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Trans-Regional Connectivity in the North and Baltic Sea Supply Chains**ABSTRACT**

In the past twenty years, there has been a constantly increasing interest shown by the European Union on issues concerning the collaboration of firms from different member states. For instance, the creation of the Official Journal of the European Union (OJEU), which advertises public sector contracts from EU local authorities, and the implementation of the Tender Electronic Daily (TED) web platform represent an attempt at increasing the level of cooperation and exchange especially among small and medium enterprises (SMEs) across Europe. Similar efforts have been made also in the private sector, where several operations have been moved online, including some significant purchasing functions and procedures. The expansion of so called e-tools (e-bidding, e-purchasing and e-procurement) has significantly enlarged the market for European firms, which now are more likely to engage with partners and companies operating outside their regions.

This increased level of commercial and business interchanges, however, has also modified the way firms and companies relate to each other, by amplifying the importance of aspects such as knowledge transfer, innovation and information, research and development, and business reputation. In addition, the current economic climate has exacerbated the level of competition among firms, by reducing the number of financial opportunities from a number of stakeholders (e.g. public sector bodies) and by increasing the need for firms to find suitable and trustworthy partners for collaboration and joint development. In such a situation, firms are forced to spend significant resources for competing in markets which present constantly rising risks, and many of them struggle to survive.

We describe and illustrate two European Union funded projects which aim to support firms involved within the North Sea and the Baltic Sea supply chains. These projects are North Sea Supply Connect (NSSC <http://www.northsearegion.eu/ivb/projects/details/&tid=109>) and Baltic Supply (BS <http://www.balticsupply.eu/>). The two projects focus on firms and companies operating in three specific markets: Maritime, Health and Food, and Energy. The authors seek to provide an overview of these two projects by introducing their aims and scopes, illustrating their development strategies and presenting the potential outcomes associated with them. Particular attention will be given to the opportunities of interregional partnerships that these projects intend to create among the SMEs and OEMs (Original Equipment Manufacturers) associated with the twenty nine partners involved in the projects.

1. Objectives of the Projects

The objectives of the North Sea Supply Connect and Baltic Supply projects are to build economic bridges between the North Sea and Baltic Sea regions by supporting SMEs in taking advantage of the growing supply markets in north east Europe. The projects aim to achieve this by establishing innovative solutions and instruments for regional development agencies, SME associations, chambers of commerce and Original Equipment Manufacturers. It is hoped that this will motivate entrepreneurs to join new business networks and hence establish structures for interregional collaboration. The collaborative project relies heavily on the expertise of its partner organisations and their contacts for an understanding of the small business sector (Storey, 1994). Following the identification of key innovative clusters of industries in energy, food and health and maritime activity the collaborative project is in the process of gathering information on industry specific supply markets for incorporation into company registers and the establishment of a virtual innovation and tendering environment. The promotion of SME activities is a key responsibility of Business Development Organizations and Regional Development Agencies. It is expected that cross regional cooperation and interlinked services between these organizations will add leverage to the current approach. An internet based platform should enhance existing services and also enable new tools and methods.

Figure 1 illustrates the 28 partners involved in the two projects spread across 12 European countries. The project started in October 2010 and is due to finish in September 2012 for the NSSC project. The Baltic Supply project started three months later and it is possible that the completion date for the two projects will be extended to December 2012.

28 Partners
involved in overall
collaboration

Project started in
October 2009 and is
due to finish in
September 2012



Figure 1 The North Sea Supply and Baltic Supply projects

The project aims to improve connectivity across the regions illustrated in Figure 1. Some researchers (Fawcett et al., 2010; Hong et al., 2010) use the term connectivity in a narrow sense referring to information technology and being connected via the internet. We use the term more broadly within the supply chain context as proposed by Hoffman et al. (2008), who argue that connectivity represents a bridge between information technology (broadly defined as Internet, e-mail, electronic data interchange and auto-ID technology) and information sharing leading to integration, visibility, efficiency and cost reductions. It is in this sense that the project aims to measure its achievement.

2. Products Targeted by the Projects

The projects have chosen to target strategic as well as bottleneck items as outlined by Kraljic (1983). According to this portfolio model differences in power and dependence exist between buyers and suppliers.

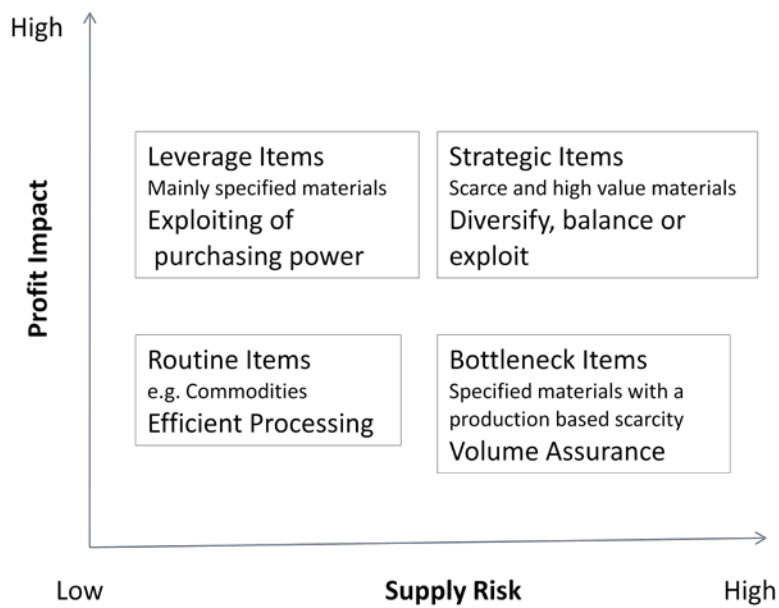


Figure 2 Kraljic Matrix

Figure 2 illustrates this situation where strategic items highlight the need for a balanced power relationship between buyer and supplier since these products represent a considerable value to the organization in terms of a large impact on profit and a high supply risk (Caniels et al., 2005). The need for cooperation, mutual trust and commitment is needed between buyer and supplier to reduce the supply risk to a minimum. Examples of strategic items are gearboxes for wind turbine manufacturers, turbines for the chemical industry, bottling equipment for food and drinks manufacturers and security devices for marine equipment. Often strategic products can only be purchased from one supplier (single source), causing a significant supply risk. In addition, a number of studies demonstrate the importance of intra-firm collaboration as an instrument for SMEs when achieving innovation and technical advancement in relation to new processes and products (Roper et al., 2002; Nieto and Santamaria 2007; Lachenmaier et al., 2006). It is therefore argued by the project partnership that trans-regional trade, and hence connectivity, has the best chance of success if strategic items are targeted since these are more likely to achieve cooperation and mutual trust between buyers and suppliers.

3. A Portal for Supply Chains in the North East Corridor

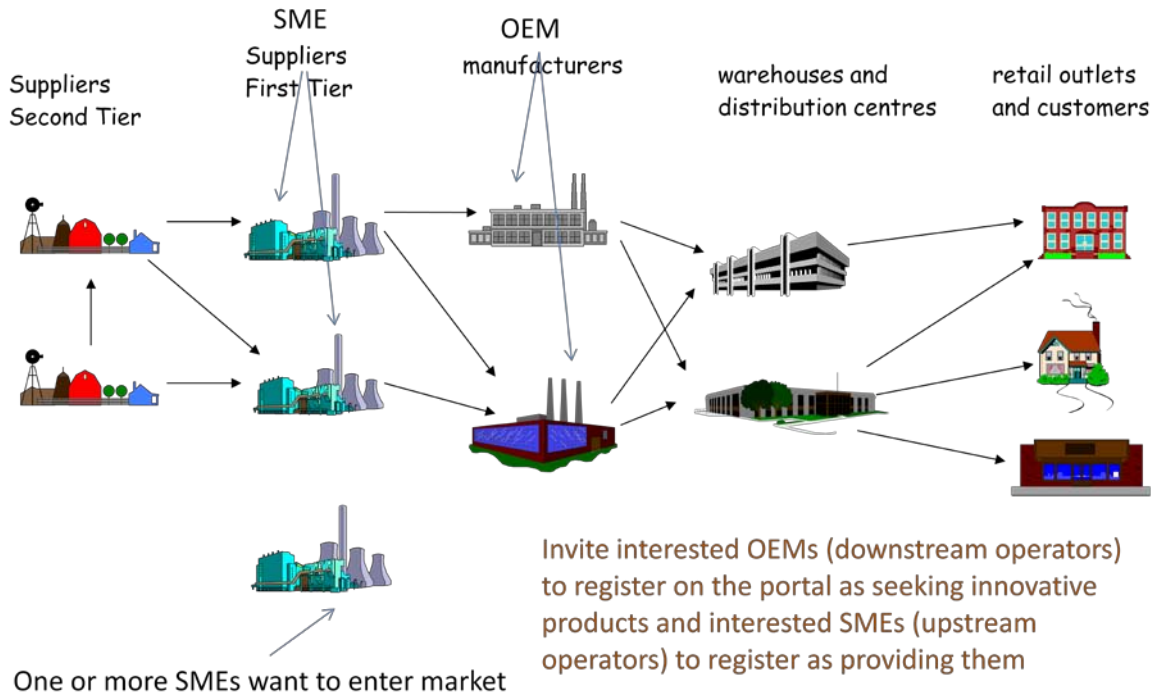


Figure 3 Buyers and Suppliers in the Supply Chain

Figure 3 illustrates a typical supply chain with buyers (OEMs) and suppliers (SMEs). An SME wanting to enter the market is required to register interest on an electronic portal indicating details particularly of innovative products produced by the SME. Similarly OEMs, as buyers, are requested to state their interest in acquiring new products from suppliers. Suitable links between the buyer and supplier can be made through a broker managing an electronic portal or through matchmaking events organized by provinces and chambers of commerce. The rationale behind this approach is based on the fact that competition between supply chains is becoming as important, if not more so, than competition between supply chains. Furthermore, collaboration within the supply chain is also becoming more important. SMEs are mostly active in regional supply chains and are consequently vulnerable to international competition, which increasingly requires such firms to collaborate within supply chains (Hessels et al., 2009; European Commission, 2007, 2008). Supporting SMEs through the product life cycle (Horst, 2002) is also a key issue due to increased agility in the market place.

4. Focal Clusters of Industries

The partners have a variety of industry clusters in the three core areas of Maritime, Energy and Food and Health.

Maritime industries: Marine Equipment, Marine Services, Shipbuilding, Maritime Works, Seaports, Shipping, Offshore supply, Inland navigation, Recreational boating, Coastal Tourism, Navy, Fisheries

Energy & Public Infrastructure: Energy Production, Energy Conversion, Energy Distribution, Energy Services, Water Supply, Water Sewage, Waste Management, Environmental technologies, Public Transport, Telecommunication

Health & Food: Public and private Health Services, Medical technologies, Pharmaceutical industry, Biotechnology, Food Production, Food Processing, Food distribution and trade.

A pilot group of partners identified some trends with their sectors. The maritime sector is declining with pockets of growth in areas such as maritime safety, security and surveillance as well as niche markets such as yacht construction and marine sub-assemblies. The energy sector is growing and focuses on wind energy, offshore oil and gas, green energy and the technologies and products required to support these such as building materials used in sustainable construction. The food sector is more diversified across the partner regions, incorporating such areas as fishing, a large range of food and drink manufacture including organic and fair trade products and food technology and control. The health sector focuses on new technological developments for the support of disabled and elderly people, telecare equipment and the production of healthy food, such as healthy carbohydrates.

5. Connectivity Barriers

We broadly define a connectivity barrier as any factor which prevents trading between firms particularly trans-regional trading (OECD, 2008). The three main external barriers to European SME connectivity identified by the project are lack of capital, lack of adequate public support and lack of adequate information. The three main internal barriers are the price of firms' products, high costs of internationalisation and the quality of firms' products (EIM, 2010). Information on barriers experienced by SMEs in the NSSC/BS partner regions is currently being gathered. Some SMEs have highlighted the difficulty that small players experience when trying to enter foreign markets dominated by big players, while others highlight the geographical and cultural differences.

6. Business Development Platform

We examine ways of approaching the design and establishment of the business development platform (BDP). One approach is to use the existing structures within the project partnership and utilise and integrate these in a combined organization with a central host for the business development platform and de-central service delivery units provided by dedicated partner organisations. This organisational approach is called a "hub-and-spoke" model. We also look at ways in which SMEs can improve their chances of connectivity through the use of a self-assessment tool which assists the companies who use it to identify weaknesses in complying with OEM standards and improving their likelihood of entering into the supply chain.

A possible design for the business development platform (BDP) is the 'hub and spoke' model illustrated in Figure 4. According to this design the existing

structure of the project partnership can be utilized and integrated in a combined organization of a central host for the BDP and de-central service delivery units provided by dedicated partner organizations. The Enterprise Europe Network (EEN) site may provide a useful illustration, since the hub is provided by the EEN with 'spokes' serviced by partner organisations such as Scottish Enterprise

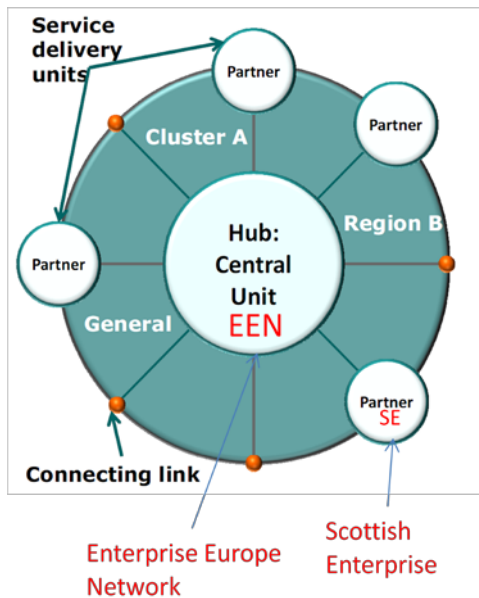


Figure 4 The Hub and Spoke Model

7. Self Assessment Tool

One approach to improving trans-regional connectivity being considered by the partnership is the establishment and use of a self assessment tool for use by SMEs wanting to identify their strengths and weaknesses relating to tendering for new contracts with OEMs. Professor Ian Barclay, Dr Keith Porter of Liverpool John Moore's University and Liverpool Chamber of Commerce developed a self assessment tool for SMEs after extensive interviews with OEMs and their requirements. The OEM interviews were arranged with the Supply Directors/Purchasing Managers of twenty-five major customers in the Merseyside area, across a spread of manufacturing and service industries. These comprised automotive manufacture, transport services, NHS trust hospitals, process and heavy goods manufacture, high street retailers, food manufacturers, local councils and public services, manufacturers supplying the oil, gas, rail services, and household appliances.

The interviews were held on an informal question and answer basis to first ascertain the main criteria on which their suppliers were selected. As a result ten main core competence requirements of suppliers were identified ranging from business, financial and logistics considerations to development and human resources. Within each core competence the companies interviewed were asked for a number of definitive measures that they would expect a supply company to have in place and from these results some sixty-six statements of need were compiled across the ten areas of consideration. A

questionnaire incorporating the ten main areas and the sixty-six statements of need (gathered from the 25 major companies) was then compiled, and sent to over one hundred major companies in the North West to obtain their input on how important each of the sixty-six statements of need were to their selection of suppliers. Based on fifty responses from the 100 major customers the authors were able to 'populate' the ten main business areas and sixty-six statements of need and incorporate this analysis into the software to obtain quartile measurements for the requirements of the OEMs.

An SME is asked in the self-assessment, based on his summary score for each of the ten core competencies, which target he wishes to set for himself to access, for example, 25% of the sample supply chains. On taking his decision he is directed to the appropriate section of the assessment, which will enable him to identify his "strengths" and "weaknesses" against each of the customer (OEM) needs criteria. This helps to identify the five to ten most important improvement actions by selecting the greatest areas of weakness identified. Figure 5 illustrates some output from the self assessment exercise which highlights 'customer service management' and 'relationship with own suppliers' as areas in need of improvement in order to access 25% of the sample supply chains.

The Software – Score Table

The SME needs to decide what proportion of OEM buyers it wishes to target for supply of its products (e.g. 25%)



Figure 5 Self Assessment Score Table*

*The software is provided courtesy of Professor Ian Barclay and Dr Keith Porter of the Technology Management Group of Liverpool John Moores University and Liverpool Chamber of Commerce and was produced with the aid of European funding (the software is made with Macromedia)

8. Discussion

The NSSC/BS projects, having defined key focal clusters of industries and identified priority supply markets, are currently completing the company registers with the aid of regional development agencies and business development organisations in the partner regions. The partners are now focussing on existing portals and business development platforms with a view to establishing a hub with service partners with links to other networks. Some companies in the partner regions have already registered on the Enterprise Europe Network (EEN, 2010) particularly with regard to renewable energy production and it is possible that use could be made of these existing links focussing on the needs of OEMs and SMEs in the Baltic and North Sea regions. Other ways of increasing connectivity among the partner regions include engagement in networking and matchmaking events such as the Meet the Buyer Events in Basildon County Council (2010, 2011), SMM workshop (Hamburg, Sept 2010), EWEA (Brussels, March 2011). Training events are planned to provide support on the value and use of the business development platform. Another event under consideration is the hosting of a conference focussing on issues associated with the NSSC/BS projects. Edinburgh Napier Business School have proposed hosting the conference in March 2012 in Edinburgh. It is envisaged that most of the services provided by the platform will be web based or web supported with operating responsibilities held by regional development agencies and business development organisations. Public funding prevails with support from the partner regions, national governments and the European Union. Charging registration fees and seeking sponsoring are also possible sources of income especially in the prevailing economic climate.

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