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## RFID Arena

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## Retail RFID interview series - Universities



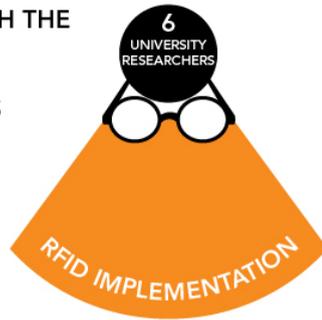
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### Mirva Saarijärvi

The third interview is upon us. This time we wanted to find out how university scholars see RFID development in retail. We interviewed professors and researchers from the University of Parma, Aachen University and the University of Turku.

We wanted to find out what the different scholars think the initial push for RFID is and what they feel the excitement of RFID is. We wanted to know when we

will see more research focus on the changes in business operations due to RFID? What are the trends in the RFID research? The University of Parma offers a certificate for fashion RFID. We wanted to learn more about that.



## UNIVERSITY OF PARMA

First up answers by the University of Parma.

*Antonio Rizzi, Professor at the University of Parma*



WHAT'S THE EXCITEMENT OF RFID?

"I believe that in the beginning apparel companies got excited by the operational aspects of RFID, such as process automation, multiple reads without line of sight, etc.", says Mr. Rizzi and continues: "Once they start to be more aware and have a better understanding of the technology, they find that the major benefits are related to the value of information gathered through RFID like real-time visibility, store replenishment, inventory accuracy... just to name a few".

WHAT IS THE CERTIFICATE FOR FASHION RFID BY THE UNIVERSITY OF PARMA?

The University of Parma lab started a program called "RFID4 fashion certified" 2 years ago. The program is a project endorsed by the Board of Advisors of the Fashion of RFID Lab, which is a steering committee of leading companies operating in the fashion and apparel industry that include e.g. Aeffe, Branded Apparel Italia, Benetton, Diffusione Tessile, Dolce & Gabbana Industria S.P.A., Gucci, Imax, Luisa Spagnoli, Max Mara Fashion Group, Miroglio Fashion, Norbert Dentressangle and Zucchi and logistic partners like DHL and TNT.

### **THE PURPOSE OF THE CERTIFICATE IS TO:**

- Quantitatively assess the performance of RFID devices in fashion industry use cases
- Certify the performance achieved in the same context.

### **THE RESEARCH ACTIVITIES OF THE PROJECT FOCUS ON:**

- Measure the performance obtained by the use of RFID devices in the fashion context.
- Certify the performance achievable in the same context.

The performance of RFID devices will be evaluated on the basis of a detailed test protocol, including tests that represent both logistics and retail store processes typical for the fashion industry.

## WHEN WILL WE SEE MORE RESEARCH FOCUS ON THE CHANGES IN BUSINESS OPERATIONS DUE TO RFID?

"Together with the global RF lab alliance network ([www.grfla.org](http://www.grfla.org)), we have already established a research journal 4 years ago. This journal is called the International Journal of RF technologies Research and applications. I'm the EIC", says Antonio. "The journal is published by IOS press. The aim and scope of the International Journal of RF Technologies is to have a forum for exchanging information and to share research results regarding RF technology deployment, data analytics, and business value creation", he continues.

Potential technologies that will be covered in the Journal include Radio frequency identification (RFID), Real-time location sensing (RTLS), Near-field communication (NFC), and RF-based sensors.

For data analytics, the Journal will publish articles that focus on how and where to capture the data (e.g. real-time, at the device, on the server etc.), present approaches for finding patterns in the data, which may reveal process anomalies or areas for improvement, and examine the development and use of software related to RF technologies.

Although grounded on a solid base of research, the Journal will only publish innovative and challenging papers that have a clear applicability to the business world and are focused on driving business value.

## WHAT ARE THE TRENDS IN THE RFID RESEARCH?

Antonio has seen a tremendous rise in scientific papers related to RFID.

## TURUN YLIOPISTO

Next up, [Turku School of Economics](#).



*Heli Marjanen, Professor at Turku School of Economics.*

### INITIAL PUSH FOR RFID

To describe it with one single word, it would have to be "efficiency"; the most obvious example perhaps being store-level inventories. With RFID it is possible to save time and money and achieve high stock accuracy, which also means that retailers are able to optimize the stock levels and still minimize out-of-stock-situations.

In the global business, it's essential to know where and how the goods or parts of them are moving. This must be done, however, in a very cost-efficient way.

## WHAT'S THE EXCITEMENT OF RFID?

As stated above, efficiency and money saved and of course the increase in sales that many RFID adopters report. In the long run, RFID could be used to enhance consumer experience in stores. We can imagine for example adding information about a product for the consumers, e.g. where and how the product is manufactured, recycling issues, additional services, customer testimonials and experiences about the product and possibly about related products. To enable this information kiosks for those appreciating quick service and saving of time, and comfortable sitting areas in the store for those who are willing to use more time to profoundly study the products, are needed. Many of the consumers will have their internet-connected phones with them in the store, but most of these personal devices can't really compete with the full-size screens and the speed of the more powerful systems that the store offers. It should however be taken in account that some people will prefer their personal PDS's and for example NFC services should be provided.

"To be honest, most of the retailers are not yet familiar with the opportunities RFID could offer them (apart from the supply chain benefits), so they are not yet aware of how RFID could possibly change their business logic or parts of it", Heli comments.

## WHEN WILL WE SEE MORE RESEARCH FOCUS ON THE CHANGES IN BUSINESS OPERATIONS DUE TO RFID?

Heli feels that it is already on its way: "I'm not aware of any ongoing research projects in that field in Finland, but I would guess someone/some research groups are currently at least preparing research project connected to RFID, if not already working with them. Personally I'm going to take RFID on my agenda both as a researcher and as a supervisor of Master's Thesis and Doctoral Thesis as well".

In Heli's perspective, -the marketing point of view, changes in business logic/new store formats enabled by RFID are extremely interesting research topics. Apparently, research consortiums, where academics from business schools work together with engineers and retailers, will be required and formed. As always, one crucial issue will of course be the availability of funding these projects, which will require extensive data collection and, possibly, even building of "retail laboratories", where new techniques can be tested using real consumers.

## WHAT ARE THE TRENDS IN THE RFID RESEARCH?

Since the benefits obtained in the supply chain management are very obvious, it would be expected to see this field of research as the most active and productive in the short run. However, RFID offers enormous possibilities also in the field of consumer behavior; Journal of Marketing (one of the leading academic journals in Marketing) published an article in March 2013 about using RFID in investigating customers' in-store travel distance and its effect on unplanned spending; this indicates that more research on this field is very likely to appear soon.

Imagine that all the products in the department store would be tagged with RFID; it would enable monitoring of shoppers' behavior in stores: what items they pick up first, which ones they take to fitting rooms, which ones they bring back to the shelves after carrying them along a while in the store, how much time the whole process takes. The possibilities are endless.

## **INSTITUTE FOR INDUSTRIAL MANAGEMENT AT RWTH AACHEN UNIVERSITY**

Last but not least **Aachen University**.



*Julian Krengel, Researcher at RWTH Aachen University*

INITIAL PUSH FOR RFID: WHAT WOULD YOU DESCRIBE AS THE INITIAL PUSH FOR RFID IN YOUR CLIENTELE?

The key aspect about RFID is gaining control over the own supply chain. This general goal breaks down into advantages at different points in the supply chain, e.g.:

- Transparency is improved; as the status of orders can be traced in higher detail with more reliable ETAs (estimated time of arrival). This allows for a more robust planning of stocks.
- The required time and effort for the receipt of goods is optimized. Manual checking of the order and received articles can be superseded by scanning the RFID tags. Hence the goods are more quickly available for sale and the manual labor required can be decreased.
- Customer satisfaction at the point of sale is increased. Not only can out-of-stocks be prevented, but salesclerks can also contribute more time to customer service as the need for administrative activities such as stock-taking is reduced. Further, a salesperson can support the customer with more detailed and accurate information about the availability of articles.

WHAT'S THE EXCITEMENT OF RFID?

"The big advantage of RFID is a combination of high potential and a mature technology. Although RFID projects still are challenging, the technological basis and possible applications and use cases are widely researched and therefore feasible even for smaller enterprises", says Julian.

WHEN WILL WE SEE MORE RESEARCH FOCUS ON THE CHANGES IN BUSINESS OPERATIONS DUE TO RFID?

Actually, there is already quite some research focus on the application of RFID and other AIDC (automatic identification and data capture) technologies.

The focus is currently mainly on the coordination aspects of using RFID in inter-company transactions and the value impact of RFID. This is particularly true in the case of retail and fashion industry. We will see further research activities as other industries realize the RFID potential and try to implement own solutions.

#### WHAT ARE THE TRENDS IN THE RFID RESEARCH?

The research focus shifts away from the pure technical challenges, as RFID hard- and software becomes more and more mature and reliable. As already mentioned, the currently available solutions enable most companies to introduce RFID to their operations. However, companies still face different issues especially in the supply chain wide coordination, e.g.:

#### **APPLICATIONS:**

As already mentioned, the common use cases for enterprises of different industries are known, but in order to support further uptake of RFID, additional guidelines and architecture patterns are designed. This industry-focused research actively boosts RFID applications across different sectors.

#### **INTEGRATION OF IT SYSTEMS:**

Whereas the system architecture when using RFID within one company is controllable, integrating systems across a supply network is much more complex. Enterprises need to align their EDI (electronic data interchange) formats and protocols, e.g. by building on standards.

Collaborative Planning, Forecasting and Replenishment (CPFR) as an advancement on Efficient Consumer Response (ECR) is another major research topic. RFID offers the opportunity of supply chain wide inventory management, but the technical and organizational implications and requirements are yet to be defined.

#### **COST-BENEFIT SHARING:**

The previously mentioned two research topics focus on utilizing the advantages of RFID. A question that regularly arises when several companies are involved is that of Cost-Benefit Sharing. Whereas the costs of RFID mainly incur with the early partners in the supply chain, the benefits primarily come into effect at the end of the supply chain where the customer is approached. To resolve this issue and support RFID, costs and benefits have to be shared across the involved partners.

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