

# Chapter 11

## IP and Electric Vehicles Standards:

### Local Policies vs. Global Standards?

### Standardization Management in a Multi-Stakeholder Environment in China

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#### ABSTRACT

*This book chapter explores the interplay between IP and standardization in the case of New Electric Vehicles (NEV) in China. This case has been chosen because NEVs are an important part of urban E-mobility concepts and therefore currently on top of Government agendas in many countries in the world – also in China. NEV standardization takes place in an international multi-stakeholder environment, embedded in a rapidly changing, competitive and complex global environment, highly influenced by competing regional innovation policies. Today, we observe a technology-based competition over the inclusion of IPR in standards and the resulting capability to exert control over markets. Thus, national and regional innovation policies influence not only the standards development of electric vehicles in one particular market – in our case China - but also affect the standardization management of multi-national companies (MNC), for example in charging.*

#### INTRODUCTION

Currently, China is the world's largest automotive market and highly interesting for Multi-National Automotive companies (MNC). China is poised to have reached about 25 million private cars and trucks sold in 2014 with an annual prediction of 30 million cars by 2020 (Wang, A., Liao, W.& Hein, A.P., 2014). Like in Europe, the dependency on fossil fuels for internal combustion engines and growing

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concerns of urban pollution made the China government acting, emphasizing the importance of New Energy Vehicles (NEV). Whereas a first time buyer of a combustion engine car has to participate in a lottery for a license plate, it is much easier to get one for a NEV (Wang, et al., 2014).

NEVs are part of electric mobility (e-mobility) concepts and are becoming now an integral part of many communities' sustainable energy concepts in the 21st century, gaining global importance particularly with regard to the building of sustainable mobile communities or even smart cities. Thus, due to an increasing demand of an expanding middle class requiring unlimited mobility, there is an urgent need to reduce greenhouse gas emissions. Therefore, NEVs can be one pillar to ensure sustainability in the transportation sector including this reduction and improving air quality (Gerst & Gao, 2013).

However, China is not just one of the largest and most attractive markets; it is also the most challenging one for MNCs manufacturing NEVs. The reasons for that are manifold. First of all, e-mobility is a cross section topic involving many stakeholders of different industries. In addition, the electric vehicle environment and market is still a very dynamic and volatile area with a number of ongoing challenges such as i.a. battery power reach, a lack of charging infrastructure (Fojcik & Proff, 2014). This is because NEVs have gained global importance as a new way of mobile urban life in what is called smart cities (EU, 2013). However, the dissemination of e-mobility is to a large extent based upon standardization of different interfaces, including vehicle engineering, energy supply, and the associated information and communication technologies (ICT) in NEVs. Thus, interoperability of NEVs' individual sub-systems is one of the central factors to gain market acceptance.

Furthermore, in the context of a still immature concept of electric mobility, interoperability standards serve as valuable enablers of innovation and are at the heart of a rising complexity in technology, laws and regulations, business organization and market structure. They do not only serve as enablers of innovation (Blind, 2013) but have also become a significant factor in the creation and shaping of markets (Gibson, 2007). They have also become a significant factor in international trade with considerable economic importance. Today, we observe a technology-based competition over the inclusion of IPR in standards and the resulting capability to exert control over markets. Thus, NEV standards should also be understood as a market regulation mechanism (Fomin, et al., 2011). This holds particularly in a Sino-European context where standardization and IP strategies as well as approaches to NEV standardization differ vastly; here, standards become a significant factor in the creation and shaping of markets. Thus, standards and standards development in this particular area also seem to be driven by other factors rather than by interoperability.

Since urban e-mobility concepts are currently on top of government agendas in many countries and regions in the world, this book chapter explores the interplay between IP and NEV standardization in China in a multi-stakeholder environment. Regarding this huge market for NEVs, the tensions between IP and standards are of relevance for MNCs as many of these tensions are rooted in the two different IPR and standardization systems (TCEITSRP, 2012). In practice, this situation may contribute to a discoordination of innovations related to NEVs, e.g. charging plugs, and may negatively influence innovations in the entire field. Moreover as previously mentioned, NEV standardization in general, not only in China, takes place in an international environment with many different players, embedded in a rapidly changing, competitive and complex global context, highly influenced by competing regional and local innovation policies like in China.

China has recently become very active in developing its own standards (e.g. TD-SCDMA) (Kwaka, Heejin & Fomin, 2011). It has also implemented its own innovation policy and derived IP strategies. China aims to position its standardization system as part of its national innovation strategy; standards

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