Effects of technological evolution on supply chain integration:
Evidence from hybrid vehicle production in Japan and Germany
(GSCM 2015)

Keywords: Technological evolution, Supply chain integration, Product development, Coordination mechanisms, Hybrid vehicle production, Japan, Germany

1 Introduction

‘Herding cats’ is how project managers sometimes describe their job. Automotive project managers in projects that include several layers of the supply chain may feel they have to herd cats, mice, and maybe a few dogs, if they need to make competitors move together. While this is challenging, automotive project managers have a number of tools at their disposal to manage the menagerie, tools that management studies broadly discuss as coordination mechanisms.

Our question in this paper is broadly, how project managers should change their tools when technological development changes the setting for coordination. We look at a specific setting of inter-firm coordination, the co-development of electronic control units (ECUs) between automakers and tier one suppliers, and study the effects of recent technological changes on the project managers’ tools for coordination.

We frame this problem to the project manager as a problem of information processing. First we argue that the requirements for information processing have shifted, pushed by specific changes in technology: Notably, both the relative specialization of suppliers to OEM customers and the interdependence between OEMs and their tier one suppliers has increased in the production of electronic control units, which has consequences for supply chain integration.

Next, we offer hypotheses, on how project managers should adapt their tools to this change. Lastly, we compare background conditions for automotive firms in Japan and Germany and offer hypotheses on how differences between the national groups affect their reaction to the shift in information processing requirements brought about by technological change in the development of control units. Consequences for supply chain cooperation within national groups and between Japanese and Germany OEMs and tier one suppliers are discussed last. We base our explorative analyses on interviews with Japanese and German OEMs.