



## **EPCglobal Response to the EU Commission Staff Working Document: Future Networks and the Internet - Early Challenges regarding the “Internet of Things”**

**Brussels, 28 November 2008**

### **About EPCglobal**

EPCglobal is part of GS1, a global, Brussels-based not-for-profit organization which played a key role in the adoption of the bar code in Europe and around the world. This parentage provides EPCglobal with an unmatched background in the development of user-driven standards.

EPCglobal develops a global standards system that combines RFID (Radio Frequency Identification) technology, an existing communications network infrastructure and the Electronic Product Code ('EPC' - a number for uniquely identifying an item) to enable immediate and automatic identification and tracking of an item through the entire supply chain globally, resulting in improved efficiency and visibility of the supply chain.

More than a 100 GS1 local organizations worldwide, including 39 in Europe, are involved in the development and local implementation of EPCglobal standards.

### **A. Executive Summary**

EPCglobal welcomes the opportunity to comment on the European Commission's Staff Working Document and supports the transparent consultation process launched by DG Information Society.

We consider that the Staff Working Document is a starting point in the discussions but find that its conclusions are founded on a limited analysis of the concept of the Internet of Things predominantly based on an existing subset of ID technologies (RFID).

It might be too soon to make new policy decisions for the future Internet of Things, as these decisions would require a careful assessment and accurate understanding of the current and emerging developments.

Rather than making decisions now, it is important to put a process in place that would identify the issues where guidance is needed and address their impact on applications and society as they emerge. For that, a comprehensive dialogue representing all parties and supported by the European Commission is needed.

We believe that a distinction should be made between (good) governance principles, necessarily general and future proof, the rules that should apply at operational level, and the method by which these are put in practice. Further, rather than equating governance to government control, good governance models should create the conditions for the sound development of multiple applications.

Finally, we would like to point out that in our view, no meaningful debate on the future Internet of Things will exclude other regions from the process. Rather than supporting European centric approaches to the Internet of Things, a better line of action would be to assure that the input of European stakeholders is considered and acknowledged in broader global or multi-regional discussions. This will be especially relevant once the conditions for setting global governance principles of the Internet of Things become apparent.

## **B. Detailed Comments**

### **I. General comments on the scope of the Staff Working Document**

We believe that the Staff Working Document on “Early Challenges regarding the “Internet of Things” constitutes a starting point in a longer reflection process towards a policy framework of the future Internet of Things. This will require a comprehensive analysis of the current and future technological, economic and societal developments in the years to come.

The Document appears to equate today’s RFID applications with a future Internet of Things. We consider that a policy approach which only takes into account a specific subset of RFID related ID technologies is much too narrow and would lead to an incomplete and premature policy analysis of the Internet of Things.

RFID is just one of the basic enabling technologies for an Internet of Things, along with other emerging sensor and ID technologies such as image, 2D barcodes, inks with nano- particles, etc. Since it is very difficult to guess which ID technology or technologies will give rise to the first successful service or application of an Internet of Things, it would be more advisable to focus on the capabilities of networking data, rather than on the technologies that enable such capabilities.

We would like to encourage the European Commission to take a technology neutral approach to the Internet of Things and strive to provide a predictable and reliable regulatory environment for ICT companies and end user companies, enabling the development of trials, emerging applications and services within the European Union and beyond.

### **II. A supportive policy approach for the Internet of Things**

In order to develop a supportive policy approach, it would be appropriate to conduct a careful assessment of the relationship between today’s Internet technology and the future development towards an Internet of Things, in so far as many applications and services of the future Internet of Things might be based or make use of underlying Internet technology. However, the successes, challenges and regulatory experiences of today’s Internet are only a point of reference.

The Internet of Things will be made up of a plethora of different applications and services; it seems unjustified to draw policy conclusions from single examples. On the contrary, a thorough assessment of experiences in the Internet and all promising technology developments should be undertaken before adopting policy principles that would provide guidance to stakeholders developing applications and services.

Even if we take emerging RFID applications as an example, it is clear that different applications require different architectures. This is so because the architecture does not condition the applications; on the contrary, applications determine the architecture behind them. For that reason, architectures cannot be examined in isolation, without taking into account the applications they serve. RFID technology alone is leading to a rich environment of very different applications, including supply chain, healthcare, transport, libraries, payment applications, sustainability applications and many others that have the use of RFID technology in common, but are very different in nature.

Therefore, it is much too soon to make policy decisions on the future Internet of Things, as these need careful assessment and accurate understanding of current developments and different conceptions behind emerging applications. In particular, it would be premature to assume that all services in an Internet of Things will rely on *one* architecture.

Policy principles and governance rules cannot be based on a specific technology, but need to be considered and implemented when developing services and their supporting architectures.

A distinction is needed between good governance principles, necessarily well-founded, general and future proof, the rules that should apply at operational level, and the method by which these are put in practice. Good governance can be understood in terms of inclusive participation, the respect for rule of law, transparency, responsiveness, effectiveness, efficiency and accountability. In other words, governance cannot be simply equated with government control.

This does not mean that public authorities do not have a vital role to play; however, rather than focusing on regulating a particular set of applications, it would be important to put in place a process that can identify issues where guidance is needed and address their impact on society of applications as they emerge. A good governance model would define general policy principles and allow the creation of multiple applications, thereby stimulating innovation, rather than focusing on the operational aspects of one set of applications.

At this stage, any conceivable service in the Internet of Things would be similar to today's online services offered to users and run by private entities and public services organizations. Other than providing a suitable legal basis for the provision of such services, it is not clear which additional needs for new government controls in this area could be justified and on what grounds. On the contrary, application providers and users should be empowered to incorporate good and sound governance practices into their applications.

The European Union (EU) has a legitimate interest in understanding and shaping the concept of the Internet of Things; however, the EU cannot address the Internet of Things in isolation without reaching out to other parts of the world; it is inconceivable to believe that the services in the Internet of Things will be regional or national, rather than global.

There is a role for the European Commission and global partners to serve as advocates of a much wider dialogue on governance principles. This dialogue is instrumental in order to assess the global framework in which the Internet of Things will be developed.

Rather than supporting European centric approaches to the Internet of Things, a better line of action would be to assure that the input of European stakeholders is considered and acknowledged in broader global or regional discussions. This will be especially relevant once the conditions for setting global governance principles of the Internet of Things become apparent.

Policies that safeguard and outline the fundamental rights of individuals to privacy and data protection as well as consumer protection and sustainable environment policies (to name a few), are already enshrined in European legislation (and beyond, not only in the EU); their validity should not be questioned.

The EU decision makers should therefore make sure that these rights and policies can be easily implemented by stakeholders and are not used to impose unjustified control measures that might impact the operational aspects of new services and hinder the development of the Internet of Things in the European Union.

Given the fact that sustainable growth plays a fundamental role within the Lisbon 2010 declaration of the European Union, during the upcoming years the European Union should strive to take the most possible advantage from the innovative momentum derived from the technologies related to the Internet of Things and their favourable environmental impact on the whole life cycle of goods and services.

The Internet of Things will not be successful if it does not allow the participation of all, including the creation of new applications benefiting the wider public. An environment that fosters the creation of value added applications serving different needs is compatible with assuring that these applications are informed by defined policies of the knowledge based society.

### **III. RFID in a future Internet of Things**

RFID technology is merely one of several basic technologies that will be instrumental for innovative applications and services that will populate the Internet of Things.

Based on RFID technology for wireless transmission of data, the EPCglobal network is to be understood as a *visibility* architectural model that allows for the creation of private networks enabling business partners to exchange information and enhance efficiency in the global supply chain. The architectural model or framework is based on open royalty free, user driven interface standards for identification, capture and exchange of data, leading to multiple applications. As applications and participants differ, there will be multiple different networks that use the same standards but can be quite different in design and implementation.

As it will be the case for the future Internet of Things, emerging RFID applications will necessarily reflect community needs as they develop. For example, in their realisation of these applications, based on the visibility architectural model enabled by the Electronic Product Code (EPC), EPCglobal members have striven to develop and implement a governance system based on the respect for rule of law that is inclusive, transparent, and responsive and provides an effective and accountable set of rules.

It should not be taken for granted that RFID applications will only be relevant if they serve business purposes. In our view, the over focus of the paper on a particular set of supply chain Business to Business applications, could firstly lead to misleading assessments about the current adoption levels of RFID technologies and second, it could accelerate policy decisions that might not be based on accurate information.

Any policy considerations should also address emerging Government to Citizen, Business to Consumer, Government to Government and even Consumer to Consumer applications. These types of applications have not been addressed sufficiently in the Staff Working Document.

This would at least question whether a priori notions that categorically affirm the need for new governance rules for RFID applications, without considering the nature of each application and their supporting architecture, is the right way to proceed.

As indicated in the section above, governance is not to be understood only on the basis of control but on the application of agreed policy principles, their implementation and proper adaptation to each of the applications and services, in a technology neutral manner.

#### **IV. Conclusion**

There is still much to learn about the role of RFID as well as other identification and communication technologies that will constitute the basis of the Internet of Things. We believe that more dialogue between parties is needed, and a much more thorough debate will lead to more thoughtful policy priorities. It is important that the EU does not continue focusing on the risks (whether real or perceived) only, without appropriately addressing how to set the policy conditions for successful adoption of RFID in the EU. Finally, it should be noted that no meaningful debate on the future Internet of Things will exclude other regions from the process.

EPCglobal would like to thank the European Commission for the opportunity to comment on its Staff Working Document and remains committed to contributing to the next stages of the policy debate in the areas of RFID and the Internet of Things.

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