

Global interactions – closing the loop

Introduction and background: global interactions

The papers in this special issue are all based on work presented at the 23rd International European Operations Management Association (EurOMA) conference held in Trondheim, Norway on June 17-June 22, 2016. The theme of the conference was “Interactions.” This set of papers deals with interactions in a global context. Three papers focus on backshoring of production activities previously offshored – closing the offshoring loop and its background, patterns and contextual influences, drivers, capability requirements and performance effects. One paper is concerned with developing closed loop supply chains (CLSC) for reasons of environmental sustainability, the importance of strategic resources, and shared vision and principles between the focal firm and its suppliers, and the need to integrate the design function and the end customer in the CLSC.

Globalization involves a great many things, ranging from global communication between the citizens of, what has become, a global village Marshall McLuhan predicted as early as the 1960s, to the omnipresence of multinational firms, their production, supply and demand networks. There is nothing new to global activity – moving across borders is as old as mankind (after all, we all stem from Africa), and countries in Asia (e.g. China) and Europe (Phoenicia, Greece, later Scandinavia, Portugal, and then Spain and, especially Britain) have sailed the seven seas for many centuries, in search for resources, markets, presence and power, or just out of pure curiosity.

In the last couple of decades, though, globalization became a crucially important topic on the industrial agenda. The most popular form is production offshoring. According to Brennan *et al.* (2015), the share of global production value added by G7 nations has dropped from 71 to 47 percent, which has been taken up by emerging countries through so-called captive offshoring and offshore-outsourcing. In captive offshoring, a company moves production activities abroad but keeps ownership. In offshore outsourcing, the activities moved abroad change ownership, to one or more suppliers.

Companies have many motives to go abroad. In the past, material and labor cost played a major role. Later, market access joined the set of offshoring drivers, together with proximity to suppliers and competitors. Today, companies even offshore R&D activities to get access to skills, knowledge and technology (e.g. Ferdows, 1997; MacCarthy and Atthirawong, 2003; Lewin *et al.*, 2009; Nieto and Rodriguez, 2011; Da Silveira, 2014; Demeter, 2014).

While many companies still engage in offshoring, a new trend is emerging, so called reshoring, backshoring or nearshoring (Kinkel and Maloca, 2009; Kinkel, 2012; Ellram, 2013; Zhai *et al.*, 2016; Fratocchi *et al.*, 2014). Three of the four papers included in this special issue, Heikkilä *et al.*, Johansson and Olhager and Nujen *et al.*, investigate the backshoring (vs offshoring) phenomenon.

Sustainability is another hot topic in current theory and practice, and the focus of the fourth paper in this issue. Since the Brundtland report (WECD, 1987), stakeholder pressures on the socially, environmentally along with economically sustainable performance of

Following the invitation, ten papers were submitted for inclusion in this special issue. Each of them went through the usual *JMTM* double-blind review process, including multiple rounds of revisions. Eventually, four papers were accepted for publication. The authors thank all the authors who were willing to take up the challenge, even if some of them failed or gave up. Special thanks to the reviewers for the efforts they put in to helping the authors create this special issue.



industrial companies have steadily increased and led to the implementation of sustainable, i.e. environmental friendly, socially compatible and economically feasible, practices and products in their operations, production networks, and supply and demand chains. Implementing such practices in a plant or a company's own production network is difficult enough – developing and getting them to work in the upstream and downstream supply chains is very complex. Due to philosophies such as “back to core business” (Andersson, 1990; Laing, 1990) and developments such as globalization, supply and demand chains today are highly fragmented and global. One of the principles of the lean philosophy is: “Why produce waste if you are going to throw it away?”, and elimination of waste (or *muda*) in the value-adding process is an important part of the lean toolbox (Ohno, 1988). Over time, the concept has developed from waste reduction in the “cradle-to-grave” process to zero waste in the “cradle-to-cradle” process. The benefits associated with this contemporary view on zero waste fully agree with the objectives of sustainability. Several ways of supporting zero waste have been proposed, ranging from design for ease of repair and disassembly, duration, recycling and reuse, minimization of packaging, and CLSC (cradle-to-cradle), the topic of Ashby's contribution.

Summary of the papers

Global interaction is the pin linking the four papers in this special issue. The first three papers focus on offshoring and backshoring; the fourth paper on CLSCs. Both offshoring/backshoring and CLSCs are still riddled with questions, some of which are addressed in the four papers. They are summarized next. An overview of the main features of the papers (topic, geographical and industrial focus, methodological issues, and key findings) is provided in Table I.

Johansson and Olhager compare and contrast the offshoring and backshoring phenomena, and ask two questions: how is Swedish manufacturing affected by recent offshoring and backshoring? And how are offshoring and backshoring projects managed and what are the similarities and differences between the two directions? They investigate these questions using a sample of 343 Swedish firms, which offshored and/or backshored between 2010 and 2015. Their findings suggest that offshoring still dominates the globalization game. Swedish firms offshore labor-intensive production, and backshore complex production processes. The motives companies have to offshore or backshore are entirely different. While cost factors, in particular labor cost, dominate decision-making on offshoring, backshoring decisions are based on a multitude of factors, including quality, lead time, flexibility, access to skills and knowledge, access to technology, and proximity to R&D, which are all significantly more important for backshoring than for offshoring. These drivers, labor cost for offshoring, and product and process quality, delivery speed and reliability, and product mix and volume flexibility for backshoring are also the most important benefits achieved with moving production out of Sweden and back again.

Heikkilä *et al.* also compare and contrast offshoring and backshoring. They investigate the background, drivers, and patterns of offshoring and backshoring in a sample of 229 Finnish manufacturing firms. Using the same survey instrument as Johansson and Olhager, their research questions are: why and to what extent do Finnish manufacturing firms offshore and backshore their production? And how do the backshoring companies differ from other companies? They, too, find that the volume of offshoring is still bigger than that of backshoring. Like in Sweden, cost, in particular labor cost is the main motive driving offshoring. Flexibility, quality, lead time, logistics costs, proximity to R&D and product development, access to skills and knowledge, and time-to-market were the most important factors for bringing production back to Finland. The companies dominating the backshoring scene are relatively larger and technology intensive firms, with a corporate-wide strategy for guiding offshoring and backshoring decisions.

	Johansson and Olhager	Heikkilä <i>et al.</i>	Nujen <i>et al.</i>	Ashby
Topic	The extent, geographies, type of production, drivers, and benefits of offshoring and backshoring	The extent, drivers, and benefits of offshoring and Backshoring	Managing the internal processes following the decision of reversed outsourcing	Motivations and challenges of developing a closed loop supply chain (CLSC)
Geographical focus	Sweden	Finland	Scandinavia	UK
Industrial focus	ISIC codes 10-33, more or less representative	ISIC codes 10-33, more or less representative	Telecommunication, maritime (offshore)	Textile
Methodology	Survey	Survey	Semi-structured interviews	Semi-structured interviews
Number of observations	373 companies	229 companies	5 companies, 14 interviews	1 company, 9 interviews
Time frame investigated	2010-2015	2010-2015	2015-2016	2010-2012
Findings	Offshoring: cost is driver and benefit, for labor-intensive production Backshoring: diverse drivers, especially access to knowledge, skills and technology, and proximity of R&D, for complex production	Offshoring: cost is driver and benefit, for labor-intensive production Backshoring: diverse drivers, for technology intensive firms Backshoring companies are larger, have more plants and a corporate level location strategy, from high technology industries	Success depends on retained knowledge and management capabilities, both of which are negatively affected by the duration time of outsourcing, but complemented by the use of modern technology	Key importance of strategic resources and shared vision and principles between the focal firm and its suppliers; need to extend the CLSC model to integrate the design function and the end customer

Table I.
Key features of the four papers

While Nujen *et al.* also focus on backshoring or, how they call it, reversed outsourcing or back sourcing, their particular interest is in the question how the internal process is and can be handled, after the decision has been made, with a special focus on in-house knowledge and technology requirements.

The research questions investigated in Nujen *et al.* are: how does reversed outsourcing influence in-house capabilities? And what factors influence the success of a reversed operation? As these, or similar, questions have not been explored previously, the authors opt for an explorative approach. Based on theoretical criteria, five Scandinavian case companies are selected. Two cases are digital network companies, the other three operating in the maritime industry. The authors prepared a detailed yet open interview guideline, which focused on the companies' understanding of outbound and reversed global outsourcing, the drivers behind their decisions, and the role of knowledge, capability and technology in taking back and reintegrating previously offshored activities. The study was performed in 2015-2016. Entirely in line with the purpose of explorative research, Nujen *et al.* formulate propositions based on their analyses, which represent the contribution of their research, and are also quite useful to check a company's readiness for reintegration. These propositions essentially refer to the importance of fit between the back sourced operation and the company's

capabilities: *P1* and *P2* suggest that knowledge about the operation and strong dynamic management capabilities have a positive effect on successful re-integration. *P4* adds: the utilization of modern, i.e. contemporary, technology complements these factors. *P3* proposes that the longer the back-sourced operation has been performed externally, the more difficult it is to revive the requisite knowledge base (*P1*) and the capabilities (*P2*) necessary for re-integration.

Ashby's paper reports her research on developing CLSCs for environmental sustainability. The research aims at developing a rich, multi-faceted analysis of environmental practices and challenges, and in particular understanding the role that suppliers have in the successful implementation and coordination of a CLSC. Using the natural resource-based view (e.g. Hart, 1995) as a theoretical lens, the paper investigates the following questions: how does a focal firm implement and develop a CLSC response to environmental sustainability? And how do supplier relationships and resources contribute to the focal firm achieving a CLSC response? CLSCs may provide an important mechanism to enhance environmental sustainability but have not been broadly researched or developed in practice. Consistent with this state-of-the-art-and-theory, the author developed an explorative single case study, evolving around a clothing firm, and operationalized using a detailed interview questionnaire. The study was performed in 2010-2012. The case study shows the key importance of strategic (physical, tacit as well as social) resources, and shared vision and principles between the focal firm and its suppliers, in order to progress from a more reactive pollution prevention strategy to a fully embedded CLSC response to environmental sustainability. Furthermore, the findings suggest the need to extend the current CLSC model to integrate the design function and the end customer. The design function ensures that appropriate environmental practices can be implemented, and customers represent a key stakeholder, which enable the reverse flows required to maximize value and minimize waste.

Similarities and differences between, and main lessons from, the papers

Johansson and Olhager and Heikkilä *et al.* use the same survey to discover offshoring and backshoring peculiarities in Finland and Sweden, respectively. Interestingly, albeit not altogether surprising, the findings for Swedish and Finnish industry are quite similar. Both countries are relatively small but highly developed economies with equally small home markets. They are highly developed knowledge societies in which there is less and less place for labor intensive production due to the high cost of labor. Both have an excellent educational system and, as a result, ditto access to R&D, innovation and knowledge. Previous findings on offshoring suggest that cost, the traditional motive for industrialized countries to move production to emerging countries, is still important. In the meantime, however, factors such as access to skills, knowledge and technology and access to the market and proximity to customers, suppliers and competitors have become ever more important offshoring drivers. Looking at the Swedish and Finnish experiences, we should modify this picture: for high labor-cost economies and knowledge societies, cost is still the dominant driver for production offshoring, while access to skills, knowledge, technology, and access to R&D keep complex, technology intensive production at home or bring them back home. The corollary of this issue is: how can less developed, especially the traditional low labor cost countries, break out of their labor cost trap, what strategies can be, or perhaps are already used to become and remain attractive for technology-intensive production and related activities?

In contrast to Heikkilä *et al.* and Johansson and Olhager, who focus on factors affecting the content of offshoring/backshoring (geographical), Nujen *et al.* provide insight into factors influencing the success of the actual back-sourcing process. As there is much more research on drivers of, benefits to be achieved with and factors affecting the

success of offshoring, Heikkilä *et al.* and Johansson and Olhager could use a large-scale method, survey-based research, to conduct their data collection and analyses. Process research is much more complex and, therefore, relatively rare, in change management, operations strategy and, also in offshoring. This justifies the Nujen *et al.*'s choice to opt for explorative case studies and, for that matter, Ashby's study on CLSCs.

An important topic on the operations management (OM) research agenda is the development of theory. One notable contribution is Sousa and Voss (2008), who urge OM scholars to study the process of selection of OM best practices by organizations in more depth and use contingency theory, amongst others, for that purpose. They particularly address the association between fit, a central notion in contingency theory, and organizational effectiveness: "[...] organizations should use practices which are effective in their context (i.e. with adequate fit)" (p. 708). Fit is an important notion in all four papers. Both Heikkilä *et al.* and Johansson and Olhager emphasize the important relationship between type of production on the one hand, and the desirability of offshoring – of labor intensive production to low cost destinations, and keeping production at home, or bringing it back – of complex, technology-intensive production to a knowledge economy with excellent access to technology and R&D. Nujen *et al.* argue for the importance of organizational readiness for backshoring, in the form of an appropriate knowledge base, dynamic management capabilities, and use of contemporary technology. Ashby argues for the need to have a range of physical, tacit and social resources in place, as well as a shared vision and principles between the focal firm and its suppliers, in order to progress from a more reactive pollution prevention strategy to a fully embedded CLSC. Thus, the four papers, each in their own way and going beyond the individual plant, contribute to the further development of OM contingency theory.

Conclusion and further research

Of course, global interaction is much too broad a theme for one special issue, and four papers may actually raise more questions than they answer. The two survey-based papers need generalization to other geographical contexts, amongst others to determine whether the findings and explanations provided in these papers hold for companies located in different economies. Especially the links between labor-intensiveness and offshoring, and complex, technology-intensive production and backshoring, are important venues for further research. The two case-based papers propose contributions that need further development, testing and generalization in larger-scale studies in a greater variety of industrial and geographical contexts.

A second direction for further research is related to the notion of fit and the recognition of the nature of management theory. Contingency theory helps develop the normative, perhaps even prescriptive, insight that management theory is looking for. Performance effects are an important aspect of all management theory. In the set of papers included in this special issue, only Johansson and Olhager include performance aspects in their analyses.

Finally, *JMTM* had a special issue in 2017 (No. 3) on global operations based on selected papers of the EurOMA conference. Although the selection criteria were the same, the topics of papers in the current issue and the 2017 EurOMA special issue are quite different. While in the current issue offshoring, backshoring and CLSCs are in focus, in the 2017 issue material (Golini *et al.*, 2017) and knowledge flows (Scherrer and Deflorin, 2017), the impact of product architecture on global operations network design (Pashaei and Olhager, 2017), and headquarter capabilities (Mykhaylenko *et al.*, 2017) were in the forefront. Backshoring as a practice and an area of research was, however,

anticipated in the editorial for that special issue (Demeter, 2017). Its actual emergence confirms the infinite opportunities for research in global OM, in particular the need for developing theories and frameworks to structure the knowledge on the field.

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Further reading

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