

## Market Making of a High-value Business Model in Low Cost Markets



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### Kort om FFI

FFI är ett samarbete mellan staten och fordonsindustrin om att gemensamt finansiera forsknings-, innovations- och utvecklingsaktiviteter med fokus på områdena Klimat & Miljö samt Säkerhet. Satsningen innebär verksamhet för ca 1 miljard kr per år varav de offentliga medlen utgör drygt 400 Mkr.

För närvarande finns fem delprogram; Energi & miljö, Trafiksäkerhet och automatiserade fordon, Elektronik, mjukvara och kommunikation, Hållbar produktion och Effektiva och uppkopplade transportsystem. Läs mer på [www.vinnova.se/ffi](http://www.vinnova.se/ffi)



## 1. Sammanfattning

Vi skapar förståelse för hur en värdebaserade marknad skapas för tjänster som inkluderar premiumprodukter genom att analysera i) beståndsdelar i affärsmodellen, ii) implementering och iii) olika marknadskontexter. Scantias erbjuder ett verktyg utifrån tjänstutveckling och den egna organisationens utveckling för att skapa värde. Det är dock affärsrelationerna till kunderna som är kärnan i värdeskapandet. Vägtransportbranschen är tyngd av prispress på generiska produkter. Affärsmodellen ger förutsättningar till transportörer som vill differentiera sitt erbjudande.

Det interdisciplinära projektet har interagerat i Scantias utveckling, utmanat organisatoriska tankesätt för att utveckla gemensam förståelse av innovation dessutom har olika marknadsaktörer varit med att skapa kunskap om möjligheter till och svårigheter i att skapa värde i vägtransportaffärer. Projektet har också fört in kunskapen i undervisning till studenter som kommer att leda transport och logistik affärer framöver. Dessutom är teoretiska bidrag gjorda till olika disciplinära forskningsfält.

Med utgångspunkt i fyra fallstudier, Sverige, Polen, Taiwan och Kina så avser vi att bättre förstå hur en hållbar marknad skapas för premiumprodukter även i traditionella lågpriskontexter genom att conceptualisera värde i tjänstebaserade affärsmodeller. Vi har analyserat i) vilka beståndsdelar ingår i de tjänstebaserade affärsmodellerna, ii) implementeringen, iii) olika marknadskontexter. Vägtransportbranschen är tyngd av prispress på generiska produkter, dvs en transport av gods. De transportörer som vill utveckla sig och differentiera sitt erbjudande av tjänster har med utgångspunkt i Scantias tjänstebaserade affärsmodell ett verktyg. Scantias värdeerbjudande bygger på genuint utvecklingsarbete av tjänster och den egna organisationens utveckling för att skapa värde genom tjänster. Det är dock affärsrelationerna till kunderna som är kärnan i värdeskapandet. Projektet har interagerat i Scantias utveckling för att utmana organisatoriska tankesätt och utveckla gemensam förståelse av innovation utifrån den tjänstebaserade affärsmodellen.

Vi bidrar med en modell som förklarar tre nivåer av värde som är möjliga i relationen mellan Scania och dess kund, genom litteraturstudier, intervjuer, observationer och workshops. Vi har utforskat vilka möjligheter och svårigheter som påverkar kunden respektive säljaren genom intervjuer, observationer samt sekundärt material. Tolkning och reflektion av resultaten är vidareförädlade genom diskussioner på workshops samt genom att samförfatta vetenskapliga artiklar.



## 2. Executive summary

The purpose of the project has been to analyze the value of the extended service business model based on an international comparison study of the development and experiences in four main markets.

We have addressed this purpose through research questions within three areas. The first has been to understand more about the components of extended service models in the heavy vehicle industry and more generally. The second has been to address the main driving forces for adoption of extended service models. The third has been to understand more about the drivers in specific markets.

We have carried out studies in four different markets with numerous parties, most significantly representatives of the heavy vehicle manufacturer, dealers, logistics firms and transporters, as well as industry experts and authorities. The studies in the four markets have been carried out mostly in a focused manner – that is periods of interviews and data collection have been compressed to allow the whole project group to participate. Our understanding of the subject matter has been significantly increased in several ways, and can be discussed in three dimensions. First, there is the nature of value creation between the heavy vehicle manufacturer and the user of the vehicle. Building on existing literature we have developed several models to represent the value creation from a traditional technology excellence to service excellence to sustainable transport provision. Buyers can be seen to either focus on the up-front purchase cost, the lifetime cost (efficiency), or the value. We suggest that in the future the heavy vehicle manufacturer must significantly participate in contributing to being a sustainable transport provider. This means contributing value through technical excellence, excellence in services, and in understanding the tradeoffs involved in the triple-bottom line in the transport industry. This also necessitates a deeper understanding of the transport market.

The second dimension we consider is about the markets. As raised below we have not carried out complete studies of the four markets, but it is still possible to reach some significant conclusions. The original idea of operating with a maturity model for each market although somewhat explored in the literature gives a rather macro-oriented view and we find that when looking at the firm-level we are rather looking at a comprehensive set of drivers and barriers. These drivers and barriers combine to say something about when a firm is likely to be more focused on short-term cost, and when it will orient itself more toward value. Since the drivers can be different for different groups of firms each market is complex and does not simply move in one direction toward a more mature model.



The third dimension relates more to the manufacturer itself and its interaction with the customer. To understand the strategic possibilities for the manufacturer it is necessary to understand the strategic context of the customers, and so we have explored the competitive strategies of the hauliers that act as buyers in this context. Further, the interaction patterns between the heavy vehicle manufacturer and vehicle buyer relates to the capacity of the manufacturer to contribute.

As an explanatory tool we have organized many of the findings and issues in a pyramid model and used this in a workshop format. However, the specific issues are further explored in a number of papers listed at the end of this report.

### **3. Background**

Manufacturing firms in many industries increasingly face strong competitive pressures on price and performance and frequently respond by adding different types of services to the product. Services are often considered to be more profitable than products, and customer loyalty can be enhanced through fulfilling more of the customer's needs. More often than not, however, the selling of such additional services proves difficult and companies do not see the expected gains in profitability. The heavy vehicle sector also faces this type of issue with some manufacturers focusing on selling only trucks. Premium sector manufacturers typically push for more complex services or product/service packages. This can be called extended service models or high-value business models. The challenge becomes more poignant when premium manufacturers compete in extremely cost-conscious markets such as China.

In this project we address the issue of high-value business models in two ways. First, we explore the content of the concept itself and what it means in the heavy vehicle sector. That is, what are the components and actual services sold, and how can we conceptualize them and talk about the value delivered to the customer? Second, we look at adoption of the concept in terms of a set of drivers and also relate this to what we have learnt from our studies in the different market contexts.

A particular challenge when studying the heavy vehicle industry is that the market for heavy vehicles is so closely tied to the market and market conditions for the transport market in a country. Emissions standards and safety regulations are made with a view to how they affect the market for transport, but clearly have a significant and sometimes greater impact on the heavy truck market. The transition from one type of Euro engine requirement to another can lead to an artificial bump in demand driven by the behavior of the transport and logistics companies. In the project our core focus is on the market for heavy trucks, including the aftermarket or market for services associated with these trucks. However, we found that we could not study this market adequately without also saying something about the transport market and framework conditions of that market.



## 4. Purpose, research questions and method

Extended service models such as the total operational economy concept seen in the heavy vehicle sector represent a shift from a pure cost focus to also focusing on value. The use of such models in Sweden and the growing success in Poland represent two different adoption processes. Under the assumption that a market can move from focus on the price of an investment to its value and life-cycle economy of the investment, this research project aimed to identify the conditions and trigger points for such changes. This is of importance in the creation of a sustainable transport sector. The business model related to extended service models implies transport efficiency effects to the new market. Based on case studies in different markets a better understanding of an extended service business model and conditions and consequences of its implementation are possible.

The purpose of the project has been to analyze the value of the extended service business models based on an international comparison study of the development and experiences in four main markets. From a theoretical point of view, this means the conceptualization of value-adding and value co-creating business models on international markets. This allows for a better understanding about the process of how truck operators and heavy vehicle suppliers co-create value through such an extended offer. Finally we uncover how to make adaptations to an extended service business model, such as extended service models for a target market with focus on low vehicle purchasing price rather than life-cycle value.

Implementation of the extended service model to replace the traditional vehicle purchasing model requires an adoption process of the customer.

RQ1: What parts of the extended service model correspond with the customers' value creation and what parts do not match?

Arguably, adoption of the value-based thinking is related to a number of driving forces. For example, we may conceive of rational motives, such as or legislations of authorities, reduction of total operational cost and fewer administrative procedures for the buying organization. In addition to motives specific triggers such as competitors' adoption of value-based system sourcing, increase in business volume and other idiosyncratic factors may also direct the adoption process.

As a second, primarily explanatory, research question we ask:

RQ2: Which are the main forces driving and restricting the adoption process of extended service models for trucks/heavy commercial vehicles?

Supported by observations of differences in purchasing behavior in various markets, a basic premise of the project is that the characteristics of the adoption process are likely to vary significantly between markets and firms. Consequently, main driving and constricting forces as well as their relative impact on the adoption process may also vary.

To gain a deeper, contextual understanding of value-based system sourcing adoption for trucks, the final research question thus concerns country contexts comparisons

RQ3: Which are the main market-context determinants of the adoption process of extended service models for trucks/heavy commercial vehicles?

The primary source of data in the project has been interviews and observations in four different market contexts around the industrial partner Scania. The substantial participation of the industrial partner in the project has been important not only for data collection but also for discussion and interpretation of the results. In this sense the intended cooperation involving both academics, industry experts and others during the workshops has been successful. This has also allowed the co-financing model to function with company participation counted according to hours used and direct expenses. Participation from other parties such as transporters, logistics firms and industry experts has generally been very good. Figure one illustrates the parties and interactions in the project.

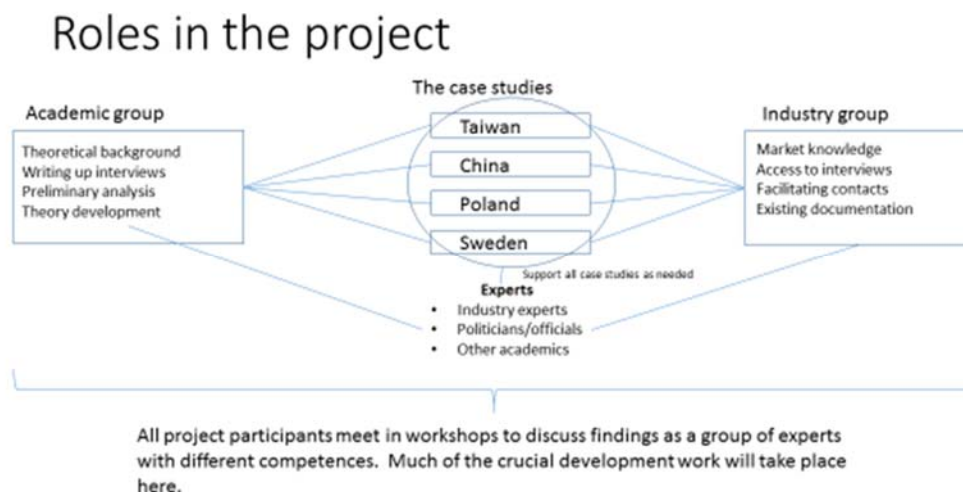


Figure 1: Interactions and roles in the project

A large amount of data has been collected in the Chinese market as part of the project. Numerous interviews have been carried out in Sweden although many of these have been with regards to the organization of extended service models more in general rather than for this market. The participation of the Polish market has also been substantial with both a number of interviews and a workshop, but these have been more concentrated to selected data collection periods. The data collection in the Taiwanese market has been more limited, with case studies of different transport users being the best option available to us. In this sense we may say that all four markets have been investigated but the



Taiwanese market to a lesser extent than originally planned. However, it was never the intention that all four markets would be fully explored (since we are not carrying out market surveys), nor that the descriptions would be the same given the differences between the market. For example, it is not reasonable to assume that the Chinese market can be fully described through a single project due to its size and considerable regional variations.

## 5. Project goals

The primary aims of the project has been to increase the understanding of extended service models in the heavy vehicle and other sectors, and further to contribute to spreading this understanding to the market. In practice project goals have been formulated in terms of three areas – the heavy vehicle sector, research and competitiveness/programme goals. These are necessarily complementary.

Industry and Scania as well as the heavy vehicle industry in general can use a better understanding of the acceptance of extended service models concepts to support their marketing and sales efforts. For both the industry and Scania a better understanding of the extended service models can be used in sales efforts, both for targeting the correct customers to improve sales, and as part of ongoing efforts to educate potential customers about the concept. This will be particularly relevant for the Chinese market where the potential is considerable both in terms of sales and in terms of positive greening effects for the target market. Increased use of the concept will affect some of the main goals of the transport efficiency programme namely reduced environmental impact and improved traffic safety.

In terms of research the project results will be used to support several core activities. The project will be used in teaching both as a basis for case studies for students, and in terms of the theoretical contributions in order to keep the teaching in our classes research based. Furthermore, this type of project allows for networking between different Universities, in Sweden and internationally with researchers in the project currently connected to 6 different universities in 4 different countries. The project will further lead to moving the research frontier in this area, with a pipeline of published and ongoing research papers. Due to the number of different topics the project deals with, the most effective way of disseminating the research to an academic audience is through journal publications.

We expect that the project results strengthen Swedish competitiveness within industry and academia in several ways. First, through understanding solutions that are more energy efficient, transport efficient and safer than present vehicle fleets. Second, through strengthening Swedish research and innovation groups with leading-edge knowledge. Finally, it contributes to solving the global challenges regarding energy and raw materials as well as other negative effects of transport systems. We expect intensified international collaboration regarding environment, traffic safety and sustainability between China and Sweden.





## 6. Results and outcomes

The project has presented both unique learning opportunities and new challenges for the involved parties. To our knowledge this has been the first purely business oriented project under the FFI programme which has also raised some issues regarding the nature of the project. There have been two main parts in terms of our goals for the project. One goal for the project has been both to increase our understanding of extended service models in the heavy vehicle industry and to contribute to research on such models in general. The other goal has been the application of our understanding to influence users and spread the ideas and understanding of extended service models in the different markets. This task has been more directly tied to the industrial partner.

The project output has been good with a substantial pipeline of academic publications ongoing. The challenges of gathering data in such diverse markets are undoubted, but prior connections to researchers in those markets have helped for the project. The challenges of coordinating such a geographically dispersed group including a number of researchers at different institutions should not be ignored but a consistent meeting plan has helped deal with this issue. Project output has been used as input to training materials for the industrial partner. The three annual workshops in Beijing, each including many of the same players in the industry have been both interesting for data collection for the project but also as a way of communicating the findings and concepts employed. This is especially the case due to our ability to relate findings from other parts of the FFI programme as part of the conversation in the Chinese transport industry.

From the academic side, the project output consists in part of a pipeline of articles related to the project, final publication dates are as yet unknown. Project results have also been used in teaching and we are developing a teaching case on the basis of the project for use at the Master Programme at Jönköping University. A handful of student groups have also written their thesis on topics either inspired by or directly generated by the project, some obtaining data through the project itself. One PhD student has received the first part of her financing through the project and is now pursuing the full PhD with final financing from Jönköping International Business School. This is seen as a very useful way of leveraging findings within the project specifically within the area of sustainability.

For the third goal – programme outcomes the results are seen as more indirect. One challenge is that the connections between extended service models and programme goals in terms of competitiveness, traffic safety and environmental impact can be argued for theoretically but there is little research to make these links directly. In this sense we can argue that increased adoption of extended service models have positive effects but quantification of such effects remains elusive and beyond the scope of the project.



## 7. Dissemination and publications

### 7.1 Dissemination of knowledge and results

Hur har/planeras projektresultatet att användas och spridas?	Markera med X	Kommentar
Öka kunskapen inom området (Increase knowledge in the area)	X	Disseminated through training and marketing material for the industrial partner, through academic and practitioner articles and during the project in workshops.
Föras vidare till andra avancerade tekniska utvecklingsprojekt (Used in other advanced technical development projects)		Project is strategic in nature, we do not see direct technical connections to future projects.
Föras vidare till produktutvecklingsprojekt (Used in other product development projects)		
Introduceras på marknaden (Introduced to the market)	X	The issue is highly relevant since the question is how to introduce extended service models to the market. This takes place both through the dissemination of concepts in the project, and through the pyramid model used as a dissemination device.
Användas i utredningar/regelverk/ tillståndsärenden/ politiska beslut (Used in rules/regulations/political decisions)	X	Project participants have used findings from the project in discussion with authorities both in Sweden and China.

### 7.2 Publications

Borgström, B., Agndal, H., Hertz, S., Cui, L., Pereseina, V. & Jensen, L-M (2012) "Framing of a Business Model Named Total Operating Economy" IMP Conference Proceedings 2012.

Hertz, S., Jensen, L-M, Agndal, H., Pereseina, V. & Borgström, B. "The development of extended service models through business relationships," Presented to IPSERA Conference 2012.

Pereseina, V., Hertz, S. & Jensen, Leif-Magnus, (2014) "Challenges and conflicts in sustainable supply chain management," *Supply Chain Forum: An International Journal*, Vol 15, No. 1.

Borgström, B., Agndal, H. & Pereseina, V. "Interaction patterns and capabilities" Presented to Naples Forum on Service in Ischia 2013.



Agndal, H., Borgström, B., Harborn, M., Jobenius, M., Su, S. I., "Barriers to performance-based contracting: A multiple case study in the transport industry," Nofoma Conference Proceedings 2013.

Jensen, L-M, Gulati, A., "Extended service models and Value Creation," Presented to Fagkonferanse i Bedriftsøkonomiske Emner (FIBE), Bergen 2014.

Borgström, B., Hertz, S. & Jensen, L-M," Trucking and competition - Implications for Supply Chain Integration," Nofoma 2014 proceedings.

Agndal, H., Borgström, B., Hertz, S., Jensen, L-M, Pereseina, V., & Cui, L, "Market innovation in the transport and heavy vehicle market," Nofoma 2015 proceedings.

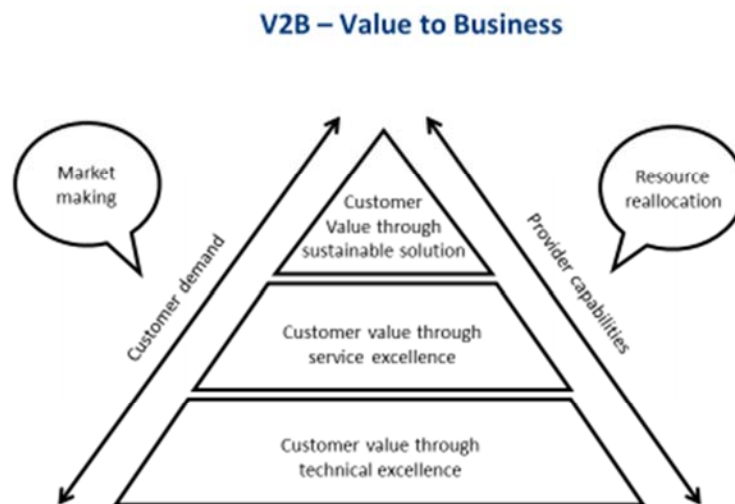
Su, S. I. & Cui, L. (2016)"Performance-based Logistics Service Model for Taiwan Heavy Vehicle Supply Chains" *Transportation Journal*, in review.

Borgström, B., Agndal, H. & Pereseina, V. (2016) "Provider challenges when managing performance-based contracting," *Industrial Marketing Management*. In review.

It should also be noted that a number of student Master Theses at Jönköping International Business School have been written either based on the project or with relevance to the project.

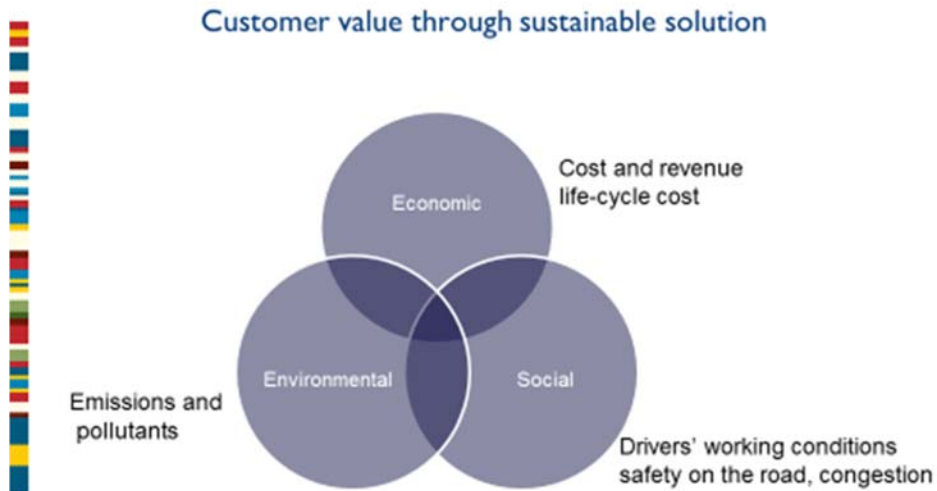
## 8. Conclusions and further research

We have chosen to use a pyramid model to organize the somewhat extensive findings in the project (see figure 2 below).



*Figure 2: Pyramid model summarizing project focus*

The pyramid shows three main issues. First is the way value is delivered. Value can be delivered based on the product or factory system and primarily through technical excellence. This represents a fairly traditional thinking in the area but is essential as a base for all other types of value delivery. A second level is to deliver value through service excellence, that is the by now substantial set of services offered in the heavy vehicle sector. This builds on the technical excellence however since the value of high quality services is multiplied by having a high-quality vehicle as a base. In this type of value delivery, it is however essential to also have an excellent system for service delivery, and it may be necessary to adapt a package of product and service to the customer. Finally, we see it as necessary for the future that the provider can also help the buyer of the vehicle to balance sustainability criteria such as economic, environmental and social factors. This could extend all the way from technical features such as alternative fuels to driver training and selection – the essential point is to understand the tradeoffs between the triple bottom line in the sector (See figure 3).



*Figure 3: Tradeoffs in the sector*

The left side of the pyramid relates to the market itself. Here we find that a maturity model which was originally intended to represent the four different markets is insufficient, and that there are rather a complex set of factors that can push in several directions. These factors can be divided into drivers toward technical excellence, service excellence and sustainable solutions. Although complex, we can say that one of the main influencers is the development of the road transport industry, and it seems increasingly essential to understand the requirements of this industry in order to understand how the buyers of heavy vehicles are thinking. Figure 4 below shows some of the main interactions in the transport industry.

## Factors shaping the road transport industry

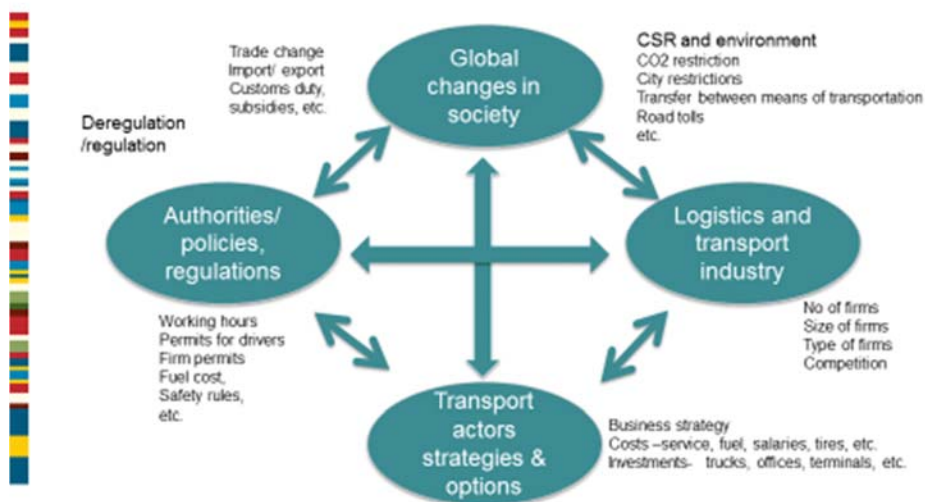


Figure 4: Factors shaping the road transport industry

Finally, the right side of the pyramid model shows the provider challenges related to matching the requirements of the market to the capabilities of the provider. Our findings show that these capabilities typically develop in interaction with the customers, as well as independently in the factory. To sell on technical excellence, the main criteria is specialization of the salesperson and possibly the buyer if serving a specific industry. To sell on service excellence a modular concept both for the vehicle and services is advantageous but the demands on the salesperson increase. To sell on being a sustainable transport provider the picture is less clear but involves understanding the tradeoffs, being able to analyze the customers current business and potentially to understand the customer's customer's business.<sup>1</sup>

The project opens for further research in several directions. The inclusion of more markets at different stages of development would allow for a more direct application of project findings. The connection between competition in the transport sector and buying behavior of the transporters is highly interesting for the industry. The question of how to develop internal capabilities and training that are appropriate to new demands in terms of extended service models and the provision of different types of value is of great relevance.

<sup>1</sup> Note that it is our intention to expand on these findings in a dissemination workshop open to the industry.



## 9. Participating organisations and contacts



JÖNKÖPING UNIVERSITY  
*International Business School*

### **Jönköping International Business School**

Contact: Leif-Magnus Jensen – Assistant Professor, Director Centre for Logistics and Supply Chain Management, Jönköping International Business School, Jönköping University



### **Scania AB**

Contact: Maria Jobenius – Vice President, Communications - Scania Sales & Services Management, Scania's global retail organization

### **Other project participants:**

Susanne Hertz – Professor Emerita, Centre for Logistics and Supply Chain Management, Jönköping International Business School, Jönköping University

Ivan Su – Professor, Department of Business Administration, Soochow University

Henrik Agndal – Professor of Management Accounting, Business Administration, University of Gothenburg.



Benedikte Borgström – Assistant Professor, Centre for Logistics and Supply Chain Management, Jönköping International Business School, Jönköping University and visiting researcher Copenhagen Business School.

Liangang Cui – Assistant Professor, Department of Management, Business School, Nankai University, affiliated with CeLS

Veronika Pereseina – PhD candidate, Centre for Logistics and Supply Chain Management, Jönköping International Business School, Jönköping University

Mats Harborn – Executive Director, Scania China Strategic Office

Thomas Bertilsson – Managing Director Scania Academy

Per Malmström – Vice President, Business Intelligence & Market Strategy, Scania Franchise & Factory Sales