



ITU INTERNET REPORTS 2005

# The Internet of Things

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International  
Telecommunication  
Union

# ITU Internet Reports 2005: The Internet of Things

"*The Internet of Things*" is the seventh in the series of "ITU Internet Reports", originally launched in 1997 under the title "*Challenges to the Network*". This edition has been specially prepared for the second phase of the World Summit on the Information Society, to be held in Tunis, 16-18 November 2005.

Written by a team of analysts from the Strategy and Policy Unit (SPU) ([www.itu.int/spu/](http://www.itu.int/spu/)) of the International Telecommunication Union, the report takes a look at the next step in "always on" communications, in which new technologies like RFID and smart computing promise a world of networked and interconnected devices that provide relevant content and information whatever the location of the user. Communications between PCs, and between PCs and humans, is being extended to include communication between things, from everyday household objects to sensors monitoring the movement of the Golden Gate Bridge and detecting earth tremors. Everything from tires to toothbrushes will be in communications range, heralding the dawn of a new era, one in which today's Internet (of data and people) gives way to tomorrow's Internet of Things.

The first chapter of the report explores the key technical visions underlying the Internet of Things, such as ubiquitous networks, next generation networks and ubiquitous computing. Chapter two, *Enabling Technologies*, examines the technologies that will drive the future Internet of Things, including radio frequency identification (RFID), sensor technologies, smart things, nanotechnology and miniaturisation. Chapter three, *Shaping the Market*, explores the market potential of these technologies, as well as factors inhibiting market growth. It looks at new business models in selected industries to illustrate how the Internet of Things is changing the way firms do business. Chapter four, *Emerging Challenges*, contemplates the hurdles towards standardization and the wider implications of the Internet of Things for society, such as growing concerns over privacy. Chapter five, *Opportunities for the Developing World*, sets out some of the benefits these technologies offer to developing countries that may themselves become lead users and drivers of the market. Chapter six, *The Big Picture*, draws these threads together and concludes on how our lifestyles might be transformed over the next decade. The *Statistical annex* presents the latest data and charts for more than 200 economies worldwide in their use of ICTs (such as 2G and 3G mobile penetration, broadband penetration and prices).

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