

# Chapter V

## Emergence of Standardisation Processes: Linkage with Users

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### ABSTRACT

*For RFID technology (radio frequency identification), the forms of the standardisation processes are co-evolving with the technology and are being shaped by the technology itself and by the needs of users. However, the engagement of the large majority of end-users in standards development is at best limited. Based on semi-structured interviews with key actors in the automotive industry, the chapter discusses the role that RFID standards play in shaping the adoption of RFID systems in the automotive supply chain.*

### 1. INTRODUCTION

The growing importance of standardisation in the development and implementation of innovative information technologies has been matched

by a growing complexity of the processes within which these technologies are developed. This complexity is seen in the institutional diversity of processes, including varying membership rules, decision-making procedures and policies towards

intellectual property, and also in the emergence of overlapping bodies with interests in emerging technologies. Whereas the conventional model of standardisation was based on national recognised standards organisations, for example BSI (British Standards Institution) in the United Kingdom, developing national standards or feeding requirements into international bodies, most obviously ISO (international Organization for Standardization), we now see actors, both individual and commercial, coming together to establish consortia. This chapter will look at one emerging technology, RFID (radio frequency identification), to argue that the form of the standardisation processes are co-evolving with the technology and are being shaped by the technology itself and by the needs of users.

De Vries (1999) has argued that the primary reason for the flowering of consortia has been the ability of consortia to develop standards more quickly than the traditional standards development processes. Krechmer (2000) argued that the reasons for the growth of standardisation consortia have been more complex, with consortia benefiting from being able to draw on funding from commercially motivated participant firms, being able to locate themselves as the most significant locus for standardisation in their area, having the freedom to negotiate the incorporation of proprietary intellectual property and being able to market themselves as a brand. Krechmer argued that the traditional standardisation processes still enjoyed benefits from being state sponsored, but that the rise of consortia was reducing state involvement in standardisation. Egyedi (2006) argues that this move to consortia, especially where there is an open membership and transparent decision-making, does not lead to a reduction in democratic accountability. However, one effect of the splintering of information technology standardisation is that it presents potential users with an array of standards processes that they can choose to engage with.

This chapter examines the role that standardisation is playing in shaping the adoption of RFID technology and the extent to which the institutional context of standardisation is hampering the technology's adoption, focusing on the automotive industry, where there is an expectation of RFID having significant impacts but with a low level of engagement with standardisation bodies. The study is based on a qualitative methodology, using semi-structured interviews with key actors to collect the data. The respondents are listed in Appendix 1. The analysis is structured in two parts: we first introduce RFID technologies and standards, and then discuss the role that RFID standards plays in shaping the adoption of RFID systems in the automotive supply chain.

## **2. RFID: AN EMERGING TECHNOLOGY**

RFID is an automatic identification technology that uses radio to read and write data from and to tags attached to items. An RFID system consists of readers and the tags that can be read, supported by computers the handling the interaction between tags and readers and usually interfacing with wider enterprise systems. The antenna within the reader emits radio signals to activate the tag and reads and/or writes data to it. When an RFID tag passes through the electromagnetic zone, it detects the reader's activation signal. The decoder within the reader decodes the data encoded in the tag's integrated circuit and the data is passed to the host computer for processing. A tag contains a microchip where the data regarding a particular item is stored. There are three types of RFID operating within different radio frequency ranges: low frequency RFID systems most commonly used in security access, asset tracking, and animal identification applications; high-frequency systems used in applications such as ID cards and electronic tickets; and ultra-high

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