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DRAFT REPORT

on the Internet of Things
(2009/2224(INI))

Committee on Industry, Research and Energy

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MOTION FOR A EUROPEAN PARLIAMENT RESOLUTION

on the Internet of Things (2009/2224(INI))

The European Parliament,

- having regard to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions of 18 June 2009 on the ‘Internet of Things – An action plan for Europe’ (COM(2009)0278),
 - having regard to the work programme presented by the Spanish Presidency of the EU on 27 November 2009, and in particular the objective of developing the Internet of the Future,
 - having regard to the Commission communication of 28 January 2009 on ‘Investing today for tomorrow’s Europe’ (COM(2009)0036),
 - having regard to the Commission recommendation on the implementation of privacy and data protection principles in applications supported by radio-frequency identification (COM(2009)3200),
 - having regard to the European economic recovery plan for a swifter return to economic growth (COM(2008)0800),
 - having regard to Rule 48 of its Rules of Procedure,
 - having regard to the report of the Committee on Industry, Research and Energy, and the opinions of the Committee on International Trade, the Committee on the Internal Market and Consumer Protection, the Committee on Legal Affairs and the Committee on Civil Liberties, Justice and Home Affairs (A7-0000/2010),
- A. whereas the Internet has developed rapidly in the last 25 years and this development is forecast to continue both in terms of distribution, with the expansion of broadband, and in terms of new applications,
- B. whereas information and communication technologies (ICT) promote economic growth and encourage research and innovation among European companies,
- C. whereas the EU should devise a common framework of reference in order to frame and reinforce system governance, privacy, the collection and storage of personal data and consumer information,
- D. whereas the Internet of Things is expected to develop in the years ahead and a safe, transparent and multilateral system of governance should be designed for it,
- E. whereas radio frequency identification (RFID) has advantages over bar codes and magnetic strips, and many more applications, which can be developed still further once

interfaced with the Galileo satellite system; whereas the widespread introduction of RFID chips should result in a major reduction in their unit price;

- F. whereas RFID technology is already being applied in the manufacturing and logistics sectors, offers benefits in terms of product identification and traceability and holds promising potential for developments in many other areas, such as healthcare, transport and energy efficiency,
- G. whereas RFID technology can benefit the public, in terms of quality of life, safety and well-being, provided that its facets relating to the protection of privacy and of personal data are properly managed,
- H. whereas the Internet of Things will permit the networking of millions of machines which will be able to communicate and interact with one another via RFID technology combined with an IP address,
- I. whereas there is a technological challenge involved in incorporating electronics, sensors and the power supply and RFID transmission system into a chip that only measures a few millimetres,
- J. whereas it is important to raise consumer awareness of new technologies and their applications,
1. Welcomes the communication from the Commission and endorses in principle the broad outlines of the action plan to promote the Internet of Things;
 2. Endorses the Commission's focus on safety, the protection of personal data and privacy and governance of the Internet of Things;
 3. Supports the proposal to adopt as swiftly as possible the Internet version 6 protocol (IPv6) as a basis for the future expansion and simplification of the Internet;
 4. Takes the view that the development of an intelligent Internet and its related applications will have a marked impact on the daily lives of Europeans and their habits in the years ahead;
 5. Points out that RFID technology for the intelligent labelling of products and consumer goods can be used anywhere and in practice is quiet and unobtrusive; calls, therefore, for that technology to be made the subject of further, more detailed, assessments by the Commission concerning, in particular:
 - the impact of radio waves on health;
 - the environmental impact of the chips and of their recycling;
 - consumer privacy;
 - the use of smart chips in specific products;
 - the right to 'chip silence';
 - guarantees for the public as regards the collection and protection of personal data;

and for it to form the subject of a specific European regulation, if appropriate;

6. Considers it a priority to ensure a global regulatory framework and specific timescales at European level to encourage and facilitate public and private investment in the field of the Internet of Things;
7. Takes the view that the development of new applications and the actual functioning of the Internet of Things will be intrinsically linked to the trust that European consumers have in the system;
8. Stresses that, in order to revive the European economy, investment must be made in new information and communication technologies to facilitate economic growth by enabling ever-increasing numbers of European citizens and enterprises to access new systems and new applications;
9. Calls on the Commission to continue funding projects under the Seventh Framework Programme in the field of the Internet of Things in order to bolster the European ICT sector, and endorses the use of the Competitiveness and Innovation Framework Programme (CIP) to promote its expansion;
10. Believes that the Internet of Things has significant potential in terms of economic and productive development, enhancing quality of services and optimising corporate logistics and distribution chains, inventory management and the creation of new employment and business opportunities;
11. Believes that applying new technologies to production processes will increase the market competitiveness of consumer goods;
12. Takes the view that the expansion of the Internet of Things will enhance person-to-thing and thing-thing interaction;
13. Endorses the intention of the Commission to continue to monitor and assess the need for additional harmonised spectrums for specific Internet of Things purposes;
14. Emphasises the key role that cities will play in the development of the Internet of Things, moving it beyond the purely private sphere; points also to the extensive use that local authorities can make of the Internet of Things, such as in the organisation of public transport, waste collection, calculation of pollution levels and traffic management, etc.;
15. Considers that using the Internet of Things in connection with nature can help in the development of green technologies, to increase energy efficiency, and hence also environmental protection, and to enhance the relationship between ICTs and nature;
16. Calls on the Commission to strive to establish common international norms for the standardisation of RFID technologies and their applications;
17. Welcomes the Commission's intention to present in 2010 a communication on privacy and trust in the information society; stresses the importance of that communication and of the proposed measures for strengthening the rules on the facets relating to privacy and the protection of personal data;

18. Calls on the Commission to closely monitor implementation of the European regulations already adopted in this area and to present, by the end of the year, a timetable for the guidelines it intends to propose at Community level for improving the safety of the Internet of Things and of RFID applications;
19. Calls on the Commission also to keep it regularly updated on developments in the dialogue with operators in this field and with stakeholders, and on the initiatives it intends to take;
20. Instructs its President to forward this resolution to the Council and the Commission, and to the governments and parliaments of the Member States.

EXPLANATORY STATEMENT

Some forty years have passed since the first Internet applications appeared, as Sir Tim Berners-Lee, the inventor of the World Wide Web, pointed out when recently invited to speak at the European Parliament¹. Since then, the growth of the Internet has been steady and uninterrupted, especially in the last 25 years. Today, the Internet connects around 1.5 billion people; its open architecture, based on a standardised technology, has facilitated its expansion and interoperability worldwide.

The Internet of Things, which was launched in the United States in 1999, is in its turn becoming ever more popular and in the next 10 to 15 years is set to revolutionise person-to-thing and thing-to-thing interaction thanks to the growing use of RFID (radio frequency identification) technologies.

The key element in RFID technology is the transponder (or tag), which is an electronic component consisting of a chip and an antenna. The chip – which measures just a few centimetres – can store, receive and transmit wirelessly information on the nature and composition of the product to which it has been applied.

Experts in the field claim that in the future these chips will replace the bar codes in use today; the advantages of RFID technology over the one currently used owe much to the fact that the chip does not have to be touched to be read, as in the case of magnetic strips, or to be visible, as in the case of bar codes. Also to be taken into consideration is the specificity and amount of information that this technology enables these chips to hold concerning the objects to which they are linked.

Internet of Things applications already in use and future developments

There are already a range of examples of these:

- in the automotive sector, chips are able to convey real time information on tyre pressure to the driver;
- in the agrifood sector, RFID technology enables high standards to be assured as regards the hygiene and food safety, and the chemical, physical and organoleptic characteristics of the product sold. Chips also permit better and faster product traceability.

Many other applications have already been developed and applied in the logistics and transport sectors, with very good results; some countries (Great Britain and the USA) have begun to use a chip in their passports.

Turning to the future, RFID technology combined with an IP (Internet protocol) address will allow an enormous wireless ‘web of things’ to be created. The most commonly cited practical

¹ 8th STOA Annual Lecture: 1 December 2009.

example of this is that of fridges which, if suitably programmed, will be able to detect any product past its use-by date, or approaching this, and will inform the consumer. Further developments are envisaged once the system has been interfaced with Galileo.

The Commission communication of 18 June 2009², which forms the basis for this report, contains an action plan – consisting of the 14 lines of action presented – for, *inter alia*, developing the Internet of Things and promoting its expansion.

Rapporteur's position

Your rapporteur endorses the broad outlines of the communication presented by the Commission; she nevertheless considers it essential to carefully assess whether the legislation currently in force is sufficient to cover future developments in this area or whether there is a need for further, more detailed, assessments of some of the more significant aspects – especially those with a direct impact on the lives and privacy of individuals and their personal data and on consumer health – and to adopt new Community legislation in this field.

Your rapporteur fears that some lines of action in the plan drawn up by the Commission may be inadequate in view of the rapid development of RFID technology. She therefore considers that greater emphasis should be placed on certain themes, and in particular those concerning:

- the impact of radio waves on health;
- the electromagnetic impact of the chips;
- their recycling;
- consumer privacy;
- the use of smart chips in specific products;
- the right to ‘chip silence’;
- guarantees for the public as regards the protection of personal data;

Your rapporteur takes the view that the development of new applications and the actual functioning of the Internet of Things, with the big impact it will have on the daily lives of Europeans and their habits, will be intrinsically linked to the trust European consumers have in the system.

It therefore seems to her a priority to ensure a regulatory and legal framework that on the one hand safeguards the European consumer while on the other hand encouraging public and private sector investment in the field of the Internet of Things.

The Internet of Things offers a major economic opportunity as it will enable the optimisation of productive processes and energy consumption, generate new jobs, and create new services

² COM(2009) 0278

for an ever-increasing number of Europeans and European companies.

If the European Union genuinely plans to become a market leader in this field, it must adopt a proactive approach and boost research, encouraging pilot projects.

Lastly, your rapporteur considers that in order to guarantee a broad expansion of these new technologies, utmost attention must be paid to the governance and standardisation of the Internet of Things, and that the need for additional harmonised spectrums for specific Internet of Things purposes must be monitored and carefully assessed.