

## SUSTAINABLE SUPPLY CHAIN MANAGEMENT ISSUES: CASE OF REGIONAL SMES' INVOLVEMENT IN THE AIR CARGO

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**Abstract.** This paper aims at conceptualising and assessing operational environment of small and medium-sized enterprises (SMEs) in sustainable supply chains in regional context. The paper starts an attempt to explore how SMEs in Mecklenburg-Vorpommern in Germany from transport, logistics related value-added services and especially from the air freight sector collaborate, perform and develop from supply chain management perspective, and what crucial determinants for burgeoning business performance and sustainable strategy are effectively to be linked for the benefits of SMEs. Using a qualitative case study approach, the paper bears on empirical evidences of the project “Baltic.AirCargo.Net” financed by the European Regional Development Fund / European Neighbourhood and Partnership Instrument in the framework of the Baltic Sea Region Programme 2007-2013. The paper builds upon a qualitative research approach involving expert interviews, focus groups analysis and secondary data research based on relevant project documentation and field notes from project meetings and workshops. Findings of the case study from the German air cargo service providers are explored and discussed through key theoretical concepts pertaining to sustainable supply chains and logistics of SMEs. Based on the relevant scholarly work and results of empirical evidence and case studies, a conceptual model is designed with propositions and possible future directions for SMEs. The paper showcases empirical findings gathered from the practices of regional SMEs operating in the air cargo transport and logistics service field, thus expanding this poorly conceived research area. The research is based on direct information and insights from SMEs located in Mecklenburg-Vorpommern and highlights how SMEs under the given circumstances may streamline their development paths operationally, tactically and strategically. Insights obtained from this paper can be employed as critical tool among SMEs’ managers, strategy planners and policy decision-makers on how to utilize SMEs’ practices in the context of supply chains, logistics networks and emerging scope of globalisation and trade.

**Keywords:** Sustainable supply chain management, sustainable strategy, air cargo, small and medium-sized enterprises, road feeder services, Mecklenburg-Vorpommern

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### 1. Introduction

Being already known as crucial players in national economies and trade, SMEs have gained also an indispensable role in modern supply chains. Enhancing competitive capability and sustaining the current competitive position of SMEs on regional, macro-regional and pan-European levels have shaped cur-

rent and future-directed policy agendas in Europe. The issues of SMEs’ behaviour in the air cargo sector, bearing opportunities to strengthen their contribution to the regional development as well as boosting entrepreneurship in the air freight sector - have been tackled in the project “Baltic.AirCargo.Net – Improvement of the air cargo transport sector by service

oriented ICT-methods and processing logistic network" that is being implemented in the framework of the EU Programme "Baltic Sea Region Programme 2007-2013". The focus on SMEs here implies that SMEs' role and impacts on supply chains and logistics networks have been prioritised on regional and European economic development agendas. The paper investigates SMEs' behaviour in the air cargo transport and logistics sector from the Northern German region Mecklenburg-Vorpommern and showcases how SMEs may benefit by learning from airfreight forwarders and air cargo related transport and logistics service providers how to perform, collaborate, network, design and implement strategic decisions. The paper calls for an integrated framework, which finds its conceptual roots in domains of supply chain, strategic and small business management, enterprise development, supply networks and supply chain management, enterprise culture and behaviour. Based on the existing thematic concepts, adapted to the environment of SMEs in the regional context, the paper streamlines the pathway of exploring SMEs behaviour in the air cargo supply chains and supply networks.

Supply chains structure and their management are core issues in discourses related to large enterprises (LEs). As a result, topical researches have generated a number of literatures on supply chains, supply chain management. However, scientific works on those themes regarding SMEs are sporadic (Dainty *et al.*, 2001; Macpherson; 2001; Macpherson and Wilson, 2003; Gunasekaran and Ngai, 2003; Quayle, 2003; Arend and Winser, 2005; Hong and Jeong, 2006; Thakkar *et al.*, 2008a and 2008b; Thakkar *et al.*, 2009 etc.). As it is apparent from the topical research scrutiny, SMEs behaviour in supply chains has been increasing research interest in the last decades. This can be traced back to diverse developments on regional and global scale. However, the most important criteria, which implied the shift in the research focus is a rational outcome. Since SMEs are of crucial importance for regional, national and global economics and a significant share of economic performance and value has been recently ascribed to SMEs, they are gaining a rising interest in the research community. SMEs foster entrepreneurial talent, employment generation and industrial development, as they are operating in all industry sectors.

However, beyond the trend of increasing research

literature dealing with SMEs in supply chains and affects of supply chain management paradigm for SMEs, the most of the research has concentrated on manufacturing SMEs behaviour in supply chains and supply chain management for manufacturing SMEs (upstream). The link between SMEs from the service sector and supply chains & management is rather underestimated with an exception of several case studies. Furthermore, a very small share of research is done pertaining to the air cargo industry and air cargo service sector. Bernal *et al.* (2002) explores, however, a case of small freight forwarders in the context of competitor networks, whereas Gunasekaran and Ngai (2003) explains in their case study management of small logistics company, and Halley and Guilhon (1997) behaviour of small enterprises in logistics. Beyond this, studies on small businesses in the logistics discourses are likely to analyse SMEs through internationalisation theories (Chetty and Cambell-Hunt, 2003; Bernal *et al.*, 2002).

It is highly important to redesign and reengineer the role of SMEs in the regional context. To date, in the case region of Mecklenburg-Vorpommern SMEs' role is crucial, since nearly the entire regional economic structure is scaled by small businesses. Around 91 per cent of SMEs operating on the market have less than 10 employees. Despite this prolific number SMEs are likely to remain at the grassroots level when speaking about the specific area of the supply chain in the air cargo transport logistics (Statistical Office of the Federal State Mecklenburg-Vorpommern, 2011). Currently, we mostly speak of large shippers and forwarders who process air cargo volumes. In this regard, the paper at hands aims at contributing to the emerging research on SMEs behaviour and performance in the service-oriented sector. More specifically, the key objective is to underpin the role of regional SMEs in the air cargo industry, and especially, air cargo service providers' paradigm.

The paper is structured as follows. The research has first set about identifying key phenomena and issues from the fragmented literature base pertaining to supply chains (especially downstream activities) and SCM. Afterwards, elements and methods of the research are explained. The next section reflects results from the case study. Subsequently, implications are derived from the observed SMEs behaviour and performance in the air cargo supply chain and networks and presented by key managerial, strategic and oper-

ational concluding insights in terms of SMEs future directions and research contributions.

## **2. Literature review**

In the scientific circles, SMEs have been largely perceived from the perspective of Large enterprises (LEs), i.e. most of the concepts and approaches developed to understand SMEs behaviour and performance in supply chains flow from the scholarly works, once generated for LEs. SMEs performance and operational configurations in supply chains have been dealt in different research streams pertaining to supply chains, namely, strategic alignment of supply chains, coordination of players in supply chains and configurations of logistics networks including infrastructure design, market servicing etc. (Creazza *et al.*, 2010, p. 155). Cooper *et al.* (1997) believes that all these processes mentioned are encapsulated by the SCM concept. Respectively, scholars underpin that SCM incorporates supply chain players with whom to link processes (1), the processes themselves (2) and how these processes are linked, managed and integrated (3) (Cooper *et al.*, 1997, p. 6). Whereas players in supply chains constitute networks, business processes are activities, which generate specific output of value to the customer. Finally, the management implies managerial skills, resources and variables by which the business processes are integrated and managed across supply chains. Herein, crucial is identification of supply chain members, processes to be linked and of type / level of integration of those processes (Lambert *et al.*, 1998, p. 4).

Taking into account the present research scope, it interferes with phenomena ascribed to all the three research lines, as differentiated by Creazza *et al.* (2010), as the research addresses issues concerning SMEs strategic behaviour, involving questions relating to SMEs partners and collaboration within supply chains or pertaining to logistics networks through placing a focus on the air cargo industry servicing SMEs. Bearing in mind that SMEs business behaviour and operational activities in the service-oriented sector (here: SMEs as air cargo transport and air cargo related service providers), the conceptual foundation of the research derives from the concepts and approaches elucidating SMEs strategic thinking, planning and acting, organisational behaviour (integration and networking) and performance in the air cargo supply chain. In this light, phenomena, pro-

cesses and activities are referred from the entrepreneurial and management perspective. Consequently, the research pertains management-related practices of SMEs. Hence, a supply chain management (SCM) within the context of SMEs refers to set of business activities, from purchase over processing to delivery to LEs (Thakkar *et al.*, 2008a, p. 98). More explicitly, SCM is integration of key business processes from end user through original suppliers that provides products, services and information, which add value for customers and other stakeholders (Lambert *et al.*, 1998, p. 1). In order to ensure regular orders from LEs, SMEs are forced to enhance value of end service products through offering special and differentiated features and quality (Thakkar *et al.*, 2008a, p. 98) or stressing behavioural qualitative differentiation and innovation (O’Gorman, 2001, p. 61). This is a critical issue, as delivering qualitative and differentiated services underlie a set of physical tangible and intangible resources and organisational capabilities, as needed by SMEs, such as technological peculiarities, infrastructural facilities, financial resources, information and knowledge in SCM, management skills etc. (Kraus *et al.*, 2006; p. 335-337). Strictly speaking, SMEs have to possess specific organisational, tactical, operational and strategic advantages to be able to compete efficiently in supply chains and transport networks. According to Porter, competitive advantage derives from organisation’s activities in the external environment or on the market, i.e. how those activities strategically fit in the external environment or on the market and therefore creates economic and customer value (Porter, 1985, p. 35; 1991, p. 103). In the present context, SMEs have to fit their service-oriented activities, technology and the marketing strategy to their customers, i.e. to LEs that operate in the air cargo supply chains. Nonetheless, progress and differentiation is needed not only externally but also internally, i.e. through advancing organisational internal structures, resources employment, capabilities streamlining and development of core competences, as anchored in treatises on the resource-based view (Wernerfelt, 1984; Barney, 1991; Peteraf 1993, Prahalad and Hamel, 1990; Boxall, 1996 etc.). As a result, in gaining capabilities, effectively deploying resources, advancing organisational internal activities and adapting them to the customers and the air cargo supply chain environment, SMEs may be both proactive and reactive in terms of their performance and strategy. Hence, it is not enough anymore to be

only reactive and more cash focused, ignoring power of communications, internal knowledge and learning capacity, offering few services and deploying "classical" resources. The resources should be valuable, rare, imperfectly imitable and non-substitutable (Barney, 1991, pp. 105-106; Boxall, 1996, p. 65). Herein, a more novel way of thinking and operating (Thakkar et al, 2008a, p. 99; 2008b, p. 77; Kraus *et al.*, 2006, p. 341-342) or new approach towards mutual understanding of different operational cultures of SMEs and LEs, trust building and communication skills advancing are needed (Dainty *et al.*, 2001, p. 171; Machpherson, 2001, p. 9). As stressed by Vaaland and Heide (2007), SMEs will not be able to harness a full potential of SCM in terms of diverse management and integration procedures as applied to business process within the supply chains anymore, since SMEs are managed by LEs at arm's length and have to follow their standards and norms. Moreover, due to the price factor and relatively high supply side, already involved SMEs may be easily replaced by the competitors in the supply chains (Vaaland and Heide, 2007, p. 21).

Nevertheless, in many respects, SCM enables to combine external and internal processes and activities of SMEs. More specifically, SCM implies a streamlined approach to advance organisational performance tactically, operationally, and strategically. For instance, integration within the supply chains can be improved by means of internal processes and activities, such as communication, collective decision-making, partnering, trust building etc., whereas SMEs' performance in supply chains affects SMEs growth, planning and strategy (Thakkar et al., 2008a, pp. 110-112). From the external perspective, SMEs need to decide *where* to compete and *how* to compete (O'Gordman, 2001, p. 60). They need to clarify their strategic position in the supply chain and focus, i.e. compete in terms of low costs operations or value added operations (Hong and Jeong, 2006, p. 295).

Beyond a certain qualitative differentiation and level of innovation with combining resources and capabilities, important is in the supply chain context also a clustering perspective. As originally developed concept of clusters by Porter in 1990, clusters as geographic concentrations of companies, suppliers, service providers or institutions are crucial for competitive advantage, innovation, knowledge and technology exchange and absorption as well as learning

capacity. They enable both competition and cooperation (Porter, 2000, pp. 15-16). Networking and cooperation helps SMEs to overcome size and resource constraints, reduce costs and circumstances of uncertainty (Thakkar *et al.*, 2009, p. 982). Furthermore, it facilitates development of individual relationships as part of a network, which is, in turn, perceived as construct of interdependent relationships. Since relationships are connected, they may positively or negatively affect SMEs behaviour in other networks. However, largely, through exchanging relationships across SMEs or, in other words, networking, SMEs are able to provide their customers with greater value than if SMEs would work individually. Through interconnected activities SMEs can work faster, more efficiently than competitors outside their network and therefore they can achieve flexibility, develop new business opportunities or find sources of new capabilities, resources and advantages in the network. Herein, through networking SMEs gain competitive advantage or, through developed collaborative relationships able to achieve critical resource of internationalisation, intra- or inter-organisational learning (Bernal *et al.*, 2002, pp. 244-245). Key reasoning behind entering and pursuing collaborative relationships is asset specificity and uncertainty. Herein, mutual trust and experience in collaborative relationships are likely to reduce uncertainty of transactions within those relationships, and therefore the transaction costs. Hence, due to informal contracts, mutual trust etc. a higher motivation might be observed by organisations to enter the supply chains. In terms of specificity, through networking activities, i.e. less geographical, physical and human distance, the relationships can be more specific, thus the SCM becomes more simplified (Macpherson, 2001, pp. 6-8).

SMEs business performance, competitive advantages and strategy can be sustained in the SMC context through intertwining of all three dimensions of sustainability, i.e. economic, environmental and social ones (Cliberti *et al.*, 2008, p. 1580). It has been frequently referred to more specific focus by SMEs on social responsibility, environmental awareness etc. The aspects of sustainability in the SCM discourses are gaining more resonance as a response to the current environmental challenges, globalisation trends etc. Nonetheless, an increasing incorporation of sustainability phenomenon is frequently tapped in the context of SCM of LEs. However, in terms of SCM of SMEs, sustainability issues can cover such



criteria as product-based green supply, environmentally friendly decision-making, cost reducing. Strictly speaking, sustainability refers to issues in SCM paradigm, whether environmental, ethical or social ones (Seuring and Müller, 2008, p. 456). For instance, Jorgensen and Knudsen (2006) interpret sustainable SCM as a form of value chain governance, since sustainable SCM encompasses aspects of labour, environmental standards etc. In this regard, values are affected in terms of social, environmental or labour-related settings and through two key functions within the value chain, i.e. rule making and rule keeping. Whereas LEs as rule-keepers control technologies, brands and access to market have started to apply certain sustainable standards, e.g. environmental protection or labour rights etc., rule keepers (SMEs) have to comply with those standards applied by LEs (Jorgensen and Knudsen, 2006, pp. 450–451). Considering our research context, SMEs behaviour in the air cargo supply chain may be also characterized as influenced by “modern” sustainable issues, since the products delivery by air may be hardly “greener” as compared with other modes of transportation (rail, sea, road). As a result, an environmental issue here is a sustainability criterion. Furthermore, SMEs have to follow rules and standards on LEs as applicable in the air cargo forwarding in order to stay integrated in the air cargo supply chain.

#### **4. Methods**

Case study has been used as a technique in exploring SMEs behaviour and performance in supply chains, logistics or when examining the role of SCM for small businesses (Gunasekaran and Nagi, 2003; Bernal *et al.*, 2002 etc.). A case study method is assumed in this research paper as an appropriate one. The justification behind this choice is that the research aims at answering the questions how SMEs as local / regional airfreight forwarders and air cargo related transport and logistics services providers are operating at present within the national and global air cargo supply chains or networks as well as what determinants (capabilities, competences and other requirements) must be available to enable to outline a sustainable strategy for SMEs performance. Following Yin (2009), a case study research places focus on contemporary phenomena rather than on historical events. It normally addresses questions “*how?*” and “*why?*”. Although this qualitative method leaves little room for researchers to control events (Yin, 2009,

p. 2), it enables to catch the particularity and complexity of a single case (Stake, 1995, p. xi). In order to provide the most comprehensive view on development of SMEs, this research follows a collective case study, which encompasses a number of single cases, i.e. SMEs operating in the air cargo supply chain existing in the case region of Mecklenburg-Vorpommern (federal state level). Herein, single case studies frame a collective or a multiple-case study. The qualitative case study approach is exploratory and explanatory (Yin, 2009, pp. 8-9), as the research sets out to scrutinise development patterns of SMEs in the air cargo supply chain and to test how SMEs may pursue a sustainable way in collaborating, operating and benefiting in the air cargo supply chain and by means of SCM.

Empirical data used for the cross-case analysis were obtained in the frame of the project “Baltic.AirCargo.Net” financed by the EU the Programme “Baltic Sea Region Programme 2007-2013”. The empirical material was collected from diverse sources of evidence over the period of project life cycle (2011-2013): qualitative observations of researchers involved into the project activities, external experts’ evaluations, project documentation and observations gathered from respective project activities such as workshops, conferences as well as from the field notes from project meetings. Empirical data pertaining to SMEs are explored. Furthermore, a record of empirical evidence is complemented by semi-structured interviews conducted with the SMEs representatives or related stakeholders.

The analysis of qualitative empirical data builds upon topical concepts and approaches introduced above. The paper portrays the results in line with the concepts and approaches synthesised in the previous section. The observed and evaluated outcomes and outputs from the SMEs practices serve then for outlining propositions. Respectively, the propositions are tested and discussed by bearing on the empirical evidence.

#### **5. Findings**

Current SMEs practices in terms of the air cargo supply chain and the air cargo transport networks in Mecklenburg-Vorpommern have been traced and evaluated on the basis of evolutionary approach, i.e. how these practices emerged, how do SMEs perform and what future directions do result. In other

words, the findings are reflected through SMEs pace of development. Besides, following Hong and Jeong (2006, pp. 297-298), a model as proposed by Levy in 2001 has been adopted. Referring to Chetty and Cambell-Hunt (2003, p. 813), some conceptual stages were slightly modified. As a result, SMEs practices and performance are explored through three external or internal contextual dimensions: (1) air cargo forwarding sector and position in the air cargo supply chain (external environment), (2) external relationship patterns of SMEs within the air cargo supply chain and (3) SMEs structures, management and competences.

#### *Air cargo forwarding sector and position in the air cargo supply chain*

In this context, regional airports and other service providers are referred to as logistics service providers focusing on regional operations, and the logistics as a third-party logistics (Gunasekaran and Ngai, 2003, p. 826). Taking into account SMEs performance in the air cargo sector on the regional scale, empirical evidence has shown that the airfreight volumes, as handled by the regional airports Parchim and Rostock-Laage, are rather scarce. This is due to the large air cargo forwarders TNT, DHL, FedEx and alike, which are treated on the air cargo market as the first-tier transport providers. This, in turn, reduces the number of second-tier service providers in the downstream air cargo supply chain. Furthermore, of vital importance is in this particular case the prevalence of clusters. With the key air cargo forwarders concentrating around Berlin and Hamburg, the airports in Berlin and Hamburg have gained competitive advantage over air cargo transport service providers in Mecklenburg-Vorpommern. Herein, clustered air cargo forwarders can compete and cooperate directly against service providers operating individually in the region of Mecklenburg-Vorpommern through their already settled strategic alliances and collaboration with more dominant suppliers, distributors or carriers (Hong and Jeong, 2006, pp. 293-294). In this case, regional airports of Parchim and Rostock-Laage are missing resources, and competences such as inter-partnering or share of valuable information, knowledge etc. The fear of sharing the valued organisational information and knowledge can come to threaten the market position and organisational performance of the regional airports (Bernal *et al.*, 2002, p. 242). Hence, it becomes quite difficult to compete

without being networked or a part of cluster. Nonetheless, as empirical data demonstrate, a geographical proximity and limited resources, such as air cargo handling capacity in Berlin and Hamburg due to, e.g. increased demand in air cargo forwarding, provide feasible opportunities for the regional airports.

#### *External relationships patterns of SMEs within the air cargo supply chain*

A more isolated position of the regional airports has affected their external relationships within the air cargo supply chain. Operating on behalf of core national logistics services providers (Deutsche Post and Lufthansa Cargo) to meet their objectives, i.e. to enable them costs reduction, cover their fluctuating (increased) demand or reduce their capital investments, regional airports have failed in sustaining their position. It is because the regional airports were not able to deliver more differentiated and qualitatively higher services, and the large logistics services providers exerting a more influence in the freight forwarding industry could easily replace them or cancel their negotiations due to less flows (operations) through the air cargo supply chain. As a result, the regional airport of Rostock-Laage, as initially incorporated into the network of "Deutsche Post" to handle the airmail forwarding at night due to increased demand in the airmail forwarding in Mecklenburg-Vorpommern, has been cancelled to deliver this service. Hence, frequently the external relationships are of more short-term manner. This, again, is shaped by the external environment in which the relationships emergence and are maintained. By echoing Hong and Jeong (2006, p. 298), in the environment of low costs competition, especially in this particular case, where the core focus is on cost reduction and capital-based savings, regional airports, as exemplified in case of Rostock-Laage tend to accept costs reduction target terms dictated by their customers (Deutsche Post) due to their weak negotiating positions, as they do not have negotiated acquisition *ex ante* (Thakkar *et al.*, 2009, p. 983).

In case of the regional airport Parchim, the managers have set to kick-off air cargo transport and related services at the airport through cooperation with China and potential air cargo flows from China. However, herein in this particular case, it is to note that the airport is not likely to harvest benefits of being integrated in the global air cargo supply chain and the network

due to very limited resources. Since air cargo processes and activities cannot be performed at the Parchim airport as a result of infrastructural shortcomings, the airport and the related air cargo service providers are not able to follow and adopt to the requirements as posed by the LEs in the air cargo industry. This is also curtailed due to regulatory constraints applying in the air cargo forwarding and handling industry. As long as there will be no valuable resources available at the airport, it will be not possible to deploy them and to built up distinctive competences that, in turn, allow obtaining competitive advantages in the market (Thakkar *et al.*, 2008b, p. 81). In this particular case, Parchim airport underlies, first, reengineering or acquisition of physical resources such as facilities (runway, apron, airport tower and business settlement area). With resources (facilities) built up, the airport will be able to service large international carriers and achieve international standards (CAT III), and therefore gaining competitive advantage over other regional air cargo forwarders and service providers. Positively influenced is also the competitiveness through intangible resources or invisible assets, such as good knowledge and management skills. Herein, from the case it is evident that good knowledge of customers enabled through Chinese ownership of the airport, can accelerate air cargo handling activities (air cargo flows between Europe and China), thus allowing the airport to carry out activities differently from the competitors (gaining positional advantage through handling cargo directly from China).

Overall, potential positioning advantages for both regional airports are likely to emerge from their networking with the globally operating airports and air cargo hubs, such as Berlin, Hamburg etc. Bearing in mind geographical proximity with the existing air cargo handling clusters in Berlin and Hamburg, it is argued here that regional airports will be capable to deliver qualitative and differentiated services through deploying geographical location as a resource for air cargo handling at the Rostock-Laage airport, for instance, at night, which is possible due to either rural character of the region and lower population density and no night noise restrictions. Further advantages for this airport derive from the infrastructural (good traffic connection by road, business enabling facilities such as business parks), business (global carriers located such as Lufthansa Cargo) and geographical peculiarities (access to transport mode by sea through Rostock port as a maritime node).

### *SMEs structures, management processes and capabilities*

In terms of SMEs structures, current management process and capabilities, it is evident from the empirical data that the regional airports and SMEs face organisational, management and institutional constraints. To exemplify, as evident from the interviews and experts' analyses, regional capabilities are jeopardised by missing knowledge, information and experiences in foreign business development, market setting in the target countries, lack of skilled labour or human resources processing international trade agreements etc. This embraces corporate or organisational resources that are a prerequisite for building up core competences, as to Prahalad and Hamel (1990, pp. 5-7). Furthermore, as articulated by interviewees and experts, there has been observed shortcomings in knowledge gathered through education. Following Dainty *et al.*, 2001, for the SMEs to be integrated into the supply chain, there is a need for specific training programmes for SMEs providing both specialised knowledge and soft skills such as interpersonal skills, customer care, communication skills and collective learning (Dainty *et al.*, 2001, pp. 169-170). To underpin this, by referring to observations made on a regional scale, one of the key weaknesses of SMEs as logistics service providers is lack of international competences and international orientation as well as missing trainings.

Furthermore, as it is apparent from the evidence, SMEs, especially in case of the regional airports are not willing in exploring and realising possibilities through shared knowledge and horizontal collaboration. In this, the small business sector in Mecklenburg-Vorpommern can be recognised as a reactive one, since it is drive by the visions and aims corresponding to the external environment in which those businesses are operating. This is a more passive view in contrast to businesses, which show higher deployment of intangible organisational competences such as knowledge and information share as well as trust.

### **6. Implications for SMEs: Determinants for SMEs future directions**

Referring to the past and current SMEs practices and their endeavours to engage into air cargo supply chain and the air cargo network, a set of implications can be drawn to facilitate future-oriented directions of SMEs. The central clue is a need to decide where to compete and how to compete (O'Gordman, 2001,



p. 60). It is an external view. On the one hand, SMEs need to clarify their strategic position in the supply chain and strategic focus. On the other hand, there is a deficit in internal capabilities, trust built up, management skills, team building, understanding of business etc. (Dainty *et al.*, 2001, p. 169). Again, when recalling the duality of markets and resources (Wernerfelt, 1995, p. 172). Hence, combination of both perspectives is needed.

As a result, SMEs have to make strategic choices (O'Gorman, 2001, p. 60) and to clarify their strategic focus and supply chain relationship position (Hong and Jeong, 2006, p. 295). Based on the empirical results, SMEs need to redirect their strategic choices to the following external and internal contexts.

Hence, the present research reasons that:

*Proposition 1: SMEs strategic positioning in the air cargo supply chain and their growth underlies a type and degree of collaboration with large air cargo forwarders operating in the air cargo supply chains and global networks.*

The present research argues that SMEs involved into the air cargo forwarding or handling services as well as regional airports as the air cargo operations have to intensify collaboration partners with large and globally operating enterprises in the air cargo industry. This enables the small businesses, first, a better relationship positioning in the supply chain, since large airfreight forwarders as the first-tier logistics providers have focused on delivering multiple performance based on their competences. In this sense, SMEs could focus on the specific competences and offer differentiated services, thus meeting qualitative requirements of their customers. Through specific and differentiated services SMEs and regional airports are capable to gain a strategic position on the niche air cargo market, which is not fully penetrated by large air cargo forwarders and handling enterprises. Considering the regional case of Mecklenburg-Vorpommern, regional airports and SMEs should endeavour to foster collaboration with the national / global first-tier air cargo forwarders situated in Germany, e.g. FedEx in Frankfurt am Main, DHL in Leipzig Halle and UPS operating in Cologne/Bonn. In this regard, they could place more focus on building competences in the field of warehousing, air cargo handling and transportation.

According the finding from Baltic.AirCargo.Net project, one of the most promising opportunities in terms of air transportation services that might be

suitable for SMEs or entrepreneurship is a so-called "Flying Truck" concept or Road Feeder Service (RFS), which would enable providing differentiated, specialised qualitative services. In fact, the pure air-freight-forwarding sector implies very high investments for the buying, leasing, maintaining, etc. of the machinery park, i.e. aircrafts. It will be rather a provocative assumption that SMEs may possess the required financial resources to start / enter pure air-freight operations. However, according to the secondary research data gained by the "Baltic.AirCargo.Net" project, among ca. 18 companies that offer air-freight transport services in Germany only few possess *real* aircrafts. The whole fleet of majority of air-freight forwarders consists of normal trucks only and the majority of these transport companies that have been successfully operating on the air cargo transport market are regarded as SMEs. And that were not the huge investments in the "hard-ware" infrastructure, i.e. aircrafts that allowed them to enter airfreight forwarding business, but rather strategically conceptual and "soft" changes. Rather small and medium transport companies with a "fleet" ranging from 10 to 30 ordinary trucks qualified themselves for air cargo transport business. According to the results of the "Baltic.AirCargo.Net", the importance of the RFS is constantly growing nowadays, e.g. in 2012 the relative volume of air cargo transported by "flying trucks" in the biggest air cargo hub in the Baltic Sea Region - Copenhagen Airport is ca. 35% from the total cargo volume.

The definition of "flying trucks" is scheduled trucks operating between two airports only, on behalf of an air carrier. Trucks are operating under a flight number and the cargo is moved under same conditions as normal air cargo and the liability is in accordance with the Montreal Convention. In other words, "flying truck" operates as a normal truck between to airports (departure from an airport security zone – and arrival to another airport security zone only) on so-called Air Waybill (AWB) or air consignment. The same as a real air carrier, a "flying truck" might have several route numbers or flight numbers if it is transporting freight from more than one airline. The flying trucks are treated and handled exactly in the same way like real aircrafts, i.e. the "flying trucks" possess herewith exactly the same insurance as if the goods were transported by aircraft and on route number, they are fulfilling all custom and security regulations set by the relevant authorities as if the



goods were really flying by air (Grandjot *et al.*, 2007, p. 87). The cargo transported by “flying trucks” is a real air cargo that must have fulfilled all required security and transport norms that apply to air cargo.

By providing such road feeder services SMEs would obtain essential advantages in the air cargo supply chain. This can be justified as follows. First, air cargo handling by means of flying trucks would allow SMEs to take advantages of the air cargo market and integration with large air cargo forwarders, e.g. from Hamburg, Berlin. To exemplify, road feeder services do not require intensive capital investments and physical resources what would be a premise in case of providing air cargo services by means of air-carriers (airlines). SMEs do not simply possess such resources. Naturally, by offering RFS to their customers from the air cargo hubs in Hamburg or Berlin, SMEs would better engage into the air cargo market and the air cargo supplier network. This is essential, since, as elaborated by Thomas and Barton, low technical capabilities of suppliers and limited physical resources (facilities, physical capital etc.) are likely to keep large air cargo forwarders and carriers from using in their supply networks and as part of their supply chains (Thomas and Barton, 2007, p. 491).

Second, integration of road feeder services into the SMEs operations would maintain their flexibility both in terms of costs and investments. Indeed, it is evident that SMEs providing flying truck services would not be subject to high investments, as opposed to investments related, for instance, to facilities if operating through regional airports. In this case SMEs would also be less exposed to risk associated with flying trucks operation costs.

Naturally, SMEs could offer distinctive service components to their larger partners due to meeting the order qualifier requirements of qualitative and time-sensitive delivery, as posed by large collaboration partners (Hong and Jeong, 2006, p. 295). Following Levy *et al.* (2001), by providing road feeder services SMEs would strategically focus on operating at competitive rates, as they do not usually have substantial financial resources to handle air cargo through carriers (airports), and meet changing customer requirements, e.g. reduced demand on air cargo forwarding or handling. Overall, it is very essential for SMEs to bear on this business opportunity, especially as customers, in this particular case large air cargo forwarding companies, are not keen to engage into

relationships with suppliers if they are inflexible and lack technical capabilities. In such cases, large customers are more likely to outsource their air cargo forwarding activities to such suppliers, which meet their requirements, even despite the fact that these may be located in more remote regions. The road feeder services offer certain opportunities, e.g. SMEs would become capable of obtaining higher position in the air cargo supply chain as a result of the distinctive values they may provide to their customers, such as flexibility, time and costs savings for outsourced activities by large air cargo forwarders.

*Proposition 2: Through interlinking with regional, national or international networks, organisations and institutions SMEs are capable to integrate in the air cargo supply chain and improve their relationship position.*

Networks are crucial for small businesses. This is due to the fact that networks imply interdependent relationships, which can positively or negatively affect interactions of SMEs within the networks. Moreover, collaborative relationships within the networks are of paramount importance for competitiveness and competitive advantage. As elaborated by Bernal *et al.* (2002), collaboration within the network may enhance capabilities of SMEs, since these obtain access to resources and capabilities of other SMEs or organisations involved in those networks. Relationships within networks enable the firms to gain, as what Kanter (1994) calls, collaborative advantages. Beyond this, collaborative activities of the SMEs within the networks are likely to be conducive to access to new resources, enhance financial and organisational flexibility and contribute to inter- and intra-organisational learning and fostering absorptive capacity (Cohen and Levinthal, 1990, p. 128). To exemplify, due to low demand for air cargo forwarding and handling in Mecklenburg-Vorpommern, SMEs tend to be locked-up. In case of entering and integrating into new networks with enterprises (e.g. manufacturing, maritime etc.) from Mecklenburg-Vorpommern, SMEs would gain possibilities to increase the demand for cargo forwarding. Regional airports should also engage into the business networks, as according to the results from “Baltic.AirCargo.Net” up to date small and regional airports operate rather isolated. The role of networks is inevitable, since involved businesses are capable to develop new business opportunities and gain access to stronger support structures (Bernal *et al.*, 2002, p. 245).

Networking facilitates sharing of information and knowledge among partners who are geographically dispersed (Gunasekaran and Ngai, 2003, p. 830). Partnership is not a question of resources, but of establishing demand for services. It facilitates knowledge and information sharing and transfer, which are especially important when SMEs are developing or entering the market (Gunasekaran and Ngai, 2003, p. 836). It is worth mentioning that in terms of inter-organisational relationships the original focus on providing air cargo forwarding services should be extended to a variety of other areas. In case of regional SMEs, these should focus on additional services providing added value for their customers.

Practically, inter-organisational relationships can be built up and maintained through a network, as set to be established by the Baltic.AirCargo.Net project. This network may provide compelling opportunities for both regional airports and SMEs dispersed across the Baltic Sea Region (BSR). Through networking activities, regional airports and SMEs would be better off in utilising road feeder services, especially when these ones will be underpinned by the entire network and networking regional agents, i.e. airports and small and medium-sized businesses. Moreover, the role of network focusing on effective and efficient utilisation of the flying truck concept might be facilitated by cross-networking, i.e. engaging into and promoting this concept in other regional, national logistics, business development and business support networks. Therefore, the SMEs and regional airports should pursue the way in promoting the value of differentiated qualitative value through road feeder services and the promising economic, organisational and strategic benefits thereof.

In this respect, organisationally and strategically SMEs and regional airports can develop through streamlining their internal resources deployment, engaging into knowledge transfer and gaining core air cargo forwarding services-related capabilities and competences. Hence, the paper argues that:

*Proposition 3: SMEs building up (internal) organisational capabilities and core competences through learning, training and business networking SMEs obtain better competitive positions in the air cargo supply chain and network.*

SMEs do face challenges also on the organizational behaviour level, i.e. in management. In order, howev-

er, to overcome challenges, SMEs need to undertake changes. This, in turn, requires shifts in management structures and skills. For this purpose, individual and organisational learning, trainings, skills (especially, as demanded, language and international business operations skills) are needed. Learning processes are of paramount importance not only to bring forward organisational performance. Indeed, they can accumulate economic benefits. By drawing on Cohen and Levinthal, absorbing new information and knowledge and internalising it, SMEs are better off to gain commercial profits (Cohen and Levinthal, 1990, p. 128). Therefore, information and human resources management structures are subject to changes (Halley and Guilhon, 1997, pp. 491-492). SMEs have to build up key capabilities or core competences, as underpinned by Prahalad and Hamel, 1990, pp. 5-7). Furthermore, having streamlined internal capabilities (management skills on business and logistics processes, language skills etc.), SMEs are capable to obtain a differentiated position in a operating environment. To Fillis, in terms of such determinants as intangible skills and other resources as well as creativity, trust level etc., SMEs compete unequally (Fillis, 2001, p. 777). Naturally, this enables to distinguish themselves. As a result, SMEs have to kick-off individual and organisational learning and to transform it into a regular cycle, what, in turn, is conducive to sustainability.

## 7. Conclusions

SMEs reveal shortcomings and challenges in both external and internal contexts (Halley and Guilhon, 1997, p. 482). Sustainable management successes underlie, however, an implementation of a holistic and dynamic model (Chetty and Cambell-Hunt, 2003, p.82). By building upon practices and lessons from the regional small and medium-sized businesses it is apparent that SMEs have come to be isolated and usually act individually beyond the boundaries of the specific air cargo logistics and transport-related networks. This, however, bring SMEs into unfavourable situation, and the entire regional businesses are being jeopardised. SMEs face problems in obtaining capital, resources, skills and novel knowledge and information.

As a response to the regional analysis and scrutiny of SMEs practices on the air cargo market the present research calls for a holistic and interactive model for SMEs, which enables them to respond to the changing

external and internal air cargo supply chain paradigm. Empirical evidence demonstrates that SMEs lack strategic plans and are characterised rather by short-term advantages (Gunasekaran and Ngai, 2003, p. 830). To encounter such situation, SMEs should combine their technological, organisational and financial resources and deploy them respectively. This combination will allow them to acquire capabilities that, first, are to be used in terms of technology. As enlightened in the implications, SMEs should place their strategic focus, on new technologies for air cargo transportation. In this particular context, this refers to a flying trucks model. Hence, bearing in mind market position and market share of SMEs from Mecklenburg-Vorpommern, SMEs should adapt to the external environment instead of relying on inefficient financial and physical capital resources (airport facilities etc.), which then lead to scarce orders or low demand from large contractors.

Subsequently, SMEs have to learn from the current practices and to combine proactive and reactive vision what, in turn, enables better positioning in the air cargo supply chain and sustainable management. Being reactive, SMEs can adapt to air cargo market changes or customers requirements (increasing air cargo forwarding demand from, e.g. Berlin and Hamburg). With the flying trucks concept SMEs could easier adapt to the demands of large air cargo forwarders. Acting with a proactive vision, SMEs are able to gain benefits through their organisation / internal differentiation. Naturally, both visions enable to sustain the position and performance. Consequently, this helps SMEs to overcome some traditional problems.

Furthermore, a better bargaining power and integration of the flying truck concept into small businesses might be achieved through built up collaborative relationships in the specific networks. A better interpartnering can enhance operational performance of SMEs and provide them an opportunity to link up with other networks beyond the regional or national boundaries.

Overall, the authors believe that empirical insights from the current practices of SMEs in the region of Mecklenburg-Vorpommern can be useful in both current research discourses on air cargo supply chain and in terms of SMEs' role in it as well as in businesses circles. Lessons and experiences learned may benefit SMEs in other European regions in strength-

ening their performance and rethinking their strategic choices.

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