



# The political economy of standards setting by newcomers: China's WAPI and South Korea's WIPI

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## ABSTRACT

In 2004, China attempted to set its national standard for mobile security (wireless LAN authentication and privacy infrastructure (WAPI)) which was to be used for wireless LAN. In 2005, Korea implemented a national standard for the mobile Internet platform (wireless Internet platform for interoperability (WIPI)).

This paper examines and compares the two cases in terms of the role of government, characteristics of each standard and the process of standards setting. Despite some similarities of 'aiming for a *de jure* national standard', 'government-initiated' and 'anticipatory', the outcomes of the two efforts are different. WIPI was ratified in Korea, while WAPI was indefinitely postponed as the national standard and failed to be ratified as an international standard.

It is contended here that the different outcomes are attributed to differences in the openness of the standards and of institutional processes of standardization, combined with the government role and the timing of market entry. In the case of national security, China adhered to the original goal of WAPI; in the WIPI case, compromises were made to satisfy to some extent the various demands from many stakeholders despite the original goal being undermined. The findings from this comparison reinforce findings by previous studies on open standard and open standardization processes.

This paper makes a unique contribution in that it first examines the international standards-setting attempts by newcomers, China and Korea, in the race for international standards. They used to be standard adopters but now want to become standard setters. Given the narrowing gap of technological capabilities at the global level and the huge size of markets in countries like China, these standards challenges from newcomers are not one-off episodes, but will happen repeatedly in the future. Further research is required in this area.

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## 1. Introduction

In 2004, China attempted to set its national standard for mobile security called wireless LAN authentication and privacy infrastructure (WAPI) which was to be used for wireless LAN. In 2005, Korea implemented a national standard for mobile Internet platform called wireless Internet platform for interoperability (WIPI).

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Although they are concerned with different domains of mobile technology, they have one thing in common: the two countries' governments were deeply involved and actually initiated the standardization projects, additionally the USA was involved. Both wanted to set the national standard and had the intention, though implicit, to render it an international standard. Although both the attempts began with similar purposes, they followed different paths, which resulted in the different status of each standard. WIPI was ratified in Korea, while WAPI was indefinitely postponed as the national standard and finally failed to be ratified as an international standard by International Organization for Standardization (ISO) in 2005.

This paper examines these two international standards issues. They are important because they represent unusual challenges to international standards leadership from previous standards adopters. China and Korea are latecomers and, as such, newcomers in the race for international standards, rather than simply observers and followers in standards wars. Given the fact that innovative capability and market size are growing remarkably in countries like China and Korea, there is good reason to infer that these instances are not isolated ones. This paper's contribution lies in its investigation of the transformation in roles of the two countries from standards followers to standards innovators.

The paper compares the two cases in terms of government roles, characteristics of each standard and the process of standards setting. In preface to the comparison, the paper reviews studies of standards and standardization, highlighting a political perspective. Then the development of disputes surrounding WAPI and WIPI are analysed. Comparisons of the two and discussions on implications for international standards setting follow. In the conclusion, the contributions and limitations of the paper are presented and suggestions made for further research.

## 2. Methodology

The two cases of WAPI and WIPI were selected because they presented “contrasting situations” (Yin, 2003) despite several similarities. Among those similarities, both led to confrontation with the US government, which is of significance in the international standards regime. However, the approach which was taken in the development of each standard was different, and this led to a divergent outcome in the fate of each standard. This difference warrants the enquiry, both parallel and comparative, of the two cases.

Data were collected from the media and other primary sources. For the WAPI case the ABI/Inform database was used. Articles were retrieved using the keywords of ‘China’ and ‘WAPI’ in May 2006. Fifty-eight articles were found and were screened to check their relevance, which reduced the number of articles to be used for examination to forty-one. In the case of WIPI, data were collected mainly from primary sources (i.e. interviews)<sup>1</sup> which were supplemented by media sources. Preliminary interviews were conducted in January 2006 with a manager from a mobile carrier and a director from a mobile-phone manufacturer. They provided an outline of WIPI development. From the preliminary interviews, the authors developed the issues to be addressed in the following investigation. From March to May 2006, five in-depth interviews were conducted with three duty officers for the platform development team from each of three mobile carriers, one manager from a content development firm and one researcher from Electronics and Telecommunications Research Institute (ETRI), a government-funded R&D organization, who led the development of WIPI from the beginning. Each interview lasted for about two hours in which details were gathered about the evolution of WIPI and how the stance of each stakeholder had changed.

## 3. Standards and international standards setting

Standards and standardization<sup>2</sup> are playing an increasingly important role in the IT and telecommunication industries. Standards can help to grow the market size and bring sustained value (i.e., stability) to user and vendors, though they may also hinder progress by imposing accepted (i.e., old) standards (Hurd & Isaak, 2005; Wiederhold, 1993). IT and telecommunication industries are rapidly globalizing in the multinational manufacturers and telecom carriers operate at the global scale and compete for market dominance in a single national market and further in the global market. Competition in these industries often means competition in establishing as a standard a particular technology that is favorable to its owner or supporters, and thereby the standard owner can dominate a market where the standard is widely and inevitably used.

Studies of standards and standardization are largely grouped into two streams: one focusing on the economic basis of standards (leading to corporate strategies of how to capitalise on standards) and the other on the processes of standard setting (assuming the political approach).

The economic approach is concerned with increasing returns (Arthur, 1996). Standards become the basis of such returns. Due to the power of increasing returns and linked effects like network externalities, positive feedback, lock-in and path-dependency (Arthur, 1996; Hanseth, 2000), standards are a key to firms' competitiveness. Competition for market

<sup>1</sup> Initial data collection was conducted in mid 2006 and updated in mid 2007.

<sup>2</sup> An IT standard refers to “a set of technical specifications that allows communication between IT entities” (Aggarwal & Walden, 2003). Standardization is a process in which conformity is pursued in terms of all elements of products, processes, formats, or procedures that comprise an industry standard, with the objective of increasing the efficiency of economic activity (Tassey, 2000).

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