

RFID



Dear readers,

This year, the METRO Group will participate in CeBIT for the first time. Four letters connect Germany's leader in retailing with the world's largest IT trade fair: RFID.

Together with our partners of the METRO Group Future Store Initiative, we will show a variety of RFID applications in retailing, logistics, leisure and private households on about 2,800 square meters of exhibition space. For more information, please read our title story.



Another important trade fair already took place at the beginning of the year: "NRF Retail's Big Show" in New York City. Here, the METRO Group presented the results of a study that shows the large savings potential of RFID. Read our background report on this topic.

Not just internationally but also in Germany, RFID continues on its path of success. In our interview, Managing Director Gerda Lehmann and IT Manager Götz Pfeifferling from clothing manufacturer Lemmi Fashion explain how the company integrated the future-oriented technology into its business processes in just four months.

We hope you enjoy your reading.

Yours,

Zygmunt Mierdorf
Member of the Management Board
of METRO Group

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METRO Group
Future Store Initiative



PREMIERE AT CEBIT

METRO GROUP FUTURE STORE INITIATIVE PRESENTS RFID TECHNOLOGY. The METRO Group is one of the world's first retailers to participate in CeBIT. From March 9 to 15, 2006, the METRO Group Future Store Initiative will exhibit both existing and future applications of Radio Frequency Identification. 25 partners of the initiative will take part in the trade fair presentation, including IBM, Intel, SAP and T-Systems, the Fraunhofer Institute for Material Flow and Logistics and GS1 Germany.

The exhibit area of the METRO Group Future Store Initiative extends over roughly 2,800 square meters – the equivalent of four handball fields. Despite these impressive dimensions, visitors can quickly get their bearings at Stand E50 in Exhibit Hall 6 of the Hanover Fair, since the exhibit area is divided into various topical areas.

A production with many highlights

Each area will show a special application of RFID technology: "Logistics" demonstrates how the METRO Group uses RFID technology for optimizing logistic processes. Topics include "RFID in the supply chain", "Warehouse with RFID" and "Order-picking with RFID."

The "Store Management" area focuses on RFID applications in stores: the exhibits show how the key technology supports employees e.g. in managing inventories and ordering goods.

In the "Market Place" and "Fashion Place" areas, fair visitors can see applications that will make shopping at supermarkets and department stores even more convenient in the future: the Smart Trolley automatically recognizes its contents and keeps the customer posted on the overall purchase amount at all times. The Smart Scales identify on their own which type of fruit or vegetable they are supposed to weigh, while the Everywhere Display will advise customers on wine selection. The Smart Dressing Room provides tips on combining clothing items, and the Smart Shelf gives a timely notification when its inventory runs low. As a result, out-of-shelf situations are a thing of the past.

The METRO Group and its partners in the Future Store Initiative have also thought about convenient payment systems: the check-out will feature a quicker and more convenient payment method for consumers – an RFID reader automatically registers the products' Smart Chips. In a matter of seconds, a display will indicate the amount the customer has to pay. After the purchase, the consumer can deactivate the Smart Chips at the so-called De-Activator.

Retailers are not the only ones banking on RFID – many other industries now also benefit from the advantages of radio technology. In the "Leisure World" topical area, the METRO Group Future

"Morgenmacher"

In time for the start of the 2006 CeBIT, the METRO Group Future Store Initiative will launch a special publication with the title "Morgenmacher". On about 100 pages, renowned authors such as Professor Dr. Peter Bofinger, Gerhard Musiol and Juan Moreno report on a variety of topics that concern the world (of retailing).

The "Morgenmacher" magazine can be ordered via the RFID Hotline, available in German.

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Left: Innovative information systems increase customer satisfaction.

Right: On 2,800 sqm of exhibition space, visitors learn about tomorrow's convenient shopping.

Store Initiative shows where consumers come in touch with RFID in their free time. Exhibits include RFID in sports, public institutions and transportation.

Private households also offer many opportunities for reaping the benefits of RFID. The "Home World" exhibit area shows how the key technology can support consumers at home. Exhibits include clever household applications such as the Smart Fridge or the Smart Microwave. The offerings are rounded off by the "RFID Technology" area, which provides a lot of background information, e.g. on data privacy aspects.

Expanding networks

CeBIT offers many opportunities for intensifying existing contacts and generating new ones. The METRO Group is expecting numerous prominent visitors to its exhibit area. The company will welcome politicians from the state, federal and European levels, undersecretaries and CEOs from renowned international companies to its exhibit area for multiple events and tours. In addition, Zygmunt Mierdorf, Member of the Management Board of METRO Group, will participate in the European Commission's conference on "The Revolution of RFID – Challenges and Options for Action." As a representative of RFID users, Mierdorf will discuss how the technology can help create closer ties between societies in Europe.

CeBIT as a platform

It is the declared goal of the METRO Group Future Store Initiative to forcefully advance the modernization of the retail sector with the help of new technologies. Radio Frequency Identification tops the agenda, because all participants along the supply chain can benefit equally

Alpacas - Stars at the 2006 CeBIT

Some visitors of the 2006 CeBIT will rub their eyes in amazement: the exhibit area of the METRO Group Future Store Initiative is adorned by two large white plush alpacas. Upon closer inspection, fair visitors will recognize the RFID chip replicas in the animals' ears. The unofficial star of the exhibit area illustrates the broad range of applications of RFID technology. After all, alpacas are fascinating examples of the use of RFID beyond retailing and logistics:

Some farmers in the elevated regions of Peru specialize in the breeding of alpacas. These close relatives of the llama produce internationally sought-after alpaca wool. The four-legged treasures are also very popular with thieves and smugglers – their wool commands record prices on the world market.

The farmers refused to tolerate the continuing losses to their flocks any longer. Now they are using RFID transponders to protect their animals. Smart Chips that identify the owner and the place of origin are implanted behind the alpacas' ears or into their neck muscles. With the help of manual RFID readers, it is quick and easy to ascertain whether an animal was stolen. This effectively deters potential thieves.

from this key technology. One important prerequisite is that the public must be familiar with how RFID works and accept the technology. The METRO Group Future Store Initiative will use CeBIT to present RFID to a broad international audience. Dieter Licht, Head of ECR of METRO Group: "RFID plays an important role in our ECR strategy, because our customers benefit from faster processes and greater merchandise availability. CeBIT is an ideal platform to convince even more industrial partners of the tremendous advantages of the technology, thereby taking another step toward greater customer orientation."

Smart Shelves display detailed product information for the selected garment.



Historic milestones of the METRO Group Future Store Initiative

In April of this year, the joint project of the METRO Group and its more than 60 partners from the consumer goods, IT and service industries will celebrate its third anniversary. During these three years, the METRO Group Future Store Initiative achieved some genuine milestones: The Future Store in Rheinberg near Duesseldorf (Germany) is the initiative's test lab for the retail sector. Here, the METRO Group and its partners are testing the new technology under real-life conditions. The RFID Innovation Center in Neuss (Germany) serves as a training and communications platform and presents RFID applications in retailing and logistics. An independent testing laboratory – the European EPC Competence Center (EECC) – located on the premises of this facility provides the partners of the METRO Group with the opportunity to test and evolve their RFID hardware. In addition, seminars are conducted regularly for RFID novices, advanced users and experts.

Furthermore, the METRO Group Future Store Initiative established itself as an innovative leader in retailing with appearances at international trade fairs and conventions that received a great deal of attention. From the United States and France to Germany – the METRO Group Future Store Initiative is present at all important industry meetings such as NRF Retail's Big Show, EuroShop or ECR Europe. But the METRO Group also organizes its own conventions: the second RFID Congress of the Future Store Initiative took place in June of 2005. The invited participants had an opportunity to obtain information on the latest developments of the RFID roll-out at the METRO Group and its partners.

For the time being, participation in the 2006 CeBIT, the largest IT fair worldwide, represents the pinnacle for joint public appearances. This is the first time the initiative will present itself to a broad public consisting of both experts and laymen. Dr. Gerd Wolfram, Managing Director of MGI METRO Group Information Technology, formulates the objective as follows: "Our CeBIT participation will familiarize a large audience with the opportunities RFID presents. Therefore, we won't restrict ourselves to just the retail sector but will exhibit a wide range of applications from various areas of everyday life."



CeBIT 2006: focus on Auto ID/RFID

The exhibit focus "Auto ID/RFID" will be located in Exhibit Hall 6 of the CeBIT. Apart from the latest trends, renowned companies will demonstrate popular sample applications of RFID technology. Offered at CeBIT for the first time, the RFID Forum will also represent a central point of attraction. The program includes lectures and panel discussions around the key technology. "With the establishment of the new 'Auto ID/RFID' exhibit area, Deutsche Messe AG takes the current developments in the IT sector into account. In the future, modern technologies such as RFID will sustainably optimize all processes, e.g. in logistics. Using these technologies and networking them intelligently is a crucial competitive advantage," said Ernst Raue, Member of the Board of Management of Deutsche Messe AG, Hanover.

RFID COMPACT



>> NATO expands RFID network

NATO is expanding its RFID infrastructure with the goal of improving the supplies management between Europe and Afghanistan. Since 2004, the military alliance has been using RFID to safeguard the supply of the NATO International Security Assistance Force (ISAF). The distribution chain ranges from Germany and the Netherlands via Uzbekistan to Kabul. For this project, NATO retained the California-based company Savi Technology, which also installed the basic RFID network. Among other functions, the expanded network will allow NATO to exchange information about the path of military supplies with the member countries.

>> Training program for novices and professionals

Distinguished by EPCglobal, the RFID testing laboratory "European EPC Competence Center" (EECC) at the METRO Group RFID Innovation Center in Neuss (Germany) offers training seminars on RFID. The seminar program is directed at three groups: companies beginning a roll-out of the technology, companies that have already gathered some initial experience, and RFID pros. There is an appropriate program for each target group.

Dates:

Level 1: RFID and its basics – March 29 and June 7, 2006

Level 2: Influence factors for RFID and key factors for success – March 30 and June 8, 2006

Level 3: UHF expert training seminar – April 6, 2006

For more information and to register, please contact:

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>> RFID Support Center opened in Dortmund (Germany)

The new RFID Support Center (RSC) assists companies that wish to integrate RFID into their own processes. Project partners include the Fraunhofer Institute for Material Flow and Logistics (IML), the Research Institute for Telecommunications (FTK) and the Initiative for Innovative Industrial System Integration (InnoSys). The service includes the analysis of RFID technologies and applications as well as user consultation. The center arranges contacts between interested companies and providers. In addition, the RSC produces brochures and guidelines. Events such as trade fair participations and conferences are also planned.

>> Exchange of experience between partners

On January 10, 2006, RFID suppliers met for a third exchange of experiences at the METRO Group RFID Innovation Center.

The program included a retrospective of the eventful year 2005 for RFID and an outlook on the next steps of the RFID roll-out at the METRO Group. The partners exchanged views and experiences on various topics, including their experiences with the new "EPC Class 1/Generation 2" transponders and the upcoming utilization of RFID on boxes. About 30 suppliers had accepted the METRO Group's invitation to the RFID Innovation Center in Neuss (Germany).

>> More consumer safety

The IBM Research Center in Zurich (Switzerland) has developed a new RFID transponder that is particularly suited for use on consumer goods. If they wish, consumers can remove part of the antenna after the product purchase, thereby limiting the reading range. This way a reader can only read the data stored on the chip if the transponder is located in direct proximity. Returns and complaints can still be processed without any problems. The underlying idea is that consumers have more trust in the mechanical destruction of the antenna than in temporary deactivation.

>> Good test results

Last year, the TG 34 working group of the European Telecommunications Standards Institute (ETSI TG 34) tested the efficiency of RFID systems that are set up in direct proximity to each other. The test series took place from November 28 to December 2, 2005, at the METRO Group's distribution center in Hamm (Germany). The most important result was that, depending on the quality of the RFID components, up to three readers set to neighboring channels can work without interference next to each other. Even for pallets with different items, the reading rates were more than 90 percent. Some of the RFID transponders were even affixed to the inner sides of the packages.

"CUSTOMER SATISFACTION IS PRICELESS."

> Interview with Gerda Lehmann and Götz Pfeifferling

Lemmi Fashion is a medium-sized clothing manufacturer specializing in children's fashion. Based in Fritzlär (Germany), this family company primarily produces in the Far East and in eastern Europe. Among other retailers, it supplies the Galeria Kaufhof stores of the METRO Group. Since 2005, Lemmi Fashion has been using RFID transponders on its products to optimize international logistics. The editors discussed the project with Managing Director Gerda Lehmann and IT Manager Götz Pfeifferling.



When was the first time you heard about RFID?

Lehmann: Our sales director told me about it at the end of 2004 and provided me with a contact at Infineon. At the RFID Solution Center of the company in Graz (Austria), he showed us how the technology works and what benefits can be realized through its application. This convinced us. At first, we were only planning to do a small test run, but my father – the founder of Lemmi Fashion – said right away: "This technology works, so we will use it immediately."

What did you find fascinating about the technology?

Pfeifferling: First, the speed with which the individual labels can be read; secondly, the possibility of reading transponders without a visual connection, even through cardboard. Our manufacturers usually deliver the goods in boxes. In the past, we had to unpack them first to know what was in them. Today, we can automatically register the items using readers. Thanks to RFID, we have a fully transparent supply chain.

You decided on RFID technology in the 13.56 megahertz frequency range. Why did you choose a different solution than other consumer goods manufacturers?

Lehmann: In logistics, we are concerned with the individual product rather than the logistic unit. Our product range includes more than 300 items in different versions. Furthermore, we only produce small numbers in sizes that are low in demand. To adequately represent this diversity, we must use RFID on individual products. From our point of view, HF technology is particularly well suited for this purpose.

What benefits have been derived from the use of RFID?

Lehmann: We can plan much better. As soon as merchandise leaves the production facilities in the Far East, we are notified accordingly. This notification indicates which items we may expect at what time.

Furthermore, the technology accelerates processes, from receipt and quality control to the distribution warehouse. Without RFID, we were able to warehouse about 7,000 items every day in Fritzlär; today we can theoretically warehouse approximately 20,000. And since we also automatically control outgoing goods with RFID, errors in the deliveries to our customers are almost impossible. Even we were surprised how many errors in sorting were detected with RFID.

But the introduction of RFID is also associated with considerable costs. Didn't this put you off?

Pfeifferling: RFID is a very young technology and we had to make the corresponding investments, of course. For us, the advantages in the supply chain outweighed the costs. In addition, we perceived an opportunity to improve collaboration with our customers, i.e. retailers. Based on the automatic control of outgoing goods, we gained a lot of trust. By the way, despite our relatively small company size, we were an important partner for our hardware suppliers, simply due to the size of the project. They were able to prove that their products work in practice. We had an excellent start with RFID.

Lehmann: Customer satisfaction is priceless, and customers are satisfied when they are supplied quickly and well. RFID helps us in this respect.

You provide information on RFID on the Internet and in publications. What are the reactions?

Pfeifferling: For us, it was clear from the outset that we had to communicate openly about the use of RFID. First we had to educate people, because many retail partners were completely unfamiliar with the technology. We provide them with information material for the consumers. In addition, we recommend that they remove the label after the sale if the customer requests it. Overall, the reactions are positive.

YOU ASK, WE ANSWER



How long does it take to convert an existing warehouse to RFID?

There is no general answer. The most important prerequisite for the use of RFID is a comprehensive analysis of the existing processes. In some cases, the technological infrastructure in the warehouses is so advanced that RFID hardware can be integrated swiftly. In other situations, the basic prerequisites must first be created, e.g. investment in a more efficient IT system or conversion to the electronic Despatch Advice DESADV. Experience has led to the recommendation to start RFID as part of a pilot project. The time required for implementation can range from four weeks to several months.

How can a company's staff best be prepared for the introduction of RFID?

The early involvement of the employees is tremendously important for the success of an RFID roll-out. Some processes will change due to the use of the technology. The staff should be informed in great detail on the planned introduction and the associated process changes. Furthermore, it is helpful to have the employees participate in the pilot project team and to take into account any suggested changes. After all, the staff on site has the most precise knowledge of the processes in question. In time for the roll-out, training seminars will provide employees

with the necessary knowledge to be able to handle the new processes in a routine manner from the outset. To reduce complexity, training seminars should be conducted based on the "snowball system" – seminars take place in small groups, and the participating employees later convey the acquired knowledge to their coworkers. After RFID has been integrated, the staff should be informed regularly on the status of the roll-out.

Can RFID transponders also be used under extreme conditions, e.g. on frozen products?

The METRO Group is also testing the use of RFID technology on frozen products such as pizza. One special application is currently still in the development phase: sensory RFID transponders for controlling the cold chain. This way, interruptions in the cold chain can even be determined after the fact. This technology will enormously increase consumer safety.

MEETING PLACE FOR TRENDSETTERS

> NRF Retail's Big Show displayed trends

It has become something of a tradition. Every year, the protagonists of the international retail sector meet at the start of the year in wintry New York City. The NRF Annual Convention & Expo ("Retail's Big Show") attracts visitors with interesting exhibits and events.

Once again this year, more than 400 exhibitors presented new products and technologies for retailers on more than 100,000 square meters. Under the motto "Solutions Beyond Expectations," expert visitors from around the world learned about the latest developments in the market from January 15 to 18, 2006.

METRO Group presented interim assessment on RFID

The retailer is among the pioneers internationally regarding the implementation of RFID. A mere two years ago, the METRO Group announced the roll-out of this future technology in New York City. One year later, in 2005, it was able to present its first experiences as part of a 100-day retrospective.

Now there are additional, impressive results, as Dr. Gerd Wolfram, Managing Director of MGI METRO Group Information Technology,

underscored during the symposium "A Growing Retail RFID Success Story" organized by Intermec Technologies. As part of a current study, the METRO Group tested together with Procter & Gamble and IBM how much time and money can be saved with RFID. Wolfram: "The study results have confirmed our positive assessment of RFID. The technology considerably accelerates time-consuming processes in incoming goods."

Significant savings potential

Together with its partner companies, the METRO Group examined work processes in selected warehouses and stores as well as a central Procter & Gamble warehouse. The result: the use of RFID and Electronic Data Interchange (EDI) alone saves 8.5 million euros per year in Germany for the sales divisions of Metro Cash & Carry and Real and the distribution warehouses of the METRO Group. Only two



Interview: Torsten Strauch, Sales Manager Central & Eastern Europe at Intermec Technologies GmbH

Together with the METRO Group, IBM, Procter & Gamble and DHL, Intermec has simulated an RFID-supported supply chain at the NRF Annual Convention & Expo. What was the contribution of your company?

Intermec Technologies develops, manufactures and integrates automated data collection systems. Together with

system integrators such as IBM, Oracle or SAP, we provide the platform for companies to realize their ideas. Each partner has different requirements toward the technology. We bundle and implement them.

When will such an RFID-supported supply chain become routine?

Among other things, the new "EPC Class 1/Gen. 2" standard facilitates the faster reading of transponders. In addition, manufacturers will need a larger number of RFID labels, if they are

to tag every single box in the future. This will reduce prices. Both of these factors – better reading rates and falling prices – will make investments in RFID profitable for our partners. We assume that these prerequisites will be met in 2006. Then nothing will stand in the way of using RFID throughout the supply chain.

What is Intermec's role during the RFID roll-out at the METRO Group?

We are a technology partner of the METRO Group. Together, we are working on the efficient use of RFID. At the Future Store in Rheinberg (Germany), Intermec is represented with RFID readers. These so-called portals are set up in the warehouse area of the store. They automatically read the RFID transponders on the pallets transported through the portals. During our joint project at one of the METRO Group's distribution centers, we have shown that we can successfully manage complex logistics processes with RFID. At this warehouse, more than one million pallets were tagged with RFID and read at an average reading rate of 99.4 percent. Other joint projects include RFID forklifts and RFID gates.

VOICES FROM THE INDUSTRY

of the eleven steps along the process chain were monitored as part of the study. The consumer goods industry benefits from RFID as well: for outgoing goods, manufacturers can save a total of 16 seconds for each picked pallet. In addition, there are reduced logistics costs, since the swifter handling of incoming goods processes at the retailer shortens waiting times for the delivering trucks.

To illustrate processes in the retail sector, the METRO Group showed an RFID-based supply chain at its fair stand. Together with its partners Intermec, IBM, Procter & Gamble and DHL, the retailer simulated the path of merchandise from the production facility to the sales shelf.



The METRO Group and its partners at the NRF.

Starting in April of 2006, the METRO Group and its partners will exclusively use second-generation transponders. "Over the course of the year, the first suppliers will begin using RFID technology on boxes with the objective of registering mixed pallets more quickly at incoming goods," Wolfram said. "This will also make warehouse management much more efficient."

SIEMENS

Markus Kehrwald



[Technology Development Board RFID, Siemens Business Services]

What RFID projects is Siemens currently pursuing?

We have already realized numerous projects in Germany and abroad. For more than 25 years, RFID has been one of our strengths – from transponders to service. Especially for the retail sector and consumer goods industry, there are currently three interesting projects: Swedish paper manufacturer SCA uses a Siemens solution in which the production and delivery of sanitary products to the METRO Group is controlled via radio chips. At the Otto mail order company, about 40,000 individual items are currently tagged with chips, and RFID is supposed to provide better monitoring for high-quality products such as jewelry or electronic devices. Radio technology also makes processes between production and warehouse quicker and safer at Unilever in Italy. This means that the brand-name manufacturer can determine at all times where the products are located, what their processing status is or how long they remain in individual locations.

Siemens and Galeria Kaufhof have jointly realized an RFID project.

What was the result?

At Kaufhof, we tracked the path of individual garments by Gerry Weber – from manufacturer and logistics partner Meyer & Meyer to the sales outlet. The results have convinced everybody involved. RFID can be technologically realized at the item level and also pays off from an economic standpoint. The supply chain becomes more efficient, warehouse and inventory management is optimized, there will be fewer transport losses and inventory checks will be faster. Even customers will benefit from radio technology, because the sales staff will be able to spend more time on customer consultations and sales shelves will always be well stocked.

In which parts of the process chain lies the greatest potential of the technology?

RFID provides more efficiency wherever goods are loaded or unloaded, packed and transported. We see the greatest potential for optimization in open logistic systems, e.g. in a network with multiple logistics partners. Here, RFID technology has significant advantages for all parties involved in the process: it reduces the error rate in the delivery chain, secures goods against theft or forgery and controls the production and distribution process. Specifically, this means quicker logistics processes, lower operating costs and improved collaboration with the partners.

TRADE FAIRS AND CONVENTIONS

Smart Labels 2006

March 27 to 30, 2006_Boston, USA

The four-day event provides a comprehensive overview of the current situation of RFID technology worldwide. A large number of corporate representatives will report on their experience with the application of RFID, focusing on retailing, the health care sector and the transportation, logistics and pharmaceutical industries. Speakers from China and Japan will present RFID trends in the Asian region. In addition, the participants will discuss technical topics, including "Chipless RFID" and "The production of Smart Labels."

IDTechEx

www.idtechex.com/smartlabelsusa06

LogiMAT 2006

March 28 to 30, 2006_Stuttgart, Germany

More than 350 exhibitors from 14 countries will present product innovations and trends of internal corporate logistics in the Swabian metropolis. Numerous symposia will primarily deal with the question of how the material flow from procurement to merchandise delivery can be optimized. Live demonstrations of RFID applications will supplement the program, e.g. order picking based on Radio Frequency Identification will be shown in one of the event areas. A process known as bulk reading will demonstrate the reading and processing of several hundred RFID transponders in less than one minute.

Euroexpo Messe- und Kongress-GmbH

www.logimat.de

Euro ID 2006

May 16 to 18, 2006_Cologne, Germany

Technologies such as RFID systems, barcode scanners and software components for data management take center stage at this cross-industry trade fair for automatic identification. Especially for start-up companies, this fair will serve as an opportunity for showcasing their products and solutions to a broad expert audience. During the accompanying specialist conference, experts will meet for a dialog and for presenting best-practice examples. In addition, the Auto-ID-Award will be given out for the first time.

IBC Euroforum GmbH

www.euro-id-messe.de

PUBLIC DEBATE



Informationsforum RFID:

Opening event in Berlin

On January 19, 2006, the initiators of Informationsforum RFID welcomed more than 100 representatives from the political arena, business, science and the media for the opening event. The forum serves as a point of contact for all RFID-related issues and acts as a platform for a lively exchange of ideas and experience surrounding this topic. The Managing Director is Dr. Andrea Huber. Members of the organization include companies from the retail sector, the consumer goods, automotive and IT industries as well as the service sector.

The experts discussed the opportunities RFID technology could offer to Germany at the Brandenburg Science Academy. The chairman of Informationsforum RFID, Professor Dr. Michael ten Hompel, sees enormous potential: "With a volume of 7.7 billion euros, Germany ranks first before the United States and Japan when it comes to exporting of conveyor and material flow technology. Industry, politicians and data privacy experts must jointly create the basis for the successful development of the market for RFID," ten Hompel said.

According to ten Hompel, the following challenges take center stage in the future development of RFID: "It is our objective to get the public to accept RFID. To achieve this, we are pursuing the most intensive public education efforts."

For more information, please visit

www.info-rfid.de

DIVERSE SOLUTIONS IN EUROPE

> “RFID hardware survey 2005. Is UHF technology ready for European adoption?” - a study by the IT consulting firm LogicaCMG

In the United States, RFID technology is mainly used by retail companies such as Wal-Mart and by the Department of Defense. Compared to the U.S., the range of applications in Europe has significantly expanded over the past year, according to the result of the study “RFID hardware survey 2005.” The automotive and aviation industries, the health care sector and the pharmaceutical industry are important fields in which RFID already plays a role today. In the future, the significance of the technology will continue to increase in these sectors.

Expertise in demand

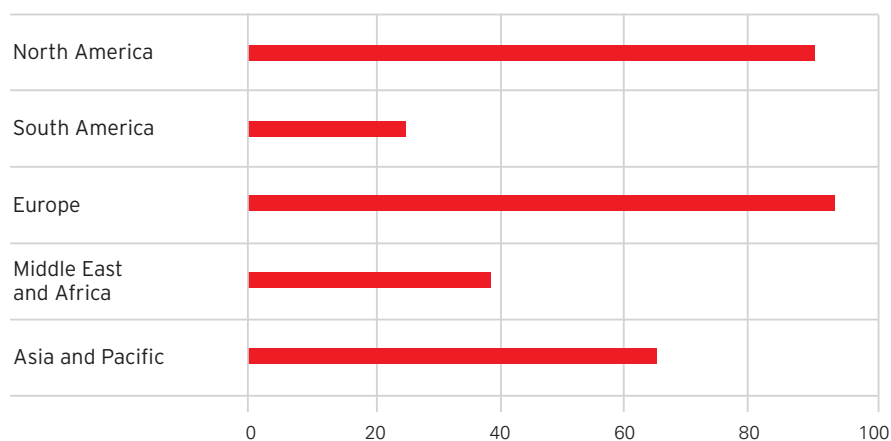
The study is based on three elements: a comprehensive literature analysis, a survey with leading RFID hardware suppliers and in-depth interviews. Twenty producers of RFID chips, transponders, readers and printers participated in the survey. They represent a large part of the European market for RFID technology in the ultrahigh frequency range (UHF).

Standards provide success

The authors of the study named predominantly two factors that advanced the development of the technology in Europe: on the one hand, there is the directive passed in 2004 by the European Telecommunications Standards Institute (ETSI). It states in which frequency ranges RFID may be used. In the UHF range, the permissible band is between 865 MHz and 868 MHz. Prior to the new EU directive, the use of RFID technology in the ultrahigh-frequency range was very limited in Europe. Applications focused on the low- and high-frequency ranges. However, for industry and logistics UHF systems are primarily of interest, because the readers can read the data more quickly and from a greater distance.

On the other hand, the international standardization organization EPCglobal has passed the globally uniform standard “EPC Class 1/Gen. 2” in December of 2004. It contains requirements for the structure and representation of the Electronic Product Code (EPC). The conversion to “EPC Class 1/Gen. 2” ensures that all users

In Europe and North America, the majority of RFID providers are locally present



Source: LogicaCMG, 2005



of RFID technology utilize the same codes for representing information.

Only these two prerequisites have enabled the suppliers of RFID hardware to manufacture similarly powerful products as are already on the market in the United States.

Promising prospects

Paul Stam de Jonge, Group Director for RFID solutions at LogicaCMG, summarizes the latest developments: “The current UHF RFID marketplace is still at a very early stage, but over the next twelve months we will see a growing number of large-scale implementations as the technology continues to mature. While there are still improvements to be made and prices need to drop, with the new European regulations and the creation of the “Gen. 2 standard”, the market has clearly found an environment that is ready for a wide range of business scenarios.”

The English-language study can be downloaded from:

www.logicacmg.com/reg/index.asp?fid=12&sec=0

The new European regulations and the globally uniform standard “EPC Class 1/Gen. 2” have created all prerequisites for entrepreneurial ideas to develop in the best possible way.

READ MORE

> Innovative technologies at the METRO Group

Progress is a high priority at the METRO Group: at the METRO Group Future Store in Rheinberg (Germany), the company is testing innovative technologies. Once the applications have proven successful, the sales divisions will successively introduce the solutions.

Using the example of the fictitious Taylor family, the new brochure "Innovative Technologies at the METRO Group" illustrates how the company provides exceptional convenience and service with future-oriented technologies. The family tries out the applications at the various sales divisions of the METRO Group, such as the Information Terminals at Galeria Kaufhof, the Self Check-outs at Real and the Smart Scales at the Future Store of Extra.

One of the most important innovations within the METRO Group is Radio Frequency Identification. The brochure describes how the company uses RFID to manage merchandise movements along the entire supply chain and what benefits this entails.



The 36-page brochure is available in German and English and can be ordered via the METRO Group RFID Hotline:

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> RFID Security – Protect the Supply Chain



RFID Security
Pete Lindstrom / Frank Thornton

Syngress Publishing, New York 2005

Which security gaps can RFID systems have and how can they be eliminated? The book "RFID Security" by Pete Lindstrom and Frank Thornton provides answers to these questions. First, the authors introduce the reader to the basics of RFID technology. Subsequently, they explain different methods of how RFID systems can be secured efficiently and protected from unauthorized access. According to Lindstrom and Thornton, there are many motives for breaking into RFID systems. For example, criminals could try to crack the code for RFID-based ignition keys to be able to steal the vehicles. The authors are experienced experts in the field of IT security. Pete Lindstrom works as Research Director for the U.S. consulting firm Spire Security, and Frank Thornton is head of the consulting firm Blackthorn Systems.