

Chapter XI

International Framework for Collaboration between European and Japanese Standard Consortia: The Case of the Automotive LAN Protocol

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ABSTRACT

To develop automobiles that fulfill the criteria of “environment-friendliness” “advanced safety”, and “riding comfort”, coordination between ECUs (electronic control units) is indispensable. Since one or a number of functions is carried by the coordination of separate ECUs, it is important to standardize automotive LAN protocols to ensure reliable interoperability. In parallel with standardization, conformance test specifications for the protocols have played an increasingly important role in securing the interoperability of the complex LAN bus system. The present chapter, whose purpose is to examine the international collaborative framework which has been established between European and Japanese consortia since 2006 for the standardization of the automotive LAN protocol known as “FlexRay”, will focus on the contribution of the Japanese standard consortium to the drafting of the original conformance test specifications. The FlexRay protocol is expected to become the de facto standard in the automotive high-speed safety protocol market.

INTRODUCTION

Quantity in the Ancient Regime was bound up in ritual and custom. This meant that measurement standards were potentially open to dispute, negotiation, and change — albeit with the consent of the local community. (Ken Alder, 2002)

This chapter examines the international framework for collaboration between European and Japanese standard consortia in the standardization of the automotive LAN protocol known as FlexRay and focuses on the contribution of the Japanese standard consortium in drafting the original conformance test specifications. The FlexRay is seen as the most promising candidate as *de facto* standard for the next-generation automotive high-speed LAN bus system. In the course of the analysis, our focus will be on the Germany-based FlexRay Consortium (hereafter FRC) and the Japan-based JasPar (Japan Automotive Software Platform and Architecture).

In the case of the automotive LAN protocol studied here, as in the other standard-setting processes of the standard consortia, we reaffirm that there is no pre-determined optimal solution available to serve as the standard (Doz, Olk, Ring, 2000; Ring, Doz, Olk, 2005). In the standard-setting process, the ‘strategic intents’ of the players active in the consortia are at work. Accordingly, the solution arrived at is the result of a compromise between the intents of the players involved. Analyzing who the players are and what kinds of strategic intent are behind their actions, and responding proactively to these actions, is the *modus operandi* of the world of standardization. Whether to make an exit from the process, or to raise your voice in the process, or to just indicate your loyalty toward the process (Hirschman, 1970): whichever of these options is chosen, players who do not have a clear strategy can easily be forced into a disadvantageous position right from the pre-competitive stage (Kurihara, 2006; Tokuda, 2007). The players involved in FRC and

JasPar, and these standard consortia themselves, are no exception to this rule.

A case study taken from the FlexRay standardization process provides suitable material for an examination of the strategic process (or political decision-making process) which is at work both within and between the consortia. The standardized specifications adopted as a result are no more than the ‘product of a compromise’ worked out on the basis of the normative judgments made by the standard consortia after reconciling the interests of the various players involved. If only to avoid ‘compromise results’ damaging to the interests of the Japanese automotive industry, JasPar should respond to FRC’s normative judgments with a consistent strategy embracing options for bargaining.

The present chapter attempts to understand the strategic intent of JasPar’s contribution vis-à-vis FRC under the collaborative framework. In doing so, we will first trace back the process of standardization of automotive LAN protocols, which used to be centered on the individual protocols of the different manufacturers (Section 1); we will then examine some of the distinctive features of the collaborative framework with particular reference to the division of labour between the consortia (Section 2); finally we will investigate the reason why JasPar decided to draft the corresponding conformance test specifications as their contribution to FRC, using the Consumption Decision Model as the analytic tool for this investigation (Section 3).

1. HISTORY OF AUTOMOTIVE LAN PROTOCOL STANDARDIZATION

With the aim of realising technological innovation (‘environment-friendliness’, ‘advanced safety’, and ‘riding comfort’), automobile manufacturers (hereafter OEMs) are confronted by the need to gather the increasing number of ECUs (electronic control units) into a single network with decen-

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