



Contract Number 235542

RACE networkRFID

ICT-PSP: a European concerted effort on RFID

D.1.2.1. Compilation of selected EU Public Policy areas and analysis of divergent/convergent policies related to RFID

Due date of deliverable: 31-07-2009 (M5)
Actual submission date: 25-02-2010

Start date of project: March 1st, 2009

Duration: 36 months
Version: 1

Organisation name of lead contractor for this deliverable: **GS1**
Contact person: Marisa Jimenez/Emilie Danel

Project co-funded by the European Commission		
Dissemination Level		
PU	Public	x
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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REPORT ON POLICIES ON SELECTED POLICIES RELATED TO RFID IMPLEMENTATION IN THE EU SUSTAINABILITY

Purpose of this report

The purpose of this report is not to outline the different regulatory requirements that directly affect the deployment of an RFID application, as defined by the European Recommendation on Privacy and Security of 2009 or the OECD guidance on RFID of 2008. Relatively extensive and detailed work has been provided by former EU funded projects, such as CE RFID¹, to mention one. This report will identify key European policy priorities in the area of sustainable growth, where we believe RFID deployment can serve as an enabler of these identified policy priorities and objectives.

Updates on these and other policy priorities will be then circulated through periodical newsletters and updates provided by WP I.

A secondary objective is to inform RFID users about the linkage between their RFID enabled operations and recognised policy approaches in the EU.

Finally, this information serves also as reference material for the rest of RACE Network RFID Work Packages involved in awareness raising, dissemination and government liaison.

The areas covered by this report are:

- 2020 Agenda, a greener sustainable growth strategy
- Transport efficiency
- Waste management and recycling
- Carbon footprint reduction

¹ Coordinating European Efforts for Promoting the European RFID Value Chain (CE RFID), <http://www.rfid-in-action.eu/public/>

The 2020 Initiative

A personal initiative of Commission President Joao Barroso, the so called *2020 Initiative* sets the vision for the next 10 years in the European Union. Inevitably, the economic crisis and the learnings from the Competitiveness for Growth and Jobs strategy informing the 2000-2010 period in the European Union have heavily influenced the European Commission's newly suggested action approach. The 2020 Initiative aims at speeding up the move towards a smarter, greener economy, while attempting a full recovery from the economic crisis.

This initiative, which also builds up on the shortcomings of the Lisbon Agenda, will be subject of discussion (and adoption) by the EU Heads of State and Government at the Spring Council of 2010. Policies incentivising the use of Information and Communication Technologies (ICT) towards a smarter and greener economy will probably be reinforced if, among other considerations, the 2020 Initiative follows a **strong cohesive integrated approach to policy strategy making and implementation**² in the area of ICT, rather than through initiatives that are 1) implemented in parallel, and/or 2) disconnected from other overarching policy priorities it may serve or enable, both at EU and Member state level.

The following pages give a brief outline of the approach taken towards RFID by policymakers in the EU, from the point of view of sustainability and in particular in the areas of transport efficiency, waste management, recycling and reduction of carbon foot print.

Transport Efficiency

Context

Maximising the efficiency of transport is in itself an objective of any party directly or indirectly involved in trade of products in today's globalised economy. It is a goal that has effects not only on those who actually "move" products or people but those who engage services to move those products along the supply chain (a retailer, chemical or automotive company, to name a few). The economic recovery goes hand in hand with boosting opportunities for enhanced trade; the remaining challenge consists of *maximising* transport efficiency in order to *minimise* effects of transport increase,³ based on sustainable approaches.

² See The European Commission's Staff Paper on the Lisbon Strategy Evaluation Paper SEC (2010)114 of 2 February 2010 available at <http://ec.europa.eu/eu2020>.

³ In the context of the European Union and according to the European Commission's Impact Assessment on Intelligent Transport Systems SEC (2008)3084, Freight and Road transport will increase by 55% until 2020.

Most transportation is burning fossil fuels, which emits greenhouse gases into the atmosphere. Reducing burn reduces environmental impact too. Knowing where things are, improves overall supply chain efficiency, reducing the transport of additional materials or redirected shipments that have been misrouted. Being able to know exactly where things are in the supply chain enable an airplane, train, truck or vessel to take on more cargo for the same journey. It also facilitates inter-modality. In other words, RFID provides enhanced visibility that works towards efficient and sustainable transport.

The policy perspective

Transport efficiency has been part of the European Union transport policy notably since its 1992 Strategy and White paper on Transport of 2001,⁴ reviewed on several occasions since then. In 2009, the European Commission released a Communication on a *Sustainable Future for Transport, Towards an integrated, technology led, user Friendly Transport System*⁵ where it outlines the policy objectives and proposed lines of action that specifically address this aspect. Transport efficiency is defined in the context of *better management of transport and information flows*⁶. However, and for the purposes of this report, transport efficiency should not be looked at as an objective in isolation but as a means to deliver other policy objectives, such as achieving a competitive economy that is smarter and greener in nature.⁷ In other words, transport efficiency is part of a sustainable transport strategy as well as pillar of the sustainable, greener economic growth vision in the EU and beyond⁸. This view is shared by industry from a variety of sectors and backgrounds currently using RFID, as it was revealed during the II Transatlantic Symposium on the Benefits of RFID⁹.

The European Commission outlined early on the benefits and close connection **between transport efficiency and RFID deployment**, especially in (but not limited to) the logistics sector. The capabilities of RFID technologies as emerging ICT tool in the field were timidly explained in the EU Commission initiative *Freight Transport logistics in Europe, a key for sustainability*¹⁰ in 2006, and they became more prominent in the European Commission's *Action Plan* released just one year after. Other direct references to the use of RFID in the supply chain in general were addressed during DG Information Society informational workshops on RFID of 2007¹¹ leading to the Communication on RFID a year later and the

⁴ All relevant documents can be downloaded at: http://ec.europa.eu/transport/strategies/2009_future_of_transport_en.htm;

⁵ COM(2009) 279 17 June 2009

⁶ Idem, point 69.

⁷ See Introduction to the EU 2020 Agenda: *this strategy should enable the EU to make a full recovery from the crisis, while speeding up the move towards a smart and green economy*. <http://ec.europa.eu/eu2020/>

⁸ See footnote 6

⁹ http://www.discoverrfid.org/fileadmin/user_upload/pdf/euus_symposiumreport.pdf; Panel V: "Innovation and Global Economic Growth" Brussels, May 2009.

¹⁰ SEC (2006) 818 28 June 2006

¹¹ RFID Applications and Emerging trends, European Commission RFID Workshop May 15/16 2006: Transport and Logistics <http://www.rfidconsultation.eu/workshops/18/124.html>;

Communication on the Internet of Things¹² in 2009. The importance of RFID use in the supply chain and in the logistics sector in particular was also recognised by the RFID Experts Group on the RFID Recommendation and the Internet of Things, which accounted with the participation of a logistics association and a prominent member of the European logistics and express markets. The contribution of RFID technologies use towards greater efficiency gains for their core business is also reflected in industry policy responses to major RFID initiatives taken by the European Commission in recent years¹³.

While the 2009 European Commission's communication on Sustainable Transport does not refer explicitly to RFID, it is evident that some important policy recommendations can be achieved at least partially through the use of RFID technologies, in particular as regards to management and information exchange on goods flows referred to above. Nevertheless, it should be noted that discussions at European Parliament level on the above-mentioned Communication do **not avoid RFID**, and refer to a future **Internet of Things**.¹⁴ As the Communication and following stakeholder consultations lead to the drafting of a **new White paper (2010)** on the future of transport for the next 10 years, it becomes apparent that the role of ICT technologies in general, and the benefits of RFID use in value chains involving the movement of goods or people in particular should have a **more prominent space** in the European Union's sustainable transport policy.

FIGURE 1 EU RESEARCH SUPPORT

Transport Efficiency and RFID

EURIDICE: European inter-disciplinary research on intelligent cargo for efficient, safe and environment-friendly logistics

¹² Point 2.1 of the EU Commission Communication on RFID

http://ec.europa.eu/information_society/policy/rfid/documents/rfid_en.pdf and EU Commission Communication on the Internet of Things http://ec.europa.eu/information_society/policy/rfid/documents/commiot2009.pdf;

¹³ <http://www.rfidconsultation.eu/menu/24>.

¹⁴ Draft Opinion of the ITRE Committee at the European Parliament 2009/2096 (INI) of 6 December 2009, in particular point 5: [The Committee on Industry, Research and Energy] *notes the importance of developing the "Internet of Things" to improved the safety of infrastructure and vehicles, improve user information to speed up the sorting of goods and reduce the relevant bureaucratic procedures [...]*.

Project Objectives

EURIDICE is an Integrating project that will create the necessary concepts, technological solutions and business models to establish information services platform centred on the context of individual cargo items and their interaction with the surrounding environment and the types of users. The EURIDICE platform will simultaneously improve the logistics, business processes and public policy aspects of freight transportation, by dynamically combining services at different levels: Immediate proximity of a **RFID** tagged cargo item, mobile users and vehicle services; Producer Shipper and Carrier Supply chain including qualification, handling and routing; Freight corridor, represented by authority and infrastructure services including authorisation, security and safety control.

The EURIDICE platform will support 'on the fly' combination of services between user, context and cargo improving and integrating a number of advanced technologies, including: Service-oriented architectures incorporating mobile technologies, interoperability between heterogeneous environments and advanced security features: semantic web and domain ontologies, for automated discovery of services associated to any specific cargo item, context and user request; advanced context technologies, for combination of item, vehicle and user IDs with automatically detected conditions like, e.g., position and status of cargo; distributed intelligent agents, for optimisation, anomaly and threat detection (alerting) and decisions support.

The beneficiaries of the EURIDICE platform will be a variety of private and public sector including: industrial companies, for proactive, real-time 'bottom-up' monitoring of goods, logistic services providers, for synchronisation of schedules across multi-modal routes, public authorities, for automated security and public

Source: European Commission

Looking beyond the EU: the OECD view

The Organisation on Economic Development (OECD) has addressed the issue of transport efficiency as part of its economic social and environmental views on **globalisation**. In a study published in 2010¹⁵, the OECD addresses how globalisation has affected all modes of transport as well as the policy instruments that could be applied to address the globalisation challenge. The increase of transport in the last decades (14% according to WTO figures in 2008) has brought more attention to transport efficiency. ICT technologies play a role in addressing this goal and Radio Frequency Identification is highlighted through the track and trace capabilities it enables, in the context of road transport in particular:

*“Track and trace systems can be used to trade products throughout the supply chain, Such systems can provide visibility for the product at all stages and at all times, They are widely used in the parcel sector fir world-wide operations. They help companies to ensure safe, reliable on time delivery and allow for improved planning. Such systems are also of great importance in locating products that have gone missing, Electronic seals and **RFID** technologies are being increasingly used to trade containers and other loads moved by road internationally”*

Radio Frequency Identification has also been addressed **in the context of sensor network technologies** used in current pilots and experiences to enhance urban transport efficiency¹⁶, during the 2009 OECD

¹⁵ Globalisation, Transport and the Environment, OECD 2010. www.oecd.org

¹⁶ The technology can also help reduce traffic congestion in major urban areas. The use of RFID tags can help city planners calculate more efficient bus routes and monitor traffic flows to better deal with gridlock and manage traffic patterns. Some cities have installed RFID tags on their public buses to determine route efficiency.

Conference on “Smart Sensor Networks: Technologies and Applications for Greener Growth” and the report that followed¹⁷.

FIGURE 2 RFID SUPPLY CHAIN APPLICATIONS IN THE WIDER CONTEXT

¹⁷ Report of the OECD Working party on Information Economy (WPIE) prepared as a contribution to the OECD Conference on ICT, the environment and climate change. Helsingør, Denmark 28-29 May 2009
<http://www.oecd.org/dataoecd/39/62/44379113.pdf>.

Table 13. Model calculation: portion of value added due to RFID technology

	Year	Manufacture of transport equipment	Manufacture of textiles and textile products	Manufacture of chemicals and chemical products	Manufacture of machinery and equipment	Commercial agents/wholesaling	Retailing (except motor vehicles)	Transport, storage and communication	Health and social work	TOTAL
Gross value added (EUR, billions)	2004	73.1	37.4	45.6	67.2	89.5	84.0	116.4	141.2	654.4
	2010	71.4	34.4	55.4	85.5	133.5	88.1	148.1	148.1	764.5
Percentage of RFID pioneers	2004	10%	5%	5%	2%	10%	10%	7%	1%	--
	2010	40%	20%	15%	15%	40%	40%	25%	15%	--
RFID pioneers' value added (EUR, billions)	2004	7.3	1.9	2.3	1.3	9.0	8.4	8.2	1.4	39.8
	2010	28.6	6.9	8.3	12.8	53.4	35.3	37.0	22.2	204.5
Percentage of output "influenced" by RFID	2004	10%	5%	10%	2%	10%	10%	5%	1%	--
	2010	35%	30%	20%	20%	30%	30%	40%	20%	--
Portion of value added "influenced" by RFID (EUR billion)	2004	0.7	0.1	0.2	0.03	0.9	0.9	0.4	0.01	3.24
	2010	10.0	2.1	1.7	2.6	16.0	10.6	14.8	4.4	62.2

Source: OECD based on BMWi (2007).

© OECD 2008

Waste management, Recycling & Carbon Footprint

Context

Waste management and recycling issues have been at the top of the European Union's political agenda for a few years now. Among the many questions raised in the debate, the reduction of waste plays a great role. The increasing buy power of emerging countries as well as the escalating general consumption implies a greater amount of waste to manage. The issue is even more relevant for consumer electronics goods, which are more challenging to recycle. The European Commission is tackling these issues with several legislative tools, among which the most two important are the Waste of Electronic and Electric Equipment Directive¹⁸ (WEEE) and the Reduction of Hazardous Substance Directive (RoHS).¹⁹

What is the role of RFID in this context? Does it work as an enabler or a liability?

¹⁸ WEEE Directive available here: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002L0096:EN:NOT>

¹⁹ RoHS Directive available here: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002L0095:EN:NOT>

On the one hand, RFID widespread rollout can be an enabler of improved waste management: it can reduce e-waste by enabling re-usage of components or subcomponents of a product. In addition, the use of RFID can also help to achieve a better compliance with e-waste regulations based on the responsibility of the manufacturer to properly recycle EEE components.

On the other hand, future RFID rollouts could represent a huge quantity of EEE components in supply chains, at least at the early implementation stages, where tags will contain materials that are considered hazardous waste. Therefore the role of research to come up with greener tags should be a priority.

The policy perspective

EU legislation restricting the use of hazardous substances in electrical and electronic equipment (Directive 2002/95/EC) and promoting the collection and recycling of such equipment (Directive 2002/96/EC) has been in force since February 2002 and amended in 2008²⁰. This latter directive promotes the prevention, recovery and recycling of waste electrical and electronic equipment (WEEE)²¹. In December 2008, the European Commission proposed to revise the directives on electrical and electronic equipment in order to tackle the fast increasing waste stream of such products. The aim is to increase the amount of e-waste that is appropriately treated and to reduce the volume that goes to disposal.

Directive 2002/95/EC on the Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)²² has the aim to approximate the laws of the Member States on restrictions of the use of hazardous substances in electrical and electronic equipment, and to contribute to the protection of human health and the environmentally sound recovery and disposal of waste electrical and electronic equipment.

RFID tags and readers meet the definition of electrical and electronic equipment provided for in the WEEE and RoHS Directives and can be considered to fall under Category 3 "IT and telecommunication equipment". RFID tags and readers are therefore covered by the RoHS Directive. Concerning the WEEE Directive, if an RFID tag is placed on the packaging of the electrical and electronic equipment they are considered to fall outside the scope of the Directive, because they are part of a product that is not covered

²⁰ http://ec.europa.eu/environment/waste/weee/legis_en.htm

²¹ http://ec.europa.eu/environment/waste/weee/index_en.htm

²² Frequently Asked Questions on Directive 2002/95/EC on the Restriction of the Use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) and Directive 2002/96/EC on Waste Electrical and Electronic Equipment Directive (WEEE), May 2005, http://ec.europa.eu/environment/waste/pdf/faq_weee.pdf

by the WEEE Directive²³. If they are placed on the equipment, the producer of the equipment is responsible for recycling under the conditions of the Directive.

The European Commission's Communication on RFID of 2007²⁴ referred to the capabilities of RFID technologies in recycling and waste management: " [...] RFID tagging is expected to improve sorting and recycling of product parts and materials. " The recent European Commission Communication on the Internet of Things²⁵, addresses IoT technologies impact on current waste management practices. The Communication refers to potential issues with the recycling of the tags embedded in products. Tags are typically made of silicone, copper, plastic and aluminium, which are challenging to process. It nevertheless underlines the expected capabilities of new IoT technologies to accurately identify objects and materials, which will make recycling processes much more efficient.

FIGURE 3 Communication Action line on environment

Line of action 12 — RFID in recycling lines

As part of its regular monitoring of the waste management industry, the Commission will launch a study to assess the difficulties of recycling tags and the benefits and nuisances that the presence of tags can have on the recycling of objects.

European Research and Supported Actions: GRIFS report (2009)

The GRIFS project (2008-2010) supported by the European Commission's 7th Framework Programme (FP7), aimed at developing a platform of collaboration between international standards organisations. Among their achievements, the partners of the project (GS1, CEN and ETSI) produced a standardisation state of the art report which provides an overview on the development and implementation of RFID-related standards, on a global scale, identifying the standards bodies, the geographical and technical scope of the work and opportunities and risks of collaboration. Among other topics, the report identifies three standards that have a direct relationship on the use of RFID technology²⁶:

- Waste electrical and electronic equipment (WEEE): The report states that interrogators and active RFID tags usually fall into the category of "electronic devices" as defined by the WEEE Directive.

²³ Frequently Asked Questions on Directive 2002/95/EC on the Restriction of the Use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) and Directive 2002/96/EC on Waste Electrical and Electronic Equipment Directive (WEEE), May 2005, http://ec.europa.eu/environment/waste/pdf/faq_weee.pdf

²⁴ Communication on Radio Frequency Identification (RFID) in Europe: steps towards a policy framework, COM(2007)96, http://ec.europa.eu/information_society/policy/rfid/documents/rfid_en.pdf

²⁵ http://ec.europa.eu/information_society/policy/rfid/documents/commiot2009.pdf, P. 10

²⁶ The GRIFS database provides details about these three directives at <http://grifs-project.eu/db>

On the other hand, passive tags are accepted as being outside the scope. It is not clear how battery-assisted passive tags should be categorised.

- Restrictions of the use of certain hazardous substances (RoHS): According to the RoHS Directive, RFID products should not contain the hazardous material that are now banned for all electrical and electronic products, i.e. lead, mercury, cadmium, hexavalent, chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE).
- Packaging and packaging waste: whereas RFID tags applied in packaging are exempt from the WEEE Directive, depending on their proportionate relationship with the packaging, this Directive may have some minor impact on the use of RFID.

The report finally identifies areas for further work:

“Although the RoHS Directive has a very narrow definition, the handling of hazardous material within the supply chain has significant environmental and health and safety issues. There are already facilities within the ISO RFID data standards to be able to identify hazardous materials in a general supply chain environment, so that they can be selected and processed separately and in a safe environment.

If RFID tags are applied to electrical and electronic components, then they have the prospect of contributing to systems that can deal with the recovery and recycling of those items.

As more and more products carry RFID tags at the item level, such tags are likely to be applied – even incorporated – into the product packaging. While some types of packaging can be easily distinguished from others (e.g. cardboard from glass from plastic), sorting different types of plastic can be slightly more challenging. There is the long term prospect of RFID tags that are applied to high volume plastic packaging to enable such products to be sorted using the basic look-up to sort that type of packaging.

A proposal has been submitted by CEN/TC 225 to the Commission to create a CEN Technical Report for sorting spare automotive parts at the end of their life.”

FIGURE 4 - ICP Work Programme 2010



ICT PSP Work Programme 2010

2 Themes in the newly released ICT PSP Work Programme of 2010²⁷ are relevant to RFID in the environmental context:

- “ICT for a low carbon economy and smart mobility”. One of the objectives of this call is to support **energy efficient cooperative transport management systems**.
- “Open innovation for future Internet-enabled services in smart cities”. Under this Theme, several pilot actions will be funded. Pilots could aim at creating a network of smart cities and would focus on key areas such as **green digital agendas with infrastructure and urban planning supporting the development of a low carbon economy and society**.

Impact of RFID tags on waste management: a Member state perspective

In 2009, the Federal Environmental Agency of Germany commissioned an interesting study to evaluate the potential impact on recycling of current and future mass use of RFID tags²⁸. The main point of the study is that the solution to the recycling of RFID tags will lie on the separation of waste.

The study provides a wealth of technical details regarding tags (design, components, material, etc) and the related recycling challenges. It then analyses what currently happens to the tag when recycled together with the products it is attached to and the problems that arise when affixed or embedded into a glass, paper or a plastic product (impurity, colour changes etc.)

Finally, the report contains recommendations based on self regulatory methods to improve the techniques of separation during the recycling process. Among other, the “ecodesign” of the tag can be made more easily separable, the recycling can be adapted, more efforts can be made in separation of tag and product, and secondary material with tag “impurity” can be blended with purer material.

Overall, the study recommends the take up of timely precautionary measures in order to avoid any problems in the future.

²⁷ http://ec.europa.eu/information_society/activities/ict_psp/documents/ict_psp_wp2010_final.pdf

²⁸ <http://www.umweltdaten.de/publikationen/fpdf-k/k3845.pdf>

RFID, Recycling and Re use

RFID tags placed on products can allow for the reuse and the proper recycling of all products. Additionally, many of the tagged components can be reused and their parts can be salvaged. The tagging of individual components can also allow a company to quickly identify faulty equipment by tracking it back to the original source by using the unique identification number in a tag.

The use of RFID technology can speed up and better facilitate the general recycling process. Rather than sorting recyclables by hand, the use of RFID tags can allow for products to be sorted accurately by machines saving companies a significant amount of manpower and time, without sacrificing accuracy.

The technology also has the ability to help encourage recycling. By installing tags in recycling bins and readers on the trucks that pick up the waste, communities can accurately pinpoint where recycling is taking place. In some cases, recycling is even incentivized where communities who do recycle at a high volume are rewarded with credits that can be used at various retail stores.

In addition to creating more of an efficient and streamlined recycling process, an RFID tag can also be recycled and reused. A tag and its memory can be rewritten and reused on other products since the battery life on most consumer product tags can last up to 10 years.

Project PURE- a US experience

This project (Promoting Understanding of RFID and the Environment) was partly funded by the Environmental Protection Agency (EPA)²⁹. It aimed to identify ways in which the use of RFID tags within the production and distribution system for electronics products could reduce the environmental footprint of products by minimising the need for materials, facilitating reuse, and improving the efficiency of recycling while providing economic and operational benefits for those involved in the life cycle of electronics.

The project focused on end of life electronics products and recycling and analysed the benefits of RFID for the recycling processes. The specific topic of hazardous material was also addressed, and the technology proved to be a great enabler for a better and more efficient recycling process.

²⁹ http://www.epa.gov/oswer/iwg/pilots/innovation_pilots_waste.htm#purepromo

ISO Guidelines on Recycling and Waste (RFID)

The ISO guidelines ISO/IEC TR 24729-2:2008³⁰ describe the potential for RFID use as a significant enabler in the recycling of various types of products; notably home appliances and electronics. It identifies various recycling streams that are challenged by the possibility of RFID tags being attached to recycled material, notably glass and steel.

The guidelines apply to two areas:

- Use of RFID to improve waste stream recycling. The report identifies how the technology could improve the existing recycling process.
- Recycling of RFID tags: the guidelines give precise recommendations for the good recycling of the tags, whether they are passive or active. RFID tags can contain small amounts of aluminium, copper, silver, polyethylene terephthalate (PET) and adhesives. The report suggests ways that recyclers and trade groups should work to proactively identify and mitigate the possible negative impacts of huge numbers of passive RFID tags on the waste and recycle stream.

Carbon Footprint Reduction

The use of RFID tags allows manufacturers and retailers to see, in real time, the location of items from the moment of manufacturer until sale to the customer. Through this process, RFID technology can reduce the global supply chain's carbon footprint.

RFID tagging is perhaps one of the most promising means of documenting the entire life cycle of a product. By tracking the life cycle of a product through an RFID tag, manufacturers, suppliers, and retailers **can calculate the carbon footprint of a specific item** and eventually make future modifications to improve the process. This is the conclusion of the interim report entitled RFID the key to visible sustainability: *“RFID are the only way to provide comprehensive , real time and accountable audit trails and accountability across the supply chain and consumption cycle”*.³¹

In view of clear positive discussions on RFID use in the area of environment reporting and carbon foot accounting, by academia³² and industry beyond European borders, it might be adequate to explore further

³⁰ http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=41882

³¹ RFID Labelling: the key to visible sustainability; interim report presentation to the RFID Recommendation Informal Group 8.02.2010. Final report is expected in April 2010.

³² Auto ID labs work on Carbon footprint Accounting, in particular related to the food supply chain
<http://www.autoidlabs.org/uploads/media/AUTOIDLABS-WP-BIZAPP-046.pdf>

dialogue opportunities between EU³³ and Member state **environment parameters and reporting** initiatives, and RFID stakeholder groups involved.

Final Remarks

In conclusion, the potential and opportunities of RFID use as an enabler of a sustainable, smarter and greener economy should not be overlooked. The European Union and its Member states have the opportunity to start addressing RFID technologies from the sustainable competitiveness angle, especially now that mid-term policy agendas are being developed and debated.

³³ SEIS (EU Shared Environmental Information System) <http://ec.europa.eu/environment/seis/>.