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At first glance, the supermarket looks normal. But just at the entrance, the “smart shopping trolley” is waiting for you. A tablet computer called “Personal Shopping Assistant” is clipped to the trolley and can help you manage your shopping in the best possible way. You just have to insert your store loyalty card, in which you have saved your customer information (purchase history, the accumulated points, shopping list). Then, the PSA will guide you to goods that you are looking for in the store. During your shopping, you will notice that there are some hand held terminals, all over the super-market, that have the capacity to send out the odour of some food products. The only thing you have to do, is click on the product you want to smell and decide if you want to buy it or not. Furthermore, the screens become intelligent and due to the in-store sensors, they can “read” your profile and propose the best product for you. Some other touch-screen terminals can give you more information about your product (regions’ history, recipes) just with a quick scan of its barcode. When you reach the sector “fruits and vegetables”, you meet the “intelligent scale”. Just put a fruit on it and it will identify what kind of fruit it is. In the section “Clothes”, the “smart dressing room” is waiting for you. This intelligent room scans your measurements and lets you see, on a virtual mirror, how the selected piece looks on you. A little further on, you can use the “smart mirror”. It takes your photo and then you can start choosing your make-up. But why is it interesting to apply the new technologies in the food retail sector and can these technologies influence the marketing? So far the supermarket chains were able to analyze the consumers’ behaviour before and after the act of shopping. With the new technologies, they become capable of analysing the consumers’ behaviour even during the act of shopping. In this way they are able to improve the relationship “enterprise- client”, with the ultimate goal to propose products and services adapted to the personal needs of every client.

Full Paper

At first glance, the supermarket looks normal. But just at the entrance, the “smart shopping trolley” is waiting for you. A tablet computer called “Personal Shopping Assistant” is clipped to the trolley. This kind of computer helps you manage your shopping in the best possible way. The first thing you have to do, is activate the PSA (Personal Shopping Assistant), by inserting your store loyalty card, in which you have already saved your customer information, such as your purchase history and the accumulated points. Forget about writing a shopping list! The PSA allows you to download it directly from your home into your card, via internet. Furthermore, your trolley is backed by a network of in-store sensors that warn you when you are approaching an item you wish to buy, or when there is a promotion on one of your favourite products. Moreover, its’ GPS technology makes it possible to be easily guided to goods that you are looking for in the store.

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The technology used here combines radio frequency identification (known by the acronym RFID) and wireless network (WLAN). It works like a barcode, but instead of having to be passed in front of a scanner, small transponders send out radio signals. Each tag is unique, so any one item can be tracked individually. Consequently, the RF-tags do not require physical scanning! They transmit their presence to the RF receiver positioned on the shopping trolley. The PSA adds every product that you put in the trolley automatically. It can even give you the running total of how many items you have in your trolley and their value.

And if you do not want to use a “smart shopping trolley” you can use your mobile phone to identify, get information such as promotions on, scan and pay for your products. As soon as you enter the store, and thanks to a small “smart card” placed into your phone, a message of welcome is sent to you. In this card, the customer can register personal information such as family situation, profession, etc. During your shopping and based on this specific information, you can receive messages containing the current promotions and offers that can be interesting to you. Due to the Bluetooth technology, messages can even be sent to people who just pass outside the store, announcing some important offers or events, so as to encourage them to enter.

As far as mobile scanning is concerned, some food retailers have started developing free software so as to allow shoppers to use their mobile phones (equipped with a camera), to scan their purchases. In fact, customers have to scan the products’ barcodes. In this way, they can have access to additional information such as ingredients or recipes. When the time comes to check-out, all the barcodes recorded are tallied up and consolidated in to a barcode. Then, an automated kiosk takes care of scanning this barcode and you can proceed with your payment. Consequently, we can imagine that the day will come when every customer will check whether he has his mobile phone before setting out to go shopping.

At check-out, the trolleys’ system transmits the list of items to the cashier, via the RFID. The cashier tells you the amount to pay and the only thing you have to do is give your credit card. Or if you want, you can even pay by using your mobile phone which is transformed into a mobile wallet.

The payment by mobile telephone is based on the technology NFC (Near Field Communication). The telephone is equipped with a smart card NFC which can exchange data with a specific reader. In fact, this card is integrated in the telephone's SIM Card. Moreover, an antenna, integrated into the telephone, allows the transformation of a standard telephone to a smart one. It actually empowers your mobile to pay for retail purchases by using the technology called “without contact” and turn it into a secure payment tool. The consumers’ telephone can communicate with a payment terminal, thus, instead of paying by credit card, check or cash, the client can move his telephone near the reader module and pay with it. Then, he has to type in a pin code, for safety reasons. Your mobile is linked to your bank account. After confirmation, the transaction is

completed with the issuance of a ticket and the registration of this operation in your SIM card.

During your shopping, you will notice that there are some hand held terminals, all over the super-market, that can send out the odour of some food products. The only thing you have to do, is click on the product you want to smell. Do you like the odour and want to buy it? Just put the name of the item in the PSA of your trolley and it will guide you to it.

Some other touch-screen terminals can give you more information about your product. With just a quick scan of the product barcode, you can have its' regions' history or get recipes; information that you can even print out.

Furthermore, current special offers and promotions are displayed on large flat screens above the aisles. But as many new technologies attracting the attention of our society, digital advertising is booming and thanks to the RFID and wi-fi technology, these screens have become intelligent. The in-store sensors help them “read” your profit downloaded in your loyalty card. They can detect your sex, so every time there is a man near the screen, a male product promotion appears (and the opposite). But the performances of this intelligent screen do not end here. It can measure the number of viewers, the level of their interest or even “read” your facial lines and identify your mood at the exact moment. So according to the mood perceived, it will propose the product that suits your psychological situation.

With the application of this new technology, retailers can now be able to answer questions such as: Who is my audience?, How many are watching?, What do they see?, For how long do I have their attention?, Is a display in a particular location getting more audience exposure than other displays? By answering these questions they are able to know the gender and age-group of their audience, analyze their faces, determine the best locations for their advertisements and thus be able to modify the advertisement if necessary. Moreover, this is fully respectful of the audience's privacy as the images are not recorded and no uniquely identifiable data is extracted.

When you reach the sector “fruits and vegetables”, you meet the “intelligent scale”. This scale is equipped with a camera and an image processing system. So when you put a fruit on the scale, it captures the image, it compares it with a number of stored images and finally identifies what kind of fruit it is. In addition this scale can give you information about the way the fruit is produced, its nutritional value and the best way to preserve it.

When you reach the sector of non-food products, you can find the “interactive table”. With this table, a brand can present and promote its non-food products (for exemple mobiles) in an innovative and surprising way.

But let's see exactly how this interactive table works. When an object is placed on its screen, the tracking system recognizes it, thanks to a visual tracking tag on the base of the product. At the same time, it detects the positions and movements of the users' fingers and of objects on the screen. So, by this continuous detection, a real-time interaction can

be obtained. Moreover, the whole technology fits in the table and is invisible for customers. In short, the interactive table is the combination of a video-based movements tracking system, a computer and a screen.

This technology enables the customer to access the products' detailed specifications via a combination of pictures, videos, music or text descriptions, or even compare products by simply placing them side by side. He can change their colour, navigate their websites and even navigate to the member's zone when the loyalty card is used. By placing the card on the touch table, clients can access their customer accounts and see their loyalty points, visualise their product research and their purchase history. Having all these possibilities, customers will be pleased to use their loyalty card and retailers will reinforce the customer loyalty policy and create a strong database which can be used during future loyalty programs. At this point, I must mention that both the product and the loyalty card must be equipped with a small 'tag' in order to allow their detection and recognition by the table.

The interactive era is here and the interactive table is an easy access solution which can become a symbol of dynamism, creativity and magic. The considerable advantage of this tactile technology lies in its innovative and participatory aspect that allows several people (retailers and clients) to come together to exchange and collaborate.

In this way, new ways of accessing information and making purchases are given and retailers can offer new services to clients. At the same time, they can even sell products which are not in the store. They gain space and sell more while customers hesitate less. The interactive surface is even equipped with an interactive store guide so as to help clients find the location of the selected products. If they need any help, they can call a specialized salesperson directly via the table. In this way, customers do not waste their time by going to look for one. At the same time, retailers can be proud, as this application is environmentally friendly. The use of paper is avoided because it gives clients the possibility to receive specific information, videos, images, directly on their mobile phones, only by placing the telephone on the touch table. Last but not least, customers can pay the product via the tactile surface, if they want to avoid the checkout which takes a lot of time.

In the section "Clothes", the "smart dressing room" is waiting for you to use it. This intelligent room scans your measurements and lets you see, on a virtual mirror, how the selected clothes looks on you. You can change the colours or the size of your item only with a click on the touch screen. You can even get a list of items that go with the outfit you choose. So forget the hassle of taking clothes on and off in a dressing room!

A little further on, you can use the "smart mirror". It is, actually, a terminal equipped with a mirror and a camera. It takes your photo and then you can start choosing colours of lipstick, for example, and increase or decrease the colour according to your taste. At the end, you can print the photo and the list of products that you have used during this experience.

In the future supermarket you can even find an “interactive restaurant”. This either works like a self-service or even by using the client’s loyalty card (the marketing directors can be able to develop their client files, in order to know them better and be able to target their requirements). This new, innovative and playful restaurant is full of tactile tables (as seen before) but here the interactive table contain information and photos of all dishes and drinks. You can even find all required information about how to chose your wine. If you are a tourist, you will be happy to discover that this amazing table contains a tourist guide and information about the most famous historical places and monuments of the city. What an intelligent way to accompany and entertain clients and at the same time boost their satisfaction!

If you don’t want to eat, but only drink something, the “interactive bar” is waiting for you. Here you can relax and continue your shopping later on, or just have a drink before or after shopping.

The interactive bar uses the same technology as the interactive table (interactive surface capable of recognizing tangible objects when laid on it, via a tagging system), the only thing that changes are the dimensions. It looks like a counter and its top is at the ideal height so that the customer can sit and use it easily.

This astonishing interactive surface reacts to the objects laid on it and offers a great number of tools and possibilities. For each presented item you have a number of multimedia content, such as information about the product (comments, audio and video files), about the company or even in which aisle you can find the product that you have just tasted, in order to buy it.

This original bar have the same goal with the interactive restaurant and touch table. Retailers want to create an innovative and easy way to allow customers to get information, entertain them and at the same time make them buy more and finally earn their loyalty.

After having finished all your shopping, the moment comes for you to pay. You don’t have to take all your products out of your shopping trolley. The PSA sends the information to the cashier through the network and then you choose the way of payment, get proof of purchase and you are ready to go home. Attention! Before leaving the supermarket, it is better to deactivate your RF- tags of all the products. In fact, by passing through a “RFID de-activator gate” with your trolley, all your “intelligent products” become normal again. You are now ready to go away, without having the fear of being watched outside the supermarket.

But there are not only the innovations inside the supermarket. Every brand must take into consideration the innovations which are in use outside the stores and can influence the customer decisions. For exemple, the arrival of the mobiles called “smartphones” and the development of some incredible applications. First let’s analyse the application called “ShopSavvy”. This is the customer shopping assistant. It is, actually, an application that allows the customer to use his device as a portable barcode scanner. He just points his phone’s camera at any barcode and takes a picture of it. If he does not want or can not

take a picture, he enters the barcode number manually or even types the brand name. Then the application will do a product look up, give more information about it and tell the customer where the best deal for this product is. It can even inform him about whether the item can be found online and for how much. Finally, it will use the GPS in your mobile to look at what stores are near by, will list prices and stores and guide you to the store of your choice.

If the client goes shopping often, this application will be very useful for him. In this way, the customer becomes even more powerful and the retailers are obliged to participate in the development of this kind of application if they want to stay competitive and find ways to make buying in their stores even easier and more entertaining.

A second mobile innovative application is the “mobile tagging”. The “Mobile Tagging” is a breakthrough technology that transforms everyday things in the real world, to online information and entertainment. Every object can become interactive. The only condition is to download online the free tag reader, so as to enable phone camera. Then, every customer is ready to scan any tag.

In fact, the application is quite easy. The client just scans a tag with his mobile phone wherever he sees one. As soon as the application reads the tag, the mobile browser is launched and the customer gains instant access to the website, videos and promotions without even having to type in a link.

In the future supermarket, you can find the tag published in the consumer magazines, posters, flat screens or even into the barcode itself. In this way, the barcode can take the form of a message with added colours, thus leaving behind the ugly black and white barcode.

The third mobile application is called “Taggle”. As haggling is a reality in the retail environment, “taggle” is actually a new concept designed to allow consumers in a retail store, to bid on non-food products via the mobile device.

But let's see how this application works exactly. The retailer chooses some products that the store wants to sell and displays them on the flat screens all over the store so as to inform clients. In addition, he announces the selling conditions and the time duration of the selling. The client can propose a price via his mobile phone. If this price is accepted, he receives the item's barcode and pays for the object at the checkout counter.

Taggle gives the opportunity to the retailers to control the entire promotion, description image, quantity the store is willing to sell and at what price. Retailers know well that customers, when they are in the store, are using their phones for purposes that are working against the retailer's objectives (e.g.: they check prices). With Taggle, they try to influence their behavior by giving them a network to join once they are in the store. Moreover, they can establish a rich consumer database. The advantage for the client is that, in this way, he can measure the value of any product and at the same time, have the possibility to send SMS or mails so as to communicate his opinion as far as the retail store is concerned.

But it is not only the mobile applications that the retailers must take into consideration, but also the internet development. Nowadays, customers use an internet application called “twitter” as a tool for better consumption. Twitter is in fashion with more than seven million members all over the world. Actually, it is a free social networking and microblogging service that enables its users to send and read small messages known as tweets. Tweets are text-based messages of up to 140 characters displayed on the author’s profile page and delivered to the author’s subscribers who are known as “followers”. Senders can restrict delivery to those in their circle of friends or allow open access.

The main goal is to inform followers of what we are doing exactly, at the moment that we are writing the message. So Twitter has become an information network and can easily be “transformed” into an excellent marketing tool. On the one hand, the retailers can gain a better knowledge of their customers by following the customers’ opinions on a brand, a shop, or even a product. On the other hand, the clients can have the best and most up-to-date relevant information.

One thing is certain: the technology called “without contact” is under development. The question is not if it is interesting to develop this kind of technology but to perceive the forms of using it as a tool of marketing.

But why is it interesting to apply the new technologies in the food retail sector and can these technologies influence marketing? We can advocate that even if the ultimate goal of marketing is always the same: “Trying to attract more clients so as to augment the profit of the enterprise”, the new technologies make every enterprise change its marketing and management. So far the supermarket chains were able to analyse the consumers’ behaviour before and after the act of shopping. With the new technologies appearing in this article, the marketing directors can now analyse the consumers’ behaviour even during the act of shopping. In this way they are able to improve the relationship “enterprise- client”, with the ultimate goal being, to propose products and services adapted to the personal needs of every client (personalization). Generally speaking, in the future, the new technologies will be available to everybody and will revolutionize sales methods and will be able to create a buzz for every company equipped with them.

In conclusion, we can say that the shop of tomorrow takes life today. "Interactivity will be the key word of the business of tomorrow. The future systems, already in preparation today, will be dynamic and interactive. "The only limit is the imagination of the designers of these new technologies and their acceptance by the users.

BIBLIOGRAPHY

- A study conducted for the Coca Cola Retailing Research Group-Europe, *The future for the food store*, challenges and alternatives 1996
- BRAND E.A. , *Modern Supermarket Operation*, Fairchild Pubns 1981
- CARLUER-LOSSOUARN Frédéric, *L'aventure des premiers supermarchés*, Linéaires 2007
- CHETOCHINE G., *Quelle distribution pour 2020 ?*, Editions Liaisons 1998
- COLLA E., *La grande distribution Européenne*, Vuibert 2001
- DION D., SUEUR I., *La Distribution*, DUNOD
- DUBOIS B. & KOTLER P. édition française MANCEAU D., *Marketing-Management*, Pearson éducation 2003
- DUBOIS P.L. & JOLIBERT A., *Le Marketing, Fondement et Pratique*, Economica 2005
- DUCROQ C., JAMIN C., LAGRANGE S., *La Distribution*, Vuibert 1994
- DUPUIS Marc, *Marketing International de la Distribution*, Les éditions d'organisation 1991
- HOWE Stewart, *Retailing in the European Union*, Routledge 2002
- HUMPHERY K., *Shelf life* , Cambringe University Press 1998
- KOTLER P., *Marketing*, DUNOD 2003
- MOATI P., *L'avenir de la grande distribution*, Editions Odile Jacob 2001
- MOUSSIS N., *Guide to European Policies*, European Study Service 2005
- LICHTENSTEIN N., STRASSER S., *Wal Mart l'entreprise-monde*, LES PRAIRIES ORDINAIRES 2009
- WAL-MART the face of twenty-first-century capitalism, edited by NELSON LICHTENSTEIN 2005

INTERNET

- www.civa.be
- www.kameleon-media.com
- www.mobiletrend.typepad.com
- www.mmafrance.org
- www.novethic.fr
- www.pro.gallery.fr (Association Française de Multimédia Mobile)

EXPOSITIONS

- Supermarchés d'Europe, 50 ans (Brussels)

REVUES

- Alternatives Economiques
- Bizz
- Distribution d'aujourd'hui

- E-marketing
- Faire Savoir Faire
- Linéaires
- LSA
- Marketing Direct
- Marketing Magazine