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Research Report:

RFID – METRO Group Future Store Initiative and the possible Impacts on the Australian Retail Market

Handed in from:

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Structure:

1. Introduction

Business is all about making profit by producing and selling goods and services to a customer. Especially in high-competitive markets, such as grocery retail markets in developed countries, the pressure of minimizing costs are high. At the end of the day, only the most efficient business will be successful in high competitive markets. The western developed countries are suffering under a low population – growth rates. Thus, retail markets are not giving big opportunities of increasing total sales. Germany is, with a declining population, an good example of a market only providing growth opportunities to those you will become more efficient through out there whole value-adding process in future.

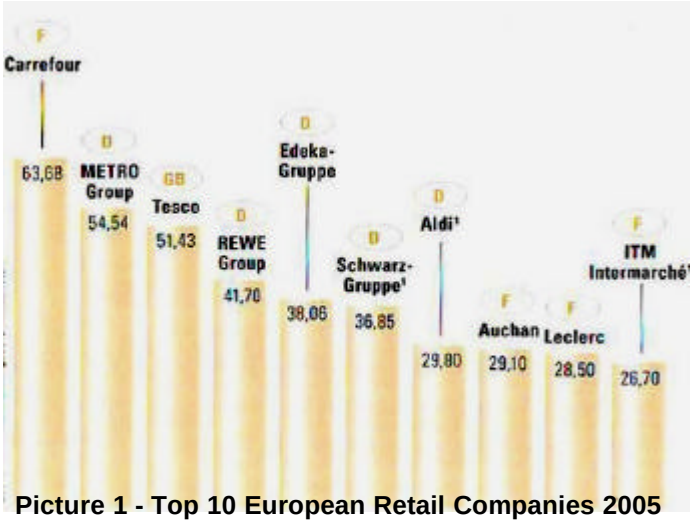
Just cutting prices has reached there limits of potential further growth. Increasingly the logistic process of delivering the right goods to the right customers in the right time has become the focus of competitive advantage. Developing new and more efficient technologies will be one main key to success in high-competitive markets like the German grocery retail market. One of the potential areas of technological improvement is the speed of data processing through wireless product identification.

2. RFID – The Technology

RFID is the short cut for Radio-Frequency Identification. This is a technology to identify something wireless with the help of electromagnetic waves. This is done by reading out a passive transponder carrying information of the product it is tagged on. These passive transponder have no internal power supply, they only react on incoming radio frequency. The stored information can be read out from a RFID-reader via sending and receiving electromagnetic waves. (Kärkkäinen, 2003, p. 530) These readers can be large RFID reader portals (RFID-gates) placed at the material entrance of a grocery store for example. (Falkman, 2005, p. 40)

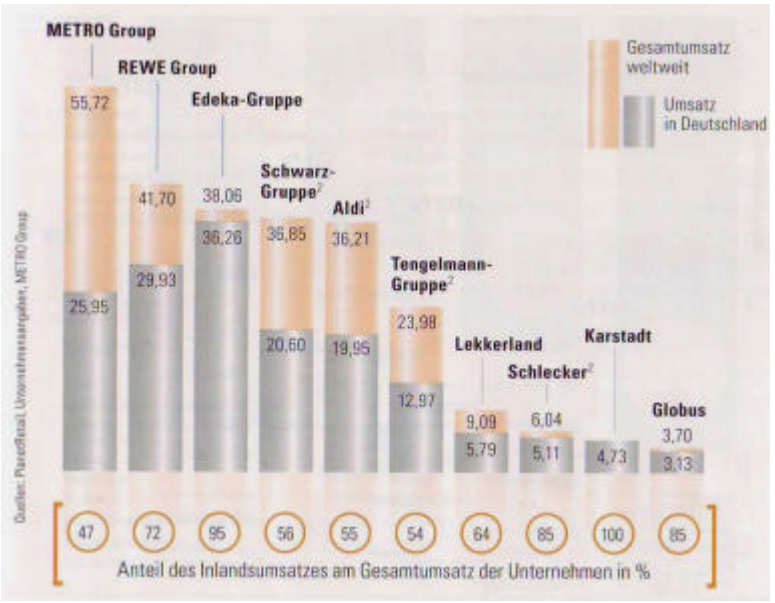
The main improvement of RFID tags compared to barcode labels is that a visual contact is not necessary. RFID chips are not affected by dirt or other covering materials. The tags therefore do not have to be handled extra while getting read. Therefore the tags are placed in reusable product carriers so the chips can be used many times before they have to be replaced.(Kärkkäinen, 2003, p. 530) Depending on the used frequency and reading unit up to 60 tags can be read per second. (Kärkkäinen, 2003, p. 530)

3. The METRO Group



Picture 1 - Top 10 European Retail Companies 2005 (in billion € ; Metro Handelslexikon, 2006, p. 44)

The METRO Group is one of the world's top 5 retail companies. (Metro-Handelslexikon, 2006, p.12). In Europe it is number two after Carrefour and before Tesco. (see picture 1) The world wide sales revenue in 2006 was over 59,882 million €. (Metro Group, 2007a, p. 2)



Picture 2 - Top 10 German Retail Companies 2005 (in billion € ; Metro Handelslexikon, 2006, p. 15)

It is the biggest German retailer, before REWE-Group and Edeka-Group. In its home market Germany it is only the 3rd largest domestic grocery retailer because only 47% of the revenue is domestic. (see picture 2) The German domestic retail market is highly dominated by the five biggest retail companies. 70.1% of the market is controlled by the top 5 retailers. (Metro Handelslexikon, 2006, p. 45) An additional challenge is that the German grocery market is shrinking while the same markets in eastern and southern Europe are growing with growth rates of 30 to 100%. (Perkins, 2001, p. 744)

4. The Future Store Initiative

4.1. Future Store Rheinberg, Germany

In Rheinberg, Germany the Metro Group opened in 2003 the "Future Store" to test future technologies. This store is literaly the playground of the R&D department of

the Metro Group. Different kinds of inventions are tested under real conditions e.g. real customers. The main focus is to test reliability and utility of inventions which all are made to make the whole retail process and especially the supply chain more efficient. (Computer Weekly; 2006, p.18)

A selection of innovations is electronic shelf labels, self checkouts, personal shopping assistants for customers, information terminals, smart scales and electronic advertising displays. (Metro-Future Store, 2007, p. 1)

4.2. Technologies implemented in the store

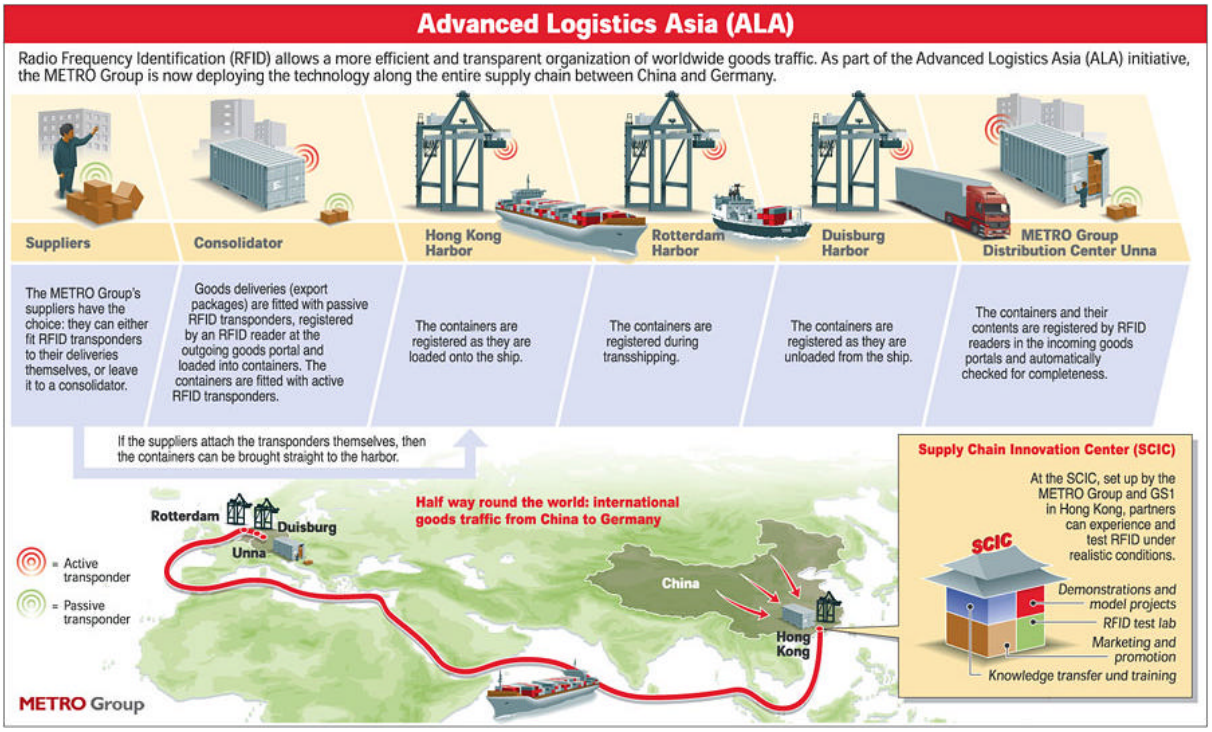
The most significant improvement is the store wide implementation of RFID readers. These are used to identify inbound goods on delivery as well outbound goods on check-out of the customer at the check-out gates. There products do not have to be scanned be staff anymore. Customers just walk through the gate with all their products in the trolley or even already in their pockets. Every item will be detected with the RFID-tag on it, wherever customers hide it. Customers just need to confirm payment over their customer loyalty card. (Falkman, 2005, p. 41) Thus a reduction of labour cost of up to 70% is possible.

4.3. Advantages and disadvantages for the logistics branch

More convenient shopping for the customer is only the demand-sided advantage. The biggest efficiency improvements are made through optimizing the logistical process. The Metro Group and a large number of their suppliers have started using RFID-chips to track goods with in the whole supply chain. The current inventory levels are more easily indicated. Therefore those products do not have to be scanned manually anymore handling time and handling cost can be reduced significantly. The main disadvantages are the huge cost to implement the whole system. RFID -

Picture 3 - Products being pulled into the store through the RFID-gate of the back door, while getting imidiately registrated as "in store" (Metrogroup – press pictures)

Chips are worthless data storing devices without the complementary IT- and Software-Systems. Picture 4 shows the different stages where the tags can be used to identify the shipped goods.



Picture 4 - RFID in the Metro logistics process (Metro Group, 2007b)

The transport cost reduction still has to be made by optimizing routes. With the right and completely linked together computer technologies wrong inventories and orders can be avoided. Linking all RFID-readers within the whole supply chain can help to minimize time to react on demand. Every change of inventory can be monitored and demand forecasting can be improved enormously. This could be for example that a brewery immediately can recognize a higher number of sales at the self-checkout-terminals because of more than expected success of advertisement. The brewery can react with increased production even before possible stock-outs are recognized. Nevertheless rolling out this technology needs a high level of commitment from the whole supply chain because the break-evan-point might take a while to be reached. A few of the Metro suppliers did not respond positively to install the new technology. (Drier, M., 2004, p.10), because of the investments that have to be made.

5. The possible future impact on the Australian Retail Market

In this research report the focus has been on the German retail market, because Germany is the home market of the METRO Group and the country where the field test has been done. But what will the implications for the Australian retail market be by this new technology?

There is no doubt about that minimizing / optimizing total lowest landed cost are and still will be the main objective for future logistical decisions in retail business in Australia. Due to the globalization in world's business the shipping of goods internationally has increased significantly. With the modern well informed customer prices have become the most import figure in international trade. This big pressure for low costs has increased the demand for efficient logistics solutions. Speed, reliability and minimized failure rates have become the most important figures of logistics quality. Reliable real time flow of information and data is substantial. RFID technologies will be one possible solution to provide this information more efficient into the IT-system. It will be very important how implementation costs of these IT-solutions will develop for the future success of RFID. The Metro Group has decided to start rolling out the RFID technology through out the whole company in Germany to control its inventory levels. According to the Metro Group, this will involve 100 suppliers, 10 central warehouses, 100 "Real" and "Extra" supermarkets, 122 "Kaufhof" department stores and 59 "Metro Cash & Carry" wholesale stores in Germany. (Drier, M., 2004, p.10)

Even the global leader in developing the RFID technology in retail business is stating that it could take another 15 years until RFID tags become day-to-day reality in the entire retailing branch. (Computer Weekly, 2006b, p. 5) More-way carriers (e.g. pallets) with reprogrammable tags seam to be more likely for success than tagging every pencil for example.

There are a number of criticisms of the RFID technologies concerning that RFID could be used to abuse personal data of the customers. (Eckfeldt, 2005, p. 78) These concerns do not seam to shared by the majority of customers. The tag - deactivating terminals are almost not used at all. (Falkman, 2005, p. 42) The success of the customer loyalty cards is today still unbroken in the whole German and Australian retail market. Anyway the personal data for these cards are provided by

the customers voluntary. And from the retailers perspective the personal data of a single customer is not important. It is only important to establish successful market research on the customer main stream behaviour. Making individual customer behaviour profiles might be realistic to make personalized advertisement e.g. on the changing advertisement displays. But yet the necessary data processing for that seams to be too expensive in the near future.

The Australian grocery retail market is very similar to Metro's home market. The Market is dominated be a number of big super market retailers (e.g. Woolworths, Colles etc.) and specialized retailers (e.g. 7-eleven stores). The most significant difference is the population per square km. Australia requires more transportation for fewer customers. Hence cost pressure on logistics might be even higher and thus investment capacity might be even more limited.

Therefore it will only be up to the big supermarkets to implement this new technology. But there are also a few other important critiria to be considered.

How innovation friendly are Australian customers on new technologies? Will the customers benefit these improvements?

To conclude, it can be assumed that RFID technologies will be implemented more and more in the retail logistics processes in Australia, on the long run. But if the RFID technology will be used at daily final customer interfaces within the supermarkets can not be answered.

Other keen innovations using RFID like the washing machine which will chose the right washing-program depending on what type of clothes have bean placed in via RFID tags seam to be too far away in future. But didn't Henry Ford say in 1929: "The automobile is completed. What should ever be further developed on an automobile?"

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