Advanced Analytics

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Sue: Alright everybody. I would like to welcome you all to the Advanced Analytics live workshop. Just before we get going, just before I hand this over to Scott and Colin, I would like to just take a minute to introduce you to the Centra environment for this presentation. As you are all getting settled in, just take a few minutes to look at the toolbar that you have available up on your Centra session. There are a couple of points in particular I want to point out to you. Occasionally Scott or Colin may ask you a question and up on your toolbar you have the ability to click on yes or no. If they say something particularly funny or inspiring, feel free to laugh or applaud. That's your choice.

Additionally, depending on your screen resolution you may need to modify the settings here in Centra. And the top right icon, should be about in this location in your Centra environment, is a full screen button. That full screen button will ensure that you can see everything that is going on in the Centra session. Additionally they will be doing some application sharing and that will ensure that you can see their entire environment as well.

Because of the numbers of people in this session we are not going to have microphones open. However, there is also on your toolbar a text chat button. And if you click on that text chat button you will be able to send questions or comments to the entire group or just to the presenters. Feel free as the session is going on to post your questions there directly. I will be monitoring this text chat and then at the end of the presentation we will go over all of the questions that have come up throughout the presentation as well as anything that may come up at the end of the presentation.

The presentation will last for about an hour. There will be time at the end for questions. And I guess maybe one last thing, I'm just going to ask, I probably should have asked this as the very first question, but I would like to make sure that everybody out there can at least hear what is going on. So can I ask for a green checkmark please if you have heard my introductory spiel?

And thank you Bob for that laugh. I appreciate it.

Okay it looks like at least some people are in and listening. I will post a message out in text chat as well to let everybody know about the Centra environment.

With that, I guess I would like to hand it over now to Scott who will move through the presentation for you.

Scott Jennings: Thank you, Sue. My name is Scott Jennings and today I will be walking you through with Colin Shearer a presentation around Advanced Analytics. The title of this presentation is "Move from Sense and Respond to Predict and Act." And what we are going to show you is we are going to show you today generally speaking how we see the marketplace and how the marketplace is responding to Advanced Analytics particularly within retail. And then we are also going to show you a demonstration around that.

To begin the presentation I will move to my second slide and the second slide talks to the retail industry and really the change that we have all seen in the retail industry over really the last several years. Anyone who was at the National Retail Federation show this year will tell you that this year the show was most definitely had a more positive or upbeat message to it than it did in 2009 and I think everyone sees that we are slowly coming out of the recession and now is the time to make investments in order to take advantage of any growth opportunities that present themselves in 2010 or early 2011. You will see from the slide on the screen that there is just a lot of change in the retail space; 59% of retail CIOs anticipate the need for substantial change to their IT organization. And I think a lot of that has to do with the economy and where the economy has been and then where it is going. Most retail organizations I have met with in the last year to 18 months have made changes or have had staff reductions. As a result of that they have really had to focus on their core competencies and a lot of the projects that were really strategic they have had to abandon. Now that we are coming out of that recession there is a renewed focus on some more strategic projects in order to take advantage of your data and make better decisions based upon that data.

And of course what we have seen out in the marketplace based upon some of the studies that IBM has done is that the CIOs of high growth retail put data at the center of their business decisions. They provide data for relevant users, 17% more than low growth retailers; they share information with partners 51% more than low growth retailers. And they proactively craft data into actionable information 82% of the time more than low growth retailers. So they are using information, they are using data to their advantage. And that is really going to be a common theme that we are going to see throughout the presentation today.

So to give a little more background on the agenda for today there are really four key important points we are going to cover. We are going to cover analytics and performance management. We are also

going to be covering an SPSS overview for looking at specifically predictive analytics. And then we are going to apply that concept of predictive analytics to a specific retail scenario for market basket analysis. And then at the very end we will have a demonstration showcasing how you can use predictive analytics in concert with traditional reporting in analytics. And that will be, again, around a market basket analysis. There will be two of us that will be walking through the presentation today. My name is Scott Jennings; I work in the Distribution Sector within IBM which is retail, consumer products and travel and transportation. And I specifically work on building out solutions and providing solutions to our field that address pain points for our distribution sector customers, one of which we will see today is around market basket analysis.

Colin Shearer will also be joining us and he will be walking us through a more predictive conversation. He comes directly from SPSS and has a very deep background not only in predictive analytics but also in some customer scenarios around market basket analysis.

Colin Shearer: Thank you very much Scott. Hello everybody and thank you very much for joining us for our online event today and for spending this time with us. Obviously we are going to drill very deeply into how advanced analytics can add value in the area of retail but before that starts let me just go a little bit more generally into the background of how things are changing today in terms of how information and data are used and essentially how organizations look at decision making.

And as the name of the seminar suggests, we are seeing a change really from sensing and responding, from being reactive to going through and looking ahead – having the foresight to predict what is going to happen and act in time and appropriately. We will move as well from decision making which on the positive side you might describe as instinct and intuition in many businesses, right through to –however it could also be described as gut-feel, seat of the pants and so on. But basically to an emphasis on having to make decisions based on the hard facts, based on evidence that it can be justified and having to make them when they are needed in real time.

Advanced analytics are a very big part of that and in the past they have been very much the domain of skilled analytic experts, people in white lab coats who have PhDs in statistics and things like that. More and more we are seeing a democratization and those types of analytics [in deed] the results being made available to many people in different lines of business, applying analytics in the (inaudible) job and many people consuming them in the business function without even necessarily being aware that they are doing so.

We are seeing a move from the back office where again people which are really chunking away on data on a batch basis through to taking this analysis and the results right through to whatever decisions need to be made in the business, really putting it at the point of impact. And we are also seeing this idea of emphasis, previously automation for the past few years has been important. Can organizations do things as efficiently as possible? They are no longer content with that, they are looking to say can they also make them as optimal as possible. So it is not just do it efficiently and save money; it's basically generate the best possible returns you can on making the best quality of decisions.

Sue: Colin, sorry to interrupt you. I have just seen a couple of text chats about the sound. Can I ask you to move the slider for your microphone a little bit higher and then I would also like to –

Colin Shearer: It is turned as far up as it can go already.

Sue: Okay.

Colin Shearer: I'm afraid. So what I'm now doing is I am leaning as low as possibly to the microphone as I can physically. So I'm hoping that is helping; I saw the notes box. I hope that helps. If it helps the audience to picture me in the slide there, uncomfortable position doing this – I'm trying to raise my eye for the slides at the same time. But I hope this helps.

Sue: It's very clear to me.

Colin Shearer: Thank you. What IBM has been doing is to try to really enable and facilitate the effective use of information and business decision making. And you can see that over the last few years we have invested over $12 billion in software investments and acquisitions, SPSS, my company is one of the latest of those. We have built up dedicated consultants to help our clients with this. We have packaged analytics in ways that can accelerate time to value. And we have the largest math department in private industry. And you can see in the stack that is shown on the right hand side of the slide, you can see the predictive analytics, the focus for today's workshop is really core and central to what we are trying to provide. And this whole idea, this whole structure idea that's put together has been very well received by the analyst community and you can see a couple of quotes that I have given underneath that.

Scott, I'll pass over to you for the Cognos Performance Management overview.

Scott Jennings: Thank you, Colin. I have been monitoring the text chat and there were several questions about Colin and I's background. Colin did come from the SPSS acquisition. My background is I came from the Cognos acquisition, but prior to that I worked for IBM, so I am back to IBM.

So what I am going to walk you through in the next several slides and I will try to speak up as best I can is an overview of IBM and performance management. In particular, what do we mean by performance management? Traditionally we have tried to, at Cognos we have tried to solve the following three questions or answer the following three questions. Those questions are how are we doing, why did something happen and what should we be doing. And effectively what we have been able to do we have been able to answer those questions through three really key capabilities – scorecarding and dashboarding, reporting and analysis and planning budgeting and forecasting. Now with SPSS being part of IBM we are also able to plug in the predictive capabilities of SPSS. So not only are we able to look at what happened in the past, we are also able to take our data and based upon that make predictions about what is going to happen in the future.

So we are no longer just looking in the rear view mirror; we are actually looking right out in front of the windshield to see what is going to happen and make solid predictions on those based upon our different data structures.

One of the very keys to the Cognos performance management message is that in particularly in retail we know that you have a myriad of different data sources. The ability to be able to consume information regardless of the data source has always been a hallmark of Cognos and what we have called our Open Data Strategy. That Open Data Strategy within retail manifests itself within our retail performance management strategy specifically within the business analytics crew.

What we are looking at on the screen are a set of operational plans that almost all retailers have around stores, marketing, merchandising and of course the one we are leaving out there is actually finance. And on some occasions what we found is that stores don't talk to marketing, marketing doesn't talk to merchandising and then of course nobody is talking to finance. What we have been able to do within side of Cognos is architect in solutions or assets so that we can get those organizations to talk so that we do have store plans, marketing plans, merchandising plans, financial plans that all talk to each other and that are all integrated. It's a very difficult exercise to do within something like Excel. That information then flows up into what we call a financial workbench which effectively flows into the three major financial statements around a P&L balance sheet and cash flow. And then of course we have a series of scorecards that can sit on top of those.

Just to the right of our plans are the different information sources that feed our plans around our store POS and multi-channel merchandising systems, supply chain systems, customer and ERP. And to the right of that are the different ways that information can be consumed whether that is with your Blackberry out in the field or whether it is through a scorecard or a highly formatted dashboard or perhaps even some type of event-based notification.

This is typically how we see most retailers set up at least from a Cognos perspective and some of our most successful customers have this type of setup where they re using Cognos for the planning component, not just in finance but also operationally and then they are able to surface up that information into a set of consolidated financial statements and then of course if we plug FPASS in we are able to make predictions based upon our source data.

Within side the retail space there are a number of different assets and I referenced those in the previous slide that we are bringing to bear. Some of these assets we showed at the National Retail Federation show this year and for anyone that was able to make it you more than likely saw these. In particular we have an integrated market basket analysis scenario which I will be showing today which finds correlation between product categories and then also makes recommendations on products that should be added to a particular customer's market basket. And then we have the ability then to surface up that information via a dashboard inside of Cognos so it is a very compelling story. In addition a couple of the other key assets that we have been highlighting are around score which is in particular for supply chain, around a supply chain operational reference model, whether it is a scorecarding application that gives you visibility into your supply chain performance management.

And there are a host of other assets that we have available around assortments, store development, financial merchandise as well as our store P&L for operations where we are rolling up a P&L by store via the Cognos technology that way you don't have to link together a myriad of different spreadsheets for each and every store as you roll it up your chain.

One of the solutions that I alluded to a bit in the previous slide was around IBM's retail performance analytics. Retail performance analytics is a solution that is meant to be an all-encompassing analytical offering from IBM covering a number of different key dimensions – customer, merchandise, stores, multi-channel and ultimately supply chain but it is not included on the slide. Effectively it is an IBM offering that allows different analytical views based upon those four or five key subject areas and the underpinning of that is the IBM retail data model. So it is effectively a complete end to end analytical offering leveraging IBM technology. And the nice part here is that we also have a visualization available

that we will be showing you today; it visualizes what this retail performance analytics could look like in your environment and that is a piece of what I will be showing you today.

So with that I am going to pass the baton over to Colin who is going to give you an SPSS overview.

Colin Shearer: Thank you, Scott. Some of you may be familiar with SPSS already. We were acquired by IBM on the second of October. But before that we existed independently for 40 years. And we have been a leading provider of predictive analytic software. We have had one mission throughout the whole of our existence and that is to drive the widespread use of data and decision making. So it has been trying to, as I was saying in the earlier slides, help organizations move from doing gut feeling or guess work through to really making decisions at the base and the hard facts supported by robust predictive models and really let them predict future events, take action on that insight and drive better actions.

If you look at what we provide, our software really falls into three categories or if you like three phases of predictive analytics. At the heart of that, what I have labeled "predict" is obviously where the advanced algorithms play their part. So basically we provide technology that looks at historical data which was what was going on, who bought what, which people stayed loyal, which people defected, finding underlying associations, actions and relationships and build those into what we call models that can be applied to any future case or current case to give a good robust decision on what is likely to happen with those.

But you can see we have laid this out as three stages, capturing the correct set of data, the best set of data, so feed into your predictive models, and then acting. And this is very, very important; we emphasize carrying this through to do something different in the business. You can analyze as much as you want to, you can make the most accurate predictions in the world, but until you do something different in the business, until you actually put the decisions wherever they need to be made in the business and doing something different, you won't be able to drive better outcomes and generate ROI form them.

I won't go into detail until later in the presentation about exactly how our customers at SPSS have generated that return, but I will say something we are very proud of. And that is we were studied quite exhaustively a couple of years ago by an organization called Nucleus Research. They are an independent analyst company that focuses on vendors' ROI claims but also assesses them and basically comes out with their own measurements (inaudible). They went and looked at a very large portion of the SPSS customer base, came up with those figures which I won't go through in detail, you can read them for

yourselves, and what we were delighted about is when they published their report and they said this is one of the highest ROI scores that they have ever seen.

What makes SPSS different in the analytics space? Some vendors provide things that are very specialized that are effectively a narrow slice of analytics – we can have a very, very rich broad spectrum in terms (inaudible) and quality, predictive analytics we provide. A lot of products are designed to serve a white lab coat brigade people who are like I said (inaudible) statisticians. Ours are intended to deliver value really across the organization, to be accessible not just to the experts or support them.

(Technical Difficulty) systems and in terms of how it makes use of existing data in the infrastructure, this is very flexible. We bring in deep domain expertise. We spent 40 years analyzing data about people and this is something which is not in any way tangential or non-core for IBM; this is something which is very highly complementary with the IBM portfolio. And many aspects of that, what you will see today is a very natural and very compelling fit between SPSS and Cognos in delivering joint business solutions.

What we are going to focus on today is one particular type of application of predictive analytics within retail. We are going to talk about market basket analysis.

So we look at the business issue this addresses. Retailers are trying to differentiate themselves by the [offers] that they make. And they have got the raw material to do that. They have huge amounts of history of transactional information; in that is very, very fine detail of the product past [purchase patterns] that they see sometimes related to individual customers or types of customers who make them. But the sheer volume and complexity of that data makes it very hard to simply look at it, drill into it in any sort of manual way and detect what these patterns are.

But if retailers have insight into the patterns, then they can ensure that the preferences they see in the customer base are really reflected back in their offers and they will get a maximum return on the marketing spent. And they can go on and carry that through and setup the right assortment and the right and targeted offers, still mixing it within revenue. But if this is all being done by, as I said before, by hunches, by gut feel, by seat of the pants, and if they happen to choose poor offers and waste money, they are going to waste opportunity.

So how do we tackle this with SPSS technology? Well, we take the point of sale data, we analyze it and then our algorithms automatically find the combinations of products which tend to be purchased

together. Then the retailers can look at those associations, they can determine which of those joined offers of new products or multiple products are likely to generate additional revenues and if they have things like loyalty schemes they can also link them to customer data to see which of these product combinations can be linked up to, for example, which customer segment or (inaudible) segment. And then they can take that insight, the knowledge of the effective offers and the combinations of them and the match to customer type and use those to roll out promotions which will be more effective, better fitted and more profitable.

And what I am going to do now is spend the next couple of minutes just trying to paint a picture for you, just to walk through and show you how this applies within the retail business. So here you have, first of all, all the transactions generated from the point of sale, a huge amount of transactional data. And we apply our analysis technologies to that to find what we call those market basket insights; if somebody buys Product A they tend to buy Product B. If people shop more than once in Product H on a store visit, they also go across the Department I and shop there. And those sorts of discoveries in the data can be turned into different types of marketing activity. So for example, an obvious thing to do if we find two products tend to be bought together, if there is a natural inclination to do that, make it easier – stack them together within the store, put up a promotional display offering a discount if people buy the two together. People should see that and should react to it.

Alternatively, for example if, for around each of your super markets you do weekly mail drop in your capture area to every household, you could give them vouchers, give them coupons and say go and get these popular offers and buy them in combination and you get a discount on them this week. Now this is actually very powerful stuff. It is, as organizations are finding previously unknown insights about these combinations and as the offers that they make are based on genuine shopper preferences, things that they like to buy together, you often see very big returns from this. But, it is undifferentiated. It is really the same offers that are being shown whether in store or whether outbound by mail drop to every single customer. Where it becomes even more interesting is when the retailer has relationships with individual customers. So we are assuming here for example some sort of loyalty philosophy. And for each of these customers you have the opportunity to interact with them. And one of the ways you do that is by some sort of monthly loyalty card statement. So they would get the statement saying how much they have spent, how many points they have earned. And when we do that we have the opportunity to include certain coupons for them. And there may be tens or hundreds of different offers that are lined up every month. For each customer we might say we will offer them only four. And here is where predictive analytics comes into its own in deciding which are the right four to offer each customer.

The way they do that is to take the data that you saw, the transactions across all customers at the point of sale and to look at the transactions from this customer – how does this customer's shopping behavior

compare to what we have seen across the population as a whole. That would be combined typically with descriptive information, which could be self-declared information at the time we signed up for the loyalty scheme or maybe mixed with some demographics that are brought in based on zip code. Then there is information on interactions – did they sign up for any loyalty club specific websites, how do they use those websites, have they had contact with customer service hotlines or advice hotlines, what is their channel preference in terms of where and how they tend to shop, and also attitudes. So if we have surveyed these shoppers or people like them, what do we know about them? What do we know about their preferences, their desires, things that make them satisfied and dissatisfied and so on?

All of these pieces of data as rich a pattern as we can possibly find of the customer fits into our predictive models and they are then applied to each of these offers. So these predictive models scan through the list of possible offers. They look at the ones that are valid for this particular customer and rule others out. Among the ones that are valid they look at the probability the customer would respond to this offer and they look at the value that would be generated if this customer responds to one. Out of that for this particular customer they select four specific offers and they are delivered to him through his preferred way of receiving a statement which is through the normal promotional mail.

If a different customer, if we take for example the lady who is a cardholder here who is the head of this household, she has a totally different set of data driving different probabilities of response to offers, driving different selection. She gets a different set of coupons and in her case they are delivered to her electronically. So what you can see there is the ability to use this analytical approach both to find the patterns that allow us to drive offers across the customer base and also the ones that allow us where we have the ability to get them to the individual customer (inaudible). And you can just see here the way that this is being done is bringing together the data assets of the organization, transaction data from the point of sale, using what we call association detection algorithms to find the patterns to drive in-store promotions and the blanket marketing outbound. And then bringing in customer level information, the demographics, the interactions, the attitudes, feeding that into customer analysis along with the (inaudible), segmenting the customers, profiling them and building the scoring models that allow this very, very fine grid matching customers to particular offers and then ensure that we target the right thing too.

And now with this being a live workshop, I'm delighted to hand over to Scott Jennings and Scott is going to show us some of this technology in action.

Scott Jennings: Thank you, Colin. I'm going to go ahead and share my desktop. I'm going to click on my App Share. And so Sue can everyone see my desktop?

Sue: I can see it. Maybe we will just ask everyone to put a green checkmark if you can see Scott's desktop here.

Scott Jennings: Excellent. Lots of check marks. That's what I like to see. So as Colin alluded to and walked you through the scenario around the market basket analysis and finding the different associations between your different products and then crafting a promotion strategy based upon the analytics, I'm going to be walking you through several different scenarios within the SPSS modeler. There are two particular market basket scenarios where we look at different customer profiles in the first one and then the second one is a bit more realistic scenario where we go through several hundred market baskets and we decide what additional products should we have offered our customers. Or, in some cases, is it a better idea not to offer any additional products to an individual customer.

In the first scenario where we are looking at profiling our customers, we have a retailer that sells a number of different product categories. And we fed in the transactional data directly into the SPSS modeler and it has discovered the different associations or linkages between the product categories. So I am going to execute those linkages. And what that is going to show me is that I have three very strong linkages across my product categories. We have our fish and fruits and vegetables, which is a very strong linkage; confectionary and wine; and then we have a three way linkage between frozen meals, canned vegetables and beer.

I'm now, that has shown us a very nice visual representation of the linkages between our product categories. We could also look at this algorithmically. So if I execute my algorithm we can see the different numbers that back up those associations that we just saw in the graph. So we are going to see our frozen meals, canned vegetables and beer as well as our wine and confectionary as well as our canned vegetables and fruits and vegetables.

Now based upon those linkages that we found between the different product categories, we are going to come up with several different profiles. And the profiles that have been discovered by SPSS modeler are really three fold. The first are healthy eaters, which we can execute. And when we do we can browse the results. And our results are going to tell us who is most likely to be a healthy eater. In this particular case here, traditionally they are not homeowners; the individuals who fall into healthy eaters are not home owners. And they are less than 24 years of age. Likewise, if we look at the profile of who is going to be buying wine and chocolates, and I execute that profile, and browse the results. We are going to see that for the wine and chocolates, typically they are women who have a fairly high income.

And then last but not least we have our beer, beans and pizza profile. And if we execute that profile and browse the results you will notice that these are traditionally males with a relatively low income. So beer, beans and pizza is males with low income. And you can decide which of the three profiles you might fall in. I myself am more than likely beer, beans and pizza.

For our second example because I was just profiling our customers based upon the linkages in the products that we sell. For our second example that we will be looking at, what we are effectively looking to do is come up with recommendations, what should we be recommending to our customers based upon what they are buying. So we fed in the transactional data from the POS and we have taken the first 200,000 baskets and we have come up with a set of association rules. And so I am going to execute those association rules. And effectively what it has done is it has parsed through 200,000 baskets to come up with different associations. So that was obviously very quick because the modeler product in and of itself went through 200,000 baskets in order to get the content that we are looking at and the relationships that we are looking at on the screen.

Now based upon those associations we may want to come up with several recommendations for our given customers because as Colin alluded to earlier we are taking a number of different factors into account. We are going to be taking into account that the demographics of our customers, as well as what they are purchasing. And then based upon that we are going to be coming up with a primary recommendation. So we are going to be dropping out our first 200,000 baskets and we are going to be using the rest of our transactional data to come up with a primary recommendation. So I am going to execute that primary recommendation and what you will see here is that our strongest recommendation that we should be offering to our customers based upon the market baskets that have been sold is our comp kit 10, close to 60% of the time. You will also notice that there are other offers that would take place in more other specialized occurrences, but our second strongest offer is actually no offer at all because in some cases it is better to save on the cost of the actual promotion or save on customer goodwill because in almost 31% of the time that offer will lead to nothing.

And of course not only can we make a primary recommendation but we can also make a secondary or tertiary recommendation as well. So I can execute the results on that as well and what you will notice is that we have our different customer IDs, their basket size, what their primary recommendation is, what their score is on that recommendation as well as there are some customers where it makes sense to have secondary or even tertiary recommendations. You will notice that is not the case with all of those. But this gives you a good overview of the capabilities that the SPSS modeler engine can bring to the table because effectively it is using your own data to determine what are the segments that you have in your data and then it is using all of that information to decide based upon your transactions and based

upon the segments you have in your data, what should we be offering to our customers if we should be offering anything. So this could be used in many different ways. This could be at the point of sale. This could be used in your multi-channel presence. So imagine, if you will, if you buy several different items. Those items, when purchased at the time of sale, no matter which channel you happen to be going through, they could offer you something else. So you bought beer, beans and pizza, you may also want chips. So this is a very good way of designing your promotional strategy and executing that promotional strategy through your execution systems.

Now along with this content you also have the ability to take the information that we, the predictive information that we are looking at here, and you have the ability to marry that with your other historical information in more of a dashboard component. And this is traditionally where Cognos comes into play and this is why the marriage between SPSS and Cognos under the IBM umbrella makes so much sense.

And what you will see is that comes to fruition in a set of dashboards because the predictive content that comes out of SPSS just becomes another data source for Cognos. So what we are looking at here is what I alluded to earlier around the retail performance analytics assets. This gives us vision and focus into several different key areas, our stores, our merchandise, our customer, our multi-channel as well as supply chain.

Now, imagine if you will, you can probably use predictive information in any one of those areas, but if we were going to focus on one based on this demonstration it would be in our merchandise area. You will notice within merchandise we are surfacing up content from multiple different areas. When I spoke earlier about the retail open data strategy you have the ability to surface up information from many different data sources and really the IBM Cognos is a good insurance policy because at any point in time if you want to add an additional data source you can very easily do that and it will be unbeknownst to your business end user. So you will notice on the right hand side we are looking at our gross margins and sales for week 48. And beneath that we are looking at a pie chart that is going to show us our margins across our different departments. I could also very easily look at that by sales. And you will notice that our largest sales department happens to be in the beauty department.

On the left hand side I am looking at my top ten and bottom ten products. So I can see right out of the gate from a dashboard what are my best selling products, what are my worst selling products and then I could drill into those further if I so chose.

If I want to explore the information, the relationships discovered within SPSS I can very easily access a report that is going to report directly against that information. So the different product vicinities that were discovered by SPSS, if I were to click on that you would see right away that this is traditional analytics, traditional reporting but the backend happens to be our predictive analytics. And you will notice here that it found several additional relationships, in particular we are looking at snacks are often bought at lunchtime and then there is a certain lift that is based upon the relationship between snacks and lunchtime as well as the combined purchase likelihood.

We can filter this information by a set of clusters. Now those clusters or segments could very easily have been found in the data. So within SPS we have found three very strong clusters or segments around healthy eaters, wine and choc, and beer, beans and pizza – those can be discovered by SPSS and then leveraged directly within Cognos. And then there are multiple ways of looking at that information. We can look at it in a pure tabular format like we see on the left hand side of the screen, and on the right hand side of the screen you will notice that we have the exact same information but we are looking at it in more of a graphical format. So just like in a Gardner Magic Quadrant, up and to the right is typically the best. And in this case here we are going up and to the right and you will notice that there is our relationship between snacks and lunchtime.

So it is multiple ways to view the same content. And then just like traditionally like we have always done with IBM Cognos and we can drill into that information. So I can drill into snacks and what this is going to do is it is going to give me a little bit more information around some of my demographics. So I'm looking across all of my different customer segments with respect to sales for the product lunchtime and on the right hand side I can see that empty nesters is my best segment for buying the lunchtime product. As well as lunchtime is primarily purchased by females and the best age group happens to be 25 to 39. So we have taken a lot of the predictive information and we have overlaid that with historical information. So it is a very good way of getting a complete view of your business, not only where you have been but also where you are going. And of course all of this content can be very easily surfaced up and there doesn't necessarily have to be a separate language spoken by the end user. The end user is going to have access to very simple and easy to use ways to consume that information without necessarily having to be a PhD in a white lab coat. And of course we can do that for any of the different areas in the retail performance analytics offering whether that happens to be around stores, or around merchandise or perhaps analytics around our customer where we are looking at the growth of different segments in terms of not only the number of customers but then also our overall sales and then who is buying what and why they happen to be buying that and what we think they will be buying in the future.

So that was a very quick overview of how the business analytics group at Cognos sees our customers using the SPSS and Cognos solutions in concert together, finding relationships in the data with SPSS

analytics and then using Cognos for reporting and analytics directly sitting on top of the relationships you discover in SPSS and then combining other data sources as well.

So I am going to stop sharing, very quickly. And so I – Colin, I believe – can you see these slides now Colin?

Colin Shearer: Yes, I think I can, Scott.

Scott Jennings: Excellent. So I have stopped sharing. And there is one closing slide that I would like to leave you with and that is kind of a recap of what we saw and what IBM brings to the table. We saw an integrated demonstration of market basket analysis. Obviously you can apply SPSS and Cognos as well as the entire IBM offering to many different problems in retail. This was just an example. But we took transactional data and we fed it directly into our retail data model. That retail data model was then used as the source for feeding information directly into SPSS modeler as well as directly into Cognos. From there we had the ability to do analytics from a store perspective, from a merchandise perspective, multi-channels perspective and customer perspective. But the beauty of the system is that all of this falls under the IBM banner, all of this links together. And you can promote your data directly from your transactions all the way into true analytics the business end user can consume.

So with that I will pass the floor to Colin Shearer.

Colin Shearer: Thank you very much, Scott; great demo. And just the characteristics of the approach we have shown you using predictive analytics – we are using, first of all, highly scalable algorithms. Remember the volumes we were talking about at point of sale data, we have to be able to crunch that very efficiently and we have very powerful algorithms that automatically detect those underlying product associations.

As you saw it is very important that the retailers can look at these in different ways, look at the associations and decide which ones can be most useful. And in deed the Cognos graph you saw was very powerful way of doing that along with the type of connections that SPSS displays itself.

Crucially, when you are able to join up the market basket analysis with other customer data with the demographics, with behavior, with any other data you have got on them, you move into really a whole

new area, not just knowing what are good offers to make that will generally generate good revenue for you, but which ones can be best fit to which customers. And then the other part you saw was that we are using some very advanced analytical technology to dig into the data to automatically discover some of these important lessons that Cognos 8 played a vital role here in allowing that information to be delivered to decision makers through the organization. So as Scott was saying, we think a very, very powerful combination here with these different elements with the IBM stack to deliver value to retailers in this way.

The sort of benefits you see from this type of approach – increase in basket size, more revenue per visit per customer. Because you are making better targeted offers either in store or outbound mail drops at loyalty cardholders, either way you will see a higher return on your marketing spend and as you are able to bring out more differentiated product offers, higher product sales and higher margins.

And just to finish off, three examples from organizations using this sort of approach and the sort of benefits they are seeing. Sofmap is a multi-channel retailer from Japan. They sell electronics, computers and software. They sell through about 40 stores in the main cities in Japan. They sell through catalog and they are veterans of ecommerce; they have been selling online since 1996. But they became concerned about the patterns of the shopping they were seeing from their online shoppers. They seem to go in, know what they wanted, buy it and come back out again. They were missing opportunities for cross selling to those customers. What they did with predictive analytics was to take their million plus at that time registered shoppers analyze their online behavior, analyze the information on the products that they bought, analyze also through surveys their attitude, how they felt about the technology that they were buying, the level of expertise that they thought they had for such (inaudible). And on the basis of this mapped all of their customers to what they call Digital Lifestyle Segments. Now what happens is in real-time when a customer comes onto the website they are assigned to one of those segments that best offers that segment [and looks up], they are modified in terms of what that customer has actually bought and offers are made for the customer.

And in the first month when Sofmap deployed this solution they transformed their online operation. The page hits rose by 50% because people were clicking through on things they were being shown that were genuinely of interest. The sales rose by 18%. And overall the effectiveness was to increase the profitability of ecommerce operations by a factor of three. They tripled the profitability.

If we look at a couple of examples from Europe, de Bijenkorf from the Netherlands, and my apologies to anyone Dutch online; I've got probably totally mispronounced that.   That they were using the sort of techniques we have talked about here to work out the best way of targeting their marketing to specific

customers. And not only does that give you better returns, it also ensures that you are not wasting money as Scott said on badly targeted offers. And they were able to reduce the marketing costs on average across campaigns by 30%.

And the final one I have chosen there is Debenhams large department store in the UK. They have used this sort of technique and many predictive analytic techniques across their business. But one place where they have been very successful with this approach is to look at people who shop across departments, look at purchases across the whole store and therefore build offers and build techniques and approaches that help them to encourage their loyalty card shoppers, their store card shoppers to visit/shop in more departments on every visit to their Debenhams branch.

And on that note, thank you very much for your attention and we will be delighted to throw this open for questions and discussions.

Sue: Thank you Colin and Scott. During the presentation there were a number of questions that came up during text chat. I believe a number of them have been addressed already. If you have any questions you would like to ask, please use text chat and send a question to all.

Colin you indicated that there was one question in particular that you wanted to address at the end of the session?

Colin Shearer: Yes, Sue, that's correct. There was a question on collaborative filtering. The question said, what Colin is describing is analogous to the collaborative filtering product recommendation function by e-tailers in the online world like Amazon. And then as a follow up to that would you say the ecommerce space is further along than the offline world in terms of predictive analytic and market analysis or further behind?

Let me answer that in a couple of paths. First off, there is a big difference between the combination and the types of techniques that we are showing here in collaborative filtering. Collaborative filtering, while it can be very powerful, is a really quite simplistic technique. What it does is to effectively hold in virtual memory a sparse matrix of every single basket it has seen. Every new basket is matched against that and then the gaps are filled in. So basically it really is, people who bought the same things as you did, it literally is based only on the shopping patterns.

And those of you who have shopped on Amazon will testify it is sometimes very good, sometimes gives you some slightly weird offers and the two issues that really are that it is not able to really make decisions about new products until they start to be bought. And also for things that are bought very rarely it tends to make very curious, very strange offers. So for example, if I am interested in heavy weight wresting or something and I go on shopping for all sorts of books on that subject, and then just before I go to checkout I suddenly remember it is my grandmother's birthday on Tuesday and I buy her a book on flower arranging, anyone buying a reasonable subset of the wrestling books I bought are going to be offered that book on flower arranging as well, it's an [artifact].

So what that approach does is to simply look at the basket content. It doesn't leverage any other data at all. What we are looking at here, our approach is it can take the transactional basket data but can also take, as you saw, any other sorts of information about the transaction, about the purchasers, in deed about the products. And it is those sort of combinations that mean we could, for example, set this up to offer products like these, to say that if we launched this new product it should go based on similar products in the past to these customers.

And taking the question about who is further ahead, the online world and the offline world, I don't think you can say that one or the other is. I think what is important for both of them is that they combine the data from all sources, all the different channels and they apply them through different sources. So it is really if they are multi-channel operation using more than a single view of the customer – using a single view of the customer and finding different ways to apply that. So the online retailers if they have registered shoppers, again they can utilize as much data as they can about them. Those in the multi-channel operations have more opportunity to collect data, can build up often a richer view of that and have more opportunities to deploy it.

Sue: Thank you Colin. There was a question regarding the recording. At the end of this session you will receive a post-event email and there will be a link to this session if you want to watch it at a later date.

Are there any other questions out there for Colin or Scott? Alright, that looks like that may be all. Thank you very much for, really from my perspective as well, a very fascinating presentation.

Colin Shearer: Okay and thank you all for attending.