some extra sales.

The next chart is all about market share during: pre-period; during trial; during the 2016/17 Rollout; and during the 2017/18 rollout. You can see that the trend line fluctuates through the seasons and promotions and all that stuff, and if you focus on the trend line you can see that we went from pre-trial, rollout, implementation and into the last financial year and the trend is positively up.

Market Share Trend

So once again it appears that customers have been happy with what we've done. So hopefully the above has given you enough about products and our stores.

Core Drivers of Quality Perception

I'll move on to talk what we've done with communications to underpin Tesco's aspirations on improving quality. We started talking again last year about our product quality, underpinned by cracking prices, as we call them, and you'll see some bakery lines in the slides.

Talked again about our quality underpinned by cracking prices

You'll see our own label Tesco Toastie loaf and how we communicated with customers about it. You'll notice that the comms are all about our great quality, in some cases endorsed externally, so the Good

Housekeeping Institute, in the case of the Tesco Toastie, voted Britain's best loaf for toast.

We also communicated our product value, and this has gone down well with customers. We are far more confident as a business talking about the great quality products we supply, some of which we developed with many of you in this room, and the prices we can offer customers for our products. You'll see a cross-section of this on the slides. and we've got bakery, meat produce, wines, a cross-section of products there coming into that comms.

My favourite occasion was winning the BIA Supermarket Bakery Business of the Year in 2017. It fitted into our customer communications on quality and endorsed our hard work in repositioning our bakery business for their benefit.

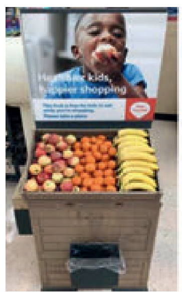
The tiger bloomer slide shows one of the communications we put on social media, as well as point of sale in-store. There are countless examples of what we've done, some of which you can still see in stores, again, tying into all that quality and value messaging and about how pleased we were to get the award.

We'll move on now to the value pillar of our differentiated brand which we trialled instore last year, as well as new value comms, seen an improvement in perception.

In the 'before' photo you can see a complicated advert. This is replicated in the 'after' advert with a totally different header board. Before we were just talking about special offers, not really pointing out what the special offers are, but in 'after' it is far more confident about the £1 price point, the half price point and being far clearer in the POS at every shelf. It's far better because it shows customers that we are confident about our value proposition and the execution by stores has been tremendous. The devil is often in the detail and when you look at that quite closely, you can see confident, £2, £1, half price - really clear, showcasing of great products.

Then Bakery, the same value point, we weren't going to shy away from the challenge. We see here that we've been much clearer than we've ever been. Special offers are probably the best example I have and you can see similar stuff, quite clear on half price in the middle of the picture and the £1 price point. Real clarity of execution and removal of a lot of the content that we had previously.

We were pleased with the cooperation we had last year with Kipling. We did a great exclusive cake promotion with them and exclusive prices at Tesco. It was a fantastic event for Premier. We achieved our best performance of the year in cake through that promotion. It comes from a belief that I had before coming here, that showcases why we can work collaboratively with suppliers to develop great events exclusively at Tesco. When you think of the scale and size and the power of the estate, the differentiated nature of the estate, there's a lot we can tailor in for different customers.



Moving onto the next pillar, which is on service. We've been focusing a lot on helpful service and many of you will have heard about free fruit for kids, see pictures. This is an initiative in over 400 stores and it came from an idea from one of our colleagues that wouldn't it be helpful for customers if, when they're shopping with their kids, we gave them free fruit? And it came through the comms channels in the business and I thought that's a good idea and since we started this, we've given away over 50 million pieces of fruit and it's proved fantastic for customers. Their kids have a healthy snack in store whilst they are doing their shopping in peace and quiet.

I thought it was an idea which could be used on the Bakery side and that's what we've done. We're sampling our great in-store bakery products to customers in around 450 stores, particularly, our speciality loaves and some of our sweet products as well, to get customers to taste, see if they like it and then purchase. We ensure that we are backing the bakery industry, backing the bakery brand and backing Tesco's credentials in bakery.

Helpfulness example, free samples of instore bakery products

The final bit on the brand is how we underpin it with a great reputation, which we are really focused on. An example I've put up here is helpful little swaps.

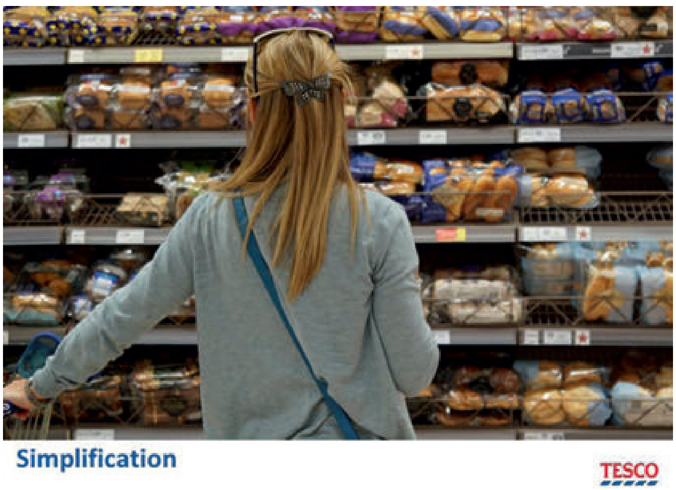
The last time we ran this was in January. In our large stores at the front of the point of sale we had information that helped customers understand how to shop for healthier products with lower calories and lower salt, with a basket of healthier products versus their normal basket with higher sugar and salt products. Again, customer reaction has been fantastic, and we've rolled that out, see the slide, with the healthier basket being at a cheaper price than the regular basket at the front.

This slide shows what our suppliers said about Tesco. It is our latest supplier viewpoint, where we ask suppliers to anonymously to give us feedback on what they think about working with Tesco. Across the bakery, dairy and our local business, of those suppliers who responded, 80% were satisfied with their experience of working with us, which is a great endorsement and is something we're very pleased

about. In the Advantage Report Mirror 2017 Tesco, not just my area, was ranked No. 1 and in the GCA Annual Survey, Grocery Code Adjudicator ranked Tesco as the most improved retailer and 53% of our suppliers reported an improvement in our practices, and that is a continued improvement year on year.

That closes off the brand bit and we will do some looking ahead.

I've put up three Bakery priorities which we talked about at a recent bakery conference with some of our suppliers. These are the three priorities that we are looking to implement in our business with this year, within the context of the five year turnaround. We're three years into it and the next two years are really important to deliver the strategic objectives that we outlined to our stakeholders.



Simplification Customers tell us that we do over-complicate their shopping trip and we could make it far easier for them. The in-store bakery we need to be far simpler at what we do. We're really pleased with what we've achieved, and the BIA award last year is testament to that, but we could do it far simpler and in a more agile way.

Innovation I have put a little bit about focused development. Personally, I'm a little bit guilty of a lot of development that maybe was a little bit too much around range extensions, that were just focused on flavour, which is not real innovation.

Innovation: focused development

- More "bakery on the go"
- Less salt & sugar
- Quality and craftsmanship matter
- Raw and grain free continue to grow
- Positive nutrition, added benefits (fibre)
- Less plastic but still convenient

What I'd like you to take from this is that we like real product innovation that meets customer needs that aren't currently being met and that's what we're focusing on quite strongly in the next few months.

Collaboration The next one is collaboration and this is why I put this up, the Big 6 is how KPI we measure the business and you'll see if you split it in half, on the left hand side you'll see three bubbles that are all about what we want to deliver - grow sales, deliver profit and improve cash flow. On the right hand side it's all about the how we do things. So how we work with customers, colleagues and then how we build trusted partnerships. This is what matters in business, this is how we all get KPI'd internally. The reason why I've put the graphic up is because, when it comes to collaboration, there is no way I'm going to deliver my sales and profit, my metrics, if I'm not collaborating with colleagues, wherever they may be; suppliers wherever they may be; and by truly understanding the concept of putting the customer first.

Peter Baker Excellent presentation Gordon. Do we have any questions?

Question You said you had year on year growth of about 4%. Where did that growth come from, was it the artisan side, local?

Gordon Gafa That 4% is in-store bakery LFL and the growth has come by far from specialty breads. As many of you know, they are the fastest growing side of bakery and in-store bakery in particular. We also made sure that availability on key lines like soft rolls was spot on, and a lot of that is driven by doing the basics right.

Peter Baker, Session Chair I just wanted to ask about sugar reduction. In Finsbury we were asked by one of our licensees to reduce the sugar content in a celebration cake by 50%, which we did but we didn't sell any! The point really is that we can reduce sugar in bakery products, but we have got to take the consumer with us in doing so. I just wondered how Tesco's was approaching this problem?

Gordon Gafa You hit it on the head by saying you've got to take the customer with you on sugar reduction. I'm not criticising but a 50% reduction was probably a bit too radical for a celebration cake occasion, where customers are seeking a treat. It's a special occasion, it's a kids' party perhaps, and you want something that tastes pretty good. Our plans on sugar and salt reduction is to get ahead of the curve and we are ahead of where we thought we would be. We've reformulated a lot and we relaunched our doughnuts with a reduced sugar recipe in January. Customers think it's great. Sugar reduction right up there, which is why I put it up there in the slides. We want to be ahead of the target and in other areas of Tesco. Like soft drinks, we delivered reduced sugar in soft drinks way before the sugar levy came in. To be ahead of target we reformulated all our soft drinks around a year before the levy came in.

Question When you look at the bakery, at the whole of the category, when you see the growth in in-store bakery, do you get drag from the bread fixture as well, because that comes under you as well presumably?

Gordon Gafa Not really. If I had to put up my plant bread sales, they would be satisfactory. There is no linkage between plant and fresh bread sales. Customer tend to see fresh bread purchases as for today and maybe tomorrow, but they are probably buying plant sliced and wrapped bread for the whole week probably. There's certainly a trend towards more wholesome bread, across both areas.

Question There seems to be quite a trend for artisanal breads and if we look at bakery TV programmes and at the smaller artisanal bakers that are opening up. Many are producing truly good bread and they're doing well, with consumers buying into the artisan side of it. They seem to be able to charge £5 - £6 a loaf, or maybe a bit lower.

Gordon Gafa Not at Tesco!

Question M&S and Waitrose are charging that way but you're a very broad church. Do you feel that this is just some sort of thing that's happening now, or do you think that the UK public are going towards artisanal bread as a general theme? If so, how long do you think it will be for Tesco to get serious about artisan bread?

Gordon Gafa We call them speciality breads, that's breads with inclusions, sourdough, etc, and they are sold in in all our stores. We have hero-ed that range and designed a bespoke cabinet for them. There are at least 14 loaves in the range we've created. We spent quite a lot of money developing them because we recognised that it is what our customers want, and I think it's a trend that's here to stay. I would like to be able to charge the prices quoted by the questioner, but we're focused on what our customers can afford. You can get a great authentic sourdough loaf at Tesco for £1.60 and it's a delightful item, full of flavour.

Peter Baker, Session Chair Please show your appreciation for Gordon's excellent presentation and answers to the questions.

On to our final session. Matthew Jones trained and worked as a Chef before getting into bread. He founded Bread Ahead in 2013 with a mission to bring quality baking to the masses. In creating Bread Ahead, Matthew achieved his goal of making superb artisan bakery products, which he loves doing, as well as teaching baking to both established bakers, and to a new generation of baking enthusiasts. Please welcome Matthew.

The Bread Ahead Bakery and School by Matthew Jones, Founder and Director

I loved my career as a chef and really embraced it. Between 1986 and 1998 I honed my craft cooking skills working alongside well-known names such as Shaun Hill, Simon Hopkinson and John Torode, in restaurants which included Bibendum, Pont de la Tour, from when it opened, and Quaglino's.
I became Head Pastry and Bakery Chef at Mezzo, where I started playing around with bread and really enjoyed it. So much so that, at 30 years of age I opened a bakery on a wing and a prayer called Flower Power City, which was based in Hoxton. It was a big success, serving over 100 customers daily across London and more at a second shop in Kent. Over the following years Flour Power City gained a reputation for excellence, featuring regularly in food journals as well as on prime time TV. I ran Flour Power City for twelve years before selling it.

In 2013 I opened Bread Ahead in the Borough Market, which has been an amazing journey and success. It's coming up for five years old, so still early days really for Bread Ahead.

We took a disused bit of space in Borough Market, see picture. It was a good building in a great location and my original speech to the Borough Market managers on what I would deliver with this space, since everybody wanted it, included:

- we are going to give you a community bakery.
- we are going to teach people how to bake bread
- we're going to wholesale bakery products
- we're going to retail bakery products

I was promising everything to get the unit. I don't know how but somehow it has all worked!

I had a very good team from day one. Justin from St John Bakery, a very good baker, came on board and I attracted a few good people. There we are in the picture building the bakery. It seems like an eternity but it's just 4.5 years ago. We had an old oven that we rebuilt, and we used reclaimed fridge panels to build the walls.

That is our first batch of sour dough bread in the proving baskets

The Business fundamentals of Bread Ahead are:

- sourdough bread
- doughnuts
- bakery education

Overall, we're about delicious food, since that's my background as a chef. The most important thing is that when someone eats one of our products they go 'wow', that's incredible. That's really the most important thing that happens, in my mind, to the customers. They have this eating experience, when we convert them to our products and they just go, "you know what, that is just the best thing". They stop what they're doing, this is just wonderful, they're in that moment and we really capture that. It's a lovely thing.

I've always drawn on an analogy between good bread and good coffee. Once someone has a very good cup of coffee, they never go back to drinking bad stuff, it's a conversion, they make a conscious decision to only drink the good coffee and they will go out of their way to get it and are not concerned about the price, it is worth it to them. I know there's this thing about paying £4 for a loaf of our sourdough bread but it's a lot of work to make the type and quality of bread we sell. My payroll's 40%, it's huge. If you look at the payroll % of a craft bakery on sales, it'll probably be in single figures, so very different.

There in the picture they are our beautiful white sourdough loaves. We still use the same sourdough starter from when we founded the business. It's predominantly white flour with 5% rye. We celebrated the start of Bread Ahead by mixing our mother starter in Southwick Cathedral next door to us. It was a great location and a great story and it's real. Bruce Saunders, who was the Dean of the Cathedral at the time, held a little service for us to bless the starter and all the locals were there, it was wonderful. We served some of our bread and it was a lovely way to start a business.

In the picture a typical look at our stall on Borough Market. We're good at displaying food and I spend a lot of time looking at what other people do. There are some very good food operators around. If you look at the likes of Ottolenghi in their early days and what they did, they really started it, being very good at presenting food and making a statement with food.

Likewise, when I worked with Conrad, he also was very good at presentation. He had an amazing crustacean bar in the early days that was loaded up with amazing food. You just couldn't walk past it without buying something. We like to do that, visual merchandising to impress our customers. They take photographs, it's on Instagram, this is the thing now and it tastes great.

In the picture is an example of how we pile our bread up. We have three types of cheese sticks. We really go for that. Not a lot of product types, we don't do a massive bread selection.

We like to focus on the core elements of the business which is flavour, a lot of sampling, a lot of tasting samples. People love that, they love to eat things because often they're intimidated. We Brits are a funny old bunch and we're intimidated by food!

I was born in 1969 so I grew up through that era of the most terrible food. My dad used to come home from work at his lunch break and have a pot noodle. It's not even food, it was so shocking. My mum was quite adventurous. She was a good cook and we travelled a bit. We used to go to France once a year. We've come so far from that in the UK now. Food has developed so much as an industry. When I was 16, I left school and started training as a chef. There were only a few places to work then and now there's just hundreds and hundreds of amazing restaurants to work in and they now have problems finding enough staff!

Now we're looking at doughnuts in the picture and they have been a phenomenon in themselves for us. They are essentially a doughnut enriched with butter, a brioche style doughnut, very rich, very buttery, very delicious. The doughnut itself is a thing of beauty. We overfill them with custard, with delicious things like caramel and honeycomb. We make the fruit compote for the doughnuts with fresh berries, blueberries, and they are the showstoppers. They are the thing that people just love. They're halfway through eating a doughnut and they're just "ah, it's wonderful", it's like a childhood moment, it's a lovely thing. They have a life of their own these things. They're almost a separate part of the business. On Instagram we have a huge following for doughnuts, over 50,000. If we launch a new flavour, there will be a queue for them, it's phenomenal. They've got a big following.

We had a visit a couple of years ago from Tom Kerridge of the BBC, who did a feature on our doughnuts and for six weeks after that, it just blew us out of the water. It was people coming from all over the country, it was incredible the effect of TV on our business, it is so powerful as a medium.

Our Baking School A very different part of the business is our baking school. I had put three core functions of the business to the Borough Market people. We will wholesale, we will retail, and we will have a bakery school. The bakery school side of it was a complete unknown. We set it up about six months after we opened. A table in the bakery, some provers and an oven and we invited a group of 12 people in to learn how to make bread. It was really disorganised, and we made it up as we went along really. We did French baking as the first course, which was croissants, and a brioche and a baguette, three products in the three hour course. We had some products pre-prepared and it basically worked. We got a very good article in the Financial Times about our baking courses and it was just like lighting a touch fuse, the thing just went crazy. Before we knew it, our 12 people a week became two courses on a Friday and two on Saturday and this was in the bakery at the time and it became chaotic, we just couldn't keep up with the courses. We kept building it, employed more teachers and they love it. I suppose the nicest thing was that it was a way to bring the public into this immersive baking environment. We couldn't bring them into the main bakery because it's just too problematic with health and safety and they'd just get in the way of the bakers doing our normal production.

So, we built a dedicated teaching area separate from production, where we could look after people on the courses and teach them. We could explain about sourdough, yeast life cycles and whatever, and they love that. They're just so hungry for knowledge. It's great to teach people who want to be there, they're hanging on your every word. Our courses are based around domestic baking, basically things that you can do at home, and you can make very good products. I like to say that we extract little pockets of knowledge from our industrial bakery and put that into a domestic environment, so they can really get professional bits of knowledge.

This is us selling bread on our market stall.

This is the first shop we did, in Westfield in Stratford. They said do you want this space as a pop-up and I said alright, we'll give it a go. So we built this little shop. It was an interesting thing. We did it for a year. We were down in the food court where Waitrose is down there in the Great Eastern Market. It was okay but it was a very different to the Borough Market. It gave us a presence and we learned a lot from doing it. But you realise the beauty of having a market stall, with basically just a table and very little other costs. With shops you've counters, coffee machines and various other things and service charges, it doesn't seem to end. I spent a lot of money on the shop and enjoyed running it but we probably didn't' make a profit.

I love travelling and spend quite a lot of time in Spain and in France. This is Boqueria for example in the picture on the left. That market was amazing. It's twinned with Borough Market and we do a lot of work with them. One year we took a load of chocolate brownies and crepes down to Boqueria and we sold so much stuff there. The Spanish just loved what we were doing. It was a lovely thing to do and I brought some of their traders to London. It was a lovely exchange of products and a lot of fun.

This is Morocco at Christmas in the picture on the right. This bakery is a thousand years old and it's right in the middle of Marrakesh. It was a proper community bakery in the days when people made dough at home and brought it to the bakery to be baked in the communal oven. It baked lovely bread, as can be seen in the picture.

Products We really stick to the basics. Good white sourdough bread, a good doughnut, a good baguette, a nice fresh French croissant with French butter.

At Christmas we do very good mince pies, see picture. They're full of flavours, it's fresh orange zest, dried fruit, and lovely spices. We do a very good hot cross bun, which is also in the picture. As a bit of a play on things, we tried a hot cross bun doughnut, so a bit mad as well. That was a Heston Blumenthal moment on the cooking side for me but it really creates interest in the business, to do this kind of unusual stuff. But if you compare them like for like, we probably sold 100 doughnuts and thousands of hot cross buns. People love them.

It's interesting that in the food industry in general, you can do all these mad things but at the end of the day, we find that customers always come back to the well-known classic products, such as a good cheesecake. We did Millionaire Shortbread recently on the stall and it sold well because customers know what they are and they're safe with them. So that was a bit of fun, the hot cross bun doughnut and also we try and keep it restricted to quite a small window of time. So the hot cross buns this year we did them just for a week and that was it, but it was really nice to do that and not to extend it out. I can see why but we just didn't. Likewise the mince pies, we started them in the middle of December and then on the 31st we stopped them.

That's our next shop. We opened in Pavilion Road in Chelsea, an opportunity came along. The Cadogan Estate very kindly phoned us up and said, would you like to have this opportunity? Basically, they'd converted a row of shops just off Sloane Square into food retail. Literally I was on the phone to them about 11.00am, I was there within half an hour saying yes!

We built a bakery café, all sorts of things and we also opened a stall there and that's been brilliant. We played around again with the model, we've learned a lot with what works and what doesn't work. We

initially gave too much space for the bakery and not enough space for the customers. We pulled it apart, we've rebuilt the counters, we've done all sorts of things, all sorts of learning but it's a brilliant location. The difference is you've got an audience there in Chelsea that's predominantly a lot of Europeans, a lot of Italians, a lot of French, a lot of Germans. They get the product, they just get it, they understand, they want those different things. They want the burnt bits, they love the crusty stuff. So that's been really good for us and it's a lovely little community, it's by a school. It's been a great opportunity and quite rare to find something like that in Central London at a decent rent.

We got into coffee, it's a big part of our business on the retail front. We're looking at 35% of the business in our shops now being coffee, it's a huge thing. I completely underestimated it in the beginning and since then, we've spent a lot of time on coffee trading. We buy our beans from a well-known company and in turn we supply all of their shops. We've learned a lot, invested in decent machinery, we've got really good coffee grinders, see picture, top of the range ones and we find it pays. If you think such a small space produces such good revenue, it'd be crazy not to take it seriously. We do a very good hot chocolate, chocolate and milk put together, nothing else. But the coffee side of it seems to marry perfectly with that really good quality French patisserie. The beauty of Pavilion Road is that literally we're taking croissants out of the oven and onto the counter and it's a wonderful opportunity to be able to do that.

We've had a lot of press. It's been really encouraging. We've been in quite a lot of the papers and we didn't have a PR company for the first three years and then I gave it to a PR company for one year. We've parted ways now, we were getting too much but it was great to be put centre stage with the right audience. There's the FT and other newspapers in the picture. The press coverage has been a real boost for the school, and for Borough Market. It's about location really for our shops. For sandwiches and coffee, you need to be near tube stations basically.

For the school it's a different thing, since the students will travel and they do. We did a bit of research on Paypal, where we take our bookings. Last year we had people visiting us from 48 countries for the school. So it's got real reach, loads from South Korea, huge audience from there, from the States, from all over.

Sandwiches are another big thing. We've played around with them a lot. The biggest ones by far are these in the picture, basically like a brioche slider, quite small and we over pack them. We fill them up with loads of smoked salmon, lots of proper mozzarella and loads of flavour, so quite than the ubiquitous prepped sandwich for example that we've all grown to love. But we do quite a different thing, again it's very flavour, lots of pesto, lots of fillings and we seem to have no problem with charging good money for them!

Then another project. To give us more dedicated teaching space, we built in a mezzanine level over the entire bakery, while we were working in it! It was horrendous. We probably had 3,000sq feet, downstairs, so we doubled it. We built an upstairs mezzanine to house the bakery school, because it was too busy downstairs. We built two more classrooms. It was meant to be a six week project, it got delayed, overrun, it went over budget. It was a nightmare and at the same time we were building this new floor, we were making all the bread downstairs. That was very challenging at times, but it was worth it. Here I am in the picture, extolling the virtues of handmade bread to a group in our newly fitted out upstairs teaching area.

I think the overwhelming thing with our courses is people just really enjoy it. However, I don't want them to be disillusioned about the bread industry, which hard graft and not for the faint-hearted. It's a bit like the cooking, there's no getting away from it, it's hard work and it always will be, it's physical. It's lovely to have the teaching side of the business, where we can have a little bit of fun, but I always tell people when we're making one focaccia on the course, it's quite a different thing when you have to make 400 of them!

We've done some little pop-up stalls, such as the one above at the Real Food Festival at King's Cross. We've done a couple of festivals last summer. They're nice to do and we go to places like the Wilderness, Secret Garden Party, and they're a bit of fun. We can just take a tent up there for the day and sell our products. I don't do farmers' markets. I did with Flower Power but we've got Borough market now and that's enough.

Someone mentioned distribution earlier. We supply 120 shops in London plus restaurants and coffee bars, which are all within two or three miles of us, so they're all nice and close. We don't need to go further than that since there's enough business for us nice and close.

Left, Prince Harry visiting us, and right, Prince Charles and Camilla

We had the horrendous London Bridge terror attack on the 3rd June last year, which also involved the Borough Market. We were closed for ten days due to it, which our insurance didn't cover, so we lost a lot of money. We got a lot of support afterwards from the Royal Family, with Prince Harry and Prince Charles visiting us when we reopened. Prince Charles with our mince pies. He was coming for a visit and I was going to meet him outside but when I invited him in, he came in straight away. As soon as he saw them he was all over these mince pies. The bakers were delighted, they absolutely loved it. The response to Prince Harry and Prince Charles' visits from everyone in Borough Market was overwhelming and it was amazing how quickly we all bounced back. Within a fortnight it was as if it had never happened. That that was the great British spirit kicking in.

We opened two shops at the end of last year. We opened a pop-up in Mayfair. It was meant to be a temporary site but we've ended up staying there. We also opened a new shop in Beak Street, see picture. It took us about a year to negotiate this site, with that old adage, location, location, location, and this is the right location. We're right on the corner of Kingley Court and just off Regent Street, so it's a fabulous location. Monday to Friday we've got all the office workers and at the weekend, we've got the shoppers, it is just incredible. From day one it was worth the cost of the site. We approached this one a bit differently. In the past I've always tried to do everything myself, but I did it right by getting a designer in to do this one. It's just under 1,000sq feet and we've got 52 seats, proper coffee, a nice little kitchen, a bar and loads of space to do a good display on, see picture below. We've taken things a step further and developed nice vegetable and fruit salads to add a healthy element to what we do, although we also sell a lot of doughnuts and coffee.

Focaccia These little beauties, our three varieties of focaccia, again visually, regional merchandising, which really works. It's a bit like our doughnuts, it's that colour, it's about having great taste, customers look forward to eating them. Our focaccias look amazing, and jump off the shelves.

Office Deliveries This is the latest project we're working on, our Bread Ahead kitchen, so we're doing office deliveries. We get asked a lot since we've opened Beak Street in Soho for local office deliveries. We're doing little mini sandwiches and boxing them up and that's a big thing. We can do really well here.

That's typical product displays in the four pictures, lovely, colourful and fun and we've piled them high. All these little mini snack things are great, absolutely flying off the shelves. We sold 300 from the bar the other day, it was unbelievable. These things go in cycles. You pull some off because they are not selling and then they start again but those shown are on the upward trend at present, which is really pleasing.

Peter Baker, Session Chair Thank you for your wide ranging and passionate presentation Matthew. Are there any questions for Matthew

Question A lot of the presentations today talked about lower salt, lower sugar, lower fat. It doesn't seem to be in your area. Is it something that you are thinking about?

Matthew Jones That's an interesting question and I was going to touch on it in my talk. When we opened Beak Street, I was very conscious of it and we designed part of the menu that was free- from. We did a gluten free waffle with a berry compote, dairy free, gluten free, everything free. We did a porridge with chia seeds. I brought in a chef specially to develop this range and the products just didn't sell. Literally we didn't sell one. I think we're just known for good quality bakery products that are not free-from and that's why customers come to us. We often get asked if we have gluten-free and other free-from products, and when we say no, they end up buying some of our products anyway!

Peter Baker, Session Chair Please show your appreciation for Matthew's excellent presentation. *Applause.*

Paul Turner, BSB Chairman I opened the conference by saying that we will have a full day of excellent presentations and this is exactly what we have had, a wonderful variety of papers excellently presented. My thanks to all the speakers for this, and for the welcomes from Professor Patrick Callaghan and Vice Chancellor David Phoenix. A special thanks to Session Chair Peter Baker for keeping the presentations running smoothly and to time, and for coming in with appropriate questions for the speakers when required. Our thanks to the staff and students of the LSBU who have helped to make our conference so successful and enjoyable. Finally thank you, our members and guests, for your attendance today. I look forward to seeing you at our 2018 autumn conference, when a new BSB Chairman will be taking over from me. Have a safe journey home.

Update Bread Ahead plan to open a Bakery Academy to help tackle the shortage of skilled bakers in the industry. For more information contact Chris Malec via chris@breadahead.com

2018 SPRING CONFERENCE PICTURES



On the eve of the 2018 spring conference, some speakers, guests and committee members attended a mini BREAD AHEAD Italian bread course. As you can see above, it was thoroughly enjoyed by all, with expert guidance from the Bread Ahead tutors. Since what we made was what we were to eat later, we had to do well!

David Powell, a graduate of the National Bakery School, has a classroom in his name.

Above the very impressive Foundation Stone.

Delegates enjoyed a tour of the school during the lunch break.

Beverley Dunkley is well prepared for the start of her presentation.

David Hall, who does a lot for the NBS students, Chairman Paul Turner, Alasdair Smith, Scottish Bakers and BSB Vice Chairman Jane Tyler.

A student's wheatsheaf is taken from the oven.

2018 AUTUMN CONFERENCE

Richard Hazeldine, BSB Chairman Good Morning and a very warm welcome to the British Society of Baking's 2018 Autumn Conference. I would like to give a special welcome to our special guests Colin Lomax, President, Craft Bakers Association; Ronnie Miles, President, Scottish Bakers; Christopher Freeman, Second Warden, representing the Master of the Worshipful Company of Bakers; and students and tutors from University College Birmingham. Mike Roberts, Chairman, Federation of Bakers joined us last night but sends his apologies for today, as does Jimmy Griffin President, ABST, and Joe Street, President, AIBI.

For those of you who were at the AGM yesterday you will have seen me present our 2016 – 2018 Chairman Paul Turner with his Past Chairman medal. I think it is worth thanking Paul once again for all he has done over the last two years as Chairman of the Sociery. *Applause.*

At the Conference Dinner last night, I had the great honour of presenting Honorary Membership awards for special service to the BSB to: David Roberts, who joined the BSB in 1971 and was Chairman in 1981/82; Jim Brown, who joined the BSB in 1974 and was Chairman in 1988/89; and Neil Jackson, who joined the BSB in 1997 and was Chairman in 2004/2006. Unfortunately, Neil could not attend the conference due to a hospital appointment and his Award was accepted on his behalf by Past Chairman Paul Turner.

I would now like to ask Paul Weston to read the Society's creed. *Paul read the creed.*

It is now my pleasure to introduce our first Session Chair, Keith Houliston, who will be well known to most of you. Keith is a past Chairman of the society and has been the driving force behind the BSB Golf Day for many years.

Session Chair, Keith Houliston Good Morning. **Our speaker,** Stuart Spencer-Calnan leads from the front at Roberts plant bakery. He enjoys building brands and implementing successful leadership strategies. As MD, he believes that a company's people, products, packaging and service should all stand out significantly from the competition. Stuart went from Manchester Business School to naval college and a successful naval career. From there to the food sector. Before being MD at Roberts, Stuart worked for Heinz, Giles Foods and Warburtons

Roberts Next Generation Bakery by Stuart Spencer-Calnan, MD, Roberts Bakery Ltd

Imagine your biggest customer is on his first site visit. You've got a new Category Director, the Senior Buyer and the Buyer. You have the preliminaries, the introductions. You talk about whether Manchester United's better than Liverpool, whether it's better than Manchester City – just the normal preliminaries. Then you have a good introductory meeting and then you go and do a site tour and during that site tour, Mike Roberts breaks open one of our 800g white loaves and the Senior Category Director says that is the best quality product in the market, so you'd think it would be going well. We come back for lunch and a bit more banter. Then we start talking about our joint business plans and what we were really interested in was getting more store distribution and selling more of our 800g white bread. The conversation continues and then you get to that moment in time where the Category Director picks up the Roberts green pen and says "I'm having to look at the colour of this pen to remind me of which bakery business in the North West I am in because what we were talking about is quality, what we were talking about is family, what we were talking about is heritage and service". The conversation then went to: "we don't believe that you are differentiated in the market." That's quite hard to take when you are driving a branded business, but it got worse! When we then started talking about getting further store distribution with our products, what the team from our customer was saying was: "we like you, you are a good brand, you are a good business but you are a complexity to us", and that again is hard to take.

We are undifferentiated and a complexity because what we want to do is sell more white bread and what that means is more share steal and more complexity for that retailer to handle. A third key message we got was that we need to be adding value as a brand to the product category.

When your leading customer says you are: undifferentiated; you are a complexity; and you are not adding value to the category, it's time for you to think about what you are doing. And that was one of those moments in time when I and the team, and Mike Roberts was there as well, had to look at ourselves and say, "we need to do something fundamentally different in this market to win business going forward!"

What I'd like to do over the next 25 to 35 minutes is talk to you about the journey that we have been on to answer that challenge, and our move to becoming a challenger brand. I will talk a little about the Roberts family and the business, a little bit of context, the bakery market in 2017, and the real need for change and then go into challenger brand territory; what we did and why we did it. Then a little bit about life as a challenger brand.

Slide 1

Roberts have been shaking up baking since 1887. Robert Roberts started the business in 1887 and we're 131 years old now. In 1952 Frank Roberts and Sons was formed and that was Bernard, Alan and David, see right, and we purchased our current premises in Rudheath in Northwich.

In 2000 our iconic cooling towers were built and it's interesting how many people reference those cooling towers and the smell of bread, as the start of their holiday in North Wales. Then 2017 and our move into becoming a challenger brand and latterly, the launch of our Exploratory.

We very much remain a family business, see slide 2. Mike and Lindsay are at the front of the picture, they're heavily involved in the business on a day to

Slide 2

day basis. The really interesting thing around the Roberts story is "what is it that makes them do what they do"? Why do they do it? What's the DNA? And when we have got underneath it, they are quirky. In fact, some might say very, very quirky - sorry David! They are curious, they're very creative and whether that's about investing in a new piece of kit, whether that's about starting a new business or whether that's putting out new products, that is in their blood, that is who they are and they have a real passion for bakery that's underpinned by a real belief in quality and community, whether that's the local community or the wider community, it is something that's fundamentally important to them. Can you just remember that DNA, because it's really important as I move into the story of what we have done over the last 18 months, because that's a really good bedrock to build a challenger business on.

Slide 3

In a market context, slide 3 is early 2017. In the top left-hand quadrant is the ongoing long term decline in wrapped bread products of which we are all aware. I joined the bakery business 15 years ago and this was the first graph that was presented to me. It's a given fact. Going back to 2014, something fundamentally changed. Due to the battle between the major retailers and the discounters Aldi and Lidl, the price of white bread with the market leader was dropped to £1 and that had a fundamental effect, because effectively, everybody follows suit. All brands were pretty much dropped to £1 and this has commoditised the wrapped bread category. I don't know about everybody else in this room but when I hear that bread is looked on as a commodity, it really winds me up. No bread, no sandwiches. No bread, no toast. No bread, no bacon butties. No bread, no footfall. We therefore have got a real job to do in terms of putting value back into this category.

Health is a mega consumer trend. Unfortunately, bakery in terms of bread, doesn't have a particularly healthy image and the top right-hand corner of the slide 3 includes 'white bread equals death'! That was taken from an article that was talking about the top five things to avoid for a long and healthy life. Number one was alcohol, number two was cigarettes and number three was white bread. I think everybody would agree, that is a gross overstatement but that is what some people think.

Moving into the bottom left-hand quadrant slide 3, innovation has not been good enough over the years. I think it's very clear that, from a branded point of view, we haven't stimulated enough innovation and enough interest to stop that decline and put bread back into a growth trajectory. At the beginning of 2017, we put our hands up as well and said, yes, we're one of the brands the above covers. We haven't brought enough excitement to the category.

Then you come into the bottom right-hand quadrant of the slide and that's an Ipsos MORI brand image map for the three big brands, plus Roberts in the centre. This pretty much shows that consumers are looking at all the brands in the same way, which is not surprising. We're a traditional category, we're built on heritage, we're built on quality, we're built on service. But in terms of inspiring the category, somebody has to break out from that in order to challenge that tradition and that heritage and look at making the category relevant to the next generation.

Slide 4

So where were we in early 2017? Slide 4 shows our iconic cooling towers. David Roberts, who is here today, was the instigator of this and it was a real piece of innovation at its time because the thought behind it was not to take the factory out into the world

but bring the world back into the factory and that's a good principle. This is where we were. The fourth largest brand. If you are a consolidated customer own brand, we were the fifth largest brand in the market and we had 1.7% of total bakery, so a very small player. We are built on quality, heritage, family and service – constant themes in the baking industry. But we were a regional player trying to break out of the North West and we were predominantly driven as a white bread business.

There was a very clear need for change. I come back to the green pen and the feedback from our customer, and it wasn't just that one customer that was giving us that feedback. Whenever there's a need for change, you have strategic choices. A strategy is as much about what you are not going to do as about what you are going to do, and we made some very clear choices at that time which were: we're not going to sit back and take it; we're not going to carry on being undifferentiated; we're not going to be a complexity; and absolutely we are not going to be a supplier that doesn't add value to category growth. So our choice was to change and fight and that was the path that we chose.

Slide 6

We set out very deliberately that we wanted to challenge the bakery category and the bakery industry as shown in slide 6. There are some great challenger brand examples there in BrewDog, Tyrells Crisps and Dorset Cereals. They're all about doing things fundamentally different to make their category relevant for the current generation. A challenger brand is defined primarily by a mindset that: it has

Slide 7

business ambitions bigger than its conventional resources; and it is prepared to do something bold, usually against the existing conventions or codes of the category - traditional, heritage, service, quality. These are the things that we wanted to set about challenging in order to make ourselves and the category relevant for the next generation, and this is what we did.

So on April 14th 2017 at 2.23 in the offices of Eversheds in Manchester, not that it's burnt into my mind, I and three of my colleagues who are here today, Matt, our Sales Director, Megan, our Marketing Director and Alison, our Innovation Director, made a decision that said we had to move and we had to be able and ready to launch into the market in September 2017 with a new brand, new packaging, new products and a cut through communications package that was going to announce our arrival in a very, very different way. So, a five-month target – easy!

At the time we'd worked through our brand strategy, which was built on insight and data, so we were very clear in terms of our growth leaders. Concurrently we had activity in terms of how we were going to position ourselves in the market but at that point we had no brand and no packaging. We had some ideas of what we wanted the range to be but it wasn't confirmed. At that point in time was born what we call, 'we can if'. It's a new behaviour, it's a challenger behaviour, that fundamentally says 'no' is just a request to go and get more information. When you've got five months to go to position yourselves in the market in a very different way, whatever gets put in front of you as an obstacle, you've got to find a way to get over it very quickly. Ultimately sitting below that though comes an absolute single-minded focus to do everything that you can to win in the market.

In the next couple of slides, I'm going to share some of that journey with you and some of the more humorous events that we had to overcome but what I do want to assure you is that we had a very clear plan. There was very good project management but at the same time, we took the Roberts organisation on an absolute rollercoaster of a journey!

Slide 8

18 weeks to launch in slide 8. We started to get underneath the detail of the challenge as shown on the above slide. We needed new artwork, new products and new teams. We had to use new technology, new materials, we wanted to go into paper bags, we had 27 new ingredients to work with and five new suppliers. Then you start to make the insight and the risk informed decisions. On 25th May we reserved our bloomer paper, although we had no design, we had no creativity, we had no orders. On 31st May though we got our first order from Morrisons, so we were starting to get ready to go but again it's one of those moments, keep calm everybody, we know what we're doing, we can do this. 14 weeks to launch in slide 9, as we moved into June we really started to get into 'we can if'. Everybody was absolutely delighted when our bloomer tin arrived on site. All of you that know about what it's like in terms of developing new products, we had one tin at that moment in time and I can tell you there was nothing more precious to us than that tin. Every time it went on plant, everybody in the organisation knew it was going round the track! It was tracked, it had Securicor on it because we couldn't afford to lose that tin and it went round the track a lot of times because we had to do a lot of baking to get samples to sell into the trade.

Then it's one of those bad moments – you thought you'd secured the paper for your bloomer bread and then you've lost it. Unfortunately, our supplier said they wouldn't be able to deliver on time and again that's one of those moments when we started to have a look at things very, very differently. Could we use different grades? Were the grades close enough? We identified a paper. It says, stole on the slide. I'd like to think we borrowed it from the sugar industry but it got us back on track which was a good job because on 23rd June, Asda confirmed listings of all of our NPD. So very important that we kept that momentum going.

Slide 9

Slide 10

Ten weeks to launch in slide 9. We thought we were doing well at this point. We thought we'd started to overcome some of the problems and we were tracking things closely with our suppliers and we knew we were just about to go into the first print runs of the bloomer bag. Two hours before the button was to be pressed on the machine, production phoned up and said stop the press, we can't slice to the right nutritionals. Two hours later, after a lot of cross-functional work, we pressed the button with the printers because we'd worked through the problem at great speed and with a great 'we can if' mentality.

With four weeks to go, there was a real test of our resolve. We were using liquid tonic as the flavouring in our lead product for the campaign, which was a gin and tonic fun bun and we found out that quinine in tonic is fine but when you put it into a product and bake it, quinine becomes carcinogenic. With four weeks to go we couldn't use our lead product for our campaign. There was then a tremendous amount of work done to get the flavouring that would give us the taste we wanted but without it being carcinogenic. We succeeded but I can tell you that there were some quite stressful moments during that period of time.

Then we get into August, two weeks to launch and the bloomer tins arrive and again I've never seen anything like it. When these tins came in there was picture after picture taken of them. It was like a Royal visit as they were brought into the bakery, because it meant we were nearly ready to go. The last bit of the jigsaw, with four days to go, was when our paper bags arrived on site. Now ordinarily you might go with that if it's a standard bag but at this point, we hadn't tested it, it was a new material, it was a new technology. We had to modify our existing kit to make it happen. It was a 'phew' moment, but it was, 'we can if' and we got there. At this point in time, September 4th, we were ready to launch into the challenger market territory and start our new journey as a challenger brand. I'm now going to play a video which we used to launch it internally to our staff. *Video played.*

On September 4th we launched with our new branding, pack designs, range, mascot (which is the early adopter bird, not a chicken) and our strapline 'embrace the new', which was an invitation to our customers, our consumers, our suppliers, the trade, the press and our own staff, to embrace the new with us on our journey into challenger status.

Slide 11

Then we told everybody about it and we launched on September 5th through the British Baker at the BIA Awards and again that was a real moment that started to test us as individuals, never mind us as a business, because you start to take yourself out there and put yourself out in a very, very different way and it's one of those moments where you start to think "oh my god, are we going to say that? Are we going to do it"?

I would like to read out the very eloquent quote, slide 11, from the editor of British Baker Vince Bamford, who is here today, on our launch. "In a wrapped bakery category that could be accused of often playing it 'safe' when it comes to branding and product development, here is something fresh and daring. From a logo about as far removed from traditional bakery as a logo can go, to some intriguing NPD, the business is certainly embracing the ethos of a 'challenger' brand but radical as it is, at the heart of this activity is a genuine need to add value and excitement to the wrapped bakery category."

And that's what we were about. We were taking it personally in terms of wanting to start bringing something to the category to make it relevant to the next generation and start adding value back to it. And we went with our lead products, our new products, our bloomers, our fun buns and our ready-to-rolls, and the reason we were doing that was yes, we had a core range that was a big part of our business but we needed to divorce ourselves from it in many ways and start to put ourselves out there with a new brand and a new set of products that put us into a very different category.

Slide 12

We then started telling everybody else about our relaunch, some really stunty and disruptive media activity, slide 12. We focused on our nine new products to drive awareness of the rebrand but at the same time we had to be cautious. We have very loyal consumers and very loyal customers in our heartland and we had to transition them, through our 800g loaves, so that they came with us on our journey.

We then had a very targeted digital campaign and whether that was with the press, consumer press, trade press, whether it was social media, again it had to be very disruptive. It was using our website, Facebook, Twitter and Instagram to take people through our journey from where we'd been to who we were now and our relevance in the market. We used a lot of 'out of home' because again you get high footfall and again that was twofold. For the first 11 weeks, we transitioned it, so we had old imagery, new imagery and from 11 weeks onwards, we just went with the new brand and the new products and

Slide 13

we also started getting into the territory of some stunty and disruptive PR activity which again is new territory, slide 13.

Our social media promotion was targeted at a specific age group, which unfortunately I am outside, so I never saw it for real. I'm just going to play you one of the videos we used on social media and video on demand, to give you a feel for how we were expressing ourselves and the tone of voice that we were using. *Video played*.

Bloggers It's really interesting watching these 25 year old bloggers because that is their job, that's what they do and the reason that they were there, if we're honest, is they were coming for the event but when they started engaging with us and they started to get an understanding of what we were doing, that's when it became really, really powerful in terms of communicating with people in a very, very different way. One of the bloggers, Unilad, posted something that went viral and that's what you are really looking for in terms of cut through communication.

Slide 14

We then opened our Exploratory, slide 14, and we have touched on how important innovation is to this category. I know in this room there are many people who believe in innovation and have made investments in innovation centres, but we were

Slide 15

very clear. This is our Exploratory and is about making new ground, and we are going to use it in a very different way in order to have a two-way communication with our consumers. Whether that's through our website, whether that's having people on site, or whether it's having our customers there, it's just a really powerful way of doing it.

You can see the vibrancy with which our Exploratory has been decorated in slides 14 & 15 We used an internationally renowned street artist called Mateus to do that. We also had him spray paint the livery of one of our vehicles, slide 15, which again is a very different way of putting yourselves out into a very traditional bakery category.

Slide 16   Our sky high promotional tea above the Etihad Stadium

The first 12 months fundamentally repositioned the brand. We started with a brand that was positioned around family, tradition and heritage and we have ended up with a very different brand, which reeks of modernity, innovation, vibrancy and colour. We achieved bloomer distribution in 250 Morrison stores nationally, slide 17. If you think back to the beginning of my presentation and the green pen, where we couldn't get any new store distribution with white bread, we have had some cut through here with Morrisons and got national distribution.

Slide 17

I'm delighted to say that we have now had two further national listings agreed, one with Asda which we have now started to supply in 230 stores across the UK, and one that's coming online in January.

We won the top product launch award with The Grocer for our gin and tonic fun buns campaign, slide 17, and we were absolutely delighted with that because that was product for product sake and it did exactly what we wanted it to do in launching the brand into the market, and into the category in a different way. It's a great accolade for a business that's been around for 131 years but has never had the pleasure of receiving an award like that. From the moment that we launched at the BIA in September 2017, this opened up conversations with our customers that we were just not being able to unlock previously and I'm glad to say that that has continued to happen because it is so important that you've got that good dialogue going with your customers.

Slide 18

As we went through the run up to the rebranding and the repositioning, we had a lot of dialogue with our customers so that they knew exactly what we were doing but fundamental in terms of working with them to help unlock category value growth. Then gaining disproportional share of voice and challenger communications and information, which is critical.

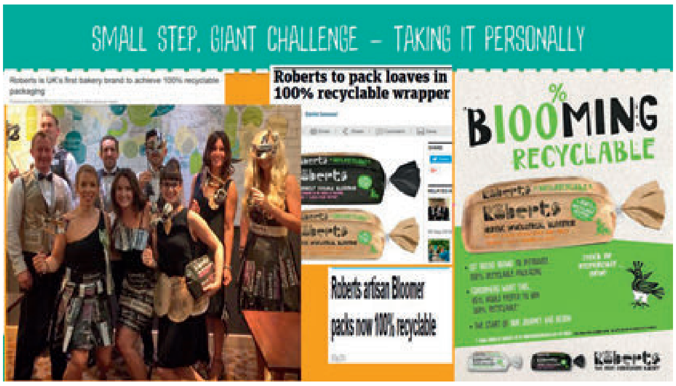
Being fourth or fifth in the market, whichever way you look at it, we don't have vast sums of money that we can put into a TV advert. We have limited funds that we have to use in a challenger way to get the maximum impact out of it and we're pleased with that. We think that we have got to a point that we are getting breakthrough and we are becoming thought leaders and what we're seeing is some fellowship in the category, which is a great accolade to have. So that's the first 12 months.

Month 13 was our second Grocer award and this is the one that we're really pleased with too, because this was about a whole organisation working together under extreme pressure, under extreme speed to get a product out into the market that has done the cut through for us, has got us national distribution but is also being recognised in the trade and we're absolutely delighted with that.

Then we move into September this year and being the first to market in the bread category with 100% recyclable packaging, slide 19. Now the key point here is it's 100% recyclable at home. You eat the

Slide 19

bread, then dispose of the packaging in your paper recycling at home. You don't have to save up the packaging and take it to a recycling facility. It's about us being first to the market with this. That's what being a challenger is all about. It's a small step, we're very aware of that. We have other products in our range that still use the existing plastic bags but it's about making a step. It is not about pledging, we are not big enough to make a pledge, we're about doing. We're saying: "why would the baking industry not want to do this, since it can positively help the environment and recycling. That's a challenge we very deliberately made at the BIA Awards, because it was an opportunity for us to create some noise.



Slide 20

Slide 20 shows the Roberts team that went to the BIA Awards this year and every one of us had paper on, some of us had Roberts tattoos on and that's about taking it personally because you believe in what you are doing.

Slide 21

With life as a challenger brand, you can't go back once you've taken those steps and you've had those, 'oh my god' moments. You have to keep going if you say you are going to bring value to the category and you are going to challenge it, and that needs a lot of single-minded focus to do it.

It is a huge organisational change – you are putting yourselves out externally in a very different way but you have to live it and breathe it internally, and that 'we can if' challenging behaviour has been a fundamental step in our ability to do what we have done.

In the first 12 months you've got to continue to believe, because there might be things that are outside your control in the category, in the environment, that really test your P&L. For us that was commodity inflation, regional pricing, loss of store distribution and range rationalising in the major retailers. But you have to live with it and keep your belief.

A key thing to winning your customers' and your consumers' hearts is to learn and to adapt quickly. We have maintained a very good dialogue with our customers, and we wouldn't be doing that if we hadn't done what we have done.

Slide 23

Lastly, you've got to take it personally and I think the one thing that I've learned, and I'm sure if you spoke to any of my colleagues in the room, is taking it personally, feeling it, having the emotion in it, is absolutely fundamental because you've got to believe in what you are doing when you are putting yourselves out there to challenge the category. It's been a bit of a rollercoaster but a journey that I have moved through very quickly. I'm glad I'm through it but at the same time, we know that we have to keep that journey going and keep working on our challenger credentials and our challenger DNA.

Session Chair, Keith Houliston Wow, fantastic presentation. You set the platform for Roberts Bakery for the next 130 years as an independent bakery. We have time for a couple of questions?

Question Very good presentation, thank you very much. Just one question on the 100% recycled bag, what's it made of?

Stuart Spencer-Calnan 85% is paper and the window is PET, so it's the same plastic that you would have in a recyclable plastic bottle.

Question, Claire Goddard We live in London so where can we buy your new products.?

Stuart Spencer-Calnan Morrisons and 25 Asda stores. That's inside the M25 but again we're just launching in Asda. Looking forward, we will have a campaign to help you understand where the stores that sell our products are located

Question, Lin Carson I worked with a lot of new generational bakers in the US and there always seems to be a pushback from the older generation on re-branding and re-positioning. What was the reaction when you wanted to do this and just a little bit about how was the backroom workings on the reaction from the older generation on re-branding?

Stuart Spencer-Calnan That's a great question and it's a shame that Mike Roberts is not here because he could have helped answer that with me. If you think about who we are and who we were, we were a family business with a great family heritage, a great family tradition and we were positioned in the market as a family business and as a regional bakery and we have very loyal consumers and customers. We have been very clear though, as we have developed the proposition. Our brand strategy, in terms of this is about winning in the market. We fundamentally believe – I, we, my colleagues – that this is the right thing for the long-term profitable success of the business and, ultimately, that is the real driver for what you are doing.

From a family perspective, we have had a lot of engagement, a lot of discussion and one of the key dates that I missed out on there was in the middle of July. If you think about it, that was only six to seven weeks away from the launch and we had the final discussion in terms of how we were going to launch into the market with the positioning and the branding, and that was a challenging conversation. Ultimately, everybody agreed that that was the way that we were going to put ourselves out, as the next generation bakery, not a family business, because that was the positioning that we were taking.

Our consumers! We thought we'd done a brilliant job in terms of communicating on social media, and on pack for 11 weeks, we had the old logo telling the consumer that we were moving to the new logo. We thought we'd done a really good job in terms of not seeing any dipping sales through that transition period and then we went to the full rebrand. We were anticipating that there was going to be an emotional journey for the consumers and some of our local customers and we expected to see a dip in sales for six to 12 months. That was the reality because of the scale of the rebrand but we saw 13 weeks of dip which, in hindsight, we don't think was to do with the rebrand, we think it was to do with regional pricing and then for the last 26 weeks our LFL sales from a branded perspective have been higher than the previous year. So I think we have communicated well, we have engaged as good as we can and yet there's an absolutely emotional journey that people have been through, from family members to consumers, but I think we have gone through that hump now and the real accolade is where the family and their friends who've known the business and been in the business for many, many years say, "we really like the new brand logo!"

Keith Houliston Please show your appreciation to Stuart for a fantastic presentation. *Applause.*

Our next speaker is Stan Cauvain, who has become a legend in his own lifetime, being recognised as one of the UK's leading bakery and cereal scientists. Having held senior positions at the Flour Milling and Baking Research Association Chorleywood and Campden BRI, he has been MD of consultancy company BakeTran for 13 years.

Stan will address three key areas in bakery centred around the need for innovation and technical skills. He will: a) suggest new ways to optimise production capacity and reduce energy costs; b) discuss how bakers can deliver healthier products that meet consumers' taste and texture expectations; c) explain how to systematise the necessary technical knowledge and skills, so each individual company can meet its production needs for products and processes.

Global Baking Challenges and Opportunities by Stan Cauvain, MD, BakeTran

Thank you for that introduction Keith. Legend in my own lifetime! Is this the moment when the legend is stripped away and destroyed? Equally, how on earth do I follow Stuart's presentation? Though ironically, he must have seen what I was going to talk about because we will meet Stuart again in one sense at the end of my presentation. Thank you to the BSB for allowing me to address you and particularly for the welcome that you've just given me.

While many bakeries operate at a local geographical level, my interactions with bakers over the years and around the world have shown that most of the issues that we face are, indeed, global. The challenges are global, even if we find local solutions and implement them within our own individual product environments. So as Keith mentioned, I'm going to look at three issues.

Global Challenges and Opportunities

1. Improving process efficiency and reducing energy costs in bread production
2. Finding ways to make bakery products 'healthier'
3. Developing relevant scientific, technical and production skills in your company

Challenge one is looking at improving process efficiency and particularly it is related to the potential for reducing energy costs in bread making, at a time when all of us have been looking slightly askance at the situation in the Middle East with the Saudis threatening to raise oil prices by throttling back on production. These things are going to come and bite us as bakers. We needed to start thinking about it five years ago, not now but now will have to do.

I'll be talking about finding ways to make bakery products healthier and again Stuart introduced that concept in his own presentation. It's something that consumers look for in terms of innovation but equally as bakers, we are faced with the challenges of how do we deal with the pressures that come to us from people like Public Health England? Do we simply sit back and say, "we can't be bothered", "we don't want to do it", "it's an imposition", "I will do the minimum that we need to do!"

I'm going to contend that we do the opposite of the above and look at it as an opportunity. Let's take the initiative, let's go for innovation and move the game in our direction, in our way, not somebody else's way.

To do that, we need to pick up the third point that I will discuss which is, how do we develop the relevant scientific, technical and production skills? This is an increasing problem and not unique to this country. It is the same in virtually every baking industry around the world. "Where do I get good staff?" is one of the first questions I get when I visit a baker, and I have to say that I don't know. We're relying increasingly on a small and shrinking pool of experts and we're not replacing them. With all due respect to universities and the students that are present today, we're doing something but we're not doing enough.

I come from a research background and when I go around the world, one of the things I notice in talking about scientific information, is that a glazed expression comes over most bakers' faces. What they want is a solution. They don't want me to tell them how the science of their problem works, they want to know how to resolve it. How do I develop new products? How do I optimise my product quality? How do I improve my process efficiency? And particularly, how do I make better use of the information that already exists within my own company? This is not about bringing a high paid consultant like me in to teach them, it's making them use what they have available and I think Stuart very well exemplified that in his presentation.

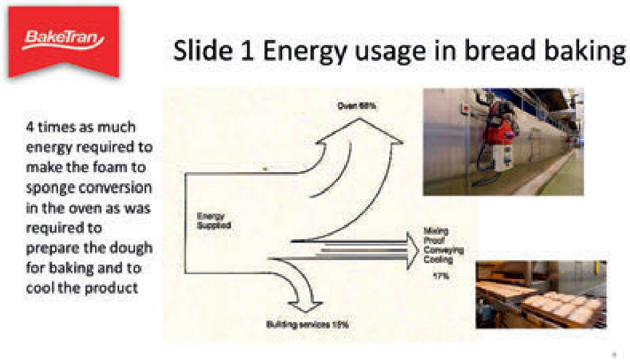
Working with Bakers

To provide solutions for the baking industry which are based on sound technical knowledge.
In doing so supporting:

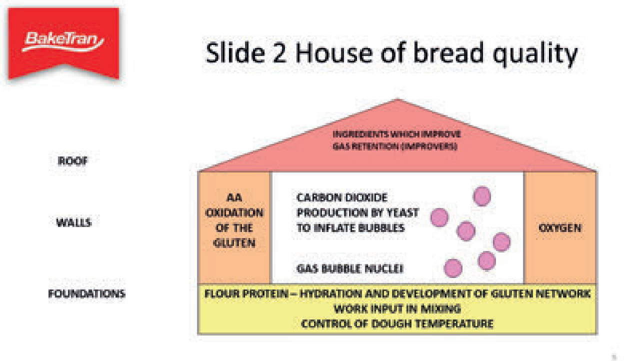
- Optimisation of product quality
- Product development and process innovation
- Improving process efficiency
- Systemising company knowledge

Baking is used for the conversion of pieces of dough into baked loaves of bread, something that we scientists refer to as the foam to sponge conversion. When we have looked at the potential for saving energy in the past, we have quite rightly focused on making the ovens more efficient, making the burners more effective, managing our production so that we have fewer production breaks, and these all make contributions to energy saving. However, most of the energy used by the oven is to bring about the foam to sponge conversion, so what have we done about it - nothing? We carry on baking bread in the same old way, using traditional methods of delivering the dough pieces for that critical time in the oven, in the same way as we have done for the last 50/60 years.

We haven't stood back and had that fundamental re-think. What happens if I change the way I present my dough pieces to the oven, which is where most of the work is going to be done in terms of that conversion process?



For me, the potential for saving energy is at the mixer. That doesn't mean to say we use less energy for mixing, it means the potential starts in the mixer. If I think about what's going on in the mixer, can I find an alternative way for mixing and processing which will deliver a lower energy solution for the bakery? Inevitably I am talking of larger scale industrial bakers, although the principles will work in a craft bakery or an artisan bakery just as well.



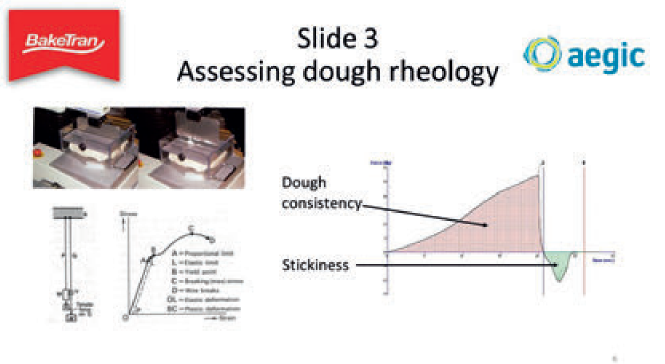
So it is at the front end of the process that we decide on savings, what I call a house of bread quality, slide 2. And just as when you build a house, if you do it for yourself, what is the first thing you start with? The foundations, and you look to build a strong foundation to the house. In our case, the strong foundation is the development of the gluten network, that unique property that we get from wheat flour and with that, control of dough temperature. Think about the oxidation processes that we currently use, particularly with ascorbic acid, as providing the walls. On top of the walls, we'll have all those other ingredients that we use for improving the ability of the dough to retain gas - the emulsifiers, the enzymes, the things that come with our improvers. Sitting inside the house is our little gas bubble population, this is our family. These are the people we know, every one of them is slightly different but we need to nurture them within the house for them to grow - in exactly the same way we need to do that with baking. We need to trap our gas bubbles during mixing and we need to expand them in the dough. So, would you set out to build the house that's going to look after your family on a shaky foundation? Would you risk their lives by not doing the work properly in the first place? No, of course you wouldn't, so why is it that bakers compromise on the most important part of the process – the foundation? And if you do that, then we can have an alternative way of assessing how we might go forward.

Now, you'll notice at the bottom it says control of dough temperature. If you look at Clalvel's book – the Taste of Bread - he says fundamentally the single most critical control point in a bakery is control of dough temperature. It doesn't matter whether it is artisan or industrial, the most critical control point is dough temperature. That is when all the chemistry and physics that I could talk or write about for years come into play, and that is when you decide what is going to happen. So, let me toss a question out for you to contemplate. Why do we control our dough temperature at between say, 28^{0}C and 30^{0}C and then put them in a warm proving box or room at 45^{0}C? Why do we spend so much energy producing ice to chill the dough in plant bakeries to control the dough temperature and then spend even more energy putting the dough pieces in a warm prover to heat them up again? I'll leave you to work out the answer to that question for yourselves.

When looking fundamentally at what determines the foundation and development of the gluten network in a bread dough, most people think it's the mixer. Well, no, not exclusively, dough processing also plays a role. In a collaborative project that I am involved in, with my colleague from the Australian Exports Grain Innovation Centre, we've been looking at dough development starting from the moment you bring the ingredients together to the moment you put the dough in the prover, one continuous development process, not two separate stages. What I do in the mixer determines what happens when the dough is moulded during processing and that relationship then determines the total development and that relationship then determines if I have built the right foundation on which to shelter my family.

One of the things that is very important, and I will nip off into the science and I know some of you in the audience will say "here he goes again, it's dough rheology", which is the way the dough behaves under stress and strain. The one thing that we do with great skill in bread making is to put the dough under stress and strain! You know what happens when we put human beings under stress and strain, such as standing up in front of BSB delegates to give a talk, they get nervous, they get worried, they get anxious. The same with the dough piece, so why do we do it? We do it because we still have not understood or been able to define, the concept of dough development. Every single one of you in this room will know exactly what it is but none of you can say, including me, what we mean by dough development since it's almost impossible to define.

One of the things we have been doing in the joint project with my colleagues at AEGIC, is looking at dough rheology and particularly how the dough will be set up for the proving and baking operation. For this we have been using what's called the Warburton's stickiness test rig (slide 3) but we don't use it to only measure stickiness.

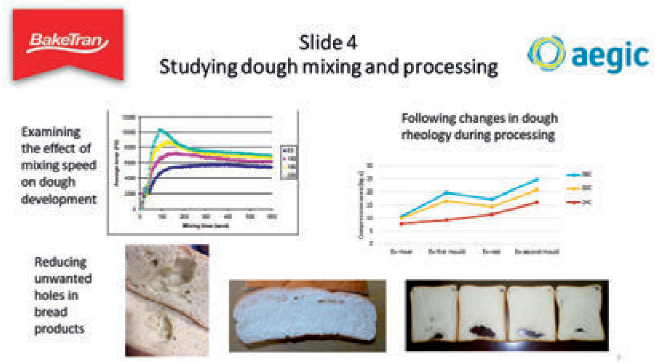


There are two sides to the test, which is designed on the principle of a dough divider. You take a dough piece, drive the knife blade through it, just as you would in a commercial bakery, then extract the blade and you can see in the diagram in the top left hand corner the strands of dough sticking to it. But equally, when you compress the dough, you're looking at, for want of a better term, dough consistency and gradually we have begun to liken the gluten network as being a series of wires which are being stretched and pulled.

At school you may have carried out the physics experiment where you hang a wire from a beam and attach weights to it. You stretch the wire and establish the principle of what is called Hooke's Law, which relates to the transition of a material from an elastic state to a plastic state. The stretched wire is in an elastic state and when you take the weight off the wire it springs back to a plastic state, where the deforming force that you need is significantly less.

Think about that in terms of putting dough under stress and strain in a moulder. If I can reduce the force that I need to mould the dough I will have made an instant energy saving, just simply by changing the physical state. Just, of course, is an easy word to use, since you need to know how to do it but the transition of dough from elastic to plastic is a critical moment in the development of the dough-making process and gives us the huge potential to go back and ponder the question, why do we make doughs at 30^{0}C degrees and then put them into a warm box at 45^{0}C? And the reason is because the equipment that we have designed and used to mould and shape our doughs, is designed to work at low temperatures. If you experiment, as some people have done, with making the dough at say 36^{0}C, you find that you can't mould it with the existing equipment.

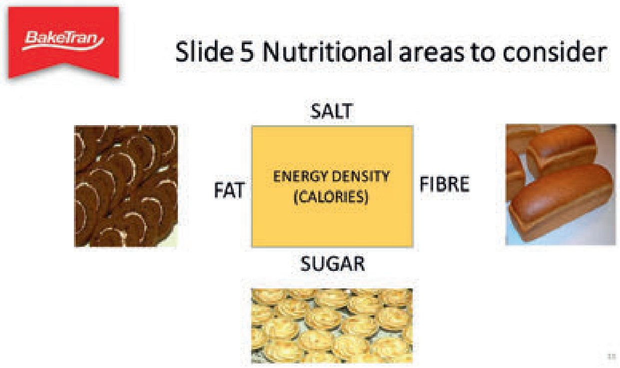
We are pushing on with our work on studying mixing and processing. Slide 4 shows: top left, a graph from tests examining the effect of mixing speed on dough development; top right, a graph following changes in dough rheology during processing at ex mixer, after 1^{st} mould, after rest and after final mould; and at the bottom, examples of unwanted holes in bread products.



In the dough rheology graph (top right), the lines are rising upwards after the first mould because of an increase in the resistance of the dough. We all know that as bakers that if you mould a dough piece, it gets tougher. We rest it (shown by no change in the height on rheology graph) but then make it tough again by putting it through a second mould (resistance graph height increases). What is interesting in this graph is to note that when the dough temperature changes, the shape of the graph is different with the most significant changes being after the first moulding step (second point on the graph).

This is all great and good for the scientist in me but at the end of the day, we need to find practical solutions for bakers. So where do the above test results have relevance?

They have relevance in all sorts of contexts and one that I've chosen to highlight in the pictures at the bottom of slide 4 is with the ability of reducing the occurrence of unwanted holes in bread products, not just plant bread but also for hamburger buns, and the same principle would apply to artisan bread as well. I can explain the rheology and the science but at the end of the day, bakers just want to know what to do to get rid of the unwanted holes in their bread products, or how to resolve whatever other problem they have. That is very important, because everything we do in terms of technology and science must have an application and a value for the end users, the customers for our science.



I am going to switch tack now. Not exclusively, because I've just been talking very much about processing, and we will come back to that aspect during the discussion on making bakery products healthier. This appeals to both the consumer and potentially to Public Health England, so that we get to a stage where they say, "bakers are doing a good job".

In the recent past we have succeeded in reducing salt in bread and many of us in this room went through the long and painful process of doing that, but it was a success story for the baking industry in delivering what the Government asked for. Let's keep on pushing that way. We've also done a great job with fibre, fibre levels in bread not being a problem now. Wholemeal bread sales are much higher than they were when I joined the industry. We've had a look at fat levels in bakery products over the years and that will come back.

The thing about nutritional studies is they go around in cycles. When I joined the industry many years ago, everybody was worried about, guess what, sugar! My first product development job was to reduce the sugar content of cakes and pies and here am I, a long time later, again helping people, to reduce the sugar content of cakes and pies. The challenge for the baker starts, ironically, not with the Public Health England but with your own company or retailer, because too often the brief for healthier bakery products is just that, brief – we want this product to have less sugar in it. Simple really!

Developing healthier bakery products

Too often the project brief is too BRIEF and more information is required

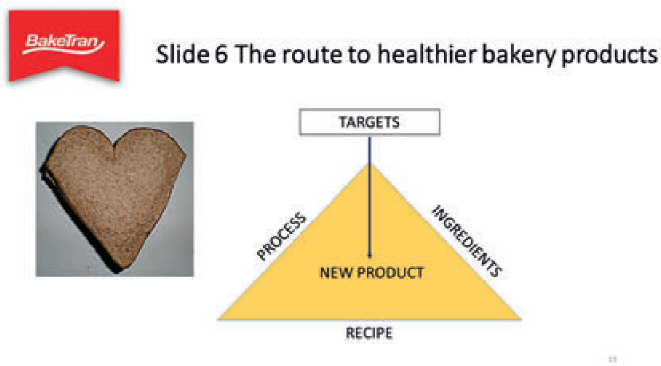
- What are your targets?
- Reduction of one or more ingredients?
- Energy reduction?
- Which replacement ingredients?
- What shelf-life?
- What product form?
- What equipment is available?

When looking at this type of product development, you need to be sure of what your targets are since they will determine the route to the development. Is it reduction of one or more than one ingredient? Are you looking for energy reductions? What ingredients are you going to use to replace the things that you're taking out or reducing? And very important in the context of cakes and pastries, what are the shelf life issues? Do we have to use the same product form or, as Roberts have done, move away from it? Will new equipment be required?

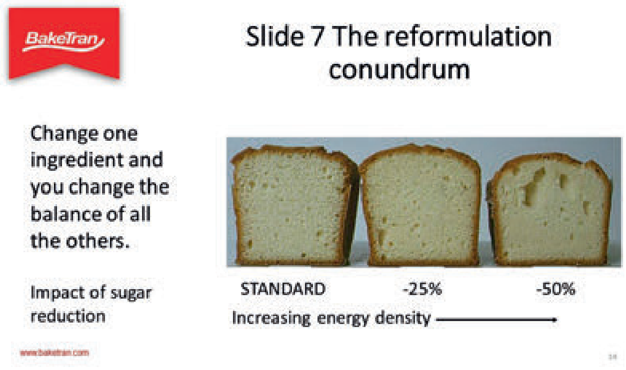
It is a lot of work but if you don't consider all those things at the start, you're not going to deliver the innovation that you're looking for, whether it is changing an existing product or creating an entirely new one.

We can describe our route to healthier bakery products as a triangle (see slide 6). It has three sides – the ingredients, the recipe and the process, and somewhere within the triangle we have placed our targets, which are healthier bakery products.

I have chosen a triangle deliberately because if you ever do this in a practical sense, particularly with

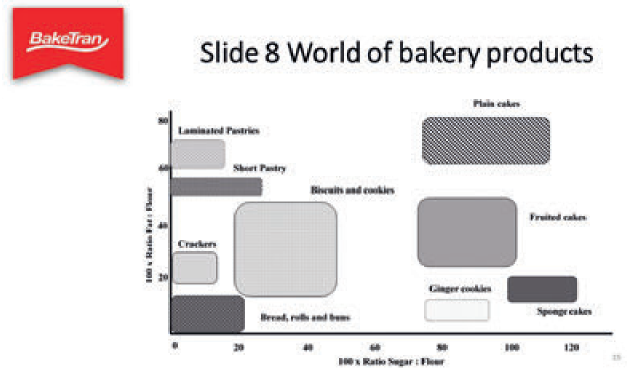


kids, it helps them understand what the triangle means. If I change the length of one side, inevitably I change the other two sides of the triangle. I cannot change the length of one side in isolation from the others. What does that mean for us? It means that if I take sugar out of a recipe, the other sides of the triangle are affected, and this is the problem. We tend to look at things in isolation and don't take a holistic total view of what is going on. That is what a triangle does, it says when I change one component, everything else changes. And crucially in the context of the targets for innovation, so does the area enclosed by the triangle and it is in the area that all the new product concepts sit. If you end up putting your target close to one side of the triangle and change the shape of it, you're in trouble. Your product becomes sensitive, too close to the edge. It slips outside the triangle on the days when people are doing things like forgetting to check the dough temperature.



We've now reached the reformulation conundrum (slide 7) and a simple example is, change one ingredient in the recipe and you change the balance of all the others. If you reduce the sugar in the recipe, which we're all asked to do, yes, there's a change in the cake sugar content, but the energy density, the number of calories in the cake, has gone up because we've increased the proportion of fat. I can come back now to when I joined the industry. That was exactly the product development point we reached. We couldn't claim this was a new healthier product, because it had more calories in it due to the higher proportion of fat caused by reducing the proportion of sugar. You therefore must take a holistic view when reformulating a cake recipe. You cannot look at one ingredient in isolation, which, sadly, our health masters tend to do, "oh just take the sugar out". You can put other things in to replace the sugar, but will your customers accept them? There are also potential risks with replacement ingredients, and Stuart illustrated this perfectly in his earlier talk. Quinine is a perfectly safe ingredient on its own that is until you put it in a product that is baked and it becomes carcinogenic! A similar issue for us when we're looking at sugar alternatives is that they may work in many products but may undergo changes on baking which make then unacceptable in baked products (not necessarily carcinogenic). Now I'm not knocking any of the ingredient suppliers in the audience. Your ingredients as replacers are part of the solution, but not the total solution for the consumer.

There is a process element to developing new healthier bakery products. Everybody talks about ingredients, but they don't stand back and think about the process. The graph in slide 8 is two dimensional, where we have on the horizontal axis the ratio of sugar to flour in the recipe and on the vertical axis the ratio of fat to flour in the recipe. Sugar and fat are ingredients that are considered in the context of reduction in bakery products. They are also ingredients that inhibit gluten development. We can look at slide 8 slightly differently based on this information.



If we start at the origin, which is where in the UK particularly bread sits, and move diagonally from the bottom left to the top right, we are effectively measuring the degree of gluten development in products according to their sugar and fat content. We want lots of gluten development in bread and no gluten development in cakes. So that's an ingredient effect.

Now move up the left hand side of the graph and ask yourself the question, "there are more or less the same ratio of fat to flour in a laminated product and a plain cake, so what is the difference between them"? The difference is the process, the different way in which we incorporate fat into laminated products and into cake products.

Texture (structure), the key to product acceptance by consumers

Eating bakery products is more about gaining sensory pleasure than sustaining life

- Appearance
- Eating quality
- Flavour

Texture is more important in products with bland flavours.

Processing options matter!

The missing element in a lot of our thinking is about the process impact and that becomes critical when we look at producing healthier products, because elements of the process can change the product texture and structure, which are the key to the product's eating qualities and therefore, acceptance by consumers.

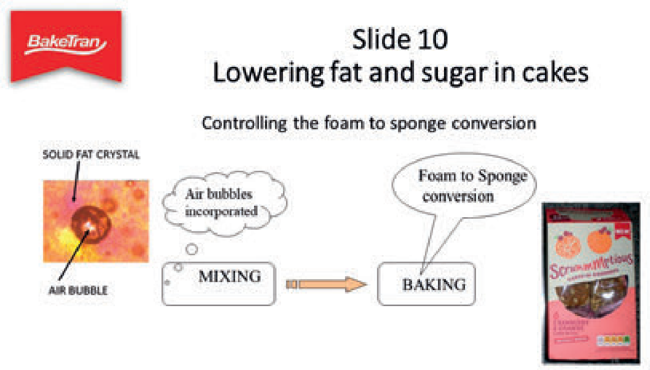
In the days before the computer, Google and being able to search for any information you want, there were two scientists in the United States, Szczesniak and Khan, who looked at the relationship between product texture and eating quality in the 1970s. This is not new technology, but it has not really been thought about and understood. They looked at the importance of texture to flavour in bakery products and they said that the texture was probably as important as the ingredients in delivering the sensory acceptability and pleasure for the consumer. I emphasise pleasure, because today in this country we eat bakery products mostly to enjoy them. We're not looking for sustaining ourselves with what traditionally we've called the staff of life. We have more than enough potential to consume calories, far too many as some people would have us believe. We are going to eat the cake, pastry, slice of bread, whatever, because we want to enjoy it, not because we need to sustain ourselves with it. Equally many consumers do not view food in the same light as medicine.

What Szczesniak and Khan showed was that when you reduce the flavour component of foods, texture becomes more important. So where do we get flavour from in bread and cakes and pastries? Sugar, salt, fat – all these things that are going down in quantity and we are putting fibre in which has no flavour. You can then reach the position that Szczesniak and Khan identified, in that we could be supplying products which have negative connotations. We've made them healthier, but they may not taste as nice. Are you going to buy a product that doesn't taste nice more than once? No. We have to look fundamentally at texture and one of the key drivers of texture is processing. So, we are back to the processing element, neglected in a lot of the reformulation considerations for reducing sugar in products. Interestingly, for Szczesniak and Khan in the 1970s, even the use of the word 'reduced' had a negative impact on consumer views of product acceptability. If it's reduced it can't be as good. An interesting thought and I'll try that on Public Health England one day!

Let's look at some practical examples of recipe reformulation and I will start with a reduced fat doughnut. For their marketplace the company concerned was looking to reduce the contribution that fat made, partly because of health considerations. They did sensory scoring and said the consumer found their product unacceptable after four days. We could have carried on using sensory panels and overloading them with lots of fatty doughnuts but that's not really a health proposition. We therefore moved to an objective testing method and matched the two, so we knew what value for the testing compression for doughnut softness was equivalent to when the consumer found it unacceptable. We did manage to successfully reduce the fat content, but this reduced the acceptable shelf life from four to three days and that was with ingredient changes alone. We then put in a process related solution and brought the shelf life back to four days.

Even when we look at lowering fat and sugar in cakes, we are still talking about the foam to sponge conversion, creating the structure and basics in the mixer and setting it in the oven during baking. There is a potential processing element here because when you reduce the sugar content, you change the cake setting temperature. That is the time during baking when you make the foam to sponge conversion and it alters the balance with the gas bubbles in the batter, and the amount to which they can expand before the cake structure is set.

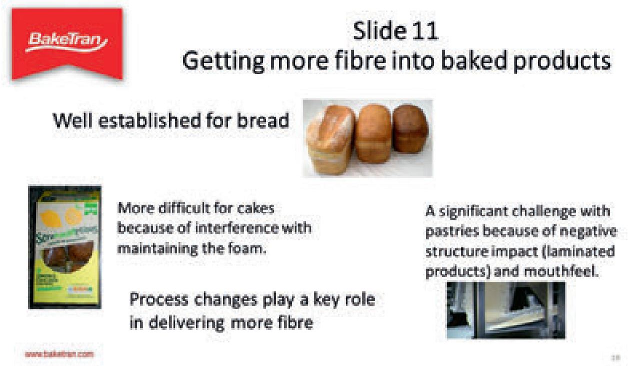
If you go back to the beginning and change the way in which the foam is created and works, you can deliver cakes with a sugar content down to less than 22%, as with the example in slide 10. Forget the Public Health England's requirement for a 5% reduction from 40% or 45%, this product delivers at 22% but there's a processing solution tucked away in there. This particular example uses no sugar or fat replacers. The approach chosen is based on changing the mixing method for foam creation and using a mixture of sugar types to deliver the required foam-to-sponge conversion.



Slide 11 Getting more fibre into Cakes

We have successfully improved the fibre content of bread but it is going to be more difficult with cakes because the extra fibre can interfere with the stability of the foam in the cake batter. Do consumers really expect cakes to be healthier with extra fibre? If they do, there are ways of doing it. The lemon and Chia seed cake in slide 11 contains enough fibre to legally claim it is a source of fibre in the diet.

I look forward to the day when we can do this with a pastry product. What is the difference between a plain cake and a laminated product? The additional fibre has a negative impact on the structure of laminated products and on the mouthfeel of the final baked product.



Effect of product shape on taste Three years ago in Jakarta, we came across an artisan bakery (slide 12). Every product in that bakery had a different shape, and each shape had a different flavour, some savoury, some sweet, some with vegetables. When you go into the bakery shop, you know exactly what you're getting from the size, the shape and the appearance of each product. You don't even have to read the product names, you know which product you want. This reminds me of the old adage for food, that the first bite is with the eyes. This company has got that down to a T. You see it, that's the shape I want. I know what my expectation is and as long as they deliver, then that's fine.

I am amazed still, as I go around the world and I work with people, how little use they make of in-house technical and process information. They are great at collecting data when things go wrong but hardly ever collect data when things go right.

Making better use 'in-house' technical and process information

- Collect data when things are going 'right' to provide points of reference when things go 'wrong'
- Treat manufacturing contributions to product physical and sensory characteristics as the equivalent of HACCP procedures
- Develop product and process models – a springboard for innovation

When investigating a problem, I often ask the baker "what production data did you have on the day you produced your best-ever product? Because if you know that, why aren't you going back to matching it?"

We don't do enough of that in the baking industry. We have to treat the manufacturing contribution to product quality and consistency in the same way as we treat food safety with HACCP. Yes, we need to make our products safe. No, we don't want to poison our customers, they tend not to come back if we kill them off but if we don't make a product that looks right, tastes right and eats right, they won't come back anyway.

So why are we not applying the same essential principles? And one of the springboards to that is to develop suitable product and process models. Many industries use these types of models. They exist in the baking industry, but we tend to carry them in our head and seldom write them down. We seldom systemise the information that already exists in our companies. This is not new, it is about understanding how you work as a company. You can combine the hard data, the numbers, with the soft data, the heuristic rules, the rules of thumb, that bakers all know. If the size of a loaf from a batch of bread dough is too small, I know what to do to correct it for further batches! However, you may know what to do but does the person who replaces you in six months' time know what to do, or do they have to learn it all again? We're not talking about training people. We're talking about using knowledge that is already available and systemising it. This will result in faster resolution of problems and more rapid delivery of innovation, because if you know what your process model is, you know how to change it and, crucially in this day and age, you retain more information within the company.

I started off talking about challenges and opportunities and I am going to flip it over and say it is about future opportunities more than challenges in many ways. There are significant opportunities for this industry to improve process efficiency. There are major opportunities to develop new and healthier bakery products, but it does need a good foundation. In this case it is not the gluten development, the foundation is the integration of the information that we already have, the process data and human technical skills. That is what supports future development and still, I believe, with one or two exceptions, that has yet to be fully realised in the baking industry.

Final thought When we get together as a group to talk about innovation, everybody says "we have to think outside the box".

My final thought is therefore: "Thinking outside the box is easy - working outside the box is hard, but that is where true innovation comes from!"

Session Chair, Keith Houliston A very informative paper. We are a little behind time, but can take one question.

Question, Sylvia Macdonald You mentioned that raising dough temperature saves energy in the baking process. How much energy saving are we talking about?

Stan Cauvain Well, that's going to put me right on the spot because inevitably it depends on by how much we raise the temperature but let me give you a simple example. If we were able to raise the dough temperature by 1^{0}C, you would save approximately 1% of the energy that you use to bake a loaf of bread. Now who in the room who is a practical baker wants to save 1% of their oven energy? Everybody, because 1% of energy is a huge financial saving. Now I'm not saying that this means that if the dough temperature goes up by 5^{0}C or 6^{0}C, you get 5% or 6% savings, but a conservative view is, if you go up by up by 1^{0}C you get a 1% saving in energy costs.

Keith Houliston Please show your appreciation for Stan's paper in the usual way. *Applause*

Our next speaker is Lin Carson from America. Lin gained degrees in Food Science & Technology at Ohio University, followed by an MSc and PhD from the Department of Grain Science at Kansas State University. Lin will tell us about BAKERpedia, a digital website resource she launched, which enables bakers to find recipes, check ingredients, collaborate on industry knowledge through discussion forums, access training opportunities and chat with experts. BAKERpedia has over 700 freely accessible pages, with a newly launched food safety topics, and a 'Baked in Science' podcast series.

Your bakery queries answered at the click of a mouse by Dr Lin Carson, Founder, BAKERpedia

I am the sole founder of BAKERpedia and I passionately believe in what I do in sharing information with the world. I am a food scientist, an entrepreneur, a wife and mum to three boys and basically, a bread lover. So much so that I ate 90 loaves in 90 days as a Bread-Eating Challenge, to dispel the myth that bread is responsible for weight gain and bloating and how, with healthier options, bread provides numerous health benefits and prevents cravings. You can log on to my blog at eatbread90.com to see how I got on and all the different breads that I eat. I'm a true believer that bread should be part of our diet and that it is a vehicle to carry all kinds of nutritious grains and food to our body, and it is also very potable.

1 What is BAKERpedia?

A free platform combining features of Google & Wikipedia that has evolved into the leading voice for innovative baking solutions with thousands of followers and users.

For those of you who don't know BAKERpedia, we are the world's largest technical information resource for the baking industry. So how did we create BAKERpedia? By understanding the digital marketing world and where the public is spending time. Here is what we've learned. People are spending more and more time on their phones and less and less time on computers, which is a direct trend that I'll be sharing with you today, and how can you use this to help your business?

So how did BAKERpedia come about? The first time I thought about it when I was working at Wendy's Bread. I had this thought because when you have a PhD and go around in a white coat on the production line you can be solving expensive problems, increasing output efficiencies and somehow the questions all come to you. The 'what?' questions are the easy ones, the why? questions are the more difficult ones. For example, what is ascorbic acid, where does it come from and why do I have to use it? What's a chemical raising agent, what does it do and why do we need to use it? Why is baking soda called sodium bicarbonate, which is a chemical-sounding name and why do we use it? The why questions were what got to me because I didn't have time to give the answers to a lot of people on the production line. I thought maybe the internet would have the answers and I kept telling my teams go Google their 'why' questions. However, that was back in 2010 and they all came back to me and said: "we can't find any answers because the good answers are locked away behind memberships and the rest of the stuff, as Trump would say, is fake news. They were finding, for example, a lot of holistic news on website outlets that threw very bad light on things like monoglycerides and that didn't give correct information on emulsifiers. I found that there was a gap on the internet in the technical resources that my team needed to make those expensive ingredient, production and product decisions.

2 The problem

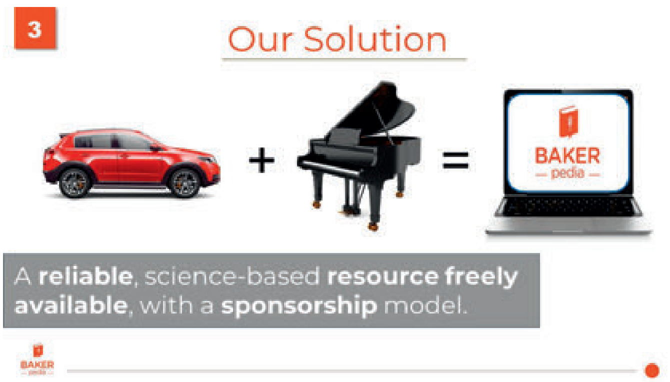
Access to bakery Science information

- Expensive to fix problems on high-speed lines

- Unreliable and not science-based
- Membership needed to unlock it
- Troublesome. Let's ask the Dr.

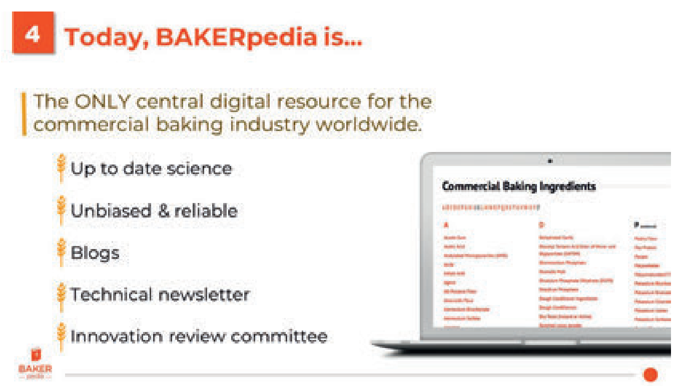
I thought that somebody should create a reliable, science-based website that supplied the information my teams required because I did not have enough time to answer their questions on the line. I approached various organisations and said "you guys should just create a bakery information website that is free to use". That was back in 2010/11 and nobody thought it was a good idea because they didn't know how to fund it. Because of that issue, nobody supported my idea.

I went home and said to my husband that I have to do something about it. But I had had a business and it went bust so he was not willing to put our house on the line for my idea and said that I would have to sort it out for myself. So, this is what I did.



I had a six year old truck that I sold and a baby grand piano that I had bought, you know when you sell a patent and you put money in a baby piano, it doesn't come back out, so don't do that but I sold it anyway and then I hired bakers and developers and basically started working on the website.

That was in 2012 and I launched a website with just a little over 200 pages. My vision was to create a reliable science-based resource, freely available with a sponsorship model. so that I could fund what I'm truly passionate about. So, what is BAKERpedia today?



Today we're over 800 pages large. We have over 35,000 users a month and we provide up to date science that's unbiased and reliable. We have blogs featuring equipment suppliers and ingredient suppliers and consultants, all sharing their viewpoints on the industry. We have a technical newsletter that you can sign up on our web page that goes out every week.

Recently we launched our Innovation Review Committee. This was because my presence on LinkedIn has been the receiving point for a lot of innovation and I just can't keep up with it on my own. Now whenever I receive information from LinkedIn, I pass it on to my committee which consists of 20 American industrial bakers. If they agree the technology is good, I write a blog about it, so very exciting stuff is going on; shelf life extension ingredients; the standardisation of water application. If you want to launch products in different plants, you can standardise water in their recipe; clean-label cake solutions; and clean label protein-based emulsifier solutions. I am very happy with the way the work of the Innovation Review Committee is going.

5 Why did I choose digital media?

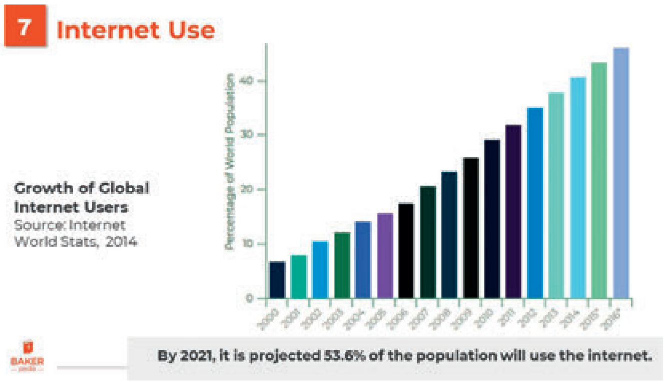
"What's got me excited about the education space is the growth of the internet over the next 10, 20, 30 years." Reed Hasting, CEO, Netflix

I could have just created a new publication, had a mailing list and mailed it out but in 2010/11 I saw the above quote from Reed Hastings, who you will know as the CEO of Netflix. I am very much in agreement with him, that in the next 20/30 years the education space on the internet is going to explode in size. Already BAKERpedia is over 800 pages strong, with over 18 million pages read so far.

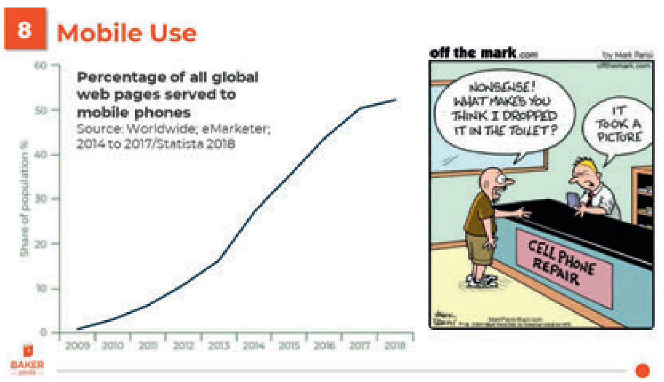
6 Where are consumers these days? Running in masses towards new **digital sources** for information.

As a result, the way content is created and marketed is shifting as well. Currently through 4.5 billion mobile phones and 2-3 billion computers. The portals to the internet are massive and it's growing. Can you guess how many searches there are on Google every day - how many hits they get? It is 3.5 billion! Where were we before Google? Who answered our questions?

As we keep going with the digital trends and mobile phones, more questions are being asked and more things are being searched. That is why the way we create content for BAKERpedia also creates a market as well for this form of consumption.



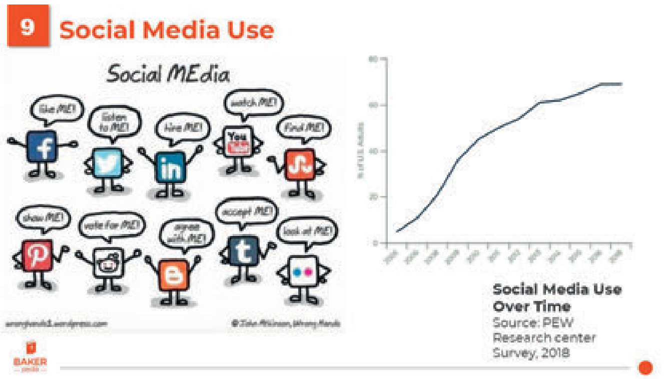
As you can see, the numbers are just aggressively increasing in terms of percentage of users of the internet. Surprisingly though, the projection for 2021 is that 53.6% of the population will be using the internet. The reason it is not higher is mainly because a lot of people still only have access to computers and the internet is still not freely available in certain countries. I will not be surprised however if that number goes up considerably in the next five to ten years.



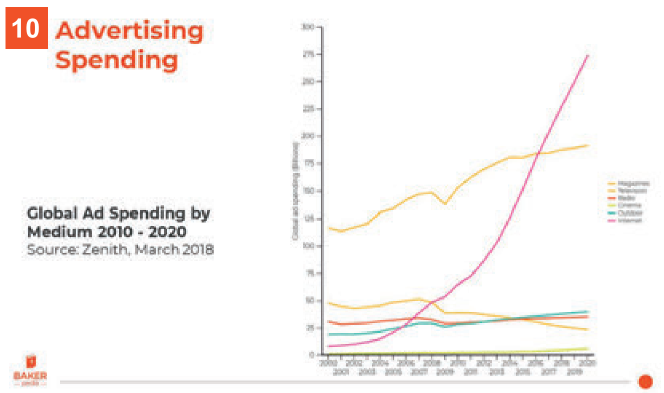
At BAKERpedia we have seen for ourselves an increase in mobile phone consumption. When I started four years ago, desktops were 75% of my business and today mobiles are 60% of my business. It is something we have no control over, so we have to create website content that services the platforms that are available on these handheld devices.

Social media in the US is widely accepted and yet it is far off from bakers, equipment suppliers and ingredient manufacturers, because they have one thing on their mind, "how can we find the time to do this all day?" They ask me how I find the time to do it and my answer is that I find the time because I think it's the most important thing that you can do for your business. When you figure it out, dealing with social media is no longer a hassle and no longer something you should ignore. There are lots of platforms for you to choose from.

At BAKERpedia we focus mainly on commercial bakers and we reach them through LinkedIn, Facebook and Twitter. These are the three platforms that we find high engagement on and for people like bakers, you find them on Instagram, Facebook and Pinterest. These are the platforms that you guys must focus your social media efforts on. It is not tapering off and there's going to be more platforms and new avenues here for social media in the next few months. Blockchain is throwing a spanner into everything, so expect something from there as well.

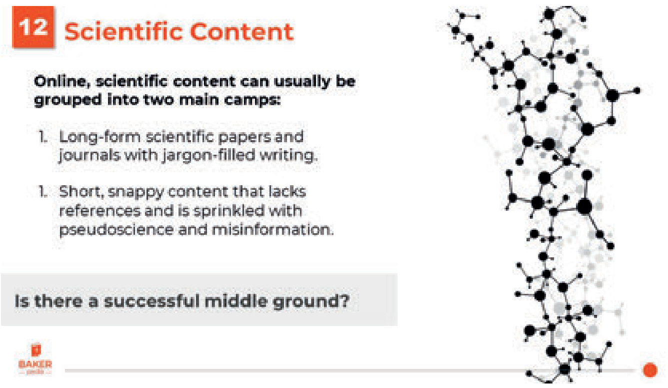


In slide 10 we can see the global ad spending by medium and that digital is off the chart right now. You need to carefully consider where you do your digital spend, or your media spend just as well.



Digital Content and Writing Writing marketing information for online audiences is a different form and style of writing to the norm. I have hired bloggers and writers who have traditionally written for print and media and when they came to BAKERpedia we transformed them into the kind of writers required for online audiences. You need to know that your audience has more choices and more control over what they see and what they read.

You have less of their attention time span, but you need to reach them somehow and sometimes that's through search engine algorithms. From your company's media strategy, or your digital strategy, you also need to work through social media SMO and SEO.



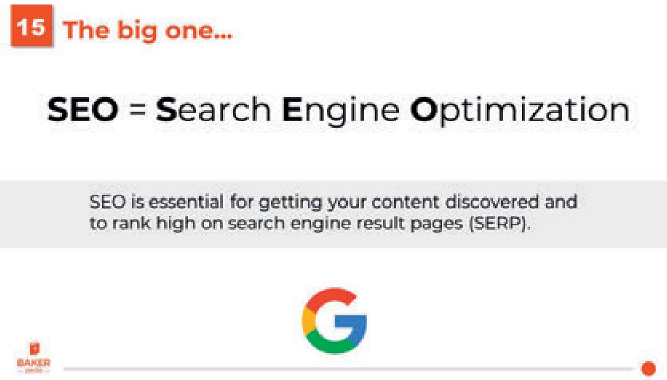
When I started this journey the scientific content online was usually grouped into two main camps as shown on slide 12. One is long form scientific papers and journals that were full of jargon and if any of my baker users were to read them, they would spend very little time on them, so I wasn't going to create content like that. The other is short snappy content that lacks references and is sprinkled with pseudoscience and misinformation, so again so I wasn't going to create content like that. From these two examples I knew where BAKERpedia had to be to really catch the attention of bakers, which is the middle ground.

The BAKERpedia approach is shown in slide13. Smart Scientific Writing - we don't hire writers who do not know food science or baking. We train them to include only the important stuff, so that bakers like you guys in the audience don't need to spend an hour sifting through scientific information to find what you want to know - it is at your fingertips. We have core SEO (Search Engine Optimisation) strategies. We are focused on SEO so much that if you go anywhere on the internet looking for commercial baking terms, BAKERpedia would very much appear on position zero for answer boxes, positions one and two for a lot of the search terms that you use. We want to make sure that we are tech savvy and we stay ahead of the curve for our users, for our sponsors and we believe in the 'collaborative spirit', that is if you have a new technology, you do not need to be one of our sponsors for us to talk about it. We love to talk about anything that's new, anything that's going to help the industry and any kind of information and resources that can help bakers bake better.

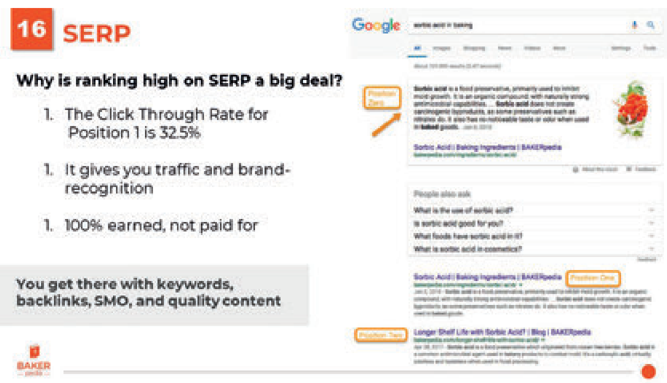
As shown in slide 14, we like to keep it short. Our blogs are no longer than 500 words, it won't take you more than three minutes to finish our blogs. Our topics are a little longer and that's because they service problem-solving kinds of attention and are an average of about five minutes. Some of our topic pages have long attention spans because people are just basically looking at information, digesting it, and thinking about what their next action steps are going to be. Going back to my work background, I solved some very expensive problems for my company and our users solve some very expensive problems for their companies. You're not just talking about hundreds of dollars, you can be talking about saving tens of thousands dollar problems. When you have to make a decision based on this information, you want to spend a little more time on it.

We use a lot of images, graphics and videos. Visual content, as you know, is more likely to be shared and we keep it real, basically understanding that you have to keep the reader interested and you have to keep the facts and the research all conversational.

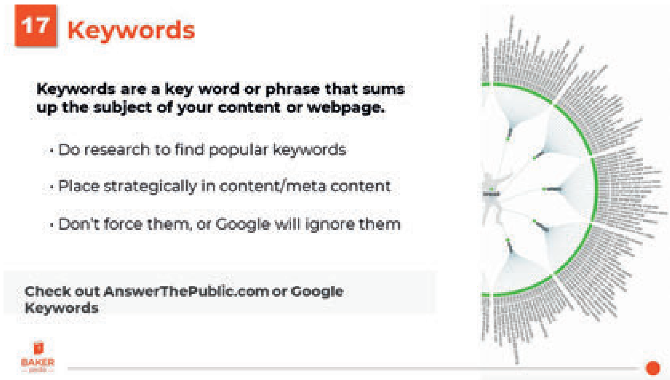
So how many of you know what SEO is? If you have answered yes, you are way ahead of the game. Everybody needs to focus on this term because it's not just about having a website anymore. Having a website is like having a storefront. If you put your storefront at the back of the block you will get less business. SEO means you put your storefront internet wise, on the front street where the foot traffic is the highest. That's what SEO, which stands for 'search engine optimisation', does for you. When you do your digital strategies, this must be your number one focus, to ensure that when someone is searching the internet for something you supply, your contact details appear on the search results page. If you don't focus on SEO, all the money that goes into building your website is like building your storefront at the back of the block, people will not know you are there!



There are lots of SEO experts out there, so if you're going to embark on a digital journey, that's your number one stop. At BAKERpedia everything we do is organically targeted at SEO. We don't buy any Google ads or any placement ads. Everything that Google does for us is all organic, because we use all these SEO tactics. For you and your bakery websites, that is the number one thing that you need to put money into, because your consumers are looking for solutions and you want them to come to you for them. Which bread should I use? Why is this bread bad and why is that bread good? At the end of the day, good SEO tactics from your team are going to really push you up in your Google rankings.



SERP (Search Engine Results Page) Slide 16 one of our highest-ranking topic on SERP. I don't know why but a lot of people are looking for information on sorbic acid, perhaps because it's clean label. So just taking this as an example, when you're in position one SEO wise, you get 32% of that page traffic. It gives you traffic and brand recognition and it's a 100% earn and with no cost. You get this through very targeted SEO tactics like keywords, backlinks and quality content and if you're in position zero, one and two, you get 50% of that web page traffic. Remember how many searches Google gets a day, 3.5 billion. You need to target your web page to be on position zero, one and two and you get that with us as one of our website sponsors.



Another thing I want to talk about is keywords, slide 17, and how we use them. Basically, we use keywords to blog. We know the right kind of words to use and as bakers, you can as well. You can go to a website called Answerthepublic.com and type in bread to get all the topics shown on the right of the slide on 17 - bread recipes, bread articles, and so on. You can focus your blogs on these keywords and pretty much use them for your SEO tactics as well, which is what we do.

18 Backlinks A backlink is a hyperlink from one website to another, placed in the copy of the text.

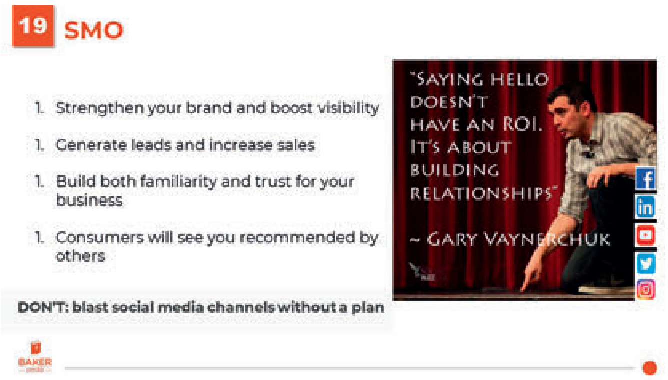
- Building relationships
- Sending referral traffic
- Brand Awareness
- Higher SERP ranking

DON'T get backlinks from any website!

Backlinks are important as one of the SEO tactics that we use. It's kind of a 'receive' mode. Since because we put so much out there, it's natural that we receive something back in. I put out a lot of information on LinkedIn for sharing freely, and when you do that you get a lot of backlinks to your website. For example, when bloggers write about fermentation or about high fibre bread, they link their blog back to us. We have probably got thousands and thousands of backlinks to our website and that's very helpful for us when we do our Google SEO. At the end of the day, when you give out free content as bakers, as ingredient suppliers, as equipment suppliers, etc, when you give out free content, people like that and it's kind of like a karmic relationship and you get backlinks back from that.

You have the right not to accept backlinks from any websites that you don't deem relevant to your business and a lot of spammers do that because they want your backlink, they say we'll just trade backlinks. Just be careful about that because backlinks from any kind of spamming website is going to hurt your SEO value.

SMO is social media optimisation. I see this group is a little older in age and some of us do struggle



with social media. Just know that social media is very good for business. You don't need to use it personally, you just need to understand how good it is going to be for your business because it's going to strengthen your brand. For sales people, it's going to help you increase your leads and it's going to put you in a personal light, it's going to help you build relationships, and that's why Gary Vaynerchuk, my number one social media mentor, says it doesn't have a ROI because of that. Please don't expect business because you said hello. Expect business because you've built that relationship and you build that relationship from social media.

My advice to you is not just to jump on the bandwagon to do social media, to start paying someone to Tweet or to post Facebook posts for you but to have a really relevant strategy for your team to understand social media, backlinks, bloggers and influencers - when you get those in the bucket, then you have a good social media strategy.

If you decide that you want to go into the blogging or the content sharing industry, you need to understand that you have to have good keywords, you must have good content, back to your backlinks, content to backlinks. So, whenever you write content, make sure you link it back to BAKERpedia – just kidding. That'd be great because we're a thought leadership website but share links, send links to places because when you do that, you're forming a cobweb.

What happens when you form a cobweb? You form a cobweb when you get backlinks back, you send backlinks out, you become a nicely defined home of a cobweb. When Google sees that, they say your site must be important, we're going to make your search higher. So that's why content backlinks are so important. When you do content, you need to hire good writers that can put you in an authoritative light so that people will rely on your information in the future. You want bloggers to rely on your website for good information on bread, on other things that you want to be known for.

20 Quality Content

Content is the vehicle that carries the many parts of SEO

- Substance to keywords
- Content to backlinks
- Shareable on social media
- Authoritative and reliable

Once you have it, share it!

Stay up to date on media trends. Know where your audience is and where they are headed. BAKERpedia is off on a ramp in understanding technologies. I have tasked my team with finding any kind of new audio and video technology, so we're always on the lookout for new platforms and new technologies.

20 Tech Savvy

Stay up to date with media trends.
Know where your audience is and where they are headed.

- Best SEO practices
- Podcasts
- Voice Search
- Bakery and technology innovations

Voice search is new because we can't find any information on it. It's very hard to figure out voice search right now on SEO practices, there are none. Who has Google at Home? Alexa? That's a new frontier. No one knows how to work that yet. We are so on this and we are so excited about this front and that's what our podcast is all about, to really test this audio front in terms of searchability.

Because we're always out there, we always receive a lot of information on bakery technology innovations back. Companies want us to talk about their innovations. Somebody talked to us the other day about biodegradable straws made from bran. Let me figure out how to position that! The more you put out there, the more you're going to get back on what's new in the market, who's talking about what. So that's really exciting for us.

Just a little bit back on the technologies. Some of you guys will know of blockchain crypto. I'm not a big crypto fan because I don't have any money but blockchain is something that is going to disrupt the publishing industry in the next year. I've seen a lot of technologies just geared up for that and we're keeping an eye on it. If you think what BAKERpedia is doing is relevant and innovative, you have not seen blockchain yet. It should excite you and scare you but blockchain is something that we are looking at carefully.

21 Collaborative Spirit
Finally help us make this the **new normal** for the **baking** and **food** industry!

Share ideas, technologies, backlinks, and social announcements! We want you to change the baking ecosystem by sharing information and supporting each other's business. That is why we are here.

Keith Houliston Session Chair Many thanks Lin for that wide-ranging presentation. Any questions?

Question Obviously social media is your business. Have you had to go through a personal journey to get into social media, or is it just you've been smart and savvy and understand that's the way to do business?

Lin Carson I don't know how to answer that question. I just love social media. So when you love something… I was talking to Stan last, do you take any vacations? No, because your work is what you love and what you honour and what you do, you enjoy it. The same thing with me, with social media. I love it. I do not take any vacations from it. Even though I'm on an island on vacation, I'm still on social media.

To me when I saw that, when I was on Facebook in 2007, I was just like, this is interesting, where is this going to bring us? To this day, I am so surprised that Facebook ads are undervalued. Like Google ads versus Facebook ads, a huge difference. Why? Because people don't understand Facebook ads yet. If you really focus on Facebook ads, social media marketing, SMM, you'll find a lot of return on your investment right now because social media ads are still very under-priced. I would like to say I knew this all along. I really didn't. I felt what was going on was to be real and to be really applicable to my life and that's why I'm so strong on Facebook.

If you guys don't mind the feminist rant of a businesswoman and a mother, please join me on Facebook. If you don't want to hear all of that stuff, please join me on LinkedIn. So I really put these two into two different funnels because I know my audience. I know a lot of people out there who don't want to listen to my feminist rants. I know people who just don't want to listen about my commercial baking stuff but I do see a lot of people on both, so you do get both if you want to join both.

In terms of positioning yourself personally on social media, I would recommend everyone to be on LinkedIn right now. Even the young students back there, the ones in their 20s, even though you don't like LinkedIn, I know you guys hate LinkedIn with a purpose but what can I say, it's an IBM product but it's slow, it's clunky, the ads are expensive but it's getting somewhere. It's building a very broad foundation and it's growing very slowly. So you want to go with a platform like that. So Facebook, if you're studying on Facebook, it's a little too late, it's gone in its prime but really if you have very limited time right now, focus all your efforts on LinkedIn, build your relationships there, send back links, give back links, create back links. So that's where I would ask you to focus your social media attention on.

Keith Houliston Many thanks Lin for an excellent paper. *Applause* I am now pleased to hand over to Richard Ball, who will be the Session Chair for the rest of our presentations.

Session Chair Richard Ball. Good morning everyone. I am delighted to introduce Robert Potts, who has over 20 years' experience across both manufacturing and retail. He has worked at Greencore UK for over 12 years.

Greencore's Food to Go business produces in excess of 690m products per annum, so I am sure Robert's talk will be of great interest to us all.

Sustaining Future Growth in Food to Go by Robert Potts, Head of Insight & Strategy, Greencore Food to Go

We're a market leader in chilled Food to Go and it's a market that has enjoyed amazing growth. Food to Go is a category I've worked in for several years, have been on lots of accompanied shops and research groups and it's a category that consumers talk very passionately about. It's had meteoric growth and I hope to share our view of the market, some of the reasons behind this and hopefully, how we can continue to sustain that growth in the future.

What I'm going to cover today is shown in slide 1. You've perhaps seen our lorries go up and down the motorway but not sure what's in them, who we supply or what we do. I'll talk to you about the Food to Go market and then share our insight on what we think

consumers are looking for through our consumer vision and then sharing opportunities and how we can hopefully work together to sustain that growth. Then at the end, I'd be happy to take any questions or feel to come and speak to me afterwards.

Greencore US Business This is slightly awkward as well because at the time of writing, the information on slide 2 was accurate, but you have perhaps seen some news releases that we may be selling the US Division of our business. The rumours are true, but I don't have any insider tips I'm afraid.

We are, or were, an international convenience food group. We are predominantly a Food to Go led business here in the UK and was one in the States as well. We've a total group revenue of £2.5 billion, about £1.4 of which is here in the UK and about £1 billion of that is Food to Go. We are a big Food to Go supplier, which covers prepacked sandwiches, salads and sushi, supplying the major supermarkets, convenience stores together with several of other important market sectors as well. Across the rest of the group, we produce a range of different convenience-led categories and similarly in the States.

The UK Food to Go business, is the part of the business that I work in. We're a large-scale manufacturer employing around 8,000 employees. We have eight manufacturing sites in the UK. Given the nature of the Food to Go market with ever increasing access to Food to Go, we supply a number of different channels and store formats, see slide 3. Retailers have also been expanding

into different formats to unlock additional growth. Taking M&S as a good example, they have the large stores, smaller convenience stores, petrol forecourts, stores in travel locations, hospitals, mobile stores targeting businesses and they're even selling Food to Go on airlines now. It's a highly convenient purchase that's easy to eat, ticking a lot of boxes for consumers' increasingly busy lifestyles. We need to make sure it's easy to access and fulfils their needs.

Then here in slide 4, is our network of manufacturing sites, ranging from the larger sites of Northampton and Manton Wood, where I tend to be based, through to the network of the smaller sites that give us added capacity and flexibility, to manufacture gluten free

ranges, hot food or more artisanal carriers.

We can flex our network to suit the demands of our customers. It's the nature of the market that when you're supplying 100% of customer's range, you have to be able to supply the full range of products and it's constantly evolving and at a rapid pace, the pressures are high.

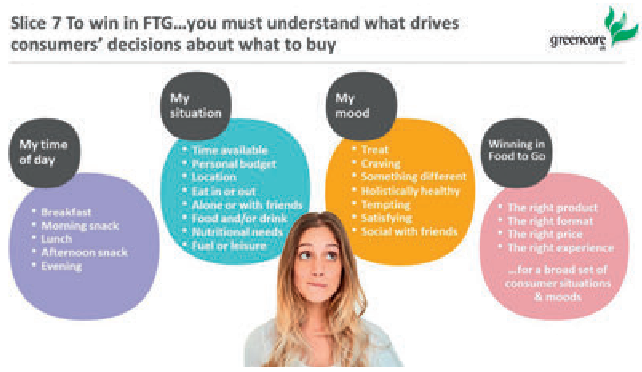
I just wanted to quickly share our corporate video to give you a better indication of who we are, what we do, the scale our operation. We do have to put bread through its paces in our operation. It does have to be able to withstand the rigours of high volume manufacturing, the supply chain and retail and deliver the best quality sandwich for consumers.

The video was shown.

More about the Food to Go market in slide 5, and this is where I get excited because this market is amazing, it's large, diverse, vibrant and above all, packed with opportunity. There are a few different market value definitions. We tend to go with IGD's more estimate of £17.8 billion but whatever definition you use, this is a huge market. People are buying across many different product categories, from lots of different channels, across lots of different retailers. IGD are also forecasting that this growth is set to continue and doesn't show any signs of abating. They're predicting that the market will grow by a massive +28% over the next 5 years!

With all those positive dynamics, you do get lots and lots of people wanting a slice of the action. Great for consumers as choice has never been so good for them, slide 6. However, this has resulted in an intense level of competition. We and our retailers are always pushing to raise the bar, elevate their food to go proposition to gain a point of difference to ensure that more shoppers come to their stores, more often.

There is an unprecedented level of choice and unfortunately consumers show very little loyalty. They're typically buying food to go two or three times a week, will regularly shop seven or eight different outlets, buying across a wide range of food to go, up to 10 or 12 different Food to Go categories. Competition is intense. Retailers are again trying to blur the boundaries between food service and Food to Go. They're moving into different channels, different formats, all to try and get a bigger slice of the action. Food to Go is incredibly accessible and I think that has helped to fuel a lot of the growth.



It's important to understand how consumers decide what to buy and where to buy it from, slide 7. Food to Go is incredibly complex and purchase decisions will constantly change, depending on a unique set of moods and circumstances, and it changes throughout the day and by day. It's also a really difficult process to research.

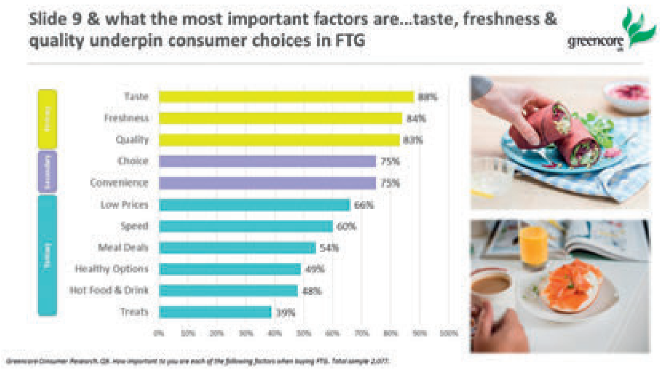
The what-to-eat decision starts with the time of day - breakfast, morning snack, lunch, afternoon snack and evening, but then it moves into what we call more functional considerations. How much time have I got? How much money have I got? Where am I? What have I got to choose from?

These are all functional decision factors that consumers make which can impact on where they go and what they buy. There are more emotional considerations that often tend to trump the more functional considerations, "it's just what I fancied at the time"; "it's just how I felt". If you're desiring or craving a treat, you will go to the outlet that best fulfils that and look for the products that again best fulfil that. Ultimately, winning in food to go is about having the right products in the right format at the right price with the right experience to fulfil as wide a spectrum of consumers' situations and moods. If you do that, then you stand less chance of consumers bypassing your store to go somewhere else. It is difficult, but we are trying to make sense of it for our retailers and that's hopefully what I will share with you today.

When it comes to where to buy, slide 8, again where consumers' primary needs are more functional - If you are short of time, want to get in and out, grab and go, fuel rather than eat for leisure, in consumers' eyes, there are typically a set of retailers that you are more likely to go to. Not exclusively but it tends to be supermarkets, garage forecourts, convenience stores and some high street stores. It is big volume, high frequency, so it's not a bad place to be in at all.

But when it comes to more emotional needs, consumers might be more inclined to bypass some for the above outlets to visit the specialists or coffee shops. If you're looking for hot food, for example, some stores on the left do offer it and it's a growing area, but you tend to go for a different set of retailers. Fast food also features heavily here as well. Coffee retailers tend to do hot well. They fulfil consumers' more emotional needs.

There are also those retailers that we think hit a sweet spot - they're great on range, on value, choice and on speed, but consumers would also consider them for a treat as well. So, they've got both high volume, frequent purchase and they've got the treat too. They're meeting more needs than other retailers.



We do invest heavily in market data and consumer research to better understand the market and consumer behaviour. This is taken from a big piece of quantitative research that we've repeated over the last few years, asking what the most important factors are when buying food to go (slide 9.) Freshness, quality, taste have consistently been in the top 3. If you deliver on freshness, you get a lot of other things right too. Consumers talk about freshness a lot and there are several ways of delivering it. The perception of freshness is not just through date codes on the packs, but how fresh it looks, how colourful and vibrant it is, how well made it is and then there's environmental considerations as well. How well the store is looked after, how tidy the fixtures are.

This is a bit of a marketing in slide 10 but please bear with me, because it has given us our strategic development framework. About a year ago, it was decided that we needed a Consumer Vision to try

and encapsulate what consumers want from Food to Go. Around 15 of us locked ourselves away in a room, and we went through all our insights and started coming up with a set of words. We started off with about 50 but you can't have a vision with that many, so we had to cut it down to a more manageable number and we finished up with the flowing six key words:

Creating When consumers are buying a sandwich, they don't want to think it's been made in a big factory. They want to think of it being created and handmade in a kitchen at home and not manufactured, and we go to huge efforts to source the best ingredients and ensure there's some real provenance.

Fresh You can't have a vision statement for Food to Go without fresh in it. We know it's an important factor and again if you get fresh right, you get health right, you get natural right.

Moments Then we thought about people getting away from their desk or their place of work to enjoy a lunch or a break, perhaps in the park on a sunny day, to relax and enjoy some Food to Go. It's me-time, it's an oasis in the day, it's a special 'Moment' for lots of people.

Deliciousness This split the room entirely and you're welcome to check it in the dictionary but 'deliciousness' is a proper word. We felt delicious wasn't special enough and that 'ness' added an extra level of delicious.

Inspire When consumers go to a Food to Go fixture, they're looking for inspiration. They're looking for new ideas and want it to be enticing, irresistible and tasty.

Everyday Above all it's about being good and consistent every day. It's not just about creating special sandwiches; the egg mayonnaise sandwich will be a Moment for some people.

The consumer vision is a unifying set of words, slide 11, we're creating a Moment for somebody, not just a sandwich but something that is special to all consumers, and we've got to remember that.

Bring all these words together, this forms our consumer vision: "Creating fresh moments of deliciousness to inspire you every day" which can be shortened to just "Moments of Deliciousness".

There are millions of these moments happening every single day across the entire country and they're entirely unique and personal. The challenge is how do you make sense of all that.

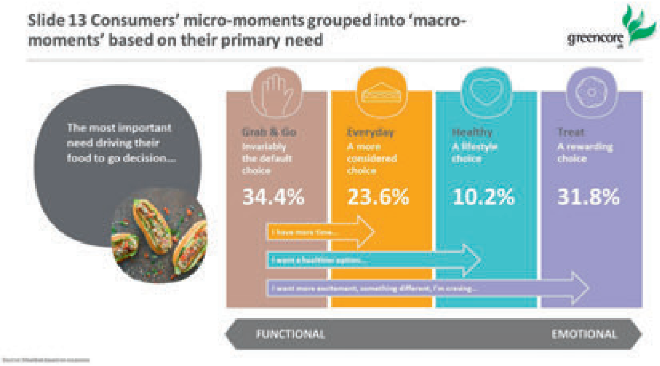
Through the use of market data (MealTrak), we've been able to group and cluster these millions of moments. Every time a consumer buys a Food to Go item, they are asked: what was the primary driver to buy? What was the primary mission, the most important thing at the time?

Through this we were then able to establish traits and similarities of all these different moments and group them into eight macro moments, slide 12.

We were then able to quantify them through MealTrak (slide 13).

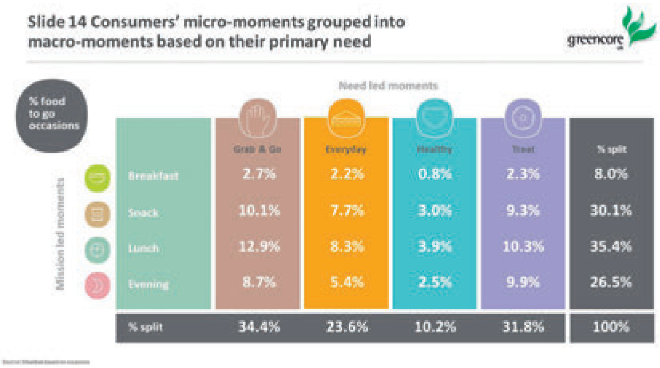
The most important Moment is 'grab and go', which account for over a third of all Food to Go occasions. It's typically the default choice.

Then 'Everyday', where consumers have a bit more time to enjoy their Food to Go and they'll perhaps spend an extra 50p and may be looking for more exciting products and carriers.



Then 'healthy', and we were surprised that this is only 10% of occasions, because we all know that health is important focus at present for consumers. But this is for when health was the single most important driver at that time. If you also included where health appeared as the second or third most important driver, then health would account for nearer 20%. Health is important and we must continue to evolve and meet their ever changing needs.

Another surprise was that 32% of Food to Go occasions are for a treat. Sandwiches do fall into this but it's predominantly about cakes, biscuits, confectionery and some hot drinks fall into this as well. This is an important indicator of the ranges that consumers are buying, that cover the functional to the emotional set of needs as well.


Slide 14 Consumers' micro-moments grouped into macro-moments based on their primary need

% food to go occasions	Grab & Go	Everyday	Healthy	Treat	% split
Breakfast	2.7%	2.2%	0.8%	2.3%	8.0%
Snack	10.1%	7.7%	3.0%	9.3%	30.1%
Lunch	12.9%	8.3%	3.9%	10.3%	35.4%
Evening	8.7%	5.4%	2.5%	9.9%	26.5%
% split	34.4%	23.6%	10.2%	31.8%	100%

But then if you overlay these needs led moments with the mission led moments, you can develop what we refer to as the moments grid. This now quantifies each and every moment. And we can do this for the total market and then we can look at individual retailer level to see where they over or under index. Where should they be focusing their efforts? What should their ranges look like?

Some of the surprising things that we noticed, and again quite news to us, snacking. We couldn't believe how big snacking was, again 30% of occasions. Evening purchasing as well, another quarter of total Food to Go occasions.

The results also told us that our core market, the lunchtime grab and go and everyday, was only

20% in total - there is a huge amount of scope and opportunity for growth across this broader Food to Go market.

We can continue to update this framework to provide good guidance to our customers and internally to our NPD teams, and from this we have an extensive product development programme going on all the time.

From each moment we developed a couple of pages of insight and unique strategies. I guess the message is that each moment requires specialist and targeted development. We've invested in the insight and in the understanding, so that we can then develop the right products and propositions for each retailer to best deliver against that particular 'moment'.

Taking health as an example, this has become incredibly complex. It used to be, and still is for some people, just about reducing fat and calories in their diet to lose weight. It is now more complex, wide ranging and individual now, with consumers concerned about salt, fat and sugar levels in products; some consumers wanting gluten-free products for medical reasons or as a lifestyle choice; high protein; low carbs; enhanced fibre; free-from labelled products: have all to be considered. It is very complicated and it's not possible to go after them all. I think you must choose your targets, which will vary by retailer.

Bakery products are starting to get really specialist and complex and we need you to help and work with us.

How can we take the products we have now that step further? What can we do that will help us to stand out? It's exciting and this is probably not new to you, I understand that, but this is the kind of pressure that we're getting from our retailers. It's about more interesting and exciting carriers that lend themselves to Food to Go occasions. Understanding ancient grains and alternative flours, inclusions such as seeds and grains, ways of delivering additional health benefits in a natural way? Not just sliced bread but other carriers as well?

Vegetable based breads, again not perhaps completely new, but how can you deliver elements of your five a day in a hand-held Food To Go Product?

Food To Go Opportunities How can the baking industry benefit and support growth?

Consumers often talk about when they walk into some stores, it's like a sea of skillets, they can't see the wood for the trees. It's triangular sandwiches everywhere, they are very popular, but can end up hiding some of the new and interesting carriers.

Wraps are the next most popular carrier behind skillets but there's then a whole raft of different carriers that would help to disrupt the fixture, make it more interesting.

Retailers are wanting to create a more artisan feel to their stores and product ranges. We're after baking utopia, I get that but it's again the kind of pressure we're under. I think about some of the innovations that we've launched, collectively over the last couple of years and these were great products, where we have identified a consumer need and met it. The rainbow wraps that we launched are a good example of this. We developed it from consumers saying, wouldn't it be great to have one of your five a day in your sandwich? That required a lot of work, collaboration and partnership but we got there and delivered a great tasting wrap that counted towards your 5 a day. This was a great example of working in collaboration with suppliers.

Another key development was bread that stays fresher for longer. The bread crumb gets softer the older the bread becomes. I don't know the technology used to achieve this but for consumers and retailers, it delivered a fresher tasting product over its shelf life. But how can we extend that to other carriers? What are the technological advances that we can make to deliver step change in the Food to Go that consumers are wanting to buy? How do we make that work in healthy breads?

Held-hot is another growth area that requires special development. How do you get the resilience of the product to last up to four hours in the held-hot cabinet?

It's about driving real step change innovation. We want you to be investing in insight and sharing it with us. It's about being more forward looking.

Product consistency is required day in day out, for every single item. It's got to fit on the shelf, it's got to fit in our trays, and for consumers, it has to be be the same as the product they bought yesterday, last week. It's all about consistency across every single measure and it's got to withstand the tough environment that it has to go through, in manufacturing, through the supply chain and through retail. Products have to withstand a fair amount of handling and that's the nature of the category. I don't think it's going to change, it's the way it's always been. We need to be able to deliver utopia for our customers and consumers.

Food to Go has moved on massively since the days of this picture from the sixties. Some people may long for a really simple world like that, with just three or four products, but they would not get far sales wise!

Even within just the last few years, Food to Go market has undergone huge change and that is not going to stop. When I see all the briefs that we get for potential new products, if anything, it is increasing.

Richard Ball, Session Chair Robert, thank you very much for that superb presentation on Food to Go, which has given us a great insight into this market. Unfortunately, we are out of time for questions but if you have any can you please put them to Robert over lunch and he will be happy to answer them. Once again Robert, many thanks for a very interesting paper. *Applause.*

Richard Ball, Session Chair The next two speakers are very close to my heart in terms of their subject. They are students in the bakery department of University College Birmingham (UCB) and they are going to tell us about their experiences to date at college and in the baking industry. They will cover how the industry has helped them and, more importantly, how we can continue to help other students going forward. I've been very much involved in bakery training during my career and I have been an external examiner for the bakery degree course they are doing. I therefore know what they have taken on and I feel in tune with what they are going to talk to us about today. So please give them your support.

Rising Further in Baking by Rising Stars Jessica Dalton and Megan Roberts

Megan Good afternoon everyone. We just want to introduce ourselves in the first slide since some of you will not know us, or what we have been doing.

We want to start off by speaking a little bit about how we got into the career paths that we've chosen and how we decided that bakery was something that we really enjoyed.

Jessica Essentially, this funnel represents Megan and my journey so far. As you can see, we've studied at college, we both started Level 1 together. We're currently on the degree course. We've gone out into the industry and got some sort of experience but essentially, we've tried to do what we can to stand out from the crowd. The idea is that will have gone through all these stages and at the end, we'll be ready to work in the industry. We will also say a little on what we're currently doing.

As I said, I started Level 1 and I did the Level 2 full time course at UCB but my mentor at the time, Dawn Gemmell, thought that an apprenticeship route would be better for me.

I therefore did an in-house Level 3 apprenticeship. This works well for me because I am learning and earning at the same time and this is where I developed my skills the most. I realised my passion for the industry and, fortunately, I was offered a degree apprenticeship. I successfully passed my first year and I am now on Level 5.

I teach junior baker students on Saturdays, with their ages from 14 and 16 years. Generally, these students will go on to do the college bakery courses, so they're our next generation of bakery students, which is great for us. I shadowed Dawn for a long time and now I'm kind of doing what she was doing. If I can, I work in my free time as a volunteer with some of the little craft bakeries that we have around Birmingham to get some extra work experience. I do it because it's quite hard to get extra experience while working full time at UCB.

Megan Roberts One of the great things about this industry is that, like Jess has said, we don't all have to take the same path to come out at the same career choice. I am also studying at UCB and I'm currently in my sixth year. I have also worked while doing my degree, going down the pastry chef route. I worked in restaurants, hotels and bakeries, developing afternoon tea menus and new products. This has helped me to understand how we need to look at what consumers want and how to drive your business forward, not only from the end product, but from the earlier stages to that.

Jessica Dalton A question we get asked quite a lot as students is what has helped us get to the stage that we are at currently? Meg and I are fortunate to be in the position that we are here today to talk to all you guys. What has helped me personally is bakery competitions. I had no baking knowledge when I started Level 1. I had been training to be a midwife and decided to have a complete career change and moved onto the Level 1 bakery course, so the position I'm in today is amazing! When I progressed to Level 2, I started entering competitions. It was mainly cake competitions I was entering because that's what I was strong in. As I've gone through the years, I've pushed myself out of my comfort zone to enter competitions that I don't specialise in. The cake bottom right of the slide is the Eiffel Tower. That was a dare, because Dawn's biggest nightmare was getting the cakes to the competition venue undamaged. I said to her "I'll do a cake based on the Eiffel Tower" thinking she would say no, it would be too easily damaged, but she was like, "go on and do it"! Getting the Eiffel Tower cake to the competition was scary but it got there safely, and I won the competition. It was a very proud moment for me because it was the first gold medal that I had got in a cake competition, so I was really happy with that.

Megan I went down a slightly different route to Jessica, where I would work in any bakery that said they would have me to gain experience and to see how they operated. I went to a flour miller to see how they ran things and had a sourdough masterclass with them. I went to as many places as I could to grasp the scale of what the industry is about and it's not always what we can see right in front of us. It's also about job roles that are usually hidden within layers of the business, which has really helped me to progress and to see the scale of the baking industry.

Jessica I spoke about how competitions have helped me a lot in my career to date. Over the past two years, I've also been fortunate enough to go on bakery courses and visits. I went on the Worshipful Company of Bakery Course and in 2017 I went on the Richard Bertinet course, both of which were great. This year I was able to go to France and see a whole different world of baking and although it was only three days, I learned so much. Everything I've learned on these courses, I use in my day to day working day, so it was very useful and absolutely fantastic.

What is great for me with these courses is the people that we meet. Being at university we are with our classmates all the time, and we are in our comfort zone. This really pushes you out of your comfort zone because you have to talk to and work these people during the courses. I'm still friends with the people that I've met on these courses and I still talk to them. They're from colleges, bakeries, ingredient suppliers and other areas of the baking industry.

Megan Roberts I also went on a Worshipful Company of Bakers course and they open it up to a broad range of people. I was looking forward to meeting people from many different companies there. We met some Scottish bakers and their bakery is completely clean label, which we know

is one of the trends that is coming in now. It was great to learn how to make some excellent products. The course was run by Bakels, which was a very good host. The lunches were always really nice and we got to explore the business. We also got to learn more about what the Worshipful Company of Bakers does for students and for other people who are just coming into the industry and want to learn more, which I think is essential for us coming into the bakery and it's something that we can all use in our career.

Jessica Dalton This next slide is about the Baking Industry Awards, one of the biggest things we are talking about today. I'll pass you over to Megan to speak about it.

Megan Roberts I recommend the Baking Industry Awards (BIA) to everyone in the baking industry as a fantastic experience. BIA celebrates the industry for how great it is but for young people like myself and Jess, it's one of those opportunities where, I've attended it twice and both times I've met so many excellent people that have opened so many doors for me personally. I keep telling other students, just apply for the Rising Star Award. Even if you don't get through, just trying and meeting the judges, who are great contacts to have throughout your career, is worth it.

Jessica Dalton I am really lucky and proud to have won the 2017 Rising Star Award. The Bakery

Industry Awards were like the Oscars, it was unreal. There were people from all over the UK, from different bakeries and industries and it was great. I had been to conferences and networked with people in the industry, but this was a whole new scale. I want to mention that Megan, who was also a finalist, and I were absolutely petrified, because being so young, we didn't really know many people. It's quite daunting going to a place where everyone knows each other at such a prestige event. However, everyone made us feel welcome and it was a lovely evening.

I want to touch on the fact that in 2016, I applied for the Rising Star Award but didn't get through to the interview stage. Although it was a knock back at the time, it was also a wake-up call for me because that year I then made an effort to put myself more out there in the baking industry to improve myself.

I wondered why I didn't get through, because I thought I was doing enough but it pushed me to do more in the industry. I went on more work experiences, entered bakery competitions, studied hard on my bakery course. I just did a lot more stuff in day to day to improve my bakery profile and I'm really proud that I won the Rising Star Award, the next year, so thank you.

I've done quite a lot but as I said, it is quite hard working full time to be able to put myself out as much as I would have liked. Rondo, the sponsors of the Rising Star Award, were great. Wherever you are, Richard of Rondo, in the audience, I just want to thank you for everything that you've done throughout the awards. You made me feel at ease when you realised how nervous I was.

I was fortunate enough to go to Switzerland with Rondo to experience and have an insight into the pastry processing equipment the company produces. As bakers, we use it as pastry rollers when we're making pastry every day, but I learned about the engineering involved from start to finish, in making this type of equipment and it was fantastic. Switzerland is also a beautiful country to visit, so it was great.

My boss and I were invited by Roberts Bakery to 'afternoon tea in the sky', being 100ft up in the air. I was reliving this in the video Stuart of Roberts showed during his earlier presentation earlier. I was like 'oh god' with being so high in the air. But that was fantastic because understanding the product development and the efforts that had gone into the new Robert's products was a real eye-opener for me as well. So that was a fantastic experience.

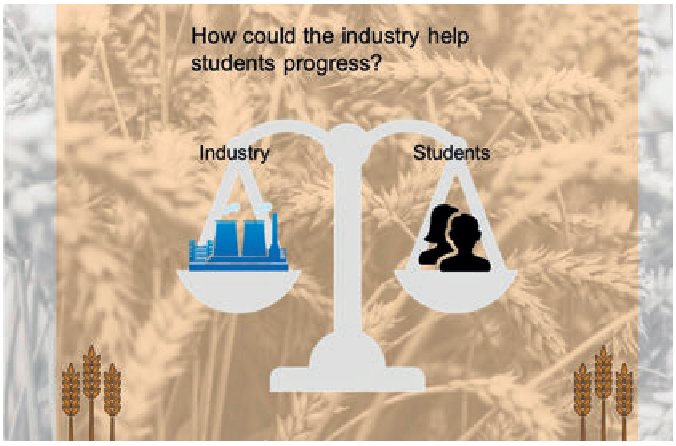
I want to enter as many competitions as I can this year. I was fortunate to be on the other side and be a judge this year. It was really daunting because I was judging with people who had years of experience in the industry but what was great was to see the effort and the time that goes into narrowing all these hundreds of loaves and other products down to a final winner. So again, it was a great experience.

For the past two years I have been a student rep for the ABST and I worked closely with the Communications Secretary Christopher Foxall. I am now helping him with the communications secretary role and this is a chance for me to let my creative side out, and be more involved in the industry. So that's what I'm currently doing.

Megan Roberts I just spent my summer in Essex with Zeelandia on a summer internship. For me this really harmonised what I've been learning at the university with how to use that in the industry. I enjoyed every second that I was there, and I really did not want to leave. I got to see every aspect of the business and how it works, particularly how new products get started from a brief, through NPD, through product trials and assessment and finally to the new product.

I met so many people there who were informative and encouraging, and they inspired me to keep exploring and developing my career in the industry. No matter what point you get to, you keep learning and you have to keep moving forward and for me, this experience of being away from home for the summer was definitely something different. It was one that I would recommend to every single student because I saw so many job roles there that I didn't even know about, so these were experiences that I'll not forget and they will be invaluable to my career.

Richard Ball Quite a big question today is "how can the industry help students progress"?



Megan Roberts For me and Jess, after a discussion, we decided that it was about balance. One of the key things is yes, that the industry puts opportunities out there for students, but students need to put themselves out there as well, to make themselves known to employers. The best way to do this is through opportunities for factory visits, work experience, and that sort of exposure that they need to work with the industry. So it's about the working relationships.

Jessica Dalton Megan's point about balance is something I feel strongly about. So how can the industry help? We already have work experience, internships, industry visits, etc. but what Megan and I were discussing the other week was what could we do to elaborate on this? What could we do to help all sorts of students? Megan and I are fortunate in that we are outgoing, we're confident, and the fact we're standing up here talking today talking at a BSB conference proves that. But I know a few students who have fantastic practical skills, but they do not have the confidence to approach the industry directly. That is something they will eventually overcome, but as a student it's hard. It is also quite intimidating when you've got other students like Megan and me, who have done a lot of things in the industry. What would be lovely is if all students could have these opportunities, as there's plenty of them out there. So what Megan and I spoke about was opportunities for work experience. If you get the chance to work in a craft baker, for example, for two weeks, you'll get an insight into the range and type of products that are produced, the production methods used and get hands-on experience. Megan has been on an internship, so perhaps she can say some more about that?

Megan Roberts As I mentioned earlier, I had to relocate to Essex for my internship and it lasted nine weeks. I was fortunate that Zeelandia were very supportive. Jessica and I had worked enough to be able to support ourselves through different experiences. The Worshipful Company support students financially and we feel this is essential in order to help students progress. There is a financial barrier that we know many students face. They want to go for these opportunities, they want these sort of work experiences, but there's not always the financial backing for them to do them.

Jessica Dalton Exactly, so that's the kind of problem where logistics and the financial support come in. You may go on work experience and the company concerned thinks that your knowledge and skills are enough for them to offer you a job. The problem may be however that in order to take the job you have to re-locate. You must then balance the cost of relocating, since you will have to pay for digs in the new place and perhaps have to travel home on your days off, compared to what you will be paid in your new job, and sometimes it works out that the student cannot afford to take the job.

For students going on work experience, help with the cost of train tickets, for example, to where the company is located, is very welcome for students. I've been fortunate enough with the companies I've been on work experience with, since they do help with the funding process and that's great. As Megan said, we're in positions where we're working as well as studying where we can financially support ourselves in order to go on visits or for work experience but many students, unfortunately, can't do that.

Industry visits I think are great for all bakery students, going to different types and sizes of bakeries. This shows them how what they are being taught in their classes is being used in practice in bakeries. It also gives them an insight into the type of bakery they might like to work in after they have qualified and what kind of job they would like.

These are just a few suggestions. We're not pushing that this needs to happen but it's just something we've discussed and perhaps it's something to think about in the future.

Question The big question, that's hard for every student to answer, is where do I see myself in 12 months?

Megan Roberts And it's one of those questions for which we could have a million answers. For me, hopefully I'll be graduating in my final year in 12 months' time and saying goodbye to UCB. which I've called home for nearly six years. But it's quite a daunting task for us as students. I think we're all coming to the end of our course now and we've invested so much time and so much effort into the experience we've had and we're all at that stage now where we want to go out into industry and put what we have learned to use. We want to start meeting people which is one of those things where, like Jess has said, with the industry days and meeting people, we come to events like this and it's so much easier when you recognise a few faces around the room because you have people to talk to and career options to hopefully discuss with them.

Jessica Dalton As I discussed earlier, because I'm doing a degree apprenticeship, it will take me slightly longer to finish my degree. Although Megan and I started at the same time and technically we should be finishing at the same time, we're not because I work full time alongside doing my degree. So my apprenticeship finishes next year and then I would like to finish my degree, complete the Level 6, and also then maybe perhaps do an internship, get myself more into the industry, maybe product development or something like that, just to get some more experience but that's my next goal that I want to achieve. Thanks for listening.

Richard Ball Megan and Jessica, that was fantastic. I feel quite emotional now with all that. If I was your mentor, just what you've done, speaking like that to an audience like this is just fantastic and if you've got any questions, please do ask these girls because they really have shown what's in them. I've gathered myself now but it does get quite emotional. When you see girls like this who have gone through the training that's available to them and they come out like that and they can speak to an audience like yourselves without a stutter, without any nerves showing, I feel terrified but they showed nothing, and that's just brilliant and if I was their mentor, I'd be so proud of them today. So please if you have any questions, from an industry side we can help them, just give them an insight as to what other pathways they can walk down or seek, which would be great. But if not, please speak to them at lunchtime and ask them what they want because I'm sure they'd be delighted.

Richard Hazeldine, BSB Chairman Before we close for lunch, I just wanted to thank our speakers this morning. I think there's some key themes gone through today. The key one for me is passion. I think everybody has spoken with absolute passion about what they do and what they believe in. It's been very challenging, some real challenging experiences that people have shared with us. We've challenged our comfort zones and I think it was very refreshing to hear both Jessica and Megan talking about getting outside your comfort zone.

We started off this morning with the Roberts Bakery example where very clearly they got outside their comfort zone and really moved things forward. So we've had the rollercoaster high speed ride through the rebranding exercise from Stuart. Stan encouraged us to get outside the box and do things outside the box rather than just thinking about it. Then we had Chris who reminded us about the rise of the Bread Ahead and how quickly that's gone, and then Lin again challenging us to embrace the new technologies of social media. I guess it's out of most of our comfort zones but it's something that we've got to do and get a grip of.

Then Robert who managed to de-mystify the out of home, Food To Go market for everybody and I think there's some real useful points there for people and then finally, Jessica and Megan who I think summed up things very nicely with the way they presented. They were professional and epitomised what we're trying to do at the BSB which is about engaging with younger people, bringing people into the industry and not just get the students into their first job but we need to encourage them through those first steps in their career. *Applause*

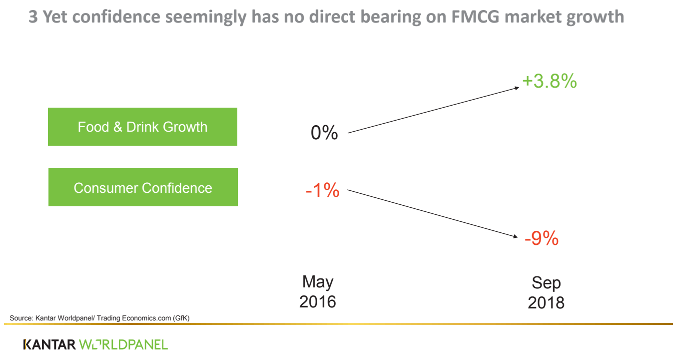
Richard Ball, Session Chair Matthew Verity is our next speaker and he has a wide experience of working within the bakery sector. His passion lies in working closely with manufacturers to help uncover insights and opportunities that are essential for business growth. He will provide an overview of the current bakery market but, importantly, he'll look ahead and predict major new consumer trends. NPD is vital to this fast-moving sector since retailers need to stay one step ahead of the competition. Matthew's expertise lies in understanding market dynamics and consumer behaviour which helps him to support clients in delivering strong, relevant trade arguments for growth in bakery.

The Latest Trends in Baking by Matthew Verity, Business Unit Director, Kantar Worldpanel

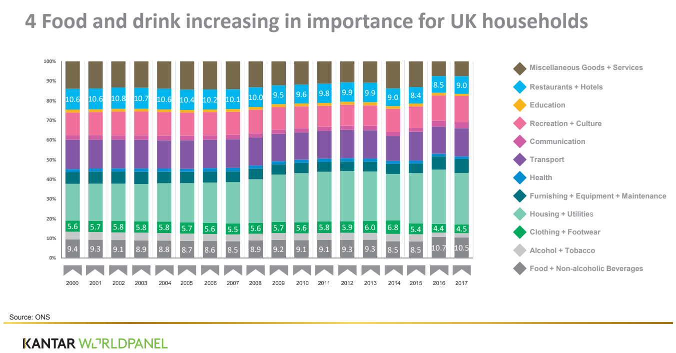
Thank you very much, Richard. Kantar World Panel track and measure the purchase and consumption of food and drink going into UK households, and assess the consumer behaviour behind that. I want to share with you where the market is now from our perspective, what core trends you should be aware of and how they're developing. There is a bit about us in **slide 1**.

Is all as it seems in the marketplace, **slide 2**?

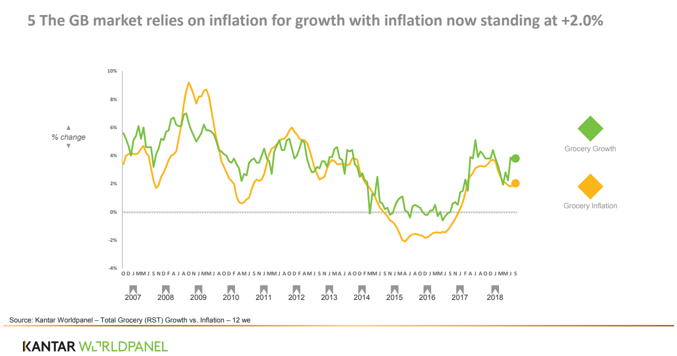
Clearly, we're in politically unstable times and hear a lot of negativity. Retailers have had a tough time and are concerned about future prospects and price competition, yet bakery is a category in the grocery market that fundamentally sees slow behaviour change.



If we go back to May 2016, **slide 3**, our grocery market had no growth and consumer confidence was -1%. Going on to 2018, we have the grocery market that is in a much healthier position, with growth at 3.8% but consumer confidence at -9%!



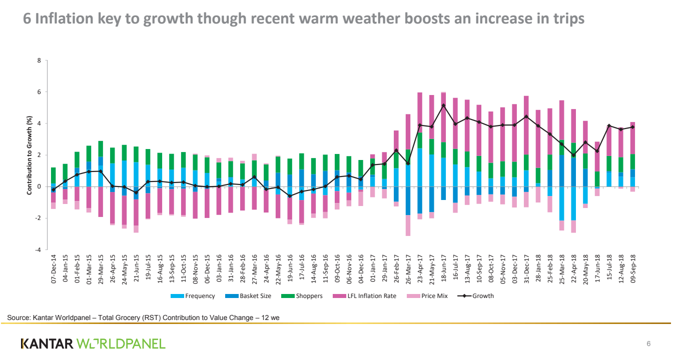
Have a look at food and drinks' proportion of our total spend from 2000 – 2017, (what we do with our income), **slide 3**, (just follow along the grey line at the the bottom of the columns), that's how much of what we spend goes on food and drink compared to leisure, utility bills, etc. If you go right back to the recession ten years ago when we had tough times, food and drink became a more important part of our spending, and it was other areas we were cutting down on. The in-home element of what we spend is quite inelastic and as we've seen confidence dip in other things, food and drink is essentially becoming more important to us when we measure it this way.



Flicking onto the grocery market, **slide 5**, it's back into growth. At Kantar World Panel we measure the performance of the grocery market and this is the figures that we report to the City. Retailers and eagleeyed investors look for the latest figure in order to decide what to do next. We have the most robust read-out in **slide 5** of grocery inflation, looking at 98,000 products, the like-for-like price change, to assess what the true inflation is in the grocery market. We track Grocery Inflation alongside Grocery Growth and you can see clearly in the chart a significant correlation between grocery performance and inflation in the market.

We've seen over the last year a return to inflation after a period of deflation then the market stalled and went into decline. I think that the view out there is that a bit of inflation's been quite good for the market and pushed it back into growth. What you can see towards the end of the chart though is inflation starting to fall a little bit below the growth of the market.

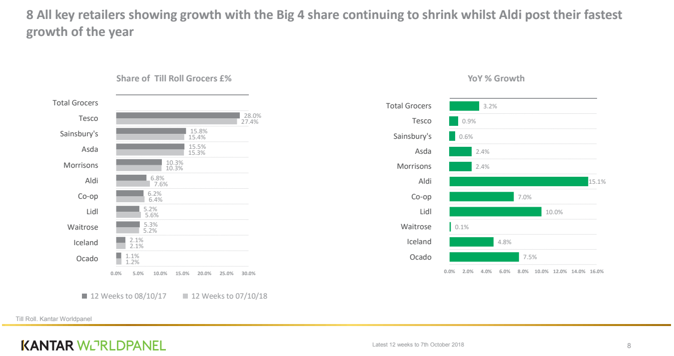
We can look at the grocery market in terms of what is driving performance and essentially, there's four ways that can give growth. People can shop more often; they can buy more products; they can buy more volume; and more people can be buying products. Most of the increase in grocery will just come from population growth, or essentially, you've got a mix of that and inflation.



So higher average prices coming through. That purple bar in **slide 6** represents the inflation of the grocery market, and that has driven the return to growth of the market. What has happened latterly is we see a little bit of volume growth coming through, a little bit of frequency growth coming through and that is due to the hot summer. When it's hot we want to take the family out to go somewhere and do something. While we are out, we want to eat and drink. That is why ice cream sales are booming, why alcohol and food have gone up. The market has had a boost from the hot summer but generally-speaking, inflation has driven the market back into growth.

It's not consistent across every market, **slide 7**, with butter, milk and bread seeing quite high levels of inflation. I've put bread in there, the like-for-like

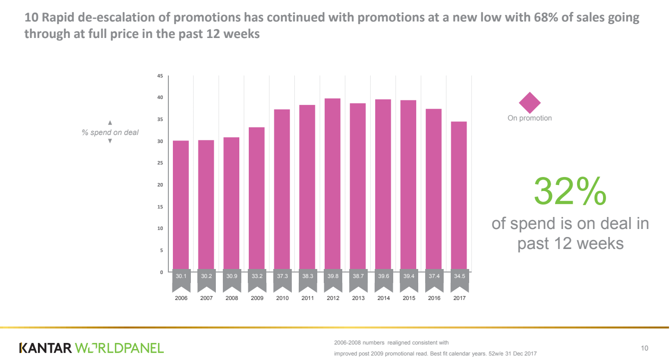
inflation as we measure it being 4.7%. Other grocery market items have seen deflation – cooking sauces, fresh poultry and detergents.



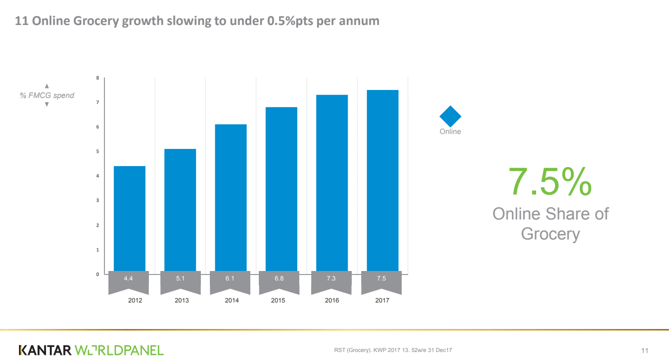
The other positive that starts to come through is when you look at the retailers, **slide 8**. We measure each retailer's performance and their % share of the total market. Every period we report to the City what the share of the grocery market is for the core retailers. The top four, Tesco, Sainsbury's. Asda, and Morrisons, are still dominating the market, with a 70% share of the market between them, but they are getting squeezed continuously and losing share month on month to the other retailers. Aldi posted the fastest growth of the year.

The key thing is that all the retailers are back in growth. We hear a lot of negativity out there and we are all waiting for Mrs May to return with utopia from Europe, yet when you look at it, we've got a grocery market back in growth, and food and drink becoming a more important part of our own grocery spend!

Consistent Trend I have talked previously about the rise of the discounters Aldi and Lidl. Back in 2007 Aldi and Lidl had a 4.3% market share between them. The latest figures, **slide 9**, show that they now have a 13.1% share of the market and that is massive growth. Like it or not, in the last 12 weeks, 65% of us have shopped in at least one of these retailers. When you think that Asda's market share is about 5.7%, there's a lot of people now shopping in Aldi and Lidl. We started to see a slowdown in this growth, but it has surged again. Aldi and Lidl are continuing to have an increasing share of the market and have become a key player in it, and this shows no sign of abating.



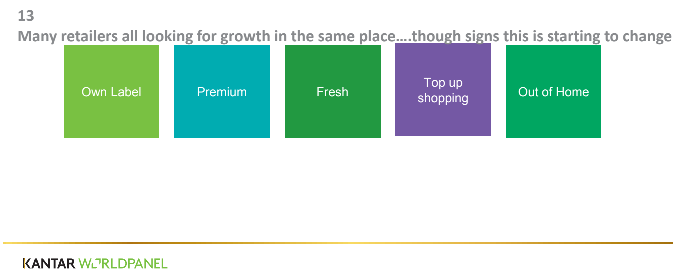
Promotions I have also spoken previously about the high level of the 'buy one, get one free' type of promotions in the grocery sector. That has slowed substantially over the last couple of years, with a real pullback on promotions, **slide 10**. We are now at a position where only 32% of spend in the market is on a promotion deal, which is the lowest point we've seen for almost a decade.



Online market The other key area I have talked about a lot is the huge growth of the online market and how important it is for a retailer to be online. It now holds 7.5% of the grocery market, **slide 11**, and now growing at a slower rate of about 0.5 percentage points year on year.

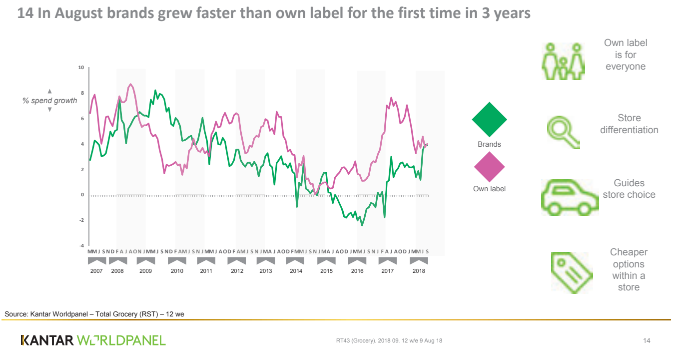
Price competition You'll all be aware of the response from Tesco to the discounters in terms of its new outlet, Jack's, **slide 12**. There are only a couple of them in the UK so far, but Jack's is very

much based on a discount model, with low everyday prices on British products. We also have the pending merger between Asda and Sainsbury's coming up and again I think that is a response to a lot of the price pressures out there at present. We also have things like the exclusive brands in Tesco, again trying to give that point of differentiation, things like Molly's ice cream.



Retailer Focus What have the retailers been focusing on over the last few years, **slide 13**? They have all really been trying to play a little bit in the same space. They've all been talking about own label because own label gives them a real point of difference. It gives them a way of differentiating themselves from the other retailers, that are essentially selling the same brands, a reason for customers to pick their store. There's been a real push for premiumisation, linked to the own label thing and on fresh food, again trying to give that point of differentiation. The different 'missions' consumers are on when shopping and the importance of top-up shopping. The out-of-home market as well, covered this morning by Robert Potts with his excellent paper on Food To Go, an area that is booming, outstripping the take-home grocery and continuing to show strong growth.

We are, however, starting to see a few signs of some of these things slowing. This chart, **slide 14**, shows at a grocery level, brands versus own label, and we have been seeing for quite a while now own label outstripping the growth for brands. Essentially after a long period of own label outperforming the branded market, there's a bit of a recovery from



brands in the category. In August 2017 brands grew faster than own label for the first time in 3 years

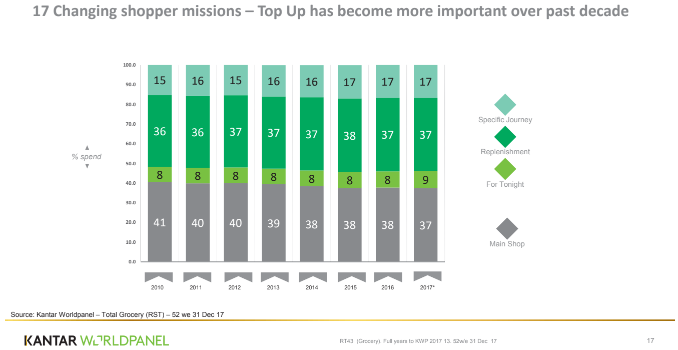
15 Own Label - shopper choices save money, but also potentially trading up

Value Own Label	Standard Own Label	Brands	Premium Own Label
-1%	+4%	+4%	+6%

KANTAR WORLDPANEL

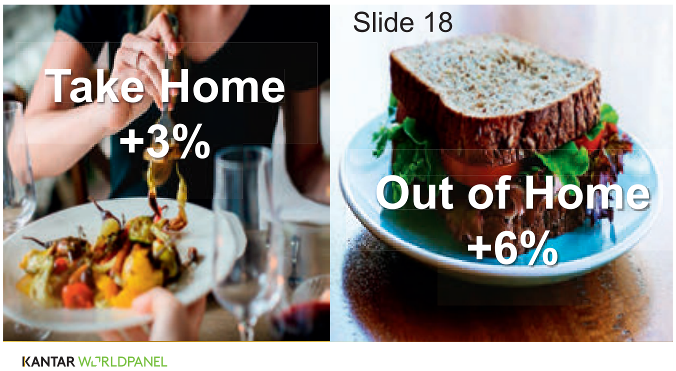
Premium Products We talk about premiumisation and certainly when you look at the latest figures, **slide 15,** looking at own label across the whole of the grocery market, splitting it out between brands, premium, standard and value, the premium end of the market has been doing very well. Premium-only label has been growing very strongly at + 6%. Again, there's a little bit of a slowdown in this but certainly it's still a trend that stands out there.

Fresh Sales Fresh sales represents about a third of the grocery market and when we look at the growth here, **slide 16**, we see that we call the fresh category is about £1.3 billion up on last year, which is roughly about a third of the total grocery sales growth. If we'd presented this six months ago, we'd be saying very much that fresh sales are really outperforming the rest of the store. We now see quite strong growth coming through from alcohol, from some of the ambient categories, and a bit of growth coming through from frozen as well.



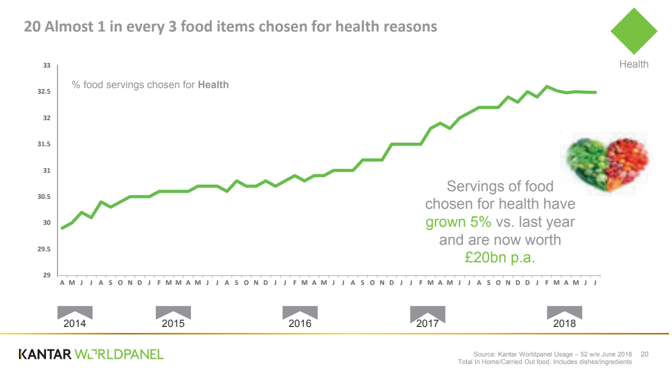
Changing Shopper Missions What about the actual shopping trips we're making? We're told that we're shopping more often, we're doing smaller baskets, etc. There's quite a bit of truth in this when you look at the last decade or so. The chart in **slide 17** looks at the reasons for four types of shopping trips: specific journey; replenishment, (topping up); for tonight; and main shopping trip.

The idea of a main shop every week doesn't exist anymore. We tend to do it every fortnight and do a top-up shop in-between. The main shop is gradually shrinking as more and more people are shopping on the go. The need for the retailer to be agile to hit these shopping missions has certainly become key.

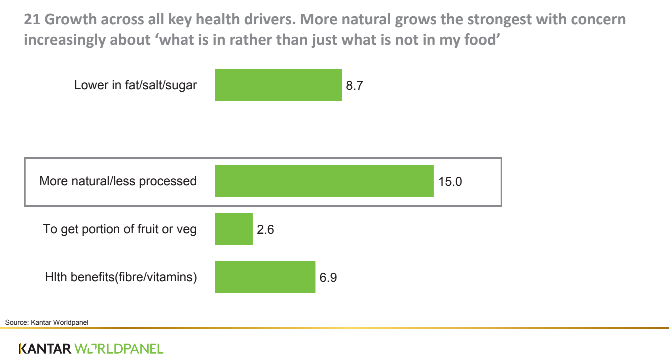


Take Home and Out of Home The take home market, **slide 18**, grew over the last year by 3%. This is very much driven by inflation in the category. Out-of-home continues to be the star performer however, currently growing at 6% and showing no sign of slowing down.

Naturalness and Health What about things from a consumer angle? Consumers like to think about what I would call naturalness of the food they buy and eat, see **slide 19**. More and more of them are also thinking about how the food they eat affects their heath, with almost 1 in 3 food items now being bought for health reasons, **slide 20**.



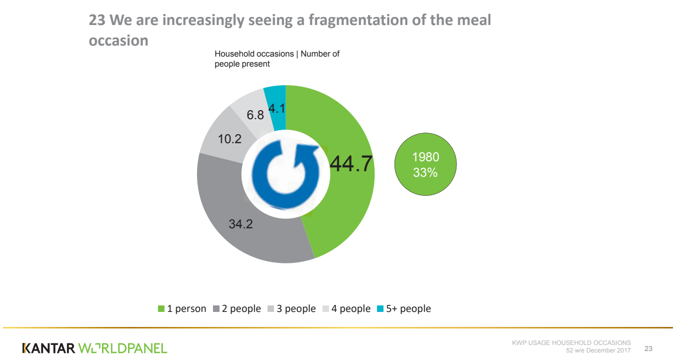
To assess food trends at Kantar we track the consumption of food on all occasions. When someone eats a food we record: what was the occasion; who was present; what was the reason for consuming that food? From that, when you look at the percentage of food servings consumers have chosen for health reasons, you can see that the long term trend is an upward trajectory. Many consumers are concerned about their health and more often than previously, they are choosing a food for health reasons.



I think it's important, and this has been touched on in an earlier paper, to get away from the idea that the health choice just about calorie counting. Clearly, there's more to it than that and what does health mean to different people? **Slide 21** gives some of the health drivers consumers give for choosing particular foods.

There is product sales growth from all the health drivers. More natural has the strongest growth, with concern increasingly about 'what is in' rather than 'what is not in' the food. More natural and less processed are the strongest health drivers for the choice of a food. There are challenges for bakery in terms of presenting itself as a supplier of healthy foods. However, there's a lot that can be said about bread in terms of nutritional content, in terms of goodness, fibre content, in terms of being part of balanced diet and it is that more natural, less processed, wholesome idea of positive health that is certainly coming through.

I just thought I'd show you, in **slide 22**, an ice cream category some of you may be familiar with, Halo Top. If you look at the labelling on the pot, how many health benefits can you spot on it? This is ice cream and if you want to lose half a stone for a holiday in Marbella in two weeks' time, you're not going to load up on ice cream beforehand! But even a category like ice cream is making claims about: the number of calories per tub, being high in protein, low sugar content, all this in a category that's traditionally regarded as being unhealthy! Product health benefits and the way they are communicated in a positive way, has never been more important!

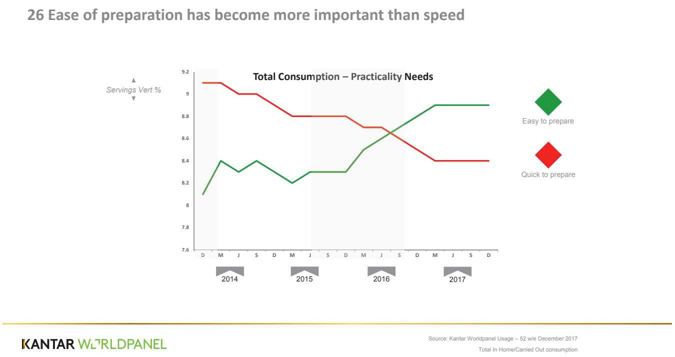


Fragmentation of the Meal Occasion This concerns the number of people which share meal occasion, **slide 23,** and reflects the changing nature of our eating habits. Earlier we all enjoyed a nice conference lunch together, talking to people with similar interests, some of whom we knew and some we may have just met. The reality is however, that this rare for us, because on 44.7% of occasions we eat on our own, which is not far off half the food and drink occasions we have. It's being aware of these trends that we can change some of our behaviour. If you go back to 1980, that number was at 33%. Some of that is to do with lifestyle, some of it's to do with home make-up, work patterns, etc. but it is making sure we really understand with regard to the occasion we're trying to hit sales wise.

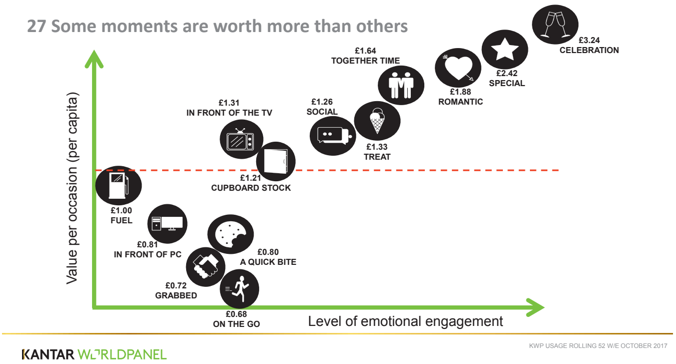
The idea of a three course meal, **slide 24**, is a novelty today because increasingly people are cutting a course out. There has been a huge decrease in the number of people having dessert for lunch or dinner, which is a challenge for dessert manufacturers. This fragmentation concerns the whole population. We're now having to speak to very different people in our surveys. Age used to be an easy discriminator and you could look at older and younger consumers and be quite clear of the difference between them. Those days have really changed. There's a much more complex range of consumers now, with different ethnic mixes feeding into it, north and south a big change as well, together with the way we consume food, the way we think, what we want, etc.

Slide 25 looks at an example in Dorking of the fragmentation of the retail world we have as well now, with seven grocery options within a mile of each other. All different types of outlets trying to hit consumers with their range of food and drink.

Food deliveries are also widely available, including You've like Uber Eats, also **slide 25**. A young member of my team told me that he had a weekend together with two of his mates at home recently and rather than cooking themselves, they had deliveries of breakfast, lunch and dinner. It's a different world out there for the young consumers. It's much easier now to decide at a later point what am I going to have for dinner, or I've bought something but I don't really fancy it and I'll buy something else. It's very down to each person, different ingredients, etc. but the point here, essentially, is there is obviously a lot of money to be made from hitting those more expensive occasions and thinking about what are the occasions we're not playing in? Where are the occasions that are more valuable to us? And this is becoming more and more important to the retailers.



The final core trend I wanted to touch on was the idea of a low effort to treat, **slide 26**. the average evening meal takes 34 minutes to prepare, and that's down from an hour 30 years ago. We keep getting told we are time poor, we've got less time to prepare meals and that changes what we're trying to do. But when you look at it, it's not just about time, it's about ease of preparation. If it is a chicken joint and it comes ready to cook and all I have to do is put it in a roast tin and into the oven for say 50 minutes, it is convenient. I can do something else while it is cooking. It is not just about saving time, it is about ease of preparation and convenience as well.



The other area I think is important to understand is the actual eating occasion you are trying to hit? This comes back to this fragmentation eating occasions and the complexity of the market. There are many different types of occasions and **slide 27** looks at the value per person for each occasion on the vertical axis of the chart. It also looks level of emotional engagement on the horizontal axis of the chart. You have to assess which occasions would be the most valuable to your particular company from a supply of products point of view.

Bakery Category Value The value of the bakery category as we measure it, is £3.9 billion, **slide 28**, it is growing at 2.5% per year, and each consumer buys bakery 90 times a year. The average household is spending £146 on bakery, it's a big, big market. Over the last five years things have changed very

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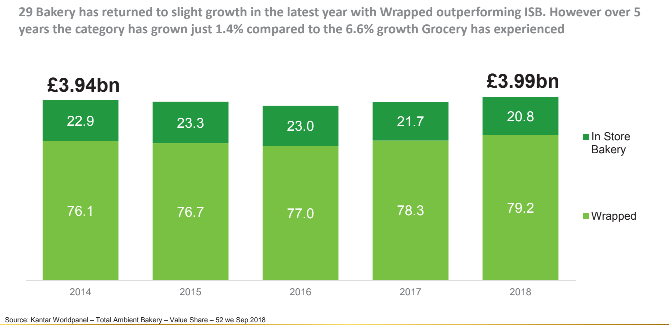
little in terms of the facts and figures, see **slide 29**. If you go to 2014, £3.94 billion and we now sit at £3.99 billion. Over that time, growth of 1.4% and this is at a time when the grocery category has grown at 6.6%.



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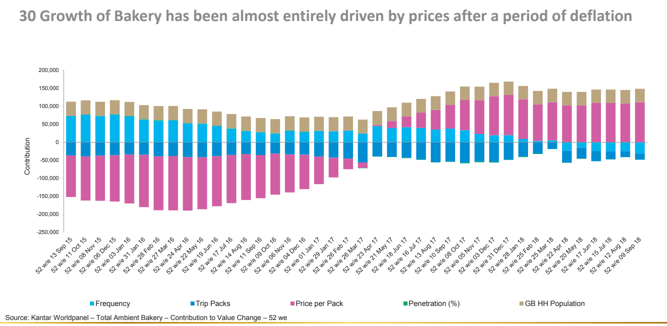

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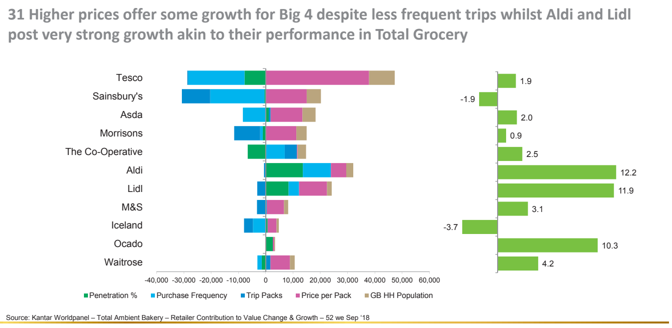
It has been a challenging time for the bakery market, and particularly the wrapped bread market. It was fantastic to hear in Stuart's paper at the start of the conference, how Roberts are embracing the need to excite this category, to do something a little bit different, to try and push some growth. When you look at that category over time, **slide 30**, you can see that the market has grown through higher prices to due inflation and some of that having to be passed back across to the consumers.

Retailers' Performance From a retailers' perspective, **slide 31**, for the top four you see volumes shrinking in terms of their sales year on year and the growth they're starting to get through inflation and the higher average prices. Where we do see more natural growth is with the discounters and that's very much a factor of their grocery performance, with more people going through their stores. Clearly discounters are a destination category.



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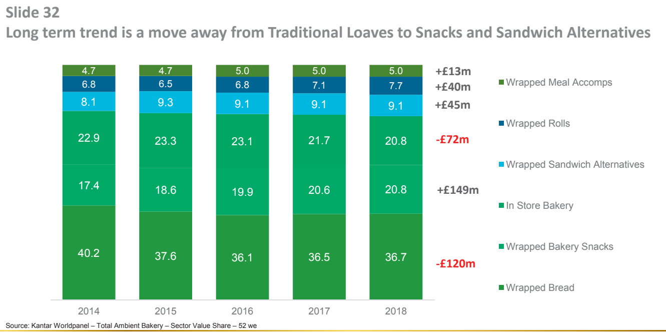
Sectors We're looking at the share of the bakery category in **slide 32,** split into the core sectors - wrapped bread, wrapped bakery snacks, in-store bakery, sandwich alternatives, rolls, and meal



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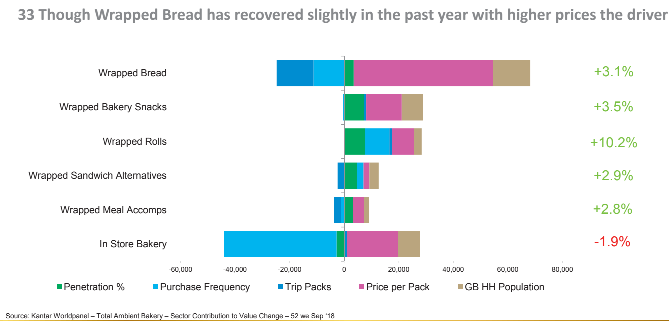
accompaniments. No surprise there but look at the change in the figures over the last five years, £120 million stripped off the wrapped bread market, £72 million from instore bakery, and share of the category itself going from over 40% down to 36.7%. Whilst that share has got squeezed, we've seen a real growth in terms of bakery snacks and some of the other areas like sandwich alternatives, etc. and the trend continues to show that.



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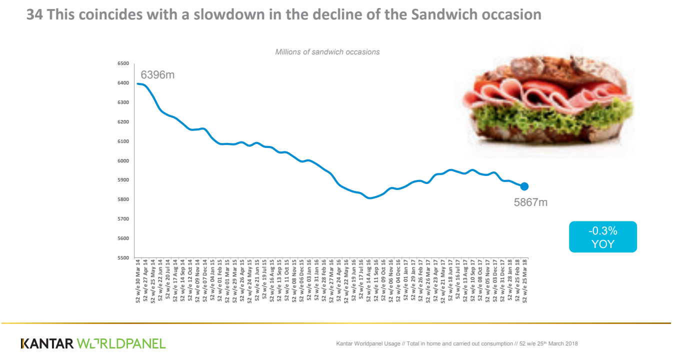
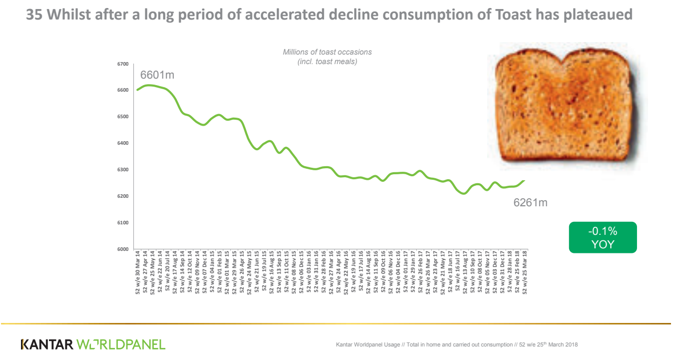
That said, we have seen a slight recovery in wrapped bread in the last year, **slide 33**. Still struggling from a volume perspective, again higher average prices coming through a little bit after that, real pressure in terms of price on the sector. It's starting to get a little bit more growth coming through there.

Again you still see bakery snacks, wrapped rolls, sandwich alternatives, meal accompaniments, you look at that green bar, that's where you've got more shoppers buying into those sectors. The movement there is into more of those different areas, trying to excite the consumer.

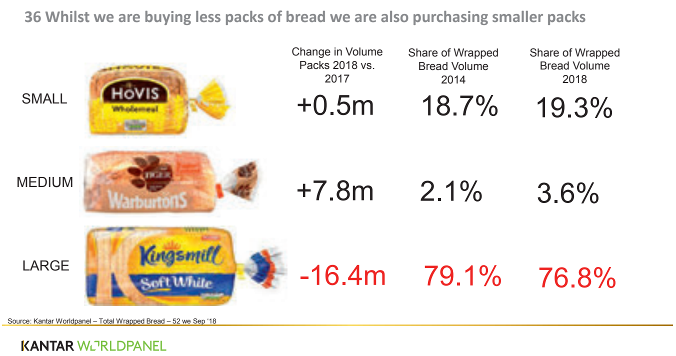


The slight slowdown we see there in terms of wrapped bread, we can break this down to a couple of reasons. One is it coincides with the slowdown in the sandwich occasion, **slide 34**. Sandwiches remain a massive eating occasion and one of the main meals British consumers will eat. We've seen a decline in the sandwich occasion over the last few years but that has plateaued, which helps the wrapped bread market to stabilise a little bit.

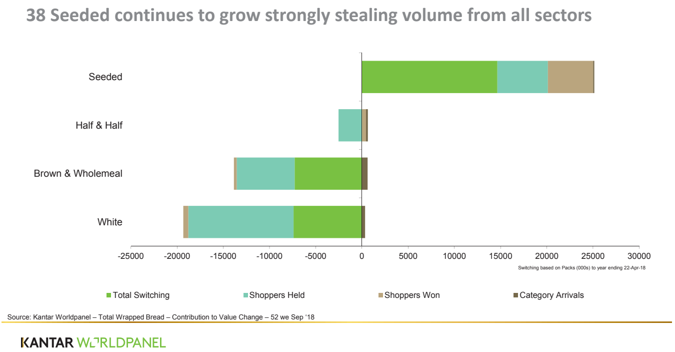


We've also seen the same picture come through in terms of toast. Clearly breakfast has always been a key part of this. If you go back to older consumers particularly, they were and still are, reliant on having toast in the morning. As the younger population has come through, that's changed and people are doing all sorts of things for breakfast, from missing it, to having something on the go, to some still having toast, and having cereal at home or in the office. The decline in the consumption of toast has plateaued, **slide 35**, and this just helps boost the bread market.

We're buying less bread and smaller volumes of bread as well, **slide 36**. Clearly, the large 800g loaf is where the bulk of the market is but we see that share shrinking slightly as some of the smaller packs have come through and this particularly is medium sized as well, a bit of growth there coming through, a bit of a change in what we're doing.



Health Products related to health remain a key focus in the baking industry with the core players. Everything they do is based on trying put over a positive health message for their products and consider how to take advantage of this consumer trend through NPD, **slide 37**. It is the one sector of the wrapped bread category that is growing strongly, and more people are buying into it.



Bread Types Slide 39 looks at consumer switching from one bread type to another. A lot are switching to seeded breads and there now a large variety available. sector. There's some real growth coming through on artisan breads, with double digit growth. Flavoured breads and morning goods as well are doing well, and who would have thought two years ago that we would have a gin and tonic flavoured roll, as highlighted in the Roberts Bakery presentation this morning!

We also have the gluten-free market, **slide 39**, year after year posting very strong sales figures and developing a wider range of gluten free products.

Premium & Artisan | Flavoured | Gluten Free

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The main sales of gluten free products come from consumers have made gluten-free a lifestyle choice in the belief that it is better for them, rather than consumers who have to eat gluten free products for medical reasons.

Just the final thoughts from me.

- Health remains a key long trend. Communicating benefits, responding to concerns and embracing positive 'natural' health will be important for future growth.
- Be mindful of the fragmentation of the shopper. Convenience, ease of purchase, ease of preparation and 'value for money' will remain increasingly important.
- Understanding and engaging the consumer has never been more important. Help shoppers to treat themselves, snack and indulge their needs outside of traditional occasions.
- Keep the NPD pipeline full. Meeting new consumer needs and playing across different occasions provides growth opportunities.
- Be ready to support retailers with a clear online strategy, wider channel and out of home focus and a clear point of difference.

I hope my paper has been useful and thank you for your attention.

Richard Ball Thank you, Matthew, for a very informative presentation. We're open for questions, anybody want to put a question to Matthew?

Question On one of your slides you referred to wrapped bakery snacks. Can you just explain what you mean by those?

Matthew Verity I suppose when you've got your traditional wrapped bread, we're just breaking down the rest of the market. It's what a lot of people would have traditionally called the morning goods sector, all things like crumpets would be in there, pancakes would be in there, croissants would be in there, for example. Then obviously you've got the sandwich alternatives end as well, which is where you've got things like bagels and wraps that come in.

I suppose the growth of those markets has been very much around, if you look at something like crumpets, a lot of work's been done there to innovate and hit different eating occasions. Whereas if you look at something like sandwich alternatives, the beauty of something like wraps is you're hitting more parts of the day, wraps can be used at lunch for a quick sandwich, they're used for fajitas in the evening and there's been a lot of sales success from that.

Richard Ball Thank you very much Matthew. *Applause.*

It is now my pleasure to introduce our final speaker Alex Martin, worked for big names such as Granada, Pizza Hut and Compass before being head hunted for the role of Retail Director at Warrens Bakery, where she has been for 5 years now, pioneering many changes. As well as being the oldest pasty-maker in Cornwall, Warrens range comprises savouries, breads, sandwiches, sweet baked goods and cakes. With two bakeries in the South West, 52 company-owned stores and 21 franchise partnerships across the UK, the company aims to reach a 2018 target of 40.

Warrens' Journey to Success by Alexandra Martin, Director of Retail Operations

Since I have the challenging task of keeping you entertained for the last half hour of the conference, I have placed security on the doors, although hopefully you will want to stay until the end of my presentation! I was delighted when Jane rang to ask me to talk to the BSB about the success that Warrens has had and the journey it's been on over the last five years. I head up the retail side of the business. I do hope you find our story interesting and that there will be elements of it that will resonate with your own particular business, irrespective of what it is. Many of you might not know Warrens Bakery so the following video clip will bring you up to speed as to who we are and what we do. *Excellent video clip shown.*

I want to begin at the beginning in slide 1. Don't worry, I'm not going back to 1860 for this journey but about six years ago. I'm going to show you some photographs which I am a bit embarrassed about but, fortunately, it was before my time with Warrens Bakery. I took them on an August Bank Holiday in Devon and Cornwall. They are very busy places in August, and these are the pictures I used to pitch my skills to Warrens Bakery. I'm still astounded to this day that that the business was allowed to get to this stage.

This is Warrens shop in Torquay in slide 2, which is heaving on August Bank Holiday and our merchandising skills back then were somewhat lacking. There was a wedding cake in the window and Christmas puddings, since apparently everyone used to visit to buy Christmas puddings in August! There is a tea and coffee sign and to add insult to injury, when I went in for a coffee, they were cleaning the machine.

The counters were unkempt, and the shelves were empty. Most of the Warrens shops had been fitted out some 30 years before and had no money spent on them. Despite it being a sunny day, there were cleaning signs in the windows and in the doorways for customers to fall over.

The pictures in slide 3 are slightly better but the branding is appalling. You might have thought it was a shoe shop from across the street and there is the cleaning sign again. Despite Warrens being the oldest Cornish Pasty maker in the world, most of the shops had no evidence externally that they even sold pasties. Many shops had put long life confectionary in the window because it's easier, since you can leave it there for six days. The first evidence you get of Cornish pasties being for sale was a bit of an afterthought right at the end of the shop there. That lady in the picture still works for me today, and runs a very neat and tidy shop.

I think you'll agree from the pictures that it was time for a change. Sadly, there are so many businesses that fail to recognise the need for change, or are so afraid of change that they don't take any action. You only have to turn on the TV or look at the internet, to see that many businesses are collapsing because of it.

I have used the following quote for 30 years:

4 Time for Change

It must be considered that there is nothing more difficult to carry out nor more doubtful of success nor more dangerous to handle, than to initiate a new order of things; for the reformer has enemies in all those who profit by the old order, and only lukewarm defenders in all those who would profit by the new order.

Nicolo Machiavelli (1469 – 1527)

Machiavelli wrote this back in 1469, so for 600 years the importance of change management has been recognised but people still get it wrong!

You can see from the slides that the business was on its knees. When I joined Warrens there was £2 million worth of legacy debt. We were financially and structurally broken. Collectively, as a new board of directors, we were tasked not just to save the business but to turn it round.

The only way that you can get people to buy-in to what you want to do is to ensure that you win their hearts and minds, and that is what I did, and it didn't cost any money at all.

5 Winning Hearts and Minds

- Had to create a Burning Platform
- Going to work every day to do the same thing just wasn't an option any more
- I needed Mindset Changes
- Communication x 10
- Include, Involve and Recognise

For the first couple of months of my journey with Warrens Bakery I was relentless about getting to know the people that worked in the business, what their agendas were; what would demotivate them; what I needed to handle carefully? I learned very early on that we weren't always being very honest with the people that worked for us, which is never a good thing because it kind of suggests that you don't trust them. So it was really important I had to create a burning platform, I had to let people know that if they didn't jump with me, that that platform was not going to exist any longer but at the same time, I also had to make sure that I was very clear about the journey that I was asking them to come on. I did tell pretty much everyone I met, that going to work tomorrow and doing the same thing that you've done today just doesn't cut it anymore because what we were doing today just hasn't worked!

At some area meetings early on I got the managers to write their names with their non-dominant hand, in most cases the left hand and asked how it felt and what was the result like? They said it was really awkward, and my name looks a bit dodgy. I then asked, if you didn't have the use of your dominant hand, could write with you other hand? They said, we could practice until it doesn't feel awkward and our names look perfect. I asked them to write with their non-dominant hand metaphorically a lot when I first started. I really needed peoples' mindsets to change.

I visited one of our busiest Devon shops and asked the manager as we were walking round where the Belgian buns were since I could not see any and thought that perhaps the bakery hadn't delivered them. She said, I ordered 30 and isn't it great, we sold out at 11.30. I said no, that is not any good, order 60 tomorrow. She and other managers had a mindset that waste was bad and were under-ordering. This was suppressing the sales that we could achieve and was happening right across the business. We got used to hearing that waste was bad from managers and we'll talk a little bit more about that later.

Communication x 10 We introduced a newsletter, and it's in its third 100th edition very shortly, so it's been going strong ever since. We have bi-monthly conference calls, I take one every month and the area managers do one every two weeks. We have area meetings, we have big Christmas dos, we just over-communicate because eventually they understand exactly what's expected of them. We do everything we can to include, involve and, most importantly, recognise them members of staff when they get it right for us.

We still had no money when I was doing all this because we were making little changes. It was really important that very early on, we made enough changes to start turning the fortunes of the business around. One of my first bosses said, Alex, what gets measured gets done, and I have used that mantra ever since, and we do measure pretty much everything that we can possibly measure, see table 6.

6 What gets Measured gets done

- Easy wins – Waste and End of Day discounting
- Publish the Basics - Weekly League Tables for Sales, Wages, Waste, Meal Deals, Average Spends
- Stock Variances and GP comparisons
- Loss Makers – Action Plans
- P&Ls and business reviews

We don't publish everything but it gives you enough directional information as to where your opportunities and your priorities are.

Waste The first thing that I did with my team was change this mindset about waste and we gave them the end of day discounting tool. Six years ago no one was doing this but now you'll see it all over London and a lot of other places do it. I wanted managers to order many more products, but I didn't want more waste, because waste already cost us £30,000 retail pounds a week and I wanted it to cost nothing - you've got to aim high, haven't you? So we empowered the managers to discount all our leftover daily products at the end of every day and almost instantly we were putting an extra £22,000 on the bottom line every week because instead taking the cost price of £30,000 and throwing it in the bin, we turned those leftover products into sales at the end of the day. It's quite a challenging thing to do because unless you get out of the shop and tell people they are available, no one comes in for your discounts. So we get out onto the street and we let people know that all our fresh bakery products are now reduced. It did have the dramatic effect from very early on, of putting a lot more cash in the till and making sure that we weren't wasting product. The primary objective, however, was to increase sales because the products were available all day and we were not selling out of our signature product Belgian Buns at 11.30 in the morning. We were selling an extra 30 of them during the day and potentially still selling five at end of day, so you can see that in terms of the mindset, this was a completely different approach.

I won't bore you with the rest of the detail on slide 6, suffice to say that all of the things on the slide didn't exist prior to me starting with Warrens. Stocktakes were done on napkins and bits of paper sent into the office and people at the office put it in just to get a closing stock. No stock reports were issued they had absolutely no idea what stock was in the shops, other than a total figure.

Another thing on slide is loss makers action plans. When I started with Warrens there were 22 shops that were loss makers, big loss makers, a £445,000 loss out of 22 shops. I will show a slide a bit later on that will tell you where that sits now, and we introduced P&Ls. Not one manager had seen a P&L previously! We have now made the managers accountable for every element of their P&L, A lot of the previous managers still work for me, but some left after the introduction of the new systems.

7 Then this happened!

You might look at that picture and go, "that's really tragic" but for me, it was one of the best things that could have happened. The whole of Braunton in North Devon was flooded, including a little Warrens shop. The evaluators came in and went "no, you can't save anything in there, you'll have to start from scratch". And I was like, **yes,** I've got all the insurance money, I can spend it on creating a brand new and what will be our biggest shop. In fact, you can't really call it a shop, it's a huge café operation in Derriford Hospital in Plymouth, which I'll talk about a little bit later. we were having to renegotiate the lease there and as part of renegotiating the lease, we said that we would spend a lot of money in updating the facilities there. I had an absolute excuse now for creating something special. We engaged a designer and a team of marketers and together we had blank page on which to decide what we wanted to do?

We created the new Warrens Bakery brand that you now know. We brought together the family love story.

We brought traditional bakery techniques together. The USP, I didn't realise just how important the strapline, "the oldest Cornish Pasty maker in the world", was and we had the rubber stamp from the ASA. Someone did contest it but we won and we have continued to use that strapline and we created a brand that has really broad appeal.

We positioned ourselves very deliberately, bang slap in the middle. You've got the, I don't want to say lower end because I have the deepest of respect for Greggs and what they do and they do it very well, but we are in terms of product quality and, therefore, what people are prepared to pay very definitely sitting in the mid-range, and then you have the specialists at the end of the spectrum and we are very, very definitely a truly British handcrafted bakery still.

When I look at slide 9, there's a little bit of me in every single element of the brand. This is what we created, and the re-imaging was so successful. At Braunton we took £15,000 in week one and it was doing £3,000 before it closed. This was in summer, but even in summer the year before it was only taking £3,000/4,000 because they just didn't understand how to take money. Our Derriford business was taking £21,000 a week and it broke its record sales last week, again, and did just over £53,000. And that's the power of the brand and relentless management of the brand and the concepts and getting it right for customers.

Funding We've only got two re-branded shops at this stage and still no money but because the re-brands were so successful, we were able to go to Santander and ask them for money and they funded us from their growth fund. I think, please don't quote me, someone from The British Baker will be able to go back in their archives and find out, £2 million I think it was, roughly, and I had a plan to spend every single penny of it as well.

So we re-branded all 52 shops, but we didn't have enough money to do all 52 shops in the same way as we did the first two. It's amazing what you can do with a tin of grey paint, some pretty stickers, some wood and a few new counters. So we were really, really tight with our money. £2 million doesn't go very far when you're looking at a re-brand across 50 shops and the average re-brand cost me about £15,000, so not very much money at all. We prioritised where we would get the best return and spent more money there and did them first and then three or four years on, we did our very last marginal shops and we still saw some great growth but 30% growth in a shop that's only doing £3,000 doesn't amount to as much as 30% growth from a shop that's taking £12,000 - £13,000.

Embracing Technology So alongside this, and it literally was parallel, we had some money now because this stuff doesn't come completely cheap there and CCTV, I would absolutely say was probably some of the best money I ever spent. I'm quite open about why I was using the CCTV. It was absolutely to drive operational excellence, it wasn't security. So there's all those benefits as well but CCTV allowed – and you're going to completely think I'm a control freak – me to sit in my office, at home on a Saturday at 1.00 and I could see 52 shops and the performance of every single person in that business.

11 Embracing Technology

- CCTV
- New Tills and Software
- Cybake and Instore - Stock and Ordering
- Paperless Office

We didn't use it as – and this is where hearts and minds is really important because if I hadn't won hearts and minds, I would have been thrown to the wolves with this, but they trusted me completely that we were using it as a tool to better the business and to help and support and coach them to be better at what they do. I did also say to the area managers, if I have to talk to you about the same staff three or four times, then yes, it is going to become more of a tool to help manage that. I was really honest with them but most of them just got it right and I was seeing double digit sales growth in the stores as we were putting these in as well. So almost instantly the counters were full up for longer and magically, managers were not taking their breaks at 12.00 in the afternoon, they were taking their breaks when we didn't have customers around.

We also had very old tills and couldn't get replacement parts for them. They also didn't provide me with any information that was of any use whatsoever, without printing a big stack of paper. So we chucked the tills away and bought some new ones from Cunninghams, the EPOS Group. At the the same time, they introduced me to Jane and her team at RedBlack Software, who supply Cybake bakery software systems.

Interestingly, we did this the opposite way to normal. We went retail first with Cybake because I needed a stock system now and I did not want shop managers ringing up head office placing orders, while queues of customers were walking away. Now ordering is all done through the till and the Cybake system. Then the bakery got Cybake bakery software system after that. We now have Cybake in-store across the whole business and it's made a significant difference, as you'll see later in our gross profit figures.

I could do a half hour speech on our latest embracing of technology, Trail, paperless office. My dream for the business now is making the offices almost completely paperless because it's the right thing to do and it's a great cost saving to us as a business as well. We've got about ten more shops which have still to get onto the paperless office system. I was talking to someone in the bar last night and they were absolutely staggered that until I introduced the paperless office, which we've only done in the last nine months, the shops don't have a computer and they don't get emails. The paperless office provides that solution, as well as lots of other things.

I can't do this without talking about people and I've changed the heading for this slide because it was management capability but it's broader than that and this is, hopefully, something that will resonate with you. So when I talk about my managers, it's the shop managers but you will all have people that work for you in your businesses and sometimes we underestimate the impact that a really great person can have on your business but equally, we can underestimate the damage that a person that is not on the journey with you can have. I find out, sadly to our cost, when we appoint a manager or promote a manager and it doesn't work out, the damage can be done very, very quickly. The good news is if you put a good manager in, it can be recovered very quickly.

If you tie all the directional tools I've got now, I've got the stock results, I've got the CCTV, I've got till reports, I've got like-for-like sales, etc., it all builds a picture about a manager's capability and also the opportunities we've got in the shops. I wanted to flag this particularly. So this is the shops that I get from my CCTV. I can dial into this shop and it looks like that all the time. Obviously the campaigns change and this is the Torquay shop, remember, back in the day? So the same manager, June. It wasn't that she was bad before, she just didn't know what was expected of her and she came on a journey with us. She trusted, she leapt off that platform with us and the success story, and we've got many, many shops that have done the same, but they were about to give the keys back to the landlord and I went no, Torquay's a gold mine. The year that I started it was a minus £24,000 shop contribution and five years later under the same leadership, she was turning in a £92,000 profit, and that's no one magic wand, it's a little bit of everything in terms of sales and the cost lines.

Conversely, do you want to see a terrible, terrible picture, see slide 12? So again CCTV, that's the same brand. That is my brand at some point, I think it's about 2.00 on a Saturday afternoon or a Friday.

The queue was like that for about two hours. It didn't move. Every time I went in, I had to check to see if it was on loop. So just occasionally I saw that yes, it's still playing, and that business had started to spiral downwards.

Needless to say, he in slide 13 didn't stay in the business for very long. We did work with him to try and move that forward. The area manager sent these to me as part of an ongoing performance management because this was after we'd done some of the coaching with him.

That's the same shop in slide 14 and the right person and it looks a bit more like Torquay now, the same campaign, and that generated 36% year on year sales for the year when you got it right.

I know you might not all have shop managers but you will have people in your business and interestingly, we've seen this happen also when we've got an okay manager in the business and we've kind of let them get on with it, etc., when they've left and we've put someone even better in, we see the same sort of results and that's a bit scary because we were very loyal to some of these managers that had been with us for so long. So if you think there's an opportunity there, that's a good place to start looking.

So marketing, slide 15, goodness me, we have heard a lot about marketing today. In the early days, it was me and a girl in the office that did some graphic design, and this is what the posters looked like. I went back on Facebook to get these, it took me about an hour to go through all the posts. They're horrific, aren't they? And you'll see from the photographs, we are a food business. We're all about food.

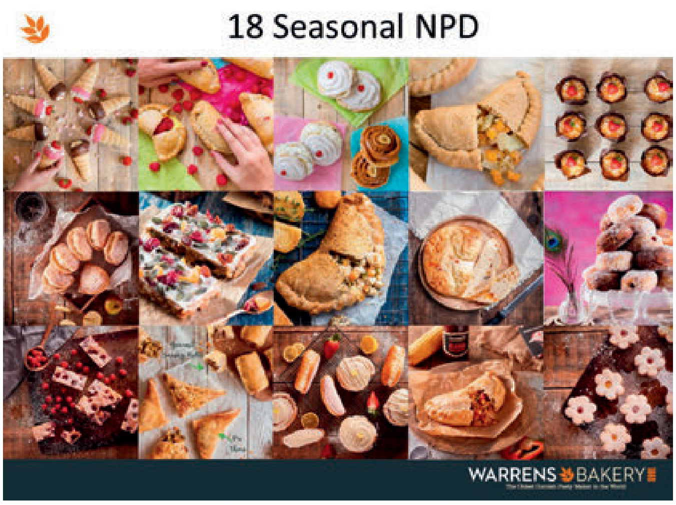
I still didn't have any money, not to spend on marketing, so to speak, at this stage but we did have a new brand. So we stuck the new brand and had a bit of a guideline, still not good, is it?

Eventually I got down on my hands and knees and I said to the board, please, you have to trust me. I want to spend money on food photography. We are a food business, it should be the first thing that we do, take great photos of the food, otherwise how can we tell the world about what we do? Your photos have to look as good as the products tasted and the one absolutely saving grace that this business has had from 1860 is the quality of the product is immense. That didn't have to change terribly much.

Then I got the green light to spend some money on photography. What a difference. So that's showcasing what it is that we do best now and they're real head turners when people walk down the street now, and our engagement on social media went through the roof, very Instagramable these foods.

That was still an outsourced marketing firm at the time and eventually we made enough money to say we should probably do this in-house and we employed a Brand Manager and now we are four strong in the marketing team from four or five years ago when it was still me and the girl who did the graphics. We've introduced the new style of photography which is our flat lay, so very on-trend and really shows our product off to its best.

We invest quite heavily in marketing now and it is all about where you're spending your money for the best buck and we heard earlier from many of the speakers that social media is becoming more and more important. I absolutely loved Stuart's disruptive marketing and I'm going to take that away and start becoming more disruptive. The other thing we spend money on is PR and I will admit I was one of the sceptics and I was like, what do you mean you want to spend that much money each month when we don't have any and I want my tills and my CCTV on PR? I just don't get the relevance. Well, if you said to me now we're just going to take that retainer away, I'd be like no. If anything, let's spend more on it. So please don't underestimate the power that that PR can do for you. It was important also that all our marketing mirrored what we had going on in the shops. People aren't always able to see the shops in Devon and Cornwall but they could absolutely get a feel for what it is that we do without having to visit the South West. So we can't not mention the bakery. The bakery do an amazing job. We probably represent 85-90% of their business. I am their biggest customer. We have a very small wholesale business and we write the briefs, myself and the marketing guys, and Jason and the team, if you want to hear Warrens Bakery growth story from the bakery side, invite Jason here next year so he can tell you from a bakery perspective what he's had to do to support this phenomenal growth.



There is our seasonal NPD above in slide 18. The success of the journey that we have been on is that we have added £4 million worth of sales in those five years. We have seen almost double digit sales growth every year, through the various stages of brand development and bringing in the different tools. So that's where we are at the minute. In terms of profit contribution, so our gross profit, the percent, our margin, we've managed to add 11% to that so that's made a massive difference to the money that we're putting in the bank every week. Our wage ratios are the same as everyone, they've gone up because of the National Minimum Wage and moving towards Living Wage.

19 Shop Profit Contribution

- Over last 5 years
  - Gross Profit % increased by 11% in retail
  - Wage Ratio increased by 3.8%
  - 22 Loss Making shops 5 years ago draining business of 445k
  - Last year 3 loss makers
  - Shop Profit +898%
- **Essential to support and drive growth across Franchise, Wholesale and further Equity business**

We had 22 loss making shops, like I said. Last year we only had three loss making shops and I'm absolutely determined to get two of those into profit this year. So they're the only three left on our action plan and the contribution from year one into year five was increased by 898%. It's absolutely a relentless effort on everyone's part. We couldn't fail. And that growth was essential to support continued growth and that brings me to the franchise piece.

20 The Franchise Opportunity

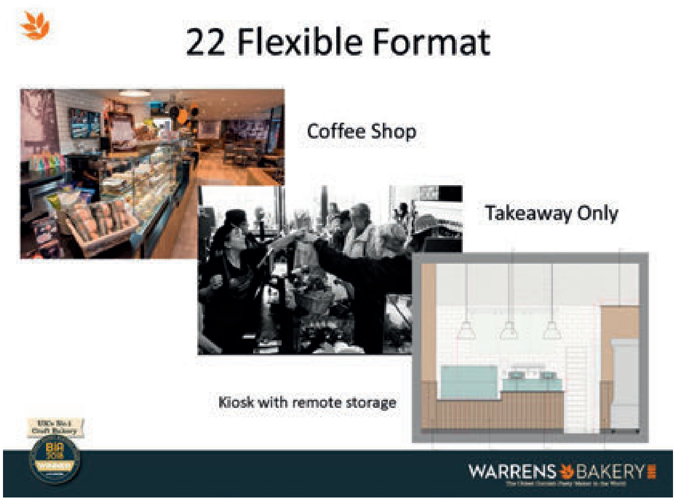
- We had a Brand that People loved!
- We recognised a distinct **absence of choice** in bakery, both for consumers and franchisees
- We saw Franchise as an excellent growth strategy for the brand
- We had under utilised assets in the bakery – we could significantly increase production and profitability here if we had more shops
- Securing Franchise partners would allow us to grow considerably faster than just laying down new equity shops

We recognised a couple of years ago that we had created a brand that people really loved. The bankers were coming in, the investors were going you should franchise, you're potentially the next Costa, the brand is amazing and we recognised a distinct lack of choice, not just for customers but for the franchisee community as well and we saw it as

a really excellent growth strategy.

We have saturated the South West but there was the rest of the country to go after and there were about 2,000 markets that we could go after. And the bakery was under-utilised. They did an eight hour shift five days a week and that was it. You've got to sweat your assets, make more money out of the bakery which we can do if we have more shops. We can get more shops by having other people open those shops for us.

So securing these franchise partners would allow us to grow considerably faster than if we had done that ourselves and it would have cost us a lot more as well. The route that we took was that we made a deliberate strategic decision to sell markets and territories. So when a franchisee approaches us, we sell them an area and they have milestones to hit of ten shops over five years, or 20 shops, depending on their ambition. So that has really helped us accelerate the growth. We have had 21 shops open in 18 months. We've got ten more to open before



Christmas and we've got a pipeline now of 170 shops under contract.

People loved us also because the format is really flexible. We have this great big shop that takes £50,000 a week and we've got small shops with really low rents that only take £4,000 still but their rent and overheads are so low that they're still making a really great profit number for you, and we've also got the opportunity to do the kiosk sites as long as there's storage externally. We had to increase our team considerably.

You'll see in slide 24 that I've got five permanent full time franchise teams now and a lot of our existing team at the bakeries are also involved in supporting the franchise business.

23 Challenges

- Launch was sooner than planned
- Delivery Logistics
- Storage Space
- Site Selection
- Franchisee Expectations

It has been two years and it has not been as easy as it looks on paper. Some of the challenges because I thought it was really important to share that with you. We got this amazing opportunity from HSBC to present to their highest net worth individuals to do franchise at a Meet the Brands presentation at Canary Wharf. I was like, oh my god, we are six months away from being ready but you can't wait, can you, when you get an opportunity like that. We would have been behind so we just thought let's do it now, perfect it as we go which is what we did but that's obviously created some challenge for us.

Delivery logistics – so getting our product to all areas of the country when we're used to delivering ourselves every day. We had completely underestimated how we were going to do that and the BAKO Group have been incredible with that. We're not quite big enough to have conversations with Brakes and Bidfood and the like, but obviously too local to distribute ourselves. Storage space – so I said let's sweat the assets and I forgot once you've sweated them, you've got all this product, where the hell do you put it? So space has been a challenge to us as well and site selection. We got some site selections wrong early days and we know Devon and Cornwall like the back of our hands but we don't know our franchise areas, we absolutely are reliant on them knowing their own area. So we signed up

some sites alongside franchise partners that just haven't washed their faces for us but we're getting much better at that.

And the biggest challenge of all is the expectations of our franchisees. These guys, they're running outlets like 200 Dominos, 30 Costa Coffees, Subways, EEs, CeX, O2, they are incredibly experienced and have a wealth of knowledge about franchising. They sent us on this massive learning curve. This whole couple of days, the theme is driving business forward. There is nothing more hard driving than having a group of franchisees that really want this business to succeed.

Our Brand

Already, the old, that lovely brand in slide 25 that I picked up, we're having to evolve it. It's five years

old, it won't be relevant in a number of years, months even. Who knows?

So we've evolved the brand further and the most recent evolution is this style in slide 26. It's so new that we don't even know whether that's the direction that we want to go in. It may be that we have to tweak that even further. So this is really taking the

naked bakery piece to the next level and the pasty counter, rather than it being full of pasties, we've now got different elements and tapping into that breakfast growth and tapping into the food-to-go growth and we need to fix our sandwich range.

So finally, I could not get through today, and I'm not bragging because obviously it was the most amazing recognition from an industry that we absolutely love and I know our lovely sponsors Dawn and John's at the back there, to have been recognised as UK's Number One Craft Bakery. We've got 70-odd shops and we are still keeping those handcrafting traditions alive. We're really proud of that.

What's really struck me when I've been putting these slides together and listening to all the amazing speakers today is, despite the fact that this is probably, not quite the oldest profession in the world but one of them, that we are still ground-breaking, aren't we? We are investing in new technologies. We are setting new trends and we are relentless about taking the action that we need to make our businesses bigger and stronger and better for the next generation of bakers, and I'm just going to leave you with the words, please don't stop, just keep doing that.

Richard Ball, Session Chair Alex, that was a brilliant presentation and it's one of those stories that you want to hear today, with all the doom and gloom about, the success that you've encountered is fantastic. Are there any questions that you'd like to ask Alex whilst she's up here?

Question Christopher Freeman, Crouch End, London. I'm intrigued by your policy of offloading your goods at the end of the day. Do you not find that that has the effect of people waiting for you to do that and perhaps spoil some of your full price sales?

Alex Martin That's the question everyone I talk to about waste asks that question and the reality is that it's a completely different customer base. You saw from the presentations earlier that the lunch food-to-go is very much our market. Well, you don't wait from 1.00 till 4.30 to get your lunch. We've found that we've created our own customer base at 4.30, who absolutely serve a purpose for us remove that waste from our business and putting money in the till. We have customers that are standing at the door sometimes waiting for the discount products to become available, but they are not the same customers that would have been coming to us before. The reality is also we've got very good at making sure that we're only have our core signature products left. You don't want to have products left of which that you don't sell a lot of. We have really great bake plans and order systems to allow us to sell out of those products towards the end of the day. We should always have those core products available. It's a different customer type that waits to buy the discount products.

Question In terms of the learnings from the new franchisees, is that coming back into the core business down in the South West, or are you keeping that at bay at the moment?

Alex Martin It's quite difficult and this is one of the biggest challenges we have at the minute. The core brand in the South West have some very traditional views on the Cornish Pasty and it is 60 - 70% of our sales in some of our businesses and we're finding that that is not such a big chunk for our franchise partners. They sell more coffee, cakes, etc. We are currently having conversations about how we still look after what I call it the cash cow, the Cornish Pasty, because it generates a lot of money for us. We can't risk the cash cow but we also have to have something that will deliver the expectations of the franchisees. So watch this space. At the minute, we run them almost parallel, the same marketing, the same messaging. There's a handful of legacy products in the equity units. We've gradually got rid of all those legacy products and very shortly there will be none that we don't have in both businesses. We're still working on that one.

Richard Ball Thank you again Alex. *Applause*

Richard Hazeldine, BSB Chairman Thank you Matthew and Alex for two inspiring presentations this afternoon. Matthew giving us an insight into the trends and the needs of consumers, to keep our NPD pipelines full, and Alex on the importance of winning hearts and minds and bringing people along with you when you make fundamental changes in a bakery business. A thank-you to all the speakers today for being so interesting, inspiring and thought provoking.

I think the two key messages that we've got to take from today is to be relentless, keep going with your ideas and get outside your comfort zone. I think they are good message for all of us to take home today. I'd also like to thank our two Session Chairmen, Keith and Richard, who have kept us on time today and that is no easy when you such good speakers and a packed programme. *Applause*

2018 AUTUMN CONFERENCE PICTURES


CBA President Colin Lomax, Aja Somal & David Roberts


Chris Malec, Bread Ahead Academy


Chris Freeman, Worshipful Company and Ronnie Miles. President, Scottish Bakers


Mike Roberts President, FOB, with Megan Harrison & Mark Cole, Roberts Bky


Mark Smith, Magician and Georgie Smart


Sylvia Macdonald with speaker Stan Cauvain


Richard Platt, Charlotte Ashworth, Sam White and Rosanna Spence


Reader of the creed Paul Weston and the questions microphone steward Brian Clarke


Richard Hazeldine presents Paul Turner with his Past Chairman's medal

MEMBERS

Abbott	Christopher	A B Mauri Ltd
Al Azzawe	Laura	Synergy Flavours Ltd
Allen	John	MTA Associates
Amadi	Chief S U A	
Amos	David	Zeelandia Ltd
Anderson	Scott	Scottish Bakers
Andrew	Tim	Andrew Ingredients Ltd
Armstrong	Robert	Whitworth Bros Ltd
Ashworth	Charlotte	Muntons plc
Autton	Sara	Lesaffre UK & Ireland
Bagshaw	Mike	International Taste Solutions Ltd
Baker	Peter	Finsbury Food Group
Ball	Richard	Edme Ltd
Balzan	Eric	Montana Bakery
Beard	Paul	Delifrance (UK) Ltd
Berryman	Alex	British Bakels Ltd
Blissett	Kevin	Doronwell Ltd
Bodman	George	Vandemoortele UK Ltd
Boulding	Richard	Caldic (UK) Ltd
Bowen	William	British Bakels Ltd
Briggs	Michelle	Kudos Blends Ltd
Brown	Jim	BSB Hon Treasurer
Burns	Allan	Carrs Flour Mills Ltd
Burrell	Richard	Allegra Ltd
Byrne	Sharon	BSB Secretary
Carr	Daniel	Warings Master Bakers Ltd
Cauvain	Stanley	Baketran
Chell	Mike	Lallamand
Clarke	Brian	European Food Consultants
Clarkson	Tim	Dawn Foods Ltd
Cliffe	Paul	Calibre Control International
Cockrell	Andrea	Synergy Flavours Ltd
Conniffe	John	Swiss Oven
Connor	Jenny	Synergy Flavours Ltd
Cook	Tim	ADM Milling Ltd
Cooper	John	Lallemand
Copland	Anthony	Heygates Ltd
Corbett	Aaron	David Wood Bakery
Cox	Chris	British Bakels Ltd
Crowe	Andrew	David Wood Bakery
Crown	Jeremy	Rademaker UK
Daly	Patrick	Daly Foods Ireland Ltd
Day	Adam	International Taste Solutions Ltd
Davage	Lewis	Zeelandia Ltd
Dean	William	Deans
Ditty	Robert	Ditty's Home Bakery
Dobbie	Ian	Delifrance (UK) Ltd
Dobbie	Neil	Allied Bakeries Ltd
Downham	Sophie	Caldic (UK) Ltd
Drake	Natalie	Synergy Flavours Ltd
Duckworth	Graham	University College Birmingham
Dyson	Martin	Tom Chandley Ltd
Egginton	Peter	Sonneveld UK & Ireland
Ellis	Andy	Kerry Ingredients
Ellis	Jill	AAK
Evans	Rob	Bako Wales
Evans	Chris	Applied Data Corporation
Favager	Jane	KaTech
Ferguson	Ross	Sudzucker UK
Fletcher	Simon	Synergy Flavours Ltd
Flounders	Andy	DuPont Ltd
Flower	Helen	AAK
Foster	John	Foster's Bakery (Staincross) Ltd
Freeman	Christopher	Dunn's (Crouch End) Ltd
Fuller	Ashley	ADM Milling Ltd
Galizzi	Manon	Synergy Flavours Ltd
Gambrell	Laura	Zeelandia Ltd
Gelley	John	Kerry Foods
Gibbs	Claire	DuPont Ltd
Glover	William,	Glover's Bakery Ltd
Glykys	Evelthon	The Model F/Sta Bakeries Ltd
Goddard	David	Worshipful Company of Bakers
Godfrey	Cheryl	Julias Bread Cakes & Preserves
Grace	Ralph	British Bakels Ltd
Grout	Giles	B B Grout Ltd
Hall	David	The London Baking Co Ltd
Hall	John	J Hall & Sons (Bakers) Ltd
Hallam	Stephen	Dickenson & Morris Ltd
Hanspal	Sat	Finsbury Foods plc
Hazeldine	Richard	Zeelandia Ltd
Heygate	Paul	Heygates Ltd
Hodge	Kevin	Bakery NPD Ltd
Holliday	Alan	BSB Conference Co-ordinator
Hooper	Andy	British Bakels Ltd
Houliston	Keith	British Bakels Ltd
Howarth	Simon	NPD Consultant
Howe	Suzanne	Suzanne Howe Communications
Inglis	Brian	Fritsch Group
Irons-Young	Tara	Ingram Bros (Glasgow) Ltd
Irwin	Brian	W D Irwin & Sons Ltd
Jarman	Mike	E Botham & Sons Ltd
Jones	Brian	Allied Mills Ltd
Jones	Philip	Gerrards Confectioners (Nth Wales) Ltd
Jones	Robin	The Village Bakery (Coedpoeth) Ltd
Jordan	Dinnie	Kudos Blends Ltd
Kelly	Robert	Capway Systems UK Ltd
Kemp	Derek	A B Mauri Ltd
Kueckes	Chris	Toolbox Software GmbH
Kinney	David	Irish Bakels Ltd
Kirkwood	Gordon	Eccelso Ltd
Laidlaw	Ken	Bakernology
Leary	Paul	London Bread & Cake Company
Mladek	Leon	Anneliese Bakeware
Littler	Darren	Warburtons Ltd
Lomas	Michael	Spooner Industries Ltd
Macdonald	Sylvia	Executive Committee
MacFarlane	Duncan	Scobie Foodservice Ltd
March	John	Dawn Foods Ltd
Marriage	George	W & H Marriage Ltd
Marsh	David	Kaak Group (Benier (UK) Ltd)
Martins	Vernon	Gmozero Ltd
Matthews	Paul	F W P Matthews Ltd
McCabe	Douglas	Sudzucker UK
McCormack	Mark	Almarai
McKane	Ivor	CSM UK UK
McIlwrick	Andrew	Baker Perkins Ltd
McPhie	Craig	McPhies Craft Bakers
Montagu	Robert	Walkers Midshire Foods
Moore	Patrick	More? The Artisan Bakery
Morrow	Paul	British Bakels Ltd
Mullally	Martin	Kerry Ingredients
Newstead	James	Giles Foods
Niccum	Clay	National Bakery School, LSBU
Norris-Small	Rebecca	Caldic (UK) Ltd
Ordonez	Alison	Frank Roberts & Sons Ltd
Osborn	Kim	Whitworth Bros Ltd
Parker	Bob	BTS International
Pearson	Laurie	Heygates Ltd
Peate	Andrew	CSM Global
Petrie	Devon	National Bakery School, LSBU
Pollard	Andy	A B Mauri Ltd
Polson	Gordon	Federation of Bakers
Powell	David	
Pugh	Lee	Ireks GmbH
Quinn	Sean	Lallamand
Riley	Nicola	KaTech
Roberts	Mike	Frank Roberts & Sons Ltd
Roberts	Adrian	Vandemoortele UK
Roots	Daren	DuPont Ltd
Roper	Donna	Kudos Blends Ltd
Rowland	David	Tromp Group
Ruck	Martin	Maxtone Ruck Ltd
Sarafilovic	Andre	William Stephan (Bakers) Ltd
Schofield	Michael	British Bakels Ltd
Short	Adrian	Ulrick & Short Ltd
Sibley	Hannah	New York Bakery Company
Slattery	John	Slattery's Patissier and Chocolatier
Schmal	Bart	Hovis
Smart	David	Greenhalghs Craft Bakery Ltd
Smart-Stanton	Georgina	Greenhalghs Craft Bakery Ltd
Smink	Erik	Tromp Group
Smith	Richard	ADM Milling Ltd
Smith	Alasdair	Scottish Bakers
Somal	Aja	Consultant
Spencer-Calnan	Stuart	Frank Roberts & Sons Ltd
Staniforth	Tony	Hovis

Taylor	Lee	AIB International
Tearle	Richard	Rondo Doge
Teasdale	John	B S Teasdale & Son Ltd
Thomson	Peter	Du Pont Nutrition and Health
Turner	Paul	DuPont Ltd
Twiss	Dave	House of Flavours Ltd
Tyler	Jane	RedBlack Software Ltd
Uddin	Kamal	Eurowire Containers Ltd
Van Amburg	Kent	American Society of Baking
Ville	Stephen	The Bread Roll Company
Warburton	Brett	Warburtons Ltd
Ward	S K	Ambit International Ltd
Ward	K J	Ambit International Ltd
Ward	C J	Ambit International Ltd
Webb	Ian	Whitworth Bros Ltd
Wegrzyn	John	ADM (UK) Ltd
Wertheim	A	Chalfont Products Ltd
Westaway	Richard	Cereform Ltd
Weston	Paul	Romix Foods
White	Sam	H2O Publishing
Whymark	Ian	W & H Marriage & Sons Ltd
William	P J	Simmons (Bakers) Ltd
Wood	C J	Country Style Foods Ltd
Wood	Jemima	Jemima Bakes
Woods	Neil	Consultant
Woodgate	Julian	G R Wright & Sons Ltd
Wright	David	G R Wright & Sons Ltd
Wright	Peter	Wrights Pies (Shelton) Ltd
Young	Mark	Ingram Bros (Glasgow) Ltd
Zackey	David	Tamar Foods

HONORARY MEMBERS

Grieves	Jean
Jackson	Neil
Roberts	David
Brown	Jim

RETIRED MEMBERS

Charman	G A
Greenwood	A
Hurtz	E G
Hastie	N W
Haynes	J
Lomax	C
Melling	I K
Moss	T
Packham	J W
Pendlington	A W
Pennington	M
Shaw	K A
Slingsby	T J
Waterfield	A

2018 AUTUMN CONFERENCE PICTURES

Megan Harrison, Matt Whelan and Alison Ordonez, Roberts Bakery

Adam Byrne, Jenny Conner, Manon Galizzi & Natalie Drake, Synergy, with Richard Hazeldine

Neil Jackson receives his Honorary Membership

Jim Brown receives his Honorary Membership

David Roberts receives his Honorary Membership