

# Supply Chain Integration in Construction

## From individual projects to integrated supply chains

### Subject

Construction work is mainly done in individual and temporary projects. The supply chain is fragmented consisting of many and often small firms. There is a strong project focus rather than a long-term focus. This leads to extra costs, time delays and quality problems. It hinders learning, innovation and investments in new products and processes, compared to other industries.



### Goal

The aim of this research is to build a model for supply chain integration in construction. The model is based on relevant theories, and practical examples of supply chain integration in other industries, and in construction. The goal is to understand the construction supply chain, compared to other industries, and develop a framework that helps to integrate the construction supply chain.



### Result

The supply chain integration model will be used to redesign existing supply chain structures into integrated structures, make processes more repetitive, and start strategic partnerships. Therefore the model will also offer a framework to redefine existing roles of construction parties into new roles that fit this new context. For practical use, the model will result in a set of guidelines.



### Application

The model can be applied and customised to different situations with different sets of construction parties who wish to apply supply chain integration to their situation.



### Further information

All parties in the construction supply chain who are interested in the challenges and benefits of supply chain integration are welcome to contact the researcher.



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Ruben Vrijhoef<sup>1</sup>, Prof. Hennes de Ridder<sup>2</sup>, Prof. Hans de Jonge<sup>2</sup>

<sup>1</sup>PhD Researcher, [r.vrijhoef@tudelft.nl](mailto:r.vrijhoef@tudelft.nl)

<sup>2</sup>Supervisors, [H.A.J.deRidder@tudelft.nl](mailto:H.A.J.deRidder@tudelft.nl) and [H.deJonge@tudelft.nl](mailto:H.deJonge@tudelft.nl)

Delft University of Technology, Civil Engineering and Geosciences, Construction and Design Processes  
- Construction Process Innovation

### Subject

Construction work is mainly done in individual and temporal projects, which are often unique and tailor-made to a specific location. This often leads to extra costs, time delays and quality problems. The two main problems here are the fragmentation of the supply chain with many and often small firms, and the strong project focus instead of a multi-project focus. This hinders learning, innovation and investments in new products and processes. In this respect construction differs for many good reasons from other industries.

### Goals

The aim of this research is to build a model for supply chain integration in construction. The goal is to understand the construction supply chain, compared to other industries, and develop a framework that helps to integrate the construction supply chain.

### Research Question

How can we build a model to integrate the construction supply chain?

### Strategy

The model will be built in three layers. The first is based on theoretical building blocks found in relevant theories in four theoretical fields: production, organization, economics and social theories. The next layer is based on practical building examples of existing supply chain integration in other sectors outside construction. The third layer is based in examples of partial supply chain integration within construction. Finally the model represents an aggregate of the three layers.

### Expected Results

The result of this research will be an analytical model for supply chain integration in construction. The supply chain integration model will be used to redesign existing supply chain structures into integrated structures, make processes more repetitive, and start strategic partnerships. Therefore the model will also offer a framework to redefine existing roles of construction parties into new roles that fit this new context. For practical use, the model will result in a set of guidelines.

### Preferred Partners Applications / Sponsors

This research is supported by PSIBouw.

All parties in the entire construction supply chain who have the ambition to integrate their part of the chain, make their business more repetitive, and start strategic long-term partnership with other parties who share the same ambition, are welcome to be involved in this research.

### Prime Publications

- Vrijhoef, R. and De Ridder, H.A.J. (2007). "Supply chain systems engineering in construction". In: Proceedings CIB World Building Congress. 14-17 May 2007, Cape Town. 279-291.
- Vrijhoef, R. and De Ridder, H.A.J. (2007). "A systems approach for developing a model of construction supply chain integration". In: Proceedings 4th Nordic Conference on Construction Economics and Organisation. 14-15 June 2007, Lulea University of Technology, Sweden. Proceedings on CD-Rom.
- Vrijhoef, R. and De Ridder, H.A.J. (2007). "A systems approach to supply chain integration in construction". In: Hughes, W. (ed.). Proceedings CME25 Conference. 16-18 July 2007, Reading. Proceedings on CD-Rom.
- Vrijhoef, R. and De Ridder, H.A.J. (2007). "Integrating the construction supply chain by applying systems thinking". In: Proceedings PRoBE 2007 Conference. 20-22 November 2007, Glasgow. 469-479.

### Research Period

2004 - 2009