

RFID Industry Solutions

Realizing the Art of the Possible

Radio Frequency Identification (RFID) has evolved rapidly over the last few years, from a niche technology for special-purpose identification to the much broader vision of “the Internet of things,” where all objects in the supply chain are instantly tracked and made available to the IT systems. After the hype of the last couple of years, it’s become clear that there are a select few RFID solutions that can provide the basis for further RFID enablement.

After an initial discovery phase, where not all expeditions led to sustainable results, we are now finding the first scalable solutions with good returns, which will form the stable stepping stones towards the larger vision of tomorrow. Defining these solutions

involves a careful balance between technological possibilities and business opportunities. At the same time, these solutions must be standards-based to make them scalable, affordable and the basis for future growth. It really is the art of the possible in many ways.

Where RFID is Making a Difference

The solutions that are now becoming viable vary from one industry to another. For example, where the initial vision of the RFID-enabled store with smart shelves and automated checkout for everything has been pushed back in time, we

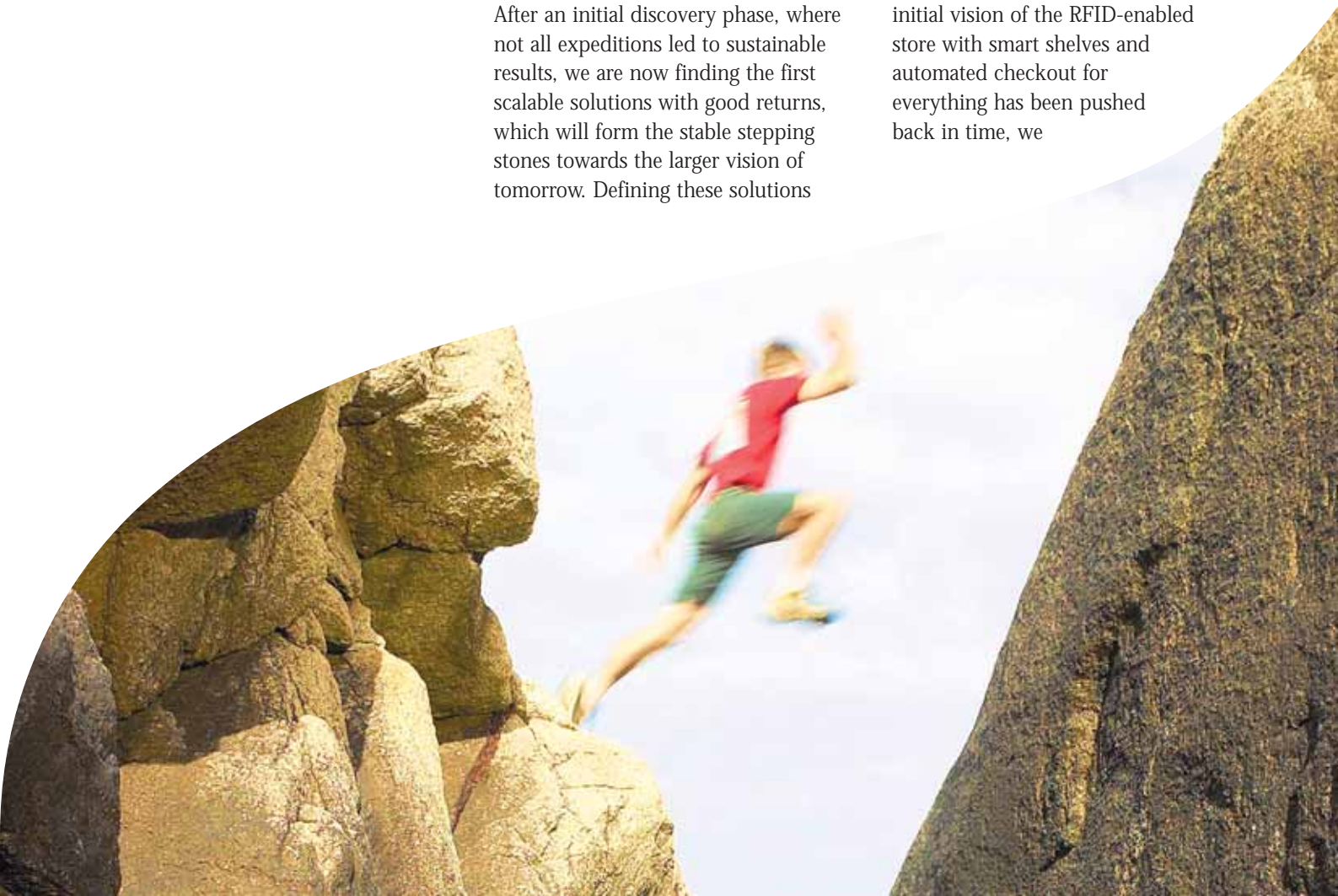
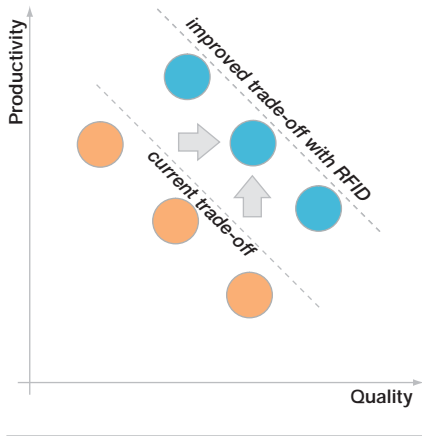


Figure 1: The Productivity vs. Quality Trade-off is Shifting



now see real opportunities evolving for specific categories like apparel and electronics. The standards for luggage handling are being defined, enabling RFID track and trace applications in the aviation sector, whereas healthcare is seeing the benefits from RFID in asset tracking.

In all these applications, RFID is shifting the trade-off between productivity and quality. Productivity improvements can come from improved asset utilization, reduced human effort in scanning and handling, while quality improvements can include inventory reduction, delivery accuracy and maintenance quality. Understanding how RFID can improve operations depends in large part on the current positioning of business processes in the productivity vs. quality trade-off.

Capgemini's RFID Industry Solutions: Theory to Practice

Working with our extended partner network, Capgemini has defined a set of industry solutions to bring the benefits of RFID to our clients.

These solutions have been designed with a business purpose in mind. In some cases this might involve the combining of RFID with other identification technologies in order to meet the needs of a hybrid world.

Examples of RFID-enabled industry solutions include:

- **Mobile Asset Management in Distribution: RTI tracking**
More efficient management of Returnable Transport Items (RTIs), such as roll cages, can have a strong ROI and also can be a first step in developing a platform for further improvement in operational performance leading to greater control of the entire supply chain.
- **Pedigree, Track and Trace for Pharma: Drug Security Network**
Compliance with Food & Drug Administration regulations requires authentication of the drug at each step of the process. A collaborative solution called the Drug Security Network (DSN) is designed to help the pharmaceutical industry realize

Figure 2: RFID Solutions as They Apply to Different Industries

RFID Solution		Industry									
		Retail	CPG	Distribution	Manufacturing	Pharma	Health	Aviation	Automotive	Energy/Utilities	Defense
1	DC Operations	■	■	■	■	■					
2	International Trade			■				■			■
3	Pedigree, Track and Trace	■	■			■			■		
4	Cold Chain Logistics	■	■	■		■	■				
5	Inventory Management	■	■	■	■				■		
6	Mobile Asset Management	■	■	■			■	■	■		
7	Store Operations and Consumer-Driven Replenishment	■	■								
8	Asset Maintenance and Monitoring						■			■	■
9	Mission Demand Printing										■
10	Managed Service Model	■	■	■		■					

**RFID Experience Center:
Seeing is Believing.**

The RFID Experience Center is based on a fully functional cross-docking distribution center. Visitors are able to follow the workings of a complete supply chain from the moment the goods are received, then cross-docked with the help of an automated sorting system and through to order checking and loading. The RFID readers are integrated with the SAP Warehouse Management system as well as the Vanderlande Industries specific sorting software. By doing this, it is possible to show the practical application of RFID throughout the entire supply chain as well as illustrating that it is possible to realize a return on investment over a short period of time.

Using RFID, the product location within the logistic process is continuously visible. The efficiency of registration and handling processes increases, while the number of incorrect deliveries is reduced. In addition, stock turnover can be closely monitored.

The RFID Experience Center offers an environment for in-depth discussion on the applicability of RFID fueled by the live experience of RFID in a real-world scenario.

these demands by authenticating and transmitting electronic pedigrees in the open supply chain.

■ **Inventory Management for Retail: Apparel Source Tagging**

Keeping close control over inventory is difficult in the apparel industry because of the relatively short lifecycle and extensive variety of size, color and style. The combination of anti-theft prevention and source tagging will provide for a realistic ROI.

■ **Distribution Center Operations in CPG/Retail: RFID Experience Center**

The RFID Experience Center in the Netherlands is a joint initiative from Capgemini, SAP and Vanderlande Industries and shows a fully integrated solution between materials handling systems from Vanderlande and the SAP Warehouse Management system.



to architecture (the Integrated Architecture Framework, IAF) to define the interplay among people, processes and technology.

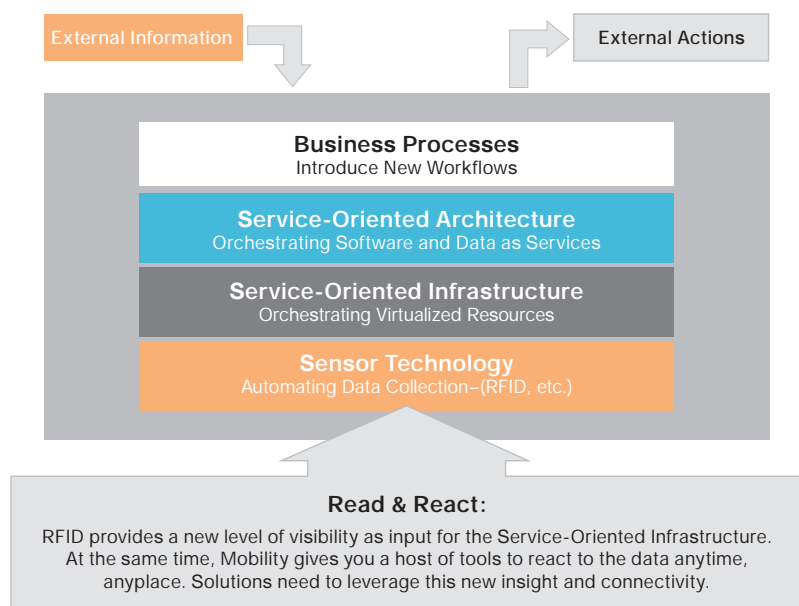
Using recent developments in service-oriented software, the objective of this architectural approach is to create a more adaptive company, using assets in a flexible way, both across the organization and in the collaboration with trading partners.

RFID is a key enabler of the Service-Oriented Enterprise, as it provides a new basis of sensor technology that will support the optimization of processes.

Integrated Architectural Approach

As RFID matures as a technology, it will become an integral part of a company's business architecture. RFID solutions should align with an architecture that can support a platform for the future. Capgemini uses a thorough approach

Figure 3: The Service-Oriented Enterprise



Experience Counts

Capgemini's leadership in the RFID area is based on extensive experience that is recognized in the marketplace. We have developed RFID strategies, assessments and implementations for leading companies in the retail, consumer products, distribution and pharmaceutical industries. For example:

- We worked with a Dutch retailer and wholesaler to investigate where and how RFID technology can be deployed successfully in the company's logistics process, from roll cage and crate tracking to the tagging of high-value goods.
- Capgemini is working with a major European postal and logistic service group on an RFID pilot to more accurately track and trace the company's roll cages used to transport parcels and packages all over the country.
- We worked with a U.S. home improvement retailer to use RFID for improved inventory visibility in their backroom, in particular for special order management.
- We analyzed and tested an RFID-enabled cross-dock operation for fresh produce at a European foodservice client, showing a direct return on investment.
- Capgemini is working with several partners in the Netherlands to track crates from supplier to store shelf, using the latest EPCglobal network standards for secure RFID data exchange between the retailer, supplier and crate pool operator.
- We have performed an in-depth analysis and pilot for a logistics service provider in France, to show the viability of RFID for material handling reductions in a DC operation for mobile phones.
- We worked with a multinational pharmaceutical company to define their RFID strategy and roadmap for RFID development.



About Capgemini and the Collaborative Business Experience

Capgemini, one of the world's foremost providers of Consulting, Technology and Outsourcing services, has a unique way of working with its clients, called the Collaborative Business Experience.

Backed by over three decades of industry and service experience, the Collaborative Business Experience is designed to help our clients achieve better, faster, more sustainable results through seamless access to our network of world-leading technology partners and

collaboration-focused methods and tools. Through commitment to mutual success and the achievement of tangible value, we help businesses implement growth strategies, leverage technology, and thrive through the power of collaboration.

Capgemini employs approximately 60,000 people worldwide and reported 2004 global revenues of 6.3 billion euros.

More information about our services, offices and research is available at www.capgemini.com.

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