



R1.104 Supply Chains –Final Report - Executive Summary



Collaboration in Rail Supply Chains: Summary of Research Findings

The R1.104 project examined rail supply chains in order to identify the network characteristics that significantly affected supply chain collaboration. The project had the further aim of promoting collaboration by providing a framework for mutual learning by rail organisations and their **suppliers**.

The project's theoretical framework proposes eight factors that may promote collaboration in supply chains:

- Network evolution, through which supply chains may develop positively towards higher levels of collaboration, or negatively towards declining cooperation.
- Network governance, where informal relation-based governance has been found to be more conducive to collaboration than formal contract-based governance.
- Network density, where evidence suggests that high connectedness and close relations between members are favourable to collaboration, while weak and distant ties may provide information from a wider range of sources, but do not increase collaboration between organisations.
- Network centrality, where supply chains in which influence and power are shared among members are more conducive to collaboration than networks where power and influence are concentrated in one or a small number of organisations.
- Network intensity, where collaboration is more easily achieved if risk to supply chain members is moderate rather than too high or too low.
- Networks operate at several levels—from exchanges between individuals and groups, through interactions between particular organisations, to network environments—and these different levels affect collaboration.
- Network learning and innovation affect a supply chain's capacity for collaboration, and collaboration is likely to be higher where supply chain members share knowledge.
- Collaboration is bound up with trust, or confidence that other organisations will pursue mutually compatible interests rather than manipulate relations with trading partners to gain advantage.

The project tested whether these factors were positively related with collaboration in three supply chains pertaining to rail and sought to learn more about the relationships between the eight factors and collaboration through a qualitative case-study approach. Data were obtained through semi-structured interviews with individuals involved in the supply chains, and from descriptive supply chain information.

Conclusions

The project established the relevance and validity of a theoretical framework for assessing collaboration in rail supply chains by testing it in three different supply chain contexts. Although research focused on a single rail organisation's supply chains, the project outcomes may be relevant to other rail organisations insofar as all rail organisations are likely to have similar supply chains.

The results suggest that, to increase rail supply chain collaboration, it is important to:

- (1) understand the evolutionary patterns of supply chains and particular events that affect collaboration;
- (2) develop informal governance, but also the kinds of formal governance (e.g., risk sharing and integrative management structures) that support collaboration;
- (3) increase direct interactions between all supply chain members to avoid clustering and the marginalisation of lower-tier suppliers;
- (4) identify and seek to reduce the risks that all supply chain members face;
- (5) share influence over decision-making throughout the supply chain;
- (6) recognise that the personal attributes and interpersonal relations of individuals involved in supply chains affect collaboration, interorganisational teams are important vehicles for collaboration, and the structures and cultures of organisations affect collaboration for better or worse. There needs to be awareness of the supply chain as a whole (how what happens in one part affects the other parts), and understanding as to how external trends are affecting supply chain relations and performance;
- (7) identify factors that impede or promote knowledge-sharing and innovation; and
- (8) critically assess the extent of trust that exists between members, how this trust affects collaboration, and take steps to increase trust where necessary.