

# **Product Development with Multiple Elemental Technologies and Relationship between companies: Technology and Transaction of Automotive-electronic-parts Suppliers**

YASUO SAEKI

The automotive-electronic-parts contribute extremely to enhance added value (environment, safety, and comfort) for contemporary automobile. In this article, we clarify technology and transaction behind the business activities of automotive-electronic-parts suppliers. First of all, we should submit the term "multiple elemental technologies" as the most important keyword in this paper. The purpose of this research is following three points. First point is to explain actual condition regarding competition and business relationship in the automotive-electronic-parts market. Second point is to illustrate factors and systems prompting distinctive features of those parts through architecture-based analysis. Finally, third point is to clear up both structural and functional characteristics of supplier systems in auto industry.

In part 1, we analyze competition and business relationship among typical Japanese automotive-electronic-parts suppliers in home and abroad markets. Then we shall propose the result that there are fewer companies which entry automotive-electronic-parts market compared with traditional auto parts, machinery and metal parts, market as well as the fact they have superior technical capabilities.

In part 2, we investigate the phase of co-operative product development between auto makers and first tier suppliers. Thereby we shall find that automotive-electronic-parts with multiple elemental technologies are characterized by "Hybrid Architecture" having both integral and modular features.

In part 3, we focus on the phase of co-operative product development between first tier suppliers and second tier suppliers on the premise of argument in preceding part. Through that investigation, we shall indicate the characteristics of contemporary supplier systems in auto industry, particularly in Japan. The systems have the structural feature that second tier suppliers supplying partly-finished products to first tier suppliers can be classified according to their individual elemental technologies. On the other hand, the systems have the functional feature of complementarity as well as that of hierarchy.