Measuring Operations Performance

Alessandra Vecchi *Editor*

Reshoring of Manufacturing

Drivers, Opportunities, and Challenges

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Editor
Alessandra Vecchi
Department of Management
University of Bologna
Bologna
Italy

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Part I
Defining the Field of Enquiry

Manufacturing Reshoring Explained: An Interpretative Framework of Ten Years of Research

Paolo Barbieri, Francesco Ciabuschi, Luciano Fratocchi and Matteo Vignoli

Abstract The aim of this paper is to analyze and classify research that has been conducted on manufacturing reshoring, i.e., the decision to bring back to the home country production activities earlier offshored, independently of the governance mode (insourcing vs. outsourcing). Literature reviews proposed until now usually paid almost exclusive attention to motivations driving this phenomenon. This paper offers a broader and more comprehensive examination of the extant knowledge of manufactiring reshoring and identifies the main unresolved issues and knowledge gaps, which future research should investigate. Moreover, the purpose of the paper is to provide avenues for future research and highlight the distinct value of studying manufacturing reshoring either per se or in combination with other constructs of the international business tradition. A set of 49 carefully selected articles on manufacturing reshoring published in international journals or books indexed on Scopus in the last 10 years is systematically analyzed based on the "5 Ws and 1H" (Who-What-Where-When-Why and How) set of questions. Our work shows a certain convergence among authors regarding what reshoring is, what its key features and motivations are. In contrast, other related aspects, such as the decision making and implementation processes, are comparatively less understood.

Keywords Internationalization · Manufacturing · Offshoring · Reshoring

P. Barbieri
University of Bologna, Bologna, Italy
e-mail: p.barbieri@unibo.it

F. Ciabuschi
University of Uppsala, Uppsala, Sweden
e-mail: Francesco.Ciabuschi@fek.uu.se

L. Fratocchi (✉)
University of L'Aquila, L'Aquila, Italy
e-mail: luciano.fratocchi@tin.it

M. Vignoli
University of Modena and Reggio Emilia, Emilia-Romagna, Italy
e-mail: matteo.vignoli@unimore.it

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1 Introduction

In the last few years, both large multinational companies and small enterprises operating in different industries have decided to (at least partially) reverse their previous manufacturing offshoring decisions and have brought their production activities back home. This phenomenon has often been referred to as manufacturing reshoring, although other terms have been used as well (e.g., backshoring, back-sourcing). In this paper, we prefer to use the term manufacturing reshoring since it is the most diffused among scholars and practitioners. However, we note that this term is often adopted to indicate different concepts.[1]

Interest in manufacturing reshoring rose initially among practitioners; more recently it has gained momentum among scholars (Fratocchi et al. 2015, 2016; Stentoft et al. 2016b) and policy makers (De Backer et al. 2016; European Parliament Resolution 2014; Guenther 2012; Livesey 2012; The White House 2012). In light of the rapidly increasing amount of publications on the topic, literature reviews have been recently conducted, though they have only been taking into account the motivations driving the phenomenon (Foerstl et al. 2016; Stentoft et al. 2016b). A broader and more "comprehensive" examination of the extant knowledge of reshoring is currently missing. Accordingly, this paper offers a structured literature review of the manufacturing reshoring phenomenon. It provides a state-of-the-art of what reshoring is, how it is characterized in terms of firms' elements (e.g., size, industry), countries (host/home), industries and time-related elements, and why and how it is planned and implemented. From that, the paper aims to identify the main unresolved issues and knowledge gaps, which future research should investigate.

Similar to previous literature reviews (e.g., Mugurusi and de Boer 2013, on offshoring), we structure our work around the issues of the what-who-why-where-when and how of reshoring (i.e., "The 5 W and 1H" of reshoring). In so doing, we take a firm-level outlook with specific attention given to the reshoring of manufacturing activities. Therefore, we exclude reshoring decisions implemented by service companies, since the two phenomena need a different approach (Albertoni et al. 2017). Within manufacturing companies, we focus only on production activities, excluding the relocation of other value chain activities (e.g., R&D). In that, we follow Benito et al. (2009) suggestion to choose specific value chain activities (rather than the whole chain) as the unit of analysis. Finally, we consider both insourced and outsourced manufacturing activities as being location decisions separate from the governance mode ones (Gray et al. 2013).

Our work shows a certain convergence among authors regarding what reshoring is and what its key features are. It brings evidence that reshoring can be characterized as either a reaction to (internal and external) changes, or a correction of previous managerial mistakes. Interestingly, our analysis suggests that other related

[1]See Sect. 2.

aspects, such as decision making and the implementation processes of reshoring, are comparatively less understood.

The remainder of the paper is organized as follows. Section 2 describes the methodology adopted to implement the literature review. Section 3 reviews the extant literature adopting the what-who-why-where-when and how approach. Section 4 discusses unresolved issues and ideas for future research.

2 Methodology

The main aim and contribution of this paper is to synthesize and systematize the extant literature on manufacturing reshoring. A structured literature review is "a systematic, explicit, and reproducible design for identifying, evaluating, and interpreting the existing body of recorded documents" (Fink 2005, p. 6). We adopted the Seuring and Gold (2012) process model for content analysis based on four main steps. The first step is "material collection"; in this regard, we focused our attention on indexed articles published in academic journals and chapters in scientific books. Documents were identified by searching in the "Elsevier Scopus" database, which is recognized as one of the top business and management databases (Greenwood 2011). All documents published until 2016 December 31 were considered. The search terms "reshoring", "re-shoring", "backshoring", "back-shoring", "back-reshoring" and "back-sourcing" were checked in title, abstract and keywords. We found a total of 70 documents (including duplications) whose abstracts were read by two of the co-authors. After this, the following exclusion criteria were implemented: (a) duplications; (b) papers written in languages other than English; (c) papers focusing on the reshoring of firm's activities differently from manufacturing ones (for instance, call centers). The final list of documents included in the systematic literature review consisted of 49 documents (45 journal articles and four book chapters) published from 2007 to 2016 (Fig. 1).

The second step of the Seuring and Gold (2012) process model concerns descriptive analysis, which is an assessment of the formal characteristics of the chosen documents. In this regard, the data summarized in Fig. 1 show that the interest of scholars has considerably increased since 2013. As for the journals, among the 45 peer-reviewed articles, we found almost half of articles to belong to operation management or supply chain management, and surprisingly, IB and business strategy journals were much less represented (Table 1).

The third step of our analysis was category selection, i.e., to define analytical categories to classify documents' contents. To critically review the selected literature, we adopt six questions considered useful to describe phenomena, namely what-who-when-where-why and how. More specifically the questions examine the following issues:

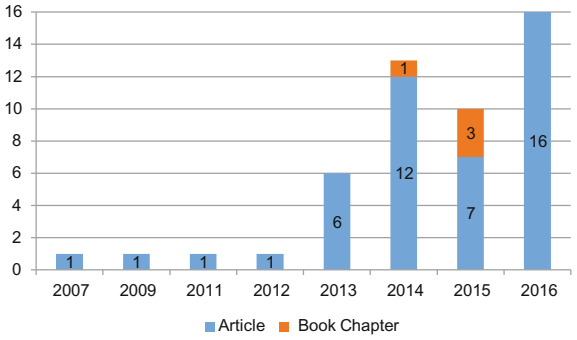

Fig. 1 Breakdown by year and type of documents

Table 1 Breakdown by journal (only for articles)

Journal	Articles
Operations Management Research	7
Journal of Purchasing and Supply Management	6
Journal of Textile and Apparel Technology and Management	3
International Journal of Physical Distribution and Logistics Management	2
International Journal of Production Economics	2
Journal of Supply Chain Management	2
Strategic Outsourcing	2
Asian Social Science	1
Business Horizons	1
Cambridge Journal of Regions, Economy and Society	1
Competition and Change	1
Economic Modelling	1
Industry week	1
International Journal of Entrepreneurship and Small Business	1
International Journal of Globalisation and Small Business	1
International Journal of Operations and Production Management	1
International Journal of Production Research	1
Investigaciones Regionales	1
Journal of Engineering Manufacturing	1
Journal of International Economics	1
Journal of the Academy of Marketing Science	1
Management Science	1
Manufacturing Engineering	1
Production Planning and Control	1
Revue d'Economie Industrielle	1
Strategy and Leadership	1
Supply Chain Management	1
Technology on Society	1
Total	45

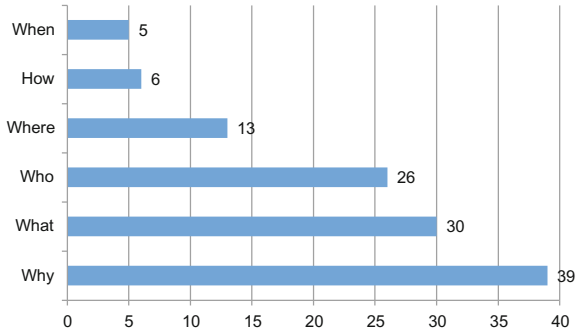

Fig. 2 Articles addressing the single topic

(a) What: This question stems from Gray et al. advice to define "what [reshoring] is and what it is not" (2013, p. 29), i.e., to define the phenomenon and to characterize it in terms of its essential features. Therefore, we verify the (eventual) convergence among scholars with regard to proposed reshoring concepts.
(b) Who: This question focuses on the characteristics of the firms implementing reshoring strategies. It aims to provide a more meaningful picture of the phenomenon by investigating whether firms' propensity to reshore depends on factors such as their size and industry.
(c) Why: This question refers to the motivations that induce companies to reshore production in their home countries.
(d) How: This question essentially relates to the decision-making and implementation phases of reshoring strategies, i.e., how managers make decisions to repatriate offshored activities and how they put these decisions into practice.
(e) Where: This question is related to the geographical aspect and is evaluated at both the home and host country levels.
(f) When: This question is mainly focused on the duration of the offshore experience and the (possible) impact of the occurrence of contingent factors, such as the global economic crisis.

Figure 2 summarizes topics addressed in each article showing the "How" question is comparably less analyzed.

With respect to the Where question, breakdown by home country shows data at worldwide level are scarce (Table 2).

The final step of Seuring and Gold's (2012) process model for content analysis is regarding material evaluation. This activity was performed by reading, analyzing and coding all selected documents with the 5Ws and 1H questions in focus. The process reliability was improved by discussion within the research team (researcher triangulation) and by ensuring process documentation (Denyer and Tranfield 2009).

Table 2 Breakdown by host country

Country/Geographical area	Documents
US[a]	6
Germany	4
Worldwide level	4
Denmark	2
UK[a]	3
East Central Europe & Baltic Countries	1
Emerging economies	1
Europe	1
Finland	1
India	1
Italy	1
New Zealand	1
Russia	1
Spain	1

[a]Two articles are simultaneously focused on the US and UK

3 The Extant Literature

3.1 The "What" of Reshoring

A certain number of definitions of "*What*" reshoring can be found in the literature (Table 3). We see also how authors sometimes use the same term (for instance, reshoring) to indicate different concepts. Generally, dissimilarities among the various definitions of reshoring can be mainly found regarding the following aspects.

(a) Country in which earlier offshored manufacturing activities are reshored: some authors (Arlbjørn and Lüthje 2012; Ashby 2016; Bals et al. 2016; Ellram et al. 2013) referred to production activities being moved to both the home country and those "near the home country". To avoid such a possible confusion, some authors suggested distinguishing between back-(re)shoring (Bals et al. 2016; Foerstl et al. 2016; Fratocchi et al. 2014a, b), which is when the production transfer is directed toward the home country, and near-(re)shoring (Bals et al. 2016; Foerstl et al. 2016; Fratocchi et al. 2014a, b), if it is oriented toward countries close to the home country.
(b) Types of relocated activities: while the majority of analyzed papers are focused on production activities, some of them broadly refer to Porter's value chain activities (Bals et al. 2016; Zhai et al. 2016), "activities or functions" (Gylling et al. 2015) and "firms' foreign activities" (Stentoft et al. 2016a).
(c) Governance structure adopted in the manufacturing offshoring and reshoring phases: some authors maintained that reshoring strategies imply contextual insourcing decisions (see, among others: Ellram et al. 2013; Lam and Khare

Table 3 Theoretical concepts regarding the relocation of manufacturing activities

Theoretical concept	References	Unit of analysis	Relocation at home/"near to home" country of production activities	Governance structure
Back-reshoring	Fratocchi et al. (2014a, b), (2015)	Manufacturing activity abroad (Both partial and total)	Only Home country	In- & outsourcing
Back-shoring/Backshoring	Kinkel and Maloca (2009), Kinkel (2012)	Manufacturing activity abroad (Both partial and total)	Only Home country	In- & outsourcing
	Canham and Hamilton (2013)	"Any part of manufacturing"	Only Home country	n.c.
	Arlbjørn and Mikkelsen (2014)	Manufacturing activity abroad (Both partial and total)	Both Home and "Near to home" country	Insourcing
	Mezzadri (2014)	Production	Only Home country	In- & outsourcing
	Wu and Zhang (2014)	"Sourcing activity"	Only Home country	Outsourcing
	Gylling et al. (2015)	Activities or functions	Only Home country	In- & outsourcing
	Ashby (2016)	Manufacturing	Both Home and "Near to home" country	n.c.
	Bals et al. (2016)	Value creation activities	Only Home country	Reshoring and insourcing are interconnected terms
	Stentoft et al. (2016a)	"Company's own foreign activities"	Only Home country	n.c.
	Lam and Khare (2016)	Overseas operations (not specifically defined)	Only Home country	(mainly) Insourcing
Back-sourcing	Kinkel et al. (2007)	"Manufacturing capacities"	Only Home country	Outsourcing

(continued)

Table 3 (continued)

Theoretical concept	References	Unit of analysis	Relocation at home/"near to home" country of production activities	Governance structure
Reshoring/Re-shoring	Gray et al. (2013), Fratocchi et al. (2014a, b), Fox (2015), Grandinetti and Tabacco (2015), Ashby (2016), Huq et al. (2016), Foster (2016)	Manufacturing activity abroad (Both partial and total)	Only Home country	In- & outsourcing
	Ellram (2013)	Manufacturing activity abroad (Both partial and total)	Only Home countries	n.c.
	Ellram et al. (2013)	Manufacturing activity abroad (Both partial and total)	Both Home and "Near to home" countries	Insourcing
	Zhai (2014)	"New product manufacturing"	Only Home countries	Insourcing
	Cowell and Provo (2015)	"Also including new foreign direct investment and the expansion of existing facilities or firms within the US"	Only Home countries	n.c.
	Razvadovskaya and Shevchenko (2015)	"Production capacity"	"Developed countries"	n.c.
	Bals et al. (2016)	Value creation activities	The reshoring concept includes Backshoring and Nearshoring ones	Reshoring and insourcing are often interconnected terms
	Foerstl et al. (2016)	"Value creation tasks"	Both Home and "Near to home" countries	In- & outsourcing
	Zhai et al. (2016)	Valuable activities	Only Home countries	n.c.
	Uluskan et al. (2016)	Production activities	Only Home country	Outsourcing

2016; Uluskan et al. 2016). Arlbjørn and Mikkelsen (2014) acknowledged that decisions about governance mode are conceptually independent of locational decisions, but they can be practically combined with the reshoring decision. More recently, Bals et al. (2016) state that reshoring and insourcing are "interconnected" decisions.

Some scholars suggest that while reshoring is essentially a manufacturing location decision, it can actually take different forms. Accordingly, they propose classifications to specialize the characteristics of different reshoring forms. For instance, Gray et al. (2013) identified four alternate typologies of reshoring based on a combination of location decision (home vs. host country) and governance mode (insourcing vs. outsourcing). More recently, Bals et al. (2016) and Foerstl et al. (2016) enlarged this classification to include the cooperation alternative (e.g., joint ventures, strategic partnerships and long-term contracts) among the governance modes, thus identifying six alternatives, including the four proposed by Gray et al. (2013).

Zhai et al. (2016) propose differentiating reshoring decisions according the target markets for products manufactured offshore; more specifically, they consider the following alternatives: home market, host market and regions around the home market. Based on such a classification, the authors show that manufacturing reshoring decisions implemented by US companies are addressed almost exclusively to goods to be sold in the home market.

Finally, Joubioux and Vanpoucke (2016), based on Bellego (2014), propose to differentiate the reshoring phenomenon according the strategic aims of such firm's decisions identifying the following alternatives: (a) "home re-shoring", in case of failure of earlier offshoring decision; (b) "tactical reshoring", for short term decisions based on availability of resource and capabilities; (c) "development reshoring", if the firm's aims is to upgrade the proposed products.

3.2 The "Who" of Reshoring

The "Who" question inquires whether differences in manufacturing reshoring patterns are observed among different types of firms features, like size and industry.

When it comes to size, the findings differ among different studies. While Kinkel (2014), and Kinkel and Maloca (2009) stated that manufacturing reshoring hardly occurs among small and medium enterprises (SMEs, having fewer than 250 employees), Canham and Hamilton (2013) found a higher propensity to production repatriation of such firms with respect to large ones. Both these studies are focused on a single home country, therefore the findings may be influenced by the characteristics of these economies. Fratocchi et al. (2016), whose dataset spans multiple home countries, in fact showed that reshoring is only slightly more diffused among large firms. They also noted differences according to the home country location for SMEs; specifically, while SMEs headquartered in North America constituted the

Table 4 Breakdown by industry

Industry	Documents
Fashion (including footwear)	7
Aerospace	2
Automotive	3
Bicycle	1
Electronics	2
Metallurgy	1
Pharmaceutical	1

majority of sampled firms, Western European SMEs represented only one third of the total amount. Overall, preliminary evidence seems to suggest that reshoring happens for both large and small companies; however, Ancarani et al. (2015) found that SMEs generally repatriated their production activities earlier compared to large ones.

With regard to the industry, the extant literature has clearly shown that reshoring strategies were implemented in a broad set of manufacturing sectors (Table 4): as such, potentially reshoring is of interest to a very large number of companies. The scarcity of quantitative research prevents any conclusive outcome regarding how industry-specific characteristics may impact the firm's propensity to reshore. However, Kinkel (2014) found that German machinery and equipment manufacturers were generally more active in reshoring, compared to firms in other industries. Based on this finding, the author speculated that high complexity, extreme product customization and small batch sizes led to a (comparatively) greater propensity to reshore, as was the case for machinery and equipment producers.

At a more general level, Fratocchi et al. (2015) did not observe any difference in the reshoring frequency between labor—and capital-intensive industries.

3.3 The "Why" of Reshoring

The "Why" of reshoring concerns the motivations that induce companies to reshore their production activities that were earlier offshored. Therefore, it is not surprising that identification and analysis of the reasons "Why" firms decide to repatriate manufacturing activities are also among the most common topics in reshoring studies, and a vast and varied array of motivations have been identified by scholars (for up-to-date literature reviews, see Bals et al. 2016; Fratocchi et al. 2016; Stentoft et al. 2016b).

While the vast array of motivations identified in the literature suggest that reshoring decisions can originate for several reasons, some authors (e.g., Bals et al. 2016) have argued they can be ultimately intended as either a deliberate strategy or a reaction to offshoring failure. This "dual view" of reshoring combines two different interpretations of reshoring proposed in the extant literature, i.e., either a

mere correction of a prior misjudged decision (Gray et al. 2013; Kinkel and Maloca 2009) or a deliberate response to exogenous or endogenous changes (Fratocchi et al. 2015; Gylling et al. 2015; Martínez-Mora and Merino 2014; Mugurusi and de Boer 2013). Among the latter group, Grandinetti and Tabacco (2015) specifically referred to changes in a firm's business strategy consistent with the idea that reshoring is "more than just a geographical shift of operations. It is also a reconfiguration of systems" (Mugurusi and de Boer 2014, p. 275). In this respect, it must be noted that while manufacturing offshoring decisions are often motivated by cost elements (especially the labor ones) (Schmeisser 2013), reshoring strategies seem to be undertaken also on the base of strategic elements, such as "made in effect", vicinity among R&D, engineering and production, responsiveness to customer demand.

Based on the earlier discussion, it seems useful to propose a classification of the large amount of manufacturing reshoring motivations found in the sampled literature. More specifically, we suggest categorizing drivers according to a three-step approach:

(a) following the suggestion by Bals et al. (2016), we separate motivations belonging to the conceptualization of reshoring as a "managerial mistake" from those related to a strategic decision;
(b) the latter category (strategic decision) was further divided according to the internal and external environment, following the suggestion of Fratocchi et al. (2016);
(c) since the amount of internal and external motivations is still considerable, we further divided the two arrays according to motivations homogeneity, taking into account the categories proposed by Stentoft et al. (2016b), and Fratocchi et al. (2015).

The five drivers belonging to the "managerial mistake" category (Table 5) were found in ten (out of 49 analyzed) articles. Among them, the most relevant was "Miscalculation of actual cost and/or Adoption of new cost accounting methods", such as Total Cost of Ownership. Once more, this finding is interesting since offshoring decisions were often based on efficiency claims (Schmeisser 2013).

Drivers belonging to the "external environment" category were intensively discussed in the extant literature; therefore, they were found in 31 (out of 49) articles or book chapters (Table 6). The 32 motivations were classified into seven homogeneous categories, of which "Costs" was the most relevant in terms of both number of drivers and total citations. The three most cited single motivations were "Poor level quality of offshored manufactured products" (belonging to the "Customer related issues"), "Production and delivery time impact" ("Supply chain management" category) and "Reduction of labor cost gap between the host and home country" (Costs category). This seems to confirm the idea that manufacturing reshoring strategies have a complex nature and are not based only on efficiency issues.

Table 5 Manufacturing reshoring drivers: "Managerial mistake" category

Driver/Source	Canham and Hamilton (2013)	Denning (2013)	Fratocchi et al. (2015)	Fratocchi et al. (2016)	Foerstl et al. (2016)	Gray et al. (2013)	Gylling et al. (2015)	Kinkel and Maloca (2009)	Kinkel (2014)	Martínez-Mora and Merino (2014)	Tate (2014)	Tate et al. (2014)	Stentoft et al. (2016b)
Miscalculation of actual cost/Adoption of new cost accounting methods	X	X			X	X	X	X	X	X		X	X
Lack of knowledge on host country			X	X	X			X	X				
Lack of systematic location planning			X	X	X			X	X				
Bounded rationality					X								
Opportunism					X								

Table 6 Manufacturing reshoring drivers: "External environment" category

Category	Motivation	Ancarani et al. (2015)	Arlbjørn and Mikkelsen (2014)	Bailey and De Propris (2014a)	Bailey and De Propris (2014b)	Canham and Hamilton (2013)	Ellram et al. (2013)	Foerstl et al. (2016)	Foster (2016)	Fratocchi et al. (2014a, b)	Fratocchi et al. (2015)
Access to skill and knowledge	Lack of skilled workers in host country/Availability in home country			x			x	x	x	x	x
	High unemployment rates at the home country							x			x
Cost	Labor costs' gap reduction			x	x					x	x
	Logistics costs			x	x						x
	Energy costs			x							x
	Home labor market flexibility				x						x
	Increased home country productivity				x		x				x
	Total cost of sourcing (also external environment)	x		x						x	x
	Freight costs				x						x
	National subsidies for relocation	x			x			x		x	x
	Payment terms										
	Penalties for late orders										
	Customs duties for re-import										

(continued)

Table 6 (continued)

Category	Motivation	Ancarani et al. (2015)	Arlbjørn and Mikkelsen (2014)	Bailey and De Propris (2014a)	Bailey and De Propris (2014b)	Canham and Hamilton (2013)	Ellram et al. (2013)	Foerstl et al. (2016)	Foster (2016)	Fratocchi et al. (2014a, b)	Fratocchi et al. (2015)
Customer related issues	Poor local products quality	x	x	x		x	x	x		x	x
	Made in effect	x				x					x
	Need to increase customer satisfaction	x		x				x			x
	Customers' gratitude and willingness to buy										
	Host market size reduction										
Innovation	Loss of know-how in the host country/IP risks				x	x					x
	Technology clusters (at the home country) and spillover benefits										
Risk	Exchange rate risk			x	x			x			x
	Global supply chain risks (including VUCA—Volatility, Uncertainty, Complexity and Ambiguity)			x	x			x			x
	Demand volatility			x				x			
	Psychic distance/Intercultural criticalities							x			
	Political social risk (including legislation)							x			

(continued)

Table 6 (continued)

Category	Motivation	Ancarani et al. (2015)	Arlbjørn and Mikkelsen (2014)	Bailey and De Propris (2014a)	Bailey and De Propris (2014b)	Canham and Hamilton (2013)	Ellram et al. (2013)	Foerstl et al. (2016)	Foster (2016)	Fratocchi et al. (2014a, b)	Fratocchi et al. (2015)
Supply chain management (excluding costs)	Production and delivery time impact	x	x	x	x	x	x			x	x
	Purchase order rigidity (also in terms of minimum order)					x					x
	Lack of infrastructure in the host country										
	Termination of earlier supplier relationships										
	Closeness to supplier of raw material										
	Raw material availability										
	Raw material dimension (e.g., size)										

Category	Motivation	Fratocchi et al. (2016)	Grandinetti and Tabacco (2015)	Grappi et al. (2015)	Gray et al. (2013)	Gylling et al. (2015)	Kinkel and Maloca (2009)	Kinkel (2012)	Kinkel (2014)	Joubioux and Vanpoucke 2016)	Lam and Khare (2016)
Access to skill and knowledge	Lack of skilled workers in host country/Availability in home country	x					x	x	x	x	

(continued)

Table 6 (continued)

Category	Motivation	Fratocchi et al. (2016)	Grandinetti and Tabacco (2015)	Grappi et al. (2015)	Gray et al. (2013)	Gylling et al. (2015)	Kinkel and Maloca (2009)	Kinkel (2012)	Kinkel (2014)	Joubioux and Vanpoucke 2016)	Lam and Khare (2016)
Cost	High unemployment rates at the home country	x									
	Labor costs' gap reduction	x			x			x	x		x
	Logistics costs	x	x						x	x	x
	Energy costs	x									x
	Home labor market flexibility	x									
	Increased home country productivity	x									
	Total cost of sourcing (also external environment)	x	x			x					x
	Freight costs	x	x								x
	National subsidies for relocation	x								x	
	Payment terms										
	Penalties for late orders	x									
	Customs duties for re-import	x									

(continued)

Table 6 (continued)

Category	Motivation	Fratocchi et al. (2016)	Grandinetti and Tabacco (2015)	Grappi et al. (2015)	Gray et al. (2013)	Gylling et al. (2015)	Kinkel and Maloca (2009)	Kinkel (2012)	Kinkel (2014)	Joubioux and Vanpoucke 2016)	Lam and Khare (2016)
Customer related issues	Poor local products quality	x				x	x	x	x	x	x
	Made in effect	x									
	Need to increase customer satisfaction	x								x	
	Customers' gratitude and willingness to buy			x							
	Host market size reduction										
Innovation	Loss of know-how in the host country/IP risks	x							x	x	x
	Technology clusters (at the home country) and spillover benefits										
Risk	Exchange rate risk	x			x	x				x	x
	Global supply chain risks (including VUCA—Volatility, Uncertainty, Complexity and Ambiguity)	x			x					x	x
	Demand volatility					x					
	Psychic distance/Intercultural criticalities									x	
	Political social risk (including legislation)										x

(continued)

Table 6 (continued)

Category	Motivation	Fratocchi et al. (2016)	Grandinetti and Tabacco (2015)	Grappi et al. (2015)	Gray et al. (2013)	Gylling et al. (2015)	Kinkel and Maloca (2009)	Kinkel (2012)	Kinkel (2014)	Joubioux and Vanpoucke 2016)	Lam and Khare (2016)
Supply chain management (excluding costs)	Production and delivery time impact	x	x			x	x	x		x	x
	Purchase order rigidity (also in terms of minimum order)	x									
	Lack of infrastructure in the host country										
	Termination of earlier supplier relationships	x									
	Closeness to supplier of raw material										x
	Raw material availability										
	Raw material dimension (e.g., size)										x

Category	Motivation	Martínez-Mora and Merino (2014)	Moradlou and Backhouse (2014)	Saki (2016)	Selko (2013)	Stentoft et al. (2016a)	Srai and Ané (2016)	Tate et al. (2014)	Tate (2014)	Uluskan et al. (2016)	Wu and Zhang (2014)
Access to skill and knowledge	Lack of skilled workers in host country/Availability in home country					x	x	x			
	High unemployment rates at the home country										

(continued)

Table 6 (continued)

Category	Motivation	Martínez-Mora and Merino (2014)	Moradlou and Backhouse (2014)	Saki (2016)	Selko (2013)	Stentoft et al. (2016a)	Srai and Ané (2016)	Tate et al. (2014)	Tate (2014)	Uluskan et al. (2016)	Wu and Zhang (2014)
Cost	Labor costs' gap reduction		x	x		x	x	x	x		x
	Logistics costs		x			x	x	x	x	x	
	Energy costs		x		x	x	x	x	x	x	
	Home labor market flexibility										
	Increased home country productivity					x	x				
	Total cost of sourcing (also external environment)	x				x				x	x
	Freight costs		x				x			x	
	National subsidies for relocation					x	x		x		
	Payment terms						x				
	Penalties for late orders						x				
	Customs duties for re-import						x				
Customer related issues	Poor local products quality		x		x	x	x	x		x	
	Made in effect	x					x	x			
	Need to increase customer satisfaction						x				
	Customers' gratitude and willingness to buy										
	Host market size reduction					x	x				x
Innovation	Loss of know-how in the host country/IP risks		x		x	x	x	x	x	x	
	Technology clusters (at the home country) and spillover benefits						x				

(continued)

Table 6 (continued)

Category	Motivation	Martínez-Mora and Merino (2014)	Moradlou and Backhouse (2014)	Saki (2016)	Selko (2013)	Stentoft et al. (2016a)	Srai and Ané (2016)	Tate et al. (2014)	Tate (2014)	Uluskan et al. (2016)	Wu and Zhang (2014)
Risk	Exchange rate risk		x			x	x		x	x	
	Global supply chain risks (including VUCA—Volatility, Uncertainty, Complexity and Ambiguity)		x			x	x	x		x	
	Demand volatility	x				x					x
	Psychic distance/Intercultural criticalities		x				x				
	Political social risk (including legislation)		x				x			x	
Supply chain management (excluding costs)	Production and delivery time impact		x			x	x				
	Purchase order rigidity (also in terms of minimum order)										
	Lack of infrastructure in the host country						x				
	Termination of earlier supplier relationships						x				
	Closeness to supplier of raw material										
	Raw material availability						x				
	Raw material dimension (e.g., size)										

Finally, the 18 reshoring drivers belonging to the "internal environment" category were addressed by 35 authors (out of 49) (Table 7). Among them, a specific attention should be paid to the strategic motivations ("Change in firm's business strategy (e.g., new business area, vertical integration)" and sustainability issues ("Firm's aims in terms of environmental and social sustainability").

To sum up, reasons driving reshoring decisions are now reasonably well known, although the paucity of large-scale empirical investigations prevents any definitive conclusions being drawn about their actual and relative magnitude, as well as their relevance for companies.

3.4 The "How" of Reshoring

Although the decision-making and implementation process of reshoring (i.e., "How" firms decide to reshore and "How" they put that into practice) is a key aspect for a comprehensive study of the phenomenon, to date the topic has been covered only by a limited number of contributions (Table 4).

In order to manage the decision making process phase, both Mugurusi and De Boer (2014), and Bals et al. (2016) propose models articulated in a set of actions. More specifically, Mugurusi and De Boer (2014) suggest adopting a Viable System Model (VSM) approach (Beer 1972), which conceptualizes the firm as "a dynamic adaptive system in search of ways to cope effectively with external forces that undermine its viability" (Mugurusi and de Boer 2014, p. 275), i.e., the firm's ability to exist independently (Beer 1984). In other words, reshoring "serves to increase the stability of the system" (Mugurusi and de Boer 2014, p. 289), giving it a new configuration. To reach such an objective, the firm has to follow a four-step process, the first of which is to design the *ex-ante* VSM firm's map, which is the description of the five systems that form the company and interconnections among them. Afterwards, reshoring motivations should be identified and analyzed and the *ex post* (i.e., after reshoring decision implementation) VSM firm's map designed. On the basis of such activities, managers may eventually take the decision to reshore and implement it. After this, they should carefully monitor the performance of the reshored manufacturing activities.

Bals et al. (2016) observe that despite the question of how to reconfigure supply chains is quite a relevant issue for both scholars and managers to understand, the decision making and implementation of reshoring and insourcing remain largely unexplored. They build on established sourcing decision making processes (Handley 2012; McIvor 2010) and offshoring implementation processes (Jensen et al. 2013) to provide a conceptual framework for how reshoring (and/or insourcing) decisions should be taken and implemented. Specifically, the decision making framework consists of five steps—spanning from the characterization of the current firm's boundary, capabilities, and performance, to the collection of alternatives,

Table 7 Manufacturing reshoring drivers: "Internal environment" category

Sub-category	Motivation	Ancarani et al. (2015)	Ashby (2016)	Arlbjørn and Mikkelsen (2014)	Bailey and De Propris (2014a)	Bailey and De Propris (2014b)	Baldwin and Venables (2013)	Bals et al. (2016)	Canham and Hamilton (2013)	Ellram et al. (2013)
Access to physical resources	Untapped production capacity at home									
Cost	Coordination and communication costs				x		x			
	High inventory levels					x				
	Hidden costs									
	Total cost of sourcing (also external environment)	x			x					
Customer related element	Reduced responsiveness to customer demand	x			x				x	
Innovation	Loss of innovation potential/Vicinity to R&D			x	x				x	
	Innovative production process (e.g., seamless knitting)									
Managerial/Entrepreneurial elements	Emotional elements								x	
	Change in firm's business strategy (e.g., new business area, vertical integration…)							x		
	Firm's aims in terms of environmental and social sustainability		x							
	Focus on core activity			x						

(continued)

Table 7 (continued)

Sub-category	Motivation	Ancarani et al. (2015)	Ashby (2016)	Arlbjørn and Mikkelsen (2014)	Bailey and De Propris (2014a)	Bailey and De Propris (2014b)	Baldwin and Venables (2013)	Bals et al. (2016)	Canham and Hamilton (2013)	Ellram et al. (2013)
Production management	Automation of production process			x						
	Lean manufacturing									
	Engineering technology of production process						x			
	Adoption of moveable factories									
Supply chain management	Reduced operational flexibility					x			x	
	Redefinition of the global supply chain					x				x

Sub-category	Motivation	Foerstl et al. (2016)	Foster (2016)	Fox (2015)	Fratocchi et al. (2014a, b)	Fratocchi et al. (2015)	Fratocchi et al. (2016)	Grandinetti and Tabacco (2015)	Gray et al. (2013)	Gylling et al. (2015)
Access to physical resources	Untapped production capacity at home					x	x			
Cost	Coordination and communication costs	x				x	x	x	x	x
	High inventory levels	x				x	x			
	Hidden costs		x							
	Total cost of sourcing (also external environment)		x		x	x	x	x		x
Customer related element	Reduced responsiveness to customer demand	x				x	x	x		

(continued)

Table 7 (continued)

Sub-category	Motivation	Foerstl et al. (2016)	Foster (2016)	Fox (2015)	Fratocchi et al. (2014a, b)	Fratocchi et al. (2015)	Fratocchi et al. (2016)	Grandinetti and Tabacco (2015)	Gray et al. (2013)	Gylling et al. (2015)
Innovation	Loss of innovation potential/Vicinity to R&D					x	x		x	
	Innovative production process (e.g., seamless knitting)		x							
Managerial/Entrepreneurial elements	Emotional elements					x	x			
	Change in firm's business strategy (e.g., new business area, vertical integration…)							x		
	Firm's aims in terms of environmental and social sustainability									
	Focus on core activity									
Production management	Automation of production process		x			x	x			
	Lean manufacturing									
	Engineering technology of production process									
	Adoption of moveable factories			x						

(continued)

Table 7 (continued)

Sub-category	Motivation	Foerstl et al. (2016)	Foster (2016)	Fox (2015)	Fratocchi et al. (2014a, b)	Fratocchi et al. (2015)	Fratocchi et al. (2016)	Grandinetti and Tabacco (2015)	Gray et al. (2013)	Gylling et al. (2015)
Supply chain management	Reduced operational flexibility	x				x	x			
	Redefinition of the global supply chain					x	x	x		

Sub-category	Motivation	Hogg (2011)	Kinkel and Maloca (2009)	Huq et al. (2016)	Kinkel et al. (2007)	Kinkel (2012)	Kinkel (2014)	Joubioux and Vanpoucke (2016)	Lam and Khare (2016)	Martínez-Mora and Merino (2014)
Access to physical resources	Untapped production capacity at home					x	x			
Cost	Coordination and communication costs		x			x	x		x	
	High inventory levels							x		
	Hidden costs							x		
	Total cost of sourcing (also external environment)							x	x	x
Customer related element	Reduced responsiveness to customer demand							x	x	
Innovation	Loss of innovation potential/Vicinity to R&D					x	x	x	x	
	Innovative production process (e.g., seamless knitting)									

(continued)

Table 7 (continued)

Sub-category	Motivation	Hogg (2011)	Kinkel and Maloca (2009)	Huq et al. (2016)	Kinkel et al. (2007)	Kinkel (2012)	Kinkel (2014)	Joubioux and Vanpoucke (2016)	Lam and Khare (2016)	Martínez-Mora and Merino (2014)
Managerial/Entrepreneurial elements	Emotional elements									
	Change in firm's business strategy (e.g., new business area, vertical integration…)			x				x		
	Firm's aims in terms of environmental and social sustainability									
	Focus on core activity									
Production management	Automation of production process									
	Lean manufacturing	x								
	Engineering technology of production process									
	Adoption of moveable factories									
Supply chain management	Reduced operational flexibility				x		x	x	x	
	Redefinition of the global supply chain									

Sub-category	Motivation	Moradlou and Backhouse (2014)	Robinson and Hsieh 2016)	Saki (2016)	Selko (2013)	Srai and Ané (2016)	Stentoft et al. (2016a)	Tate et al. (2014)	Tate (2014)
Access to physical resources	Untapped production capacity at home						x		

(continued)

Table 7 (continued)

Sub-category	Motivation	Moradlou and Backhouse (2014)	Robinson and Hsieh 2016)	Saki (2016)	Selko (2013)	Srai and Ané (2016)	Stentoft et al. (2016a)	Tate et al. (2014)	Tate (2014)
Cost	Coordination and communication costs	x				x	x		
	High inventory levels					x			
	Hidden costs					x			
	Total cost of sourcing (also external environment)	x					x		
Customer related element	Reduced responsiveness to customer demand				x	x			
Innovation	Loss of innovation potential/Vicinity to R&D				x	x	x		x
	Innovative production process (e.g., seamless knitting)	x							
Managerial/Entrepreneurial elements	Emotional elements								
	Change in firm's business strategy (e.g., new business area, vertical integration…)		x			x	x		
	Firm's aims in terms of environmental and social sustainability		x			x			
	Focus on core activity					x	x		
Production management	Automation of production process			x		x	x	x	
	Lean manufacturing								
	Engineering technology of production process								
	Adoption of moveable factories								
Supply chain management	Reduced operational flexibility					x	x		
	Redefinition of the global supply chain					x			

data analysis and solution development, and eventually to the shoring decision. As for the following implementation framework, it includes the three phases of disintegration at the former location, relocation to the new location, and reintegration to connect with other value-creation activities. Beyond the specification of the framework structure, Bals et al. (2016) highlight the key aspects and issues that must be properly understood to make each phase effective. Among them, the assessment of organizational readiness—i.e., the firm's ability to handle the outcomes of their decision—is crucial to the identification of alternatives, and their effective analysis. As for the implementation phase, the authors suggest the importance of organizational learning from previous reshoring experience; likewise for offshoring decisions, "successful past implementation of such decisions provides a feedback loop into future decision making process" (Bals et al. 2016, p. 11).

3.5 The "Where" of Reshoring

The "Where" question refers to the key geographical characteristics of manufacturing reshoring, i.e., the home and host countries. Both elements have been investigated on the basis of surveys focused on only a very few geographical areas.

To the best of our knowledge, the most complete analysis conducted to date is the "Innovation on Production" survey of German companies (Kinkel 2012, 2014; Kinkel and Maloca 2009). Because this study is performed every two years, it offers longitudinal trends in the reshoring behavior of German companies belonging to different sectors. Kinkel (2014), commenting on the results of the 15-year research on German reshoring practices, indicated that manufacturing reshoring is a relevant phenomenon. More specifically, approximately 400–700 German companies have implemented such decisions, although the share of companies relocating back to Germany earlier after having offshored production has been decreasing since the beginning of the new century.

Tate et al. (2014) used a survey-based approach to investigate the perceptions of US managers on the past and projected trends of factors influencing (re)location decisions. More recently, Zhai et al. (2016) observed that the reshoring strategies of US companies have not been heavily investigated.

Canham and Hamilton conducted a survey regarding New Zealand SMEs operating in consumer and industrial goods. They found reshoring "occurs when lower labour costs become offset by impaired capabilities in flexibility/delivery; quality; and the value of the Made in New Zealand brand" (2013, p. 277). They also found that such motivations were similar to those cited by companies who had decided never to offshore their production activities.

Finally, data regarding several countries at the worldwide level (Ancarani et al. 2015; Fratocchi et al. 2014b, 2015, 2016) reveal that reshoring decisions are implemented mainly from China and other Asian countries.

3.6 The "When" of Reshoring

The "When" question refers to the time-related aspects of reshoring. Up to now, only two studies have dealt with this issue by analyzing: (a) the duration of offshore manufacturing experience prior to reshoring (Ancarani et al. 2015); and (b) the occurrence of reshoring after the global financial crisis in 2008–2009 (Kinkel 2012, 2014).

With regard to the duration aspect, Ancarani et al. (2015), by adopting a survival analysis approach, were able to investigate the determinants of time span in a sample of companies belonging to several countries, mainly in the EU and US. Their findings revealed that the duration seemed to be influenced by several of the elements that we analyzed in the previous sections, such as firm size, industry, reshoring mode relative to governance structure, motivations, and host country.

Regarding the eventual impact of the global financial crisis on the reshoring phenomenon, Kinkel (2012) found that, while offshoring decisions implemented by German companies decreased over the course of the global economic crisis, the companies that did relocate were generally stable. In contrast, Fratocchi et al. (2015) reported that reshoring has grown significantly in the last few years, boosted by the return of North American firms.

4 Concluding Remarks: Where Reshoring Research Stands Now and Where It Might Go

It is our belief that the main contribution of the structured literature review we conducted is to provide the reader with a meaningful picture of the state-of-the-art of reshoring. Particularly, our work integrates and expands previous overviews of this rising phenomenon (e.g., Foerstl et al. 2016; Stentoft et al. 2016b) by undertaking a far broader perspective of the investigation. In addition, the outcome of a research approach such as the one we adopted—i.e., conducted through the lens of the six questions (5Ws & 1H)—offers a basically thorough rigorous starting point for future research efforts which could either explore any of them more in depth, or combine the different research questions for more elaborated investigations. Consistent with this idea, we make a first attempt to highlight possible avenues of research to enhance the understanding of reshoring.

With regard to the "What" question, a certain consensus has apparently been reached regarding many of its distinctive features—although as noted, a few of them remain debated. Further research is needed to characterize better the "object" of reshoring in terms of the characteristics of the manufacturing activities that are brought back (e.g., task complexity, degree of knowledge codifiability and types of required skills). However, the most relevant unresolved issues are regarding the relationship between offshoring and reshoring phenomena. In this respect, we share the idea of Joubioux and Vanpoucke (2016) that two such firms' decisions are

strictly interconnected. Therefore, future studies should carefully analyze the similarities and differences between the two phenomena, especially in terms of motivation and decision-making processes. In this way, it will be possible to characterize and better explain how companies may optimize their global manufacturing footprints (Stentoft et al. 2016b).

The "Why" of reshoring is definitely one the most investigated questions in the literature. However, some technical/technological aspects—such as the roles of disruptive manufacturing technologies (see for instance, Foster 2016), automation (Arlbjørn and Mikkelsen 2014; Baldwin and Venables 2013; Stentoft et al. 2016b) and additive manufacturing—seem still to be scarcely investigated. At the same time, as reshoring decisions are a complex entanglement of motivations, specific attention should be paid to (eventual) interdependences *among* motivations (i.e., in terms of time, proximity, consumer response, risks, innovation). Finally, motivations and their (eventual interdependencies) should be investigated by coupling them with the governance mode alternatives (insourcing and outsourcing).

The "How" question is clearly an under-investigated topic, perhaps because of the novelty of the phenomenon, which reduces the possibility of implementing longitudinal studies (Fratocchi et al. 2015) that are still scarce (Ashby 2016; Gylling et al. 2015; Robinson and Hsieh 2016). Future research should focus on how organizations should support reshoring strategies, for instance in terms of organizational readiness and willingness (Bals et al. 2016), access to competence (Stentoft et al. 2016b), learning and dynamic capabilities (Arlbjørn and Lüthje 2012; Bals et al. 2016; Kinkel 2014) and decision-making processes (Bals et al. 2016; Gylling et al. 2015; Joubioux and Vanpoucke 2016; Stentoft et al. 2016b).

Regarding the "When" question, the duration aspect seems particularly useful. Especially if combined with performance measurement, duration could be quite informative with regard to key aspects, such as firms' reactiveness to changes, speed of learning, and behavioral aspects, such as persistence in fighting against emerging problems.

Finally, while interesting research opportunities could also arise from studying the remaining questions individually (Who? Where?), their stronger contribution is likely to lie in their combination, as well as in their coupling with the former "Why?" and "How?" questions. In fact, it seems plausible that the motivations and behaviors of reshoring firms could depend on firms' and (home and host) countries' characteristics. Thus, inclusion of these questions in the future research agenda will prove useful to providing a more compelling and exhaustive characterization and comprehension of the reshoring phenomenon.

A final remark can be made regarding research proposals involving actors in the reshoring phenomenon outside firms, namely policy makers and customers. The role of government was investigated by Bailey and De Propris (2014a, b); however, we suggest further investigation with regard to the effectiveness of specific incentives (e.g., financial aid, investments in infrastructure and/or in human capital development). Regarding customers, Grappi et al. (2015) offered interesting starting points for further investigations; among them, we suggest focusing on the impact of

the "made in" effect (Bertoli and Resciniti 2012) on consumers' choices when production is reshored.

While the present literature review is primarily academic, its content could be of interest to managers. In particular, in summarizing the outcomes of past research on the location-governance type of issue, our work informs managers of the distinct, yet intimately related, nature of these two decisions. Managers should consider that, while reshoring can happen without any changes in the governance form, in practice its feasibility and effectiveness can be seriously influenced by the decisions on governance. At the same time, by summarizing the extant knowledge on reshoring motivations we offer a meaningful list of potential drivers that managers can keep in mind, should they have to reconsider their location decision. It will then be their task to examine the relevance of the various drivers in the specific context of their own activities.

It is our belief that researching manufacturing reshoring decision is timely and relevant. There is value in studying the reshoring phenomenon per se, because the relocation decision comes after the firm has acquired some type of (direct) experience in operating abroad, and it can have several different company-wide implications. While past studies have argued that the learning derived from (international) experience would permit firms to overcome their unfamiliarity with new business environments (e.g., Camuffo et al. 2007; Johanson and Vahlne 1990) reshoring might show that this outcome is not necessarily certain. Rather, firms might not be able to overcome obstacles due to internationalization (Kinkel 2012), or they might realize that attempting to do so is not desirable, e.g., due to excessive risk (Figueira-de-Lemos et al. 2011; Gray et al. 2013) or changes in the firm's strategic priorities (Grandinetti and Tabacco 2015).

Secondly, it is relevant to study reshoring as part of a firm's internationalization path. Reshoring supports the viewpoint that this path does not necessarily follow a pure expansion pattern but rather a non-linear trajectory, in which steps of increased commitment can alternate with others of reduced commitment (Fratocchi et al. 2015). At the same time, specific attention should be paid to understand why manufacturing reshoring is (or is not) preferred to other alternative decisions, such as near-reshoring and further offshoring (Joubioux and Vanpoucke 2016; Murat 2013).

While we believe we have conducted a rigorous and useful piece of research, we also acknowledge that it has limitations. First—mostly due to the actual state of research on reshoring—our work is explorative and descriptive in nature, and as the literature is still developing could not be conclusive on certain issues; further research is required to enhance the characterization and comprehension of the phenomenon. A second limitation is that we decided to focus on a database that is mostly focused on academic sources. While this choice helped to access literature that is more appropriate for the rigorous characterization of reshoring we wanted to pursue, it is likely that we overlooked anecdotal evidence, managerial debates and other types of documents that could however prove to have some usefulness to such a characterization.

In conclusion, we perceive reshoring to be a critical element of the ongoing debate regarding how internationalization can be appropriately explained in the rapidly changing global environment, as well as the key capabilities that a firm must possess to succeed in this (Contractor et al. 2010; Mugurusi and de Boer 2014).

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Offshoring Versus Reshoring? Rather, Shouldn't It Be Rightshoring?

Alessandro Baroncelli, Valeria Belvedere and Luigi Serio

Abstract In the latest years location strategies of firms are gaining growing attention due to the recent rise of reshoring announcements, which cannot be considered just an outcome of new political platforms based on protectionism. Most of them aim at coping with problems determined by unsuccessful offshoring decisions. But, when considering how to implement a relocation choice, namely in terms of geographical destination and in terms of governance of the new manufacturing footprint, several concerns rise and a wide array of relevant factors can be identified, which can drive the effectiveness of a reshoring project. In this setting, offshoring and reshoring can be seen as possible outcomes of a "rightshoring" approach, regarded as the decision making process that leads towards sound location decisions. This paper proposes and empirically tests a theoretical framework according to which factors that should be considered in the location decision making process are the following: (1) strategic alignment; (2) business environment's factors; (3) firm's specific factors; (4) contingency factors. The preliminary evidence stemming out from the case-studies supports our framework.

Keywords Reshoring · Rightshoring · Operations management · Location decision · Case-studies

A. Baroncelli (✉) · V. Belvedere · L. Serio
ICRIM International Center of Research in International Management—Department of Economic and Business Management Sciences, Catholic University of the Sacred Heart, Milan, Italy
e-mail: alessandro.baroncelli@unicatt.it

V. Belvedere
e-mail: valeria.belvedere@unicatt.it

L. Serio
e-mail: luigi.serio@unicatt.it

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1 Introduction

The recent phenomenon of reshoring of manufacturing facilities back to Western countries is leading both practitioners and academicians to a deep analysis of the reasons why several offshoring decisions have proven to be unsatisfactory. While emerging political platforms oriented toward protectionism seem to be one of the main drivers of this new trend, it is becoming more and more apparent that the decision making process behind a location choice is more complex than expected and requires an assessment of several aspects, concerning both exogenous and endogenous factors. In this perspective, the suitability of a location can be different, depending on such conditions as the competitive and functional strategies of the firm, the specificities of its business, the scale of its operations, to mention a few. Recent contributions have started observing the offshoring/reshoring phenomena from the viewpoint of the inherent decision making process, developing the concept of "rightshoring", regarded as the process that leads to identify the correct location for a specific company (Tate and Bals 2017; Joubioux and Vanpoucke 2016), taking into account all the relevant factors.

The aim of this paper is to understand how and why the factors discussed in the extant literature can affect the location decision, determining the success of an offshoring/reshoring strategy. In the remainder of this paper, the literature background will be framed, then the evidence of a case-based study will be reported. Finally conclusions and managerial implications will be drawn.

2 Literature Background

2.1 Offshoring, Reshoring and Rightshoring: A Brief Description

In the recent years several contributions as well as the international business press have highlighted the rise of the reshoring phenomenon, regarded as the decision to relocate production activities in the country of the parent company (Stentoft et al. 2016). The scale of such a new trend seems to be relevant. It has been reported that 14% companies endowed with a global footprint are considering reshoring or nearshoring options, and 38% of them think that their competitors have already undertaken this process (Tate and Bals 2017). The magnitude of these numbers has raised much attention among researchers, who are now investigating this phenomenon from several perspectives, ranging from the reasons behind a repatriating choice, to the most suitable governance structure, to the geographical destination of relocated activities (Fratocchi et al. 2015). As a matter of fact, while in the early stages of such a new trend the relevance of new political platforms with slogans as "bring jobs back home" as a driver of reshoring was overestimated (Tate 2014), it is now apparent that most of these initiatives are driven by deliberate and voluntary

corporate decisions, often determined by the need to overcome problems (e.g., relating to process alignment, quality, flexibility, human capital) generated by unsuccessful offshoring processes.

Pursuing a reshoring strategy poses specific problems, mainly concerning where to perform manufacturing activities, and who should be in charge of them, i.e., governance of the production system (Gray et al. 2013). Concerning the former aspect, alternatives to an offshore production can be either the home country of the parent company, or a country belonging to the firm's region, as Mexico and Canada for the U.S. The first solution is exactly what is called "reshoring", while the second is known as "nearshoring" (Fratocchi et al. 2015; Gray et al. 2013). The latter aspect, concerning the governance of the production system, recalls issues related to make-or-buy decisions, which can shape the perimeter of transformation activities carried out inside the company. The wide number of combinations of these choices, coupled with a similar degree of variety of the offshore production footprint solutions that a firm can have, clearly shows how complex it is to decide whether and how to relocate. Even the related theories proposed to cope with such problems, namely the Transaction-Cost-Economics and the Resource-Based-View, suggest different and incompatible solutions in particular for the governance structure, thus providing a further confirmation to the inherent complexity of the offshoring/reshoring process (McIvor 2013).

In light of this complexity, it now accepted that a key challenge for managers is "rightshoring", regarded as the decision making process that should lead a company to properly address the location decision (Tate and Bals 2017; Joubioux and Vanpoucke 2016). In this perspective, it is worthwhile mapping all the factors and enabling conditions that can drive the success of a location decision and that should therefore be taken into account in the related decision making process.

2.2 *Offshoring and Reshoring as a Location Decision*

In the operations management literature, the location decision can be observed from the perspective of the strategic alignment approach, according to which the design and management choices that shape the operating system of the company must guarantee an overall consistency among the competitive strategy of the firm, its functional improvement objectives and, ultimately, the hardware and software elements of its production system (Belvedere and Gallmann 2014; Wisner and Fawcett 1991; Leong et al. 1990; Skinner 1974, 1969). Several contributions have argued and empirically demonstrated that when such an alignment is not achieved the ability of operations to positively contribute to the competitiveness of the firm can be threatened, as is the case of companies that adopt managerial practices or IT systems popular in a given period of time, without checking whether the operational performance improvements brought about by these investments are actually in line with their value proposition to the customer (Dixon et al. 1990). In this concern,

both the offshoring and re-shoring decisions peculiar to the latest years can be seen as "cures" common to many firms that, in the case of offshoring, are mostly willing to take advantage in particular from cost cutting opportunities coming from location choices in emerging countries (Gylling et al. 2015; Tate 2014; Tate et al. 2014; Gray et al. 2013; Kinkel and Maloca 2009). In the case of reshoring they want to achieve such results as increasing the responsiveness of their logistic processes and/or more properly dealing with pressures exerted by the stakeholders as far as environmental and social sustainability issues are concerned (Ellram 2013; Ellram et al. 2013; Gray et al. 2013).

If we frame the offshoring/reshoring decision in the strategic alignment process, it is first of all necessary to outline the operational performances that can be influenced by the location decision. According to the literature on manufacturing and logistic performance, a general consensus has been achieved by practitioners and academicians on the taxonomy of such performance, which can be deployed as follows (Belvedere 2015; Grando et al. 2007; Neely 2005; Neely et al. 1995; Leong et al. 1990): (1) cost, regarded as ability to achieve a satisfactory productivity of the production resources; (2) quality, mainly understood as conformance to specifications; (3) time, referred to the ability of producing and delivering fast and in a dependable manner; (4) flexibility, regarded as the ability of a system to react to a need of change in a rapid and cost-effective way. On top of these attributes, recent literature has also highlighted the remarkable effects that operations and logistic processes can have on the environmental and social performance of the company, which is now accepted as the fifth performance dimension of such processes (Belvedere and Grando 2017; Gauthier 2005; Elkington 1997).

Indeed, extant contributions have highlighted how most decisions to repatriate production activities aim at overcoming problems determined by previous offshoring projects whose overall impact on the above mentioned performance attributes was unfavourable (Stentoft et al. 2016). Concerning the "cost" performance, the most common drawbacks of offshoring refer to increasing labour and logistics costs (Tate 2014; Tate et al. 2014), higher-than-expected coordination efforts and transaction costs (Gylling et al. 2015; Gray et al. 2013; Kinkel and Maloca 2009), productivity gaps (Pearce 2014), batch size constraints (Canham and Hamilton 2013). As far quality is concerned, several offshoring experiences report on the poor degree of conformance to specifications achieved in foreign plants (Joubioux and Vanpoucke 2016; Stentoft et al. 2015; Arlbjørn and Mikkelsen 2014; Tate et al. 2014). Also in terms of time and flexibility, the decision to produce abroad either through owned facilities or through outsourcing solutions often results in longer delivery times, as well poorer manufacturing and logistics dependability that turned into a higher exposure to the risk of demand volatility (Fratocchi et al. 2016; Bailey and De Propris 2014; Fratocchi et al. 2014). Focusing on the sustainability performance, as environmental and labour regulations become synchronized and standardized, incentives to offshore in loosely regulated countries become weaker and weaker, while the risk for the brand reputation of the company increases (Ellram 2013; Ellram et al. 2013; Gray et al. 2013).

However, according to Fratocchi et al. (2015), several decisions of re-shoring are not rooted in mistakes made by the company when addressing the location decision, but in changes in the business environment and in firm's specific factors. The former can refer to cultural differences, changes in fiscal policies, availability of new production technologies, reduction of productivity gaps among countries, unfavourable trends in the exchange rates of currencies or emerging political choices aimed at reinforcing the internal production, as America's reshoring policies after Trump's election (Fratocchi et al. 2015; Stentoft et al. 2015; Arlbjørn and Mikkelsen 2014; Bailey and De Propris 2014; Tate et al. 2014; Ellram et al. 2013; McIvor 2013). Firm's specific factors, in turn, may include the proximity to R&D centers that can foster the innovation capabilities of the firm, risks of Intellectual Property leakages, the strategic value of the "Made in", necessity to be closer to the client (Joubioux and Vanpoucke 2016; Fratocchi et al. 2016; Stentoft et al. 2015; Bailey and De Propris 2014; Tate 2014; Tate et al. 2014; Canham and Hamilton 2013; Gray et al. 2013).

A further bundle of reasons that can drive location decisions concerns firm's contingency factors. Within this category, product portfolio and supply chain complexity can be found, which are likely to make coordination efforts unbearable, thus leading to possible failures of an offshoring strategy (Bals et al. 2016; Ellram et al. 2013; McIvor 2013). Also organizational readiness, understood as the availability of internal capabilities necessary to manage the outcomes of an offshoring decision (as an international supply base or production network), should play a relevant role in such a decision making process (Bals et al. 2016; McIvor 2013). Indeed, the lack of these capabilities, even in front of a strong organizational willingness to offshore production activities, can result in failures. This contingency factor is closely related to the one concerning the size of the firm, which can deeply influence the possibility to adopt suitable organizational solutions (as directly owned plants, new departments in charge of managing and controlling foreign facilities and suppliers etc.) in a process of globalization of the production footprint (Bals et al. 2016; Fratocchi et al. 2015). Finally, the governance of foreign production activities (i.e., ownership of the foreign plant as opposed to the decision of buying from foreign suppliers) can be a critical contingency factor (Fratocchi et al. 2015). In cases where companies would be better off with a foreign direct investment in a production facility, being aware of the role of such a plant is a major driver of success. Building on the seminal work of Ferdows (1997), several contributions have investigated on the bundle of competences that the foreign plant must have, depending on the strategic reason for its location. In this regard, it has been empirically demonstrated that the reason why the company decides to establish a foreign factory involves a certain bundle of competences (e.g., maintain technical processes, manage local suppliers and logistics, contribute to the new product development process, supply from global markets etc.) and of autonomy of the plant (Feldman and Olhager 2013; Vereecke and VanDierdonck 2002).

3 Methods

The review of the operations management literature concerning offshoring and re-shoring choices highlights the existence of a number of drivers of their success and of conditions that must be met in order to get the most from a location choice. These can be synthetized as follows:

- Strategic alignment of the location choice with the competitive strategy of the firm and with its operations strategy;
- Business environment's conditions, which refer to changes in exogenous factors that can affect the outcome of a location decision;
- Firm's specific factors, referring to specificities of the industry and to situations in which, even though the location decision can actually support and strengthen the operations strategy of the firm, on the other hand it can be detrimental of other functional performances (e.g., those concerning R&D activities and Marketing & Sales ones);
- Firm's contingency factors, which concern endogenous conditions that must be met in order to even start considering an offshoring options.

In this setting, offshoring and reshoring choices can be seen as outcomes of a decision making process that, when properly carried out, will lead to a "right-shoring" choice, which can even consist of giving up offshoring options. Thus, we assume that location failures are going to occur when one or more of these factors are overlooked or undervalued. Addressing this issue is relevant because, on the one hand, some of the above mentioned factors have not been adequately discussed in the extant literature (Bals et al. 2016; Fratocchi et al. 2015). Furthermore, the remarkable number of failures in offshoring initiatives, which are now leading to reshoring or nearshoring projects, demonstrates that the inherent decision making process is still poorly performed and this makes such a topic of paramount importance for both academicians and practitioners (Tate and Bals 2017; Bals et al. 2016; Joubioux and Vanpoucke 2016).

The aim of this paper is to understand how and why the above mentioned factors can affect the location decision, determining the success of the location strategy. To conduct this study, a multiple case-study approach has been adopted, which is the most suitable methodology for the aim of this paper (Yin 2003; Voss et al. 2002; Meredith 1998; McCutcheon and Meredith 1993; Eisenhardt 1989). The empirical evidence stemming out from the case-studies has been analyzed through the pattern matching approach, which is considered the most appropriate when the research aims at stating whether in-field evidence is coherent with previous contributions to the topic (Yin 2003). Thus, on the basis of the extant literature, we have developed the reference framework represented in Fig. 1.

Due to the wide array of specific factors that can be found in the four typologies of factors described in Fig. 1, we have decided to investigate several case-studies, each of them with their own specificities in terms of industry, competitive strategy, size, ownership structure. Totally we have included in this paper 8 case-histories. In

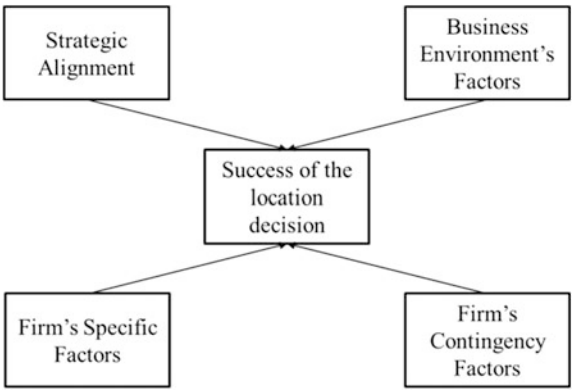

Fig. 1 The reference framework

all of them, the unit of analysis was a specific location decision taken in the recent past (offshoring or reshoring). In the cases where no offshoring project has ever been recently experienced, or when it dated back to several years ago, the unit of analysis was the production footprint in its current setting.

Interviews and data collection were carried out according to a research protocol aimed at addressing the main constructs in the reference framework. For this aim, the operations manager was interviewed as well as managers directly involved in the location decision or able to report about its history and outcomes.

4 Empirical Findings

4.1 Company A

Company A was established nearly one century ago in a famous Italian eyewear district, where it started producing eyeglasses' cases initially for the national optitians and, since the '30s, also for foreign clients.

The '80s were the years of remarkable growth for the Company, due to the advent of luxury firms that started licensing their brands to eyeglasses producers, with an evident positive effect on their supply network. In this period the OEM Division was created to properly deal with the specificities of the eyeglasses producers and, to cope with the increased demand, four new production plants were established and one in Romania was acquired. In the same period commercial branches were opened in USA, first, and then in Germany, France and Hong Kong. In 2003 a new product line was launched, concerning leather goods and accessories. Due to the relevant increase in the volumes, Company A decided to establish a new plant in China for the production of cases, so as to take advantage from the low cost of labour, which is a major cost driver in this industry given the nature of the production process. However, the higher and higher relevance of speed for the competitiveness of the eyeglasses firms, Company A has considered a "near

shoring" option, consisting in moving the production volumes allocated the Chinese plant back to Europe, in particular to the Romanian factory. This solution could enable a reduction of the total lead time from the current 4–5 months to 45 days, in line with the needs and the timing peculiar to the big luxury brands, which are moving toward a new product development process based on the concept of continuous innovation. Furthermore, the Romanian plant could be able to deal with smaller batches, thus granting a higher degree of responsiveness even in the case of a low and erratic market demand.

4.2 Company B

Company B is a big player of the aerospace/defence industry and, for the purpose of the study, we focused on the aircraft division. The activities carried out by such a division range from the design and development of the vehicle, to its production and final test, with a remarkably high degree of vertical integration. Even though the Company operates on a world-wide level, its production footprint is mostly national and its supply base encompasses a majority of Italian suppliers (nearly 90%), whose selection depends first of all on the quality level that they can grant, and then on their operational flexibility and costs. Due to the extreme relevance of product quality and to the tight regulatory constraints peculiar to this industry, only low value-adding operations are outsourced, which involve the production of standard parts. Thus the phenomenon of offshoring takes the form of outsourcing options managed with an opportunist approach, whose adoption is possible because of the nature of the activities carried out by the suppliers. This kind of organization is considered reliable and is not going to be modified in the near future.

4.3 Company C

Company C was established in the '50s as a wool mill, but eventually extended the scope of its activities also the production of fabric targeted to the main international high end fashion companies. Due to this strategy, in the '60s Company C enjoyed a remarkable increase of sales on both national and international markets and, as a consequence of this expansion, it decided to secure the availability of good quality raw materials through the acquisition of several South-American suppliers.

Eventually this Company launched a new product line of apparel products, with an operations system characterized by a high degree of vertical integration, from the yarn to the final production of apparel items sold mainly through directly operated stores. However, in response to the need of a higher degree of flexibility necessary to cope with the evolution of the competitive arena of the fashion industry, Company C undertook an outsourcing process aimed at delegating all of the

production stages of the apparel items to a wide network of suppliers and subcontracts based in Italy. This choice has been confirmed even when the Company was acquired by a major Italian player of this industry in the late '90s. The adoption of a national production footprint relies on the necessity to guarantee the "Made in Italy" label, which is a most relevant value driver in the high end fashion system, and to be close to the Italian market, where a "tailor made" service is offered, which involves a high degree of proximity of the production system to the customer. For the near future no relevant changes will be made to this organization.

4.4 Company D

Company D was established in the '60s as a producer of thermoplastic and rubber components mainly for the automotive industry and, more recently, for the home appliances one. The footprint of the Company is characterized by a high degree of internationalization, obtained over the years through the establishment of several manufacturing plants, the location of which has been influenced primarily by the necessity to achieve a high proximity to the clients to guarantee product customization. The company is active also in low cost countries with owned production facilities, but this is not due to the opportunity to take advantage from the low cost of local resources, being the production process highly automated. All plants show a high degree of vertical integration, regardless of their location. This is due to the possibility of exploiting the deep internal know-how concerning both the products and the processes, which lets the Company reach outstanding levels both of product quality and production efficiency. According to the interviewees, the choice of a high degree of vertical integration is made possible by the structure of the product, which is characterized by a low level of complexity and a short bill of materials.

4.5 Company E

Company E is a small firm active in the fashion industry and specialized in high end menswear. Although the company was established in the '60s, its first collection with own brand was presented in the '80s and, since then, it gained a solid commercial position in several foreign countries, in Europe, Asia, North and South America. Currently most of the turnover is driven by the export.

Although the design process is managed in the headquarter in Milan, all production activities are outsourced to suppliers, which are located exclusively in Italy. Nearly ten years ago, Company E experienced a process of off-shoring, namely with the aim of establishing a partnership with an Indian large corporation. However, this project soon turned in a failure due to several reasons. First of all, in order to guarantee a high enough level of efficiency in the Indian production, the

batch size should have been at least as double as the average order quantity placed by Company E. Furthermore, product quality was not in line with the standards of the Company and its management team soon realized the need of having its own quality control manager at the site of the Indian supplier. However, this solution was unfeasible for a company like E, endowed with a rather small management team. Consequently, two years later Company E re-shored its production.

Italy's share of the world's clothing, textiles and leather industry has declined significantly since the 1980s.

The wage gap between the largest European economies and Asia is still wide, but advancements in some EU countries' productivity in recent years are reducing the advantage. At the higher end of the market, brands are focusing on quality linked to the 'Made in Italy' brand. At the lower end, where cost remains a key driver of sales, there will unlikely be a significant reshoring impact.

4.6 Company F

Company F is a major brand of canned tuna, owned by an Italian multinational company active in the fast moving consumer goods industry. For the production of canned tuna, the Company has adopted an organization characterized by suppliers of raw material located in foreign countries, where tuna is fished. Such vendors are also in charge of the initial steps of the production process that encompasses the cleaning and steaming of tuna loins, which are later frozen and shipped to Company F in Italy. Once received by the Italian factory, tuna loins are (mostly, olive oil) packed and sterilized. The production footprint adopted by Company F is different from the one of most competitors, which have fully outsourced the production process to their foreign suppliers, so as to take advantage from cost cutting opportunities. On the opposite, Company F has chosen to compete on the quality of the product, which would have been poorer with a fully outsourced transformation process. Furthermore, by carrying out the final production activities in Italy, it is possible to better cope with the increasing products' differentiation (size, product origin, preserving agents, etc.), local trends and demand volatility, adapting the production volumes to the actual orders placed by customers. Managing this phenomenon with the finished product being shipped from plants based around the equator—where most of the tuna is fished—would have been more expensive (since it would have required supplying the production plants with olive oil and various format cans) and logistically complicated since the shipping time from these countries to Italy is equal to 45 days on average. Finally, the production footprint of Company F allows a higher degree of product flexibility, which results in the ability to bring to the market innovative items as lighter (in calories) products, salads and mixes, whose developments generally requires the proximity of the factory to the market and to the R&D centers of the company.

4.7 Company G

Company G was founded in 1952. Since then, it grew steadily both organically and through acquisitions to become worldwide leader in precision equipment for measurement and control in the production environment.

More precisely, company G provides standard and custom systems for industrial applications to measure and control dimensions, geometries and surface quality of mechanical components and for control and monitoring of the machining process. Its main customers are machine tool makers that sell machines already equipped with gauging systems; gauge makers that buy measuring components to manufacture stations for end users and end users.

Currently 70% of the production volume is sold to the automotive industry. Sales and Technical Support companies are in 24 countries with 80 offices. Other 9 countries benefit from dedicated networks of Agents and Dealers. Thus, sales abroad (China, Japan, Germany and the U.S.) account for as much as 94% of Company G total revenues worldwide.

Most of the production is made in three main manufacturing locations, in Italy, in China and Korea, but also the acquired companies (in Italy, Germany, France, the U.S.) have their internal manufacturing organizations with the capability to customize, or sometimes to design and produce, specific solutions for their local market: this is consistent with the underlying idea of being present in all the places where customers operate and close to their way of thinking.

The largest plant outside Italy was originally established in China in joint venture with an automation company in 2006. In 2008 Company G bought out the partner company stake in the Chinese joint venture and currently has three divisions developing very fast and establishing a good relationship with an increasing number of local car manufacturers, providing them with tailor-made products and services. The reasons why Company G decided to establish the manufacturing plant in China referred to the low cost of labour, the possibility of serving a new fast growing market (the Asian one) and need of producing dedicated systems originally based on old generation cheaper technologies. Until now, the experience made in China is positive and also the product quality, which was a critical issue at the beginning of this offshoring process, has been later overcome. However, according to the management team, replicating an experience as the one made in China is hard, because of a problem of scale. Indeed, for most product lines that could be offshored to Asia, the batch size of Company G is largely below the threshold necessary to achieve a good enough level of efficiency. Thus, for the near future Company G is planning to keep the plant in China, but not to establish any other production facility in Asia.

4.8 Company H

Company H is one of the world leaders in ceramic tiles for both floor and wall use. It was established in the '60s in the tile district of Sassuolo—one of the largest Italian industrial districts. From its incorporation the company has led research into raw materials and production processes.

During the '90s the company grew through horizontal acquisitions and investments both in distribution and production activities. Among the latest, the most relevant were a production plant in the U.S. and a logistic center in Brazil. Currently most of the turnover is driven by the export.

The development of the U.S. plant started in 1991 with an equity partnership (15%) with a Thai group (among the world leaders in building materials), which already owned a 10% stake in the Italian group. However, in 1994 Company H decided to dispose its stake in the U.S. company, but the financial difficulties of the Thai partner created the conditions for a total acquisition of the U.S. production facilities in 2000, followed by the acquisition of the U.S. distribution activities. These investments allowed the firm to grow strongly internationally and aggressively target the U.S. market and the Southern-American market with the support of the Brazilian logistic center.

Products made under the Company H brands are sold to top customers and importers all over the world leveraging a favorable competitive position allowed by the associated use of the two centers of production based in Italy and the U.S. The location of the production activities guarantees proximity to the clients, consistent cost reduction and product customization thanks to the tight links with the distribution activities.

5 Cross-Case Analysis

The main outcomes of the case-studies are reported in Tables 1 and 2, which briefly describe the size of the company, its competitive position, the unit of analysis of each case study (i.e., offshoring project, reshoring project, current production footprint) and the relevant factors (among those described in the reference framework in Fig. 1) that have determined the success/failure of the project or have moulded the current footprint. In particular, for each typology of factors, we have reported those aspects that drove the initial location decision and/or that determined its success/failure.

As can be seen in Tables 1 and 2, all companies observed in this study have widely discussed on the relevance of the "Strategic Alignment" factors in the location decision. Indeed, regardless of the unit of analysis, all interviewees argued that a major driver of the decision concerned the necessity/opportunity to improve at least one operations performance. Among the most frequently cited, cost, product quality and flexibility (in its various forms) seem to be the most relevant areas of

Table 1 Synthetic information on the case studies (A–D)

	Case A	Case B	Case C	Case D
Firm size	Medium	Large	Small	Medium
Firm competitive position	World leader	Among the world leaders	Niche	World leader
Unit of analysis	Reshoring	Current footprint	Current footprint	Current footprint
Strategic alignment	– Speed – Responsiveness – Mix flexibility	– Quality	– Product flexibility	– Product flexibility
Business environment Factors	– Higher relevance of responsiveness		– Higher relevance of responsiveness	
Firm-specific factors		– Regulation	– Made in Italy – Proximity to the client	– Proximity to the client
Contingency factors	– Batch size			– Low product complexity

Table 2 Synthetic information on the case studies (E–H)

	Case E	Case F	Case G	Case H
Firm size	Small	Medium-Large	Large	Large
Firm competitive position	Niche	Niche	World leader	Among the world leaders
Unit of analysis	Reshoring	Current footprint	Offshoring	Offshoring
Strategic alignment	– Quality	– Quality – Volume flexibility – Product flexibility	– Cost	– Cost – Product flexibility
Business environment factors	– Increasing productivity gap			
Firm-specific factors		– Proximity to the client		– Proximity to the client
Contingency factors	– Batch size – Unavailability of quality controllers		– Batch size	

concern, the underrating of which can determine a later reshoring decision or even the decision to give up an offshoring option.

"Business environment's factors" (regarded as changes occurred in the industry) have been mentioned by three companies (A, C and E), which reported on the

changes of the fashion industry, which they belong to. Indeed companies A and C told about the increasing relevance of the concept of market responsiveness and continuous innovation, which require prompt production and delivery processes. While this evolution has recently led Company A to nearshoring its production, Company C has decided not to make any change to its production footprint, already based in Italy. On the other hand, company E highlighted that the increasing productivity of western countries, compared to eastern ones, is making the offshoring option less attractive.

Moving to the "Firm's specific factors", two cases (B and C) made an explicit reference to the specificities of their industries, which are, in the former, the tight regulatory system, and in the latter the relevance of the "Made in Italy" label. These factors have led both companies to the decision of keeping their production system in Italy.

Within the "Firm's specific factors" also issues concerning the interfaces of operations with other functional areas of the company are included. This condition has been mentioned by four companies (C, D, F and H) and in all cases the relevance of the proximity to the customer was highlighted. Indeed, the necessity to cope with demand volatility (interface with Marketing & Sales) and to adapt products to the needs of local clients (interface with R&D) is becoming more and more relevant and is resulting in remarkable effects on the production footprint.

Finally, looking at the "Contingency factors", operating conditions of the production process have been mentioned by four companies as drivers of "rightshoring" (A, D, E and G). Indeed, in two cases the importance of the batch-size as an enabling condition of an offshoring decision has been highlighted, in that small batch sizes cannot lead to the necessary degree of efficiency that makes some offshoring options cost-effective. Furthermore, also the complexity of the product has emerged as a relevant factor, since products with a short bill of materials (as in the case of Company D) can guarantee an easier coordination of offshored/outsourced production activities. Finally, as highlighted by Company E, also the organizational readiness of the firm can be an issue. In this case, the small size of the company made it impossible to create those managerial roles necessary to oversee production activities outsourced to foreign vendors.

6 Conclusions

This paper builds on the extant contributions on offshoring/reshoring and on the ones concerning the location decision, grounded in the operations management literature (Fratocchi et al. 2015, 2016; Tate 2014; Tate et al. 2014; Ellram 2013; Ellram et al. 2013; Gray et al. 2013; McIvor 2013). As stated by recent studies (Tate and Bals 2017; Joubioux and Vanpoucke 2016), there is not a location that can be considered optimal for every company, since various factors, both endogenous and exogenous, can drive the final outcome of an offshoring/reshoring choice. In this paper we wanted to explore the concept of "rightshoring", which builds on this

approach, trying to understand whether and how the relevant factors highlighted in the literature can drive the success of a location decision (Bals et al. 2016; Fratocchi et al. 2016; Joubioux and Vanpoucke 2016; Fratocchi et al. 2015; Stentoft et al. 2015; Arlbjørn and Mikkelsen 2014; Bailey and De Propris 2014; Tate et al. 2014; Tate 2014; Ellram et al. 2013; McIvor 2013; Gray et al. 2013).

The preliminary evidence stemming out from our study confirms that all the factors in our theoretical framework play a role in the decision making process concerning location, as well as on its success. It also demonstrates that the final choice and its outcomes depend on the specific mix of factors that the company copes with.

In this concern, it could be worthwhile further investigating on the correct sequence in which such factors and enabling conditions should be considered in the decision making process, so as to immediately drop possible initiatives that are unsuitable for the company, even though they could theoretically contribute to strengthening the operational performance. On the opposite, our study shows that most attention is devoted to the "Strategic alignment" factors, while the others gain relevance in a later stage, when an investment has already been done and can be hardly reversed.

In the longer term we expect that in the Western world reshoring will be boosted by firms' upgrading to the upper segments of their markets and by the use of advanced manufacturing technologies that promise to alter the economics of the production, making it a far less labour-intensive process. In other words, modifying the factors that determined offshoring as a rightshoring decision.

Reshoring is often described as a response to both macroeconomic and internal business-related factors.

Besides the managerial implications of a rightshoring approach to strategic location decisions, the outcomes of this study imply robust policy implications. As a matter of fact, Governments around the world have used, announced or planned financial incentives in an effort to attract companies to move back to their countries. These range from hard cash and corporate-tax holidays to cheap loans. The rationale of these policies was aiming at supporting domestic economic growth and job creation. However, it is important not to overestimate the impact of reshoring on jobs and the effectiveness of tax incentives on companies' decision to bring back the activities they had previously offshored.

On one side, reducing the tax burden on labour and building up key skills, widening access to finance measures, supporting innovative businesses and reducing capital costs through tax breaks are certainly Governments right movements to improve the national business environment and competitiveness. This will be likely to contribute to attracting foreign investments and might also help some companies to come back.

On the other side, evidence from our research suggests that generous fiscal incentives do not necessarily meet the goal of attracting companies to move back to their countries whenever the offshoring decisions were rooted in several factors beyond simply lowering operations costs.

The actual companies' decision on the relocation of their activities is likely to be driven by a new strategic positioning in the global marketplace, rather than by the existence of fiscal incentives per se. Further, reshoring does not necessarily imply recreating the once lost jobs and most likely not the same type of jobs.

Manufacturing work will often come back only when it has been partly automated, so the number of jobs returning will be smaller than the number lost in the previous location. Most companies that have recently built new facilities or expanded existing ones in America have brought in more automation (Booth 2014).

Many companies outsource to save money, following each other around the world in search of the lower-cost countries. Taking decisions on activities location implies more than just sending work to cheaper countries. Most firms do not give enough thought to choosing where to produce and continue indulging in herd behaviour when deciding where to base their operations and how to arrange their supply chains. The decision is not simply whether or not to reshore, but rather which activities to place in which location. And location means, mainly, availability of focussed capabilities and presence of global supply chain.

Future research should lead to a disciplined analysis allowing the management to make informed location decisions.

Being based on a qualitative analysis conducted across eight cases, this study suffers from the limitations peculiar to such a research strategy (Yin 2003; Voss et al. 2002). The authors' aim was to understand how and why the factors highlighted in previous contributions can drive the location decision of an industrial company. Although our paper points out some remarkable findings about this issue, we cannot exclude that further factors can actually play a relevant role in this decision making process. Replicating our study in other firms could lead to the identification of other drivers, not included in the framework presented in this paper. Furthermore, the relevance of such factors could be different depending on the specific industries, as the case of the fashion companies demonstrates as far the "Made in" issues are concerned. A quantitative study, based on the administration of a survey, could help in measuring the importance attributed by companies to the different typologies of factors.

Finally, and as already claimed, further research should be carried out in order to investigate about the sequence with which relevant factors are taken into account in the decision making process. Given the nature of this aim, a case-based research strategy could be considered the most suitable.

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Complementing the Reshoring of Manufacturing Activities: The Relocation of Business Functions

Filippo Albertoni, Stefano Elia and Lucia Piscitello

Abstract This chapter sheds light on the reshoring of business functions. Policy makers and scholars are increasingly interested in the relocation of once offshored activities; however, the empirical evidence is mostly focussed on manufacturing activities, while very little is known about business functions that assist manufacturing activities. Using data from the Offshoring Research Network survey, this chapter provides some empirical evidence regarding the plans to reshore administrative and technical work. In particular, the chapter analyses the entry-mode, the home and the host country context, the business functions, the industries, the size and the performance of once offshored activities that are now planned to be reshored.

Keywords Offshoring · Reshoring · Further offshoring · Back shoring · Business functions

1 Introduction

Firms started to delocalize production activities in the sixties in order to take advantage of lower labour costs in developing countries. This phenomenon is known with the term offshoring and it refers to the fragmentation of business activities along the value chain and to their delocalization in different countries. Knowledge-intensive activities were typically located in advanced countries, while manufacturing and production activities were offshored to emerging economies in order to exploit cost advantages (Contractor et al. 2010; Mudambi 2007). However, the standardization of complex tasks, the improvement of the capabilities in emerging economies and the advances in ICT have led also knowledge-intensive functions to be increasingly offshored to emerging economies (Baaij et al. 2015; Blinder 2006; Jahns et al. 2006; Lewin et al. 2009; Manning et al. 2008). The

F. Albertoni · S. Elia (✉) · L. Piscitello
School of Management, Politecnico di Milano, Milan, Italy
e-mail: stefano.elia@polimi.it

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offshoring of business functions began in the nineties, when business functions started to follow already relocated manufacturing activities. On the one hand, this phenomenon has raised concerns in the public opinion, media and policy makers of advanced countries for its potential negative effects, such as the rise of unemployment also among skilled workers and the loss of core technological competencies especially in Europe and the United States. On the other hand, managers and practitioners have required further understanding of the phenomenon in order to tackle this turbulent and complex global environment (Christopher and Holweg 2011; Larsen et al. 2013; Tate et al. 2014). In this context, the offshoring literature flourished, but often it failed to offer solutions to advanced countries' structural issues. Conversely, the international press (such as The Economist 2013a, b) and consulting firms (such as the Boston Consulting Group 2013) timely understood that a new and opposite phenomenon compared with offshoring was emerging; companies were bringing back to the headquarters' location some manufacturing activities and business functions.

Research is characterized by the lack of a shared definition about this new phenomenon. Indeed, the term "reshoring" is used to indicate a generic change of location with respect to a previous offshore country.[1] This includes further offshoring (i.e., the relocation to another offshore location) and back shoring (i.e., the relocation to the home country), which are two different specifications of the generic decision of changing location. Although we reckon that the drivers underlying these two different relocation choices are likely to be similar (e.g., performance shortcomings might trigger the decision to either find a new and more profitable location or go back home), in this chapter we study the two phenomena separately in order to inquire whether some differences arise.

Current academic knowledge about reshoring is mostly confined to: analysis on secondary data (Fratocchi et al. 2014); some case studies (Gylling et al. 2015; Martìnez-Mora and Merino 2014); and surveys implemented in the United States (Ellram et al. 2013; Tate et al. 2014), Germany (Kinkel 2012, 2014; Kinkel and Maloca 2009) and Denmark (Arlbjørn and Mikkelsen 2014).[2] With the only exception of Albertoni et al. (2015), scholar research on reshoring regards the supply chain rather than the value chain (i.e., manufacturing activities and not business functions) (Ellram 2013). Furthermore, the geographical scope is usually limited to one country. This may be due to the lack of systematic data available on this phenomenon, and its relatively small scale. However, further understanding of the reshoring of business functions is now more relevant than ever in order to assist managers to re-shape the global value chain of offshoring firms and the advanced countries' policy makers to design industrial policies accounting also for this phenomenon. Although scholars are very suspicious regarding the possibility to

[1]See Fratocchi et al. (2014, p. 56), according to whom "(…) the term [manufacturing] "reshoring" is meant to indicate a generic change of location with respect to a previous off-shore country".

[2]For a comprehensive overview of the empirical evidence regarding the reshoring and back shoring phenomena see Fratocchi et al. (2015) and Stentoft et al. (2016).

restore the competitiveness that advanced countries lost some years ago (Bailey and De Propris 2014; Kinkel 2014), the main aim of this chapter is to inquire the drivers, opportunities and the challenges related with once offshored business functions planned to be relocated.

The remainder of the chapter is organized as follows. After a brief illustration of the main drivers identified in the literature, the third section investigates the empirical evidence arising from the Offshoring Research Network through an in-depth statistical investigation, and the fourth section concludes.

2 The Reshoring Drivers, Opportunities and Challenges

One of the main concerns related with offshoring is the risk of job loss for people working in advanced countries. Indeed, the availability of science and engineering talents in emerging economies (and its shortage in advanced countries) led to offshore also complex tasks, thus shifting labour competition from national to global level (Manning et al. 2008; Lewin et al. 2009). The drivers of the offshoring of business functions are experiencing a transition from cost-saving purposes to value-enhancement aims, meaning that also the activities involved are evolving from routine tasks to more complex processes (Youngdahl et al. 2010). Data show that several firms have increasingly offshored business functions in the last 15 years (Albertoni and Elia 2014). Therefore, offshoring of knowledge-intensive activities (such as R&D) has started to threaten the workplace of skilled workers from advanced countries, with the only exception of business functions requiring personal and face-to-face contact (Blinder 2006). In this context, reshoring is considered a viable solution to restore advanced countries' employment rate (Gray et al. 2013). However, the debate on reshoring does not pertain only the possibility to recover from the contingent loss of jobs in advanced countries raised by media and the public opinion, but it also concerns the attempt to restore the innovation capability of the advanced countries, threatened by the offshoring of production activities (Pisano and Shih 2009, 2012a, b). Indeed, the debate during the presidential elections 2016 was largely focused on the attempt to bring back to the United States some production activities in order to improve the overall competiveness of the country; and the former democratic administration was committed to restore US manufacturing (Tate 2014). Recently, also the European Union has started to study policies to support the re-industrialization (EPRS 2014; Stentoft et al. 2016). In this context, further scholar research might help to clarify the main drivers, opportunities and challenges connected with the reshoring of business functions.

Reshoring is probably driven by three main factors: (i) mutations of the business context; (ii) performance shortcomings; (iii) and interconnections along the value chain. Regarding the first driver, the real option portfolio perspective suggests that firms decide to locate their activities in growing markets following the macro-economic performance of the host countries. According to this view,

multinational firms—thanks to a widespread presence in several countries—can shift their business activities from one location to another in order to respond to market dynamics (Belderbos and Zou 2009). For example, the inflation of Chinese wages—that raised more than 20% annually in the last 5 years (Shih 2013)—made this country less and less convenient and attractive. However, it is worth highlighting that not only the macro-economic conditions affect the business environment (e.g., the inflation of labour wages), but also the institutional and cultural framework (e.g., the political instability or cultural clashes).

Concerning the second driver, relocation decisions are made considering whether the outcome of the offshoring initiative is able to meet the expectations. Indeed, offshoring seems to be increasingly inadequate to guarantee cost savings and to meet quality standards (Kinkel 2012; Kinkel and Maloca 2009; Platts and Song 2010). Probably firms experience similar issues not only for manufacturing activities, but also for business functions that assist manufacturing activities. The performance shortcomings might stem from the aforementioned changes in the business context, but also from managerial mistakes or other issues (Fratocchi et al. 2014). In particular, the capabilities to coordinate different activities and to innovate are threatened.

The inter-connections along the value chain lead to co-locate different activities. More specifically, the inter-dependence of offshoring decisions has been often neglected, even if coordination costs often negatively affect the net benefit associated with the adoption of offshoring solutions (Larsen et al. 2013; Meijboom and Voss 1997). The reshoring drivers are often connected with the strong complementarities between different functions belonging to the same company, and by the need to co-locate R&D and production activities in order to foster innovation (Alcacer and Delgado 2016; Berry 2014; Steinle and Schiele 2008). Indeed, the strategic decision to offshore business activities imply three intertwined choices regarding (i) the supplier, (ii) the location and (iii) the entry mode. And reshoring decisions can be the outcome not only of the choice to switch from a supplier to another, but also of the choice to internalize activities previously outsourced to a foreign supplier (back-sourcing or insourcing) (Stentoft et al. 2015). When MNCs realize the difficulties to relate with foreign suppliers or subsidiaries, often they decide to relocate some business activities.

Although reshoring as phenomenon is not new, the existing literature has been traditionally focussed on the relocation of manufacturing operations (Arlbjørn and Mikkelsen 2014; Ellram 2013; Ellram et al. 2013; Fratocchi et al. 2016; Gylling et al. 2015; Kinkel and Maloca 2009; Martìnez-Mora and Merino 2014; Tate et al. 2014; Stentoft et al. 2016), and very little is known regarding the reshoring of business functions (Albertoni et al. 2015). Recent findings challenge the traditional separation between advanced countries as host of knowledge intensive activities opposed to emerging economies as host of production intensive activities. Indeed, knowledge and production functions are intertwined and integrated between each other along the global value chain; therefore, the relocation of manufacturing

activities leads also to the transferral of service activities that are provided by business functions. Thus, our aim is to provide some empirical evidence regarding the reshoring of business functions.

3 Methodology: Evidence from the ORN Survey

The dataset adopted in this chapter is the one developed by the Offshoring Research Network (ORN), which is one of the most representative for the study of the offshoring of business functions. The idea of the ORN project was born in 2004 thanks to the Centre for International Business Education and Research (CIBER) of the Duke University in the United States. It quickly spread all over the world thanks to a network of 13 partner universities and business schools belonging to Europe (Belgium, Denmark, Germany, France, Italy, the Netherlands, the United Kingdom, and Spain), Asia (China, Japan and South Korea), South America (Brazil) and Oceania (Australia). Each partner collected data on offshoring initiatives stemming from its own country through a standardized detailed questionnaire delivered to organizations engaged in or considering sourcing administrative and technical work from abroad. Subsequently, data were clean and shared among the members of the network.

The latest release of the ORN database issued in 2011 counts 5619 observations, however, data regarding the reshoring are just on 1577 observations (see Table 1 for further details). The reshoring phenomenon has probably been evolving since 2011; however, these data are quite unique in a field (the reshoring of business functions) where the empirical evidence is still very limited. The home countries reflect the geographic areas covered by ORN partners; therefore, the headquarters mostly belong to European and US areas. The host countries are emerging economies (primarily India and China), but also advanced ones. The main goal of the network is to study, monitor and collect data focusing on issues such as the drivers, the geographic dynamics, the risks, the entry choices and the performance implications. The ORN dataset allows disentangling the analysis for industries and functions.

3.1 Descriptive Statistics

The item from the questionnaire adopted in this chapter regards what are the plans for a specific offshoring initiative in the next three years, i.e., whether respondents expect to relocate to another offshore location part or all offshore activities (further offshoring); or to relocate back to home country part or all offshore activities

Table 1 Further offshoring and back shoring evidence in the ORN survey

	No (%)						
	No expected relocation	Further offshoring only	Back shoring only	Further offshoring and back shoring	Total	Not available	Total sample
2005	–	–	–	–	–	221	221 (3.93)
2006–2007	1061 (75.46)	62 (5.11)	87 (7.17)	4 (0.33)	1214 (100.00)	1809	3023 (53.80)
2008–2009	153 (87.43)	15 (8.43)	7 (3.93)	3 (1.69)	178 (100.0)	908	1086 (19.33)
2010–2011	155 (83.78)	18 (9.73)	11 (5.95)	1 (0.54)	185 (100.00)	1104	1289 (22.94)
Total	1369 (86.81)	95 (6.02)	105 (6.66)	8 (0.51)	1577 (100.00)	4042	5619 (100.00)

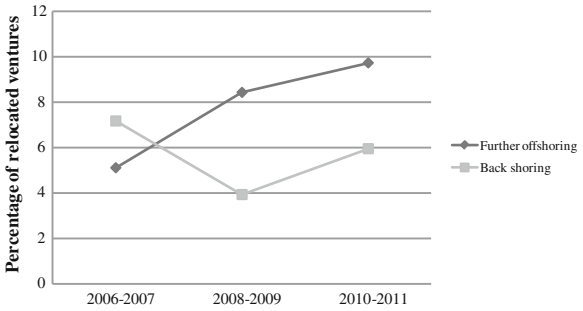

Fig. 1 Further offshoring and back shoring trends

(back shoring).[3] Unfortunately, it is not possible to control whether the initiatives have been actually further offshored and back shored or not. The ORN survey has been implemented in several rounds over time. Table 1 and Fig. 1 show the percentage of the ventures planned to be relocated in the period between 2006 and 2011. The most striking result is that companies are increasingly planning to further offshore their activities; in the first rounds of the survey only around 5% of initiatives were planned to be further offshored; while in the last ones around 10%. This finding suggests that an increasing number of offshoring companies realized that, for some reasons, the chosen location was not suitable for their business anymore; therefore, managers assessing the opportunities and threats of offshoring are realizing that it is critical to "rightshore" business activities, beyond any managerial fashion (Bals et al. 2015). The back shoring plans were very relevant in the first round of the ORN survey, but then they slightly decreased in the second

[3]The original items were: "What are the plans for this implementation for the next three years?" "Relocate to another offshore location part or all offshore activities" (i.e. Further Offshoring) and "Relocate back to home country part or all offshore activities" (i.e. Back shoring).

round and rose again in the third one. As shown in the last row of Table 1, for 8 offshoring ventures the activities are expected to be both further offshored and back shored; while 105 initiatives are planned to be back shored and 95 further offshored. The magnitude of both back shoring and further offshoring appear to be limited if we compare this finding with the one quarter of German manufacturers that back shored their activities (Kinkel and Maloca 2009). However, it is worth highlighting that the phenomenon probably has experienced further growth since 2011.

Although most of the literature has been focussed on the purchasing outside the national and firm's boundaries (offshore outsourcing) (Ellram 2013; Stentoft et al. 2015), the term offshoring refers also to the purchasing outside the national but within the firm's boundaries (captive offshoring) (Contractor et al. 2010; Gray et al. 2013; Jahns et al. 2006). Companies balance entry-mode decisions (i.e., arms-length contracts vs. wholly owned solutions) and location choices in order to combine strategic resources and the comparative advantages of the host country to build their own competitive advantages. As suggested in Table 2, outsourcing initiatives are planned to be further offshored more frequently (7.73%) than captive initiatives (4.10%) probably because it is easier to dismiss the activities outsourced to an external provider. However, the opposite is the case for back shoring, where tasks implemented in-house are more commonly (5.97%) expected to be replicated in the home country rather than those outsourced (3.70%). Hence, back shoring does not reflect the switches from one supplier to another, but the decision to relocate back to the home country the activities previously object of foreign direct investments.

Table 2 Entry-mode distribution of offshored initiatives expected to be further offshored or back shored

	No (%)						
	No expected relocation	Further offshoring only	Back shoring only	Further offshoring and back shoring	Total	Not available	Total sample
Captive	522 (89.08)	24 (4.10)	35 (5.97)	5 (0.85)	586 (100.00)	290	876 (41.79)
Joint venture	38 (88.37)	2 (4.65)	3 (6.98)	0 (0.00)	43 (100.00)	104	147 (7.01)
Outsourcing	548 (88.24)	48 (7.73)	23 (3.70)	2 (0.32)	621 (100.00)	405	1026 (48.95)
Other	18 (64.29)	8 (28.57)	2 (7.14)	0 (0.00)	28 (100.00)	19	47 (2.24)
Subtotal	1126 (88.11)	82 (6.42)	63 (4.93)	7 (0.55)	1278 (100.00)	818	2096 (100.00)
Not available	243	13	42	1	299	3224	3523
Total	1369 (86.81)	95 (6.02)	105 (6.66)	8 (0.51)	1577 (100.00)	4042	5619

Table 3 Home countries of offshored initiatives expected to be further offshored or back shored

	No (%)						
	No expected relocation	Further offshoring only	Back shoring only	Further offshoring and back shoring	Total	Not available	Total sample
Europe	438 (80.37)	20 (3.67)	80 (14.68)	7 (1.28)	545 (100.00)	2095	2640 (46.98)
US and Canada	911 (90.11)	75 (7.42)	24 (2.37)	1 (0.10)	1011 (100.00)	1676	2687 (47.82)
Rest of the world	20 (95.24)	0 (0.00)	1 (4.76)	0 (0.00)	21 (100.00)	271	292 (5.20)
Total	1369 (86.81)	95 (6.02)	105 (6.66)	8 (0.51)	1577 (100.00)	4042	5619 (100.00)

The home countries involved in the planning of back shoring of at least one business activity are Belgium, Denmark, France, Japan, the Netherlands, the United Kingdom and the United States. The intention to further offshore regards especially US firms, while the intention to back shore regards mostly European firms. Indeed, as shown in Table 3, 7.42% of US and 3.67% of European firms are planning to further offshore their activities, while 2.37% of US and 14.68% of European firms are planning to back shore their activities. Regarding the host countries (i.e., from which geographical areas companies tend to escape), Table 4 shows that further offshoring plans are more likely from Western Europe (10.06%) and Latin America (8.98%), while back shoring plans are more frequent from Australia and New Zealand (25.00%), Africa (14.29%) and the Middle East (12.50%). Thus, the planned further offshoring and back shoring flows are not necessarily from emerging to advanced countries, but they also depart from advanced countries towards other locations in the same or in different geographical areas. This result is very worrisome as long as it signals that, even if the sunk costs of the offshoring initiative are negligible and the actual offshoring location is not very desirable, firms still find more attractive other offshoring locations rather than the home country or close-by regions.

The business functions are disentangled in 12 dimensions in the ORN survey (Table 5), and the one that is more likely planned to be further offshored is the analytical and knowledge service (20.00%), suggesting that this function can be easily relocated as long as knowledge and information easily circulate across borders. The legal services (26.67%) and the human resources (13.56%) are the functions that are more frequently planned to be back shored probably because it is difficult to find abroad workers able to successfully handle the domestic institutional framework.

Aerospace and defence (32.26%), arts, entertainment and recreation (23.08%), and automotive (21.79%) are the industries with the highest percentage of plans to further offshore their activities. Professional services and retail and consumer goods

Table 4 Geographical area distribution of offshored initiatives expected to be further offshored or back shored

	No (%)						
	No expected relocation	Further offshoring only	Back shoring only	Further offshoring and back shoring	Total	Not available	Total sample
Africa	24 (85.71)	0 (0.00)	4 (14.29)	0 (0.00)	28 (100.00)	62	90 (2.40)
Asia (except India and China)	147 (86.47)	10 (5.88)	13 (7.65)	0 (0.00)	170 (100.00)	216	386 (10.29)
Australia and New Zealand	11 (68.75)	1 (6.25)	4 (25.00)	0 (0.00)	16 (100.00)	39	55 (1.47)
China and Hong Kong	126 (94.74)	6 (4.51)	0 (0.00)	1 (0.75)	133 (100.00)	198	331 (8.82)
Eastern Europe	129 (86.00)	7 (4.67)	10 (6.67)	4 (2.67)	150 (100.00)	256	406 (10.82)
Western Europe	149 (83.24)	18 (10.06)	12 (6.70)	0 (0.00)	179 (100.00)	217	396 (10.55)
India	551 (87.32)	34 (5.39)	44 (6.97)	2 (0.32)	631 (100.00)	821	1452 (38.70)
Latin America	151 (90.42)	15 (8.98)	1 (0.60)	0 (0.00)	167 (100.00)	267	434 (11.57)
Middle East	13 (81.25)	1 (6.25)	2 (12.50)	0 (0.00)	16 (100.00)	31	47 (1.25)
US and Canada	44 (89.80)	1 (2.04)	3 (6.12)	1 (2.04)	49 (100.00)	106	155 (4.13)
Subtotal	1345 (87.39)	93 (6.04)	93 (6.04)	8 (0.52)	1539 (100.00)	2213	3752 (100.00)
Not available	24	2	12	0	38	1829	1867
Total	1369 (86.81)	95 (6.02)	105 (6.66)	8 (0.51)	1577 (100.00)	4042	5619

show very high percentages of back shoring plans (respectively 21.43 and 15.38% as shown in Table 6).

The ORN survey is characterized by the presence of very large companies that have been divided into three main categories: small (less than 500 full-time equivalent employees), medium (between 500 and 20,000 full-time equivalent employees), and large (more than 20,000 full-time equivalent employees) companies. Larger companies are the ones with the highest likelihood to plan to further offshore their activities (see Table 7) and this evidence is close to the traditional offshoring dynamics where larger firms are the ones with the highest probability to offshore (Albertoni and Elia 2014). Conversely, small companies are the ones with the highest likelihood to plan to back shore their activities (see Table 7). The

Table 5 Business functions distribution of offshored initiatives expected to be further offshored or back shored

	No (%)						
	No expected relocation	Further offshoring only	Back shoring only	Further offshoring and back shoring	Total	Not available	Total sample
Analytical/knowledge services	38 (76.00)	10 (20.00)	2 (4.00)	0 (0.00)	50 (100.00)	160	210 (4.21)
Call Centre/customer contact	193 (82.48)	20 (8.55)	20 (8.55)	1 (0.43)	234 (100.00)	483	717 (14.39)
Engineering services	135 (91.22)	11 (7.43)	1 (0.68)	1 (0.68)	148 (100.00)	293	441 (8.85)
Finance/accounting	146 (89.57)	6 (3.68)	10 (6.13)	1 (0.61)	163 (100.00)	353	516 (10.35)
Human resources	50 (84.75)	1 (1.69)	8 (13.56)	0 (0.00)	59 (100.00)	206	265 (5.32)
Information technology	311 (88.60)	12 (3.42)	25 (7.12)	3 (0.85)	351 (100.00)	643	994 (19.94)
Legal services	11 (73.33)	0 (0.00)	4 (26.67)	0 (0.00)	15 (100.00)	72	87 (1.75)
Marketing and sales	106 (92.98)	1 (0.88)	7 (6.14)	0 (0.00)	114 (100.00)	152	266 (5.34)
Product design	65 (90.28)	5 (6.94)	2 (2.78)	0 (0.00)	72 (100.00)	163	235 (4.72)
Research & development	84 (88.42)	7 (7.37)	4 (4.21)	0 (0.00)	95 (100.00)	213	308 (6.18)
Software development	126 (81.82)	13 (8.44)	14 (9.09)	1 (0.65)	154 (100.00)	360	514 (10.31)
Supply chain and facilities	80 (85.11)	8 (8.51)	5 (5.32)	1 (1.06)	94 (100.00)	242	336 (6.74)
Other	24 (85.71)	1 (3.57)	3 (10.71)	0 (0.00)	28 (100.00)	67	95 (1.91)
Subtotal	1369 (86.81)	95 (6.02)	105 (6.66)	8 (0.51)	1577 (100.00)	3407	4984 (100.00)
Not available	0	0	0	0	0	635	635
Total	1369 (86.81)	95 (6.02)	105 (6.66)	8 (0.51)	1577 (100.00)	4042	5619

Table 6 Industry distribution of offshored initiatives expected to be further offshored or back shored

	No (%)						
	No expected relocation	Further offshoring only	Back shoring only	Further offshoring and back shoring	Total	Not available	Total sample
Aerospace and defence	21 (67.74)	10 (32.26)	0 (0.00)	0 (0.00)	31 (100.00)	79	110 (2.01)
Arts, entertainment and recreation	10 (76.92)	3 (23.08)	0 (0.00)	0 (0.00)	13 (100.00)	15	28 (0.51)
Automotive	19 (82.61)	3 (13.04)	1 (4.35)	0 (0.00)	23 (100.00)	97	120 (2.19)
Construction	9 (90.00)	1 (10.00)	0 (0.00)	0 (0.00)	10 (100.00)	97	107 (1.95)
Energy, utilities and mining	23 (92.00)	2 (8.00)	0 (0.00)	0 (0.00)	25 (100.00)	149	174 (3.18)
Financial services	246 (86.01)	31 (10.84)	9 (3.15)	0 (0.00)	286 (100.00)	708	994 (18.16)
Government and public services	3 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)	3 (100.00)	30	33 (0.60)
Healthcare	10 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)	10 (100.00)	73	83 (1.52)
Manufacturing	208 (94.98)	8 (3.65)	3 (1.37)	0 (0.00)	219 (100.00)	361	580 (10.59)
Pharmaceuticals and life sciences	29 (93.55)	2 (6.45)	0 (0.00)	0 (0.00)	31 (100.00)	101	132 (2.41)
Professional services	102 (72.86)	6 (4.29)	30 (21.43)	2 (1.43)	140 (100.00)	442	582 (10.63)
Retail and consumer goods	61 (78.21)	5 (6.41)	12 (15.38)	0 (0.00)	78 (100.00)	166	244 (4.46)
Software and IT services	315 (84.91)	14 (3.77)	40 (10.78)	2 (0.54)	371 (100.00)	711	1082 (19.76)
Telco	83 (85.57)	5 (5.15)	8 (8.25)	1 (1.03)	97 (100.00)	263	360 (6.58)
Transportation and logistics	63 (96.92)	1 (1.54)	1 (1.54)	0 (0.00)	65 (100.00)	127	192 (3.51)
Other	125 (96.15)	3 (2.31)	0 (0.00)	2 (1.54)	130 (100.00)	524	654 (11.95)
Subtotal	1327 (86.62)	94 (6.14)	104 (6.79)	7 (0.46)	1532 (100.00)	3943	5475 (100.00)
Not available	42	1	1	1	45	99	144
Total	1369 (86.81)	95 (6.02)	105 (6.66)	8 (0.51)	1577 (100.00)	4042	5619

Table 7 Size of offshored initiatives expected to be further offshored or back shored

	No (%)						
	No expected relocation	Further offshoring only	Back shoring only	Further offshoring and back shoring	Total	Not available	Total sample
Small	342 (82.81)	22 (5.33)	42 (10.17)	7 (1.69)	413 (100.00)	1152	1565 (28.58)
Midsize	432 (89.44)	28 (5.80)	23 (4.76)	0 (0.00)	483 (100.00)	1318	1801 (32.89)
Large	587 (88.67)	45 (6.80)	29 (4.38)	1 (0.15)	662 (100.00)	1447	2109 (38.59)
Subtotal	1361 (87.36)	95 (6.10)	94 (6.03)	8 (0.51)	1558 (100.00)	3917	5475 (100.00)
Not available	8	0	11	0	19	125	144
Total	1369 (86.81)	95 (6.02)	105 (6.66)	8 (0.51)	1577 (100.00)	4042	5619

underlying economic intuition is that small companies might not have the financial capabilities to successfully sustain business activities displaced all over the world, and they are probably more flexible when they need to re-organize their activities back to the home country.

Unfortunately, the dataset does not allow capturing variations in the business context; however, it is possible to analyse whether a certain business context is particularly hostile or favourable. Therefore—in order to take into account the institutional framework of the host countries—we computed four new variables capturing the institutional framework and the macro-economic performance of the host countries: the *Market Attractiveness*, the *Political Stability*, the *Location Costs* and the *High Value-Added Resources*. These variables are the result of a factor analysis implemented on the World Competitiveness Yearbook (WCY) and Worldwide Governance Indicators (WGI) databases using only the average of the data between 2004 and 2011 (the years of the survey). The *Market Attractiveness* includes the following variables: the Gross Domestic Product, the Gross Fixed Capital Formation, the Direct Investment Inflows Inward, Government Consumption Expenditure and Household Consumption Expenditure. The *Political Stability* includes: the Political Stability and Absence of Violence/Terrorism, the Government Effectiveness, the Regulatory Quality, the Rule of Law and the Control of Corruption. The variable *Location Costs* considers: the Remuneration of the Call Centre Agent, the Remuneration of the Manufacturing Worker, the Remuneration of the Department Head, the Remuneration of the Personal Assistant. The variable *High Value-Added Resources* encompasses: the Information Technology Skills, the Qualified Engineers and the Skilled Labour. The items belonging to the variables *Market Attractiveness*, the *Location Costs* and the *High Value-Added Resources* are taken from the WCY dataset, while the items belonging to the *Political Stability* are taken from the WGI dataset. See Table 8 for further details.

Table 8 Exploratory Factor Analysis on location variables (Principal Components with Varimax Rotation)

First order construct	Items	Source	Description	Loading	Alpha
Market attractiveness	Gross domestic product	WCY	Gross domestic product	0.9864	0.7939
	Gross fixed capital formation	WCY	Inward foreign direct investments	0.9519	
	Direct investment inflows inward	WCY	Direct investment inflows inward	0.8724	
	Government consumption expenditure	WCY	Government consumption expenditure	0.9726	
	Household consumption expenditure	WCY	Household consumption expenditure	0.9698	
Political stability	Political stability and absence of violence/terrorism	WGI	Perception of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism	0.8783	0.9696
	Government effectiveness	WGI	Perception of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies	0.8556	
	Regulatory quality	WGI	Perception of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development	0.9011	
	Rule of law	WGI	Perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence	0.8859	

(continued)

Table 8 (continued)

First order construct	Items	Source	Description	Loading	Alpha
	Control of corruption	WGI	Perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests	0.8544	
Location costs	Remuneration call center agent	WCY	Gross annual income including supplements such as bonuses—Call center agents	0.7480	0.7849
	Remuneration manufacturing worker	WCY	Total hourly compensation for manufacturing workers (wages + supplementary benefits)	0.7606	
	Remuneration department head	WCY	Gross annual income including supplements such as bonuses—Department head	0.7254	
	Remuneration personal assistant	WCY	Gross annual income including supplements such as bonuses—Personal assistant	0.7622	
High value-added resources	Information technology skills	WCY	The extent to which the country can rely on information technology skills	0.8036	0.9237
	Qualified engineers	WCY	The extent to which qualified engineers are available in labor market	0.9310	
	Skilled labor	WCY	The extent to which skilled labor is readily available in labor market	0.9000	

Note The factor analysis has been performed on 60 countries. The items have been included in the factor analysis as the average value of the period 2004–2011. Higher values reflect better outcomes for all items. WCY stands for World Competitiveness Yearbook, published by the International Institute for Management Development (IMD) of Lausanne (http://www.imd.org/wcc/), while WGI stands for Worldwide Governance Indicators, published by the World Bank (http://info.worldbank.org/governance/wgi/index.asp)

Moreover, the variable *Cultural Distance* was retrieved from Hofstede (2001) in order to include also the impact of culture on reshoring and back shoring decisions; the formula adopted is the one of Kogut and Singh (1988). Probably the main pitfall of this variable is that it is time-invariant, thus unable to capture the evolution over time of the psychic distance.

Table 9 Correlation between further offshoring/back shoring and the business context, the firm and offshoring initiative's performance and the interconnections along the value chain

	Further offshoring	Back shoring
Business context		
Market attractiveness	−0.0021	−0.0365
Political stability	0.0284	0.0633**
Location costs	0.0537**	−0.0103
High value-added resources	−0.0230	−0.0056
Cultural distance	0.0156	−0.0578**
Firm's performance		
Increased productivity/efficiency	0.0500	−0.0071
Firm growth	0.0499	−0.1018***
Better focus on core competencies	0.0826**	−0.1248***
Better access to qualified personnel	0.0475	−0.0534
Improved organizational flexibility	0.0473	−0.1409***
Improved service quality	0.0455	−0.0659*
Better access to new markets	−0.0186	−0.1395***
Breakthrough process improvement(s)	0.0846**	−0.1068***
Major product innovation(s)	0.0736**	−0.1265***
Increase in firm's overall competitiveness	0.0434	−0.0325
Learned to source innovation outside of firm boundaries	−0.0582	−0.2277**
Offshoring initiative's performance		
Degree of satisfaction with the service quality	0.0645	−0.3065***
Percentage of cost improvement achieved for this implementation over the last fiscal year	−0.0302	−0.0511
Percentage of savings achieved in the first 12 months	0.0102	0.0226
Interconnections along the value chain		
Co-locating with existing offshore manufacturing plants	−0.0081	−0.1109***
Co-locating with existing offshore business processes facilities	−0.0089	−0.0770***

Legend * if $p < 0.10$; ** if $p < 0.05$; *** if $p < 0.01$

As shown in Table 9, greater *Political Stability* in the host country is associated with higher likelihood of back shoring, probably because very stable political contexts are also the ones with little growth opportunities. It is interesting to note that further offshoring is probably driven by the inflation of location costs. The fact that higher *Cultural Distance* is negatively correlated with the perspectives of back shoring might be related to the fact that the sunk costs in culturally distant countries are very high and companies tend to minimize disinvestments.

Back shoring plans are probably triggered by performance shortcomings; the ORN dataset allows controlling for both firm's level and offshoring initiative's level performance. It is interesting to note that there is a statistically significant negative correlation between the back shoring variable and several measures of performance both at firm and offshoring initiative's level. Conversely, very few outcome

measures are correlated with further offshoring and the sign is positive. The economic intuition is that while the back shoring is probably associated with unsuccessful ventures, the further offshoring is related with successful ventures that are moved anyway or, in any case, they are relocated not necessarily due to their unsatisfactory performance.

In addition, the interconnections between different activities along the value chain reduce the likelihood of back shoring, indeed the co-presence of manufacturing plants and other business process probably hinder the process of disinvestment.

4 Concluding Remarks

Reshoring is gaining increasing interest among media and policy makers as long as it is considered an opportunity to reduce unemployment, reinforce innovation and ultimately reinvigorate the wealth of advanced countries. However, scholars mostly investigated the back shoring of manufacturing, while very little is known about the reshoring of business functions and the main contribution of this chapter is to try to fill this gap in the literature as long as manufacturing activities and business functions are strongly intertwined and the latter often quickly follow the former.

The overall evidence in ORN shows that companies are increasingly planning to relocate their once offshored business functions over time. However, the magnitude of the further offshoring and back shoring phenomena are still limited, probably because (i) there are no government incentives to back shore business activities; (ii) the past sunk costs faced to offshore business activities constitute a consistent exit barrier from the host country; and (iii) advanced countries have not yet regained their attractiveness. Moreover, it is likely that the phenomenon has evolved a lot since the last ORN release in 2011.

The evidence in the ORN survey shows that outsourcing solutions are planned to be further offshored while captive ones are usually planned to be back shored. Regarding the home countries, US firms mostly plan to further offshore their functions, while European firms mostly plan to back shore their activities. It is worth noting that, regarding the host countries, reshoring flows are not necessarily from developing to advanced countries. The business function that is more likely planned to be further offshored is the analytical and knowledge service, and the business functions that are more frequently planned to be back shored are the legal services and the human resources. Aerospace and defence, arts, entertainment and recreation, and automotive are the industries with the highest percentage of further offshoring plans; and professional services and retail and consumer goods are the industries with the highest percentage of back shoring plans. Regarding the size, large companies tend to plan to further offshore more frequently, while small companies are the ones with the highest likelihood to plan to back shore.

Our results confirm our expectations; reshoring plans are affected by mutations of the business context, performance shortcomings, and interconnections along the

value chain. In particular, high political stability in the host country is associated with back shoring plans, probably because stable democracies coincide with advanced countries where it is not very convenient to do business. High location costs are related with higher likelihood of further offshoring plans and this result suggest that the drivers of further offshoring are very close to the ones of the original offshoring (i.e., cost savings). Higher cultural distance is related with lower likelihood of back shoring plans probably due to the sunk costs faced to enter very distant countries and the subsequent reluctance to leave them.

As expected, negative firm's performance increases the probability of back shoring plans; while it reduces the likelihood of further offshoring plans. The positive correlation between performance shortcomings and back shoring suggests that, when the expected outcome is not achieved, some firms must relocate back home their activities with economic and hidden costs that are difficult to be estimated. Therefore, regarding the managerial implications, our results suggest that—in a world that is not flat—practitioners must implement thoughtful risk analysis before offshoring business activities rather than following some managerial fashions. "Rightshoring" is extremely critical in order to be competitive in today's complex and turbulent market.

Regarding the policy implications, given the current size of the phenomenon, governments should probably implement industrial policy interventions directed towards the maintenance of the existing activities at home, besides trying to bring back those already offshored through the improvement of their market attractiveness. In order to do that, advanced countries should improve the efficiency of their economic system building a fertile business environment and enhancing the synergies between production and administrative tasks. European and US industrial policies should try to foster the overall competitiveness of advanced countries enabling the synergies between production and knowledge intensive activities in order to sustain the growth of advanced countries through the attraction of capitals and new business ventures. Moreover, national governments should strengthen the regulations regarding the countries of origin. In particular, the final customer should be aware that, even though the final product or service is partially or entirely made in a certain country, some of the business activities related with the production of the good (e.g., its design) might have been performed somewhere else. Only a market economy guaranteeing perfect information allows fair competition able to reward the most productive companies.

Regarding future research, our results suggest that greater investigation is needed to understand the opportunities and the challenges related with companies that have offshored their activities. Indeed, the consequences of the phenomenon for both managers and policy makers are still unclear. First, the costs of reshoring for the companies together with the viable best practices must be inquired in depth; second, it is not clear whether policy makers should just reinforce the current regulations and work on the overall competitiveness of their country, or they should support and incentive reshoring through ad hoc interventions, if any.

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Part II
Enablers and Drivers

Knowledge Transfer in Reshoring

Daniella Fjellström, Lok Yan Lui and Wilfredo Caceres

Abstract Knowledge is a key resource in any organization, and during a reshoring process, transferring knowledge to the home market is crucial. This study offers an in-depth comprehension of the factors influencing the knowledge transfer process in companies conducting in-house reshoring. We applied a qualitative multiple case study approach of Swedish organizations that fulfilled the criteria for in-house reshoring. Similar to other knowledge transfer processes, knowledge transfer during in-house reshoring is influenced by cultural, linguistic, and physical distances. Furthermore, reshoring motivation has an impact on the actors' knowledge transfer motivation. This investigation clarifies knowledge transfer in the context of reshoring, and exposes the challenges of knowledge transfer during reshoring. The study signifies the importance of understanding reshoring motivation for the success of reshoring. It moreover contributes to the research on knowledge transfer by providing evidence of the influence of the role of knowledge on the choice of knowledge transfer methods. In addition, the study extends the research on the reverse direction of knowledge transfer, in terms of in-house reshoring scenarios.

Keywords Knowledge transfer · Reshoring · Sweden · In-house reshoring

1 Introduction

Reshoring is an emerging topic in international business (Fjellström et al., in press) and in supply chain management. The perspectives most commonly studied are motivation and implications of reshoring. Kinkel and Maloca (2009) along with

D. Fjellström (✉) · L.Y. Lui · W. Caceres
Department of Business and Economic Studies, University of Gävle, Gävle, Sweden
e-mail: Daniella.Fjellstrom@hig.se

L.Y. Lui
e-mail: ruby061@yahoo.com.hk

W. Caceres
e-mail: willct@gmail.com

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Tate et al. (2014), argued that knowledge transfer is crucial for successful reshoring. Notwithstanding, research on knowledge transfer during reshoring is scanty, particularly in terms of how the transfer is affected and which challenges it faces. When reshoring involves a stretch of time as well as investment in relocating the resources (Kinkel and Maloca 2009; Tate et al. 2014), companies should evaluate not only supply chain logistics and cost effectiveness of pre- and post-reshoring, but also the intangible assets, like human capital, residing knowledge, and developed networks (Kinkel and Maloca 2009; Tate et al. 2014; Sparkes and Miyake 2000; Bollinger and Smith 2001).

To date, the knowledge transfer (KT) research has mainly focused on international and cross-border KT processes among IJVs, MNCs (Fjellström and Zander 2017), and strategic alliances (Lyles and Salk 1996; Mowery et al. 1996; Simonin 1999; Ambos and Ambos 2009; Al-Salti and Hackney 2011). These studies focused on knowledge transition from headquarters to overseas affiliates, and just touched on the reverse direction of knowledge transmission, i.e. from overseas affiliates back to headquarters or companies' home countries.

Reshoring has been classified into four types: in-house reshoring, outsource reshoring, reshoring for outsourcing, and reshoring for insourcing (Gray et al. 2013). The research on reshoring has usually centred on generic rather than particular reshoring scenarios (Kinkel and Maloca 2009; Ellram 2013; Tate et al. 2014). The present study extends the studies by Kinkel and Maloca (2009) and Tate et al. (2014), who recognized the importance of knowledge transfer, and in particular during in-house reshoring. The investigation explored the factors affecting the knowledge transfer process of in-house reshoring companies. It employed a knowledge-based view, applying theories on knowledge transfer to the in-house reshoring process. Two research questions were formulated:

1. Which factors affect knowledge transfer during in-house reshoring?
2. How do these factors affect the knowledge transfer process during in-house reshoring?

2 Literature Review

2.1 Reshoring

Reshoring is defined as an offshored business production unit moving back to the parent company's home country, also known as the country of headquarters (Kinkel and Maloca 2009; Ellram 2013; Arlbjørn and Mikkelsen 2014; Bailey and De Propris 2014; Tate et al. 2014; Gylling et al. 2015). The definition of reshoring is known to circle around changes of two elements: location and ownership. In terms of location, Ellram (2013) as well as Bailey and De Propis (2014) defined reshoring as a change of location, and described it as moving manufacturing back to the

country of the parent company. Tate et al. (2014) highlighted the value of locations, and established that reshoring is a relocation of offshored manufacturing units to more attractive locations, including their home country. The other reshoring element is a change in ownership during a reshoring process. Kinkel and Maloca (2009) defined reshoring as relocation or re-concentration of outsourced or in-house production units from foreign locations to their home country, regardless of being in-house or outsourced in their home country. Arlbjørn and Mikkelsen (2014) also established the importance of the ownership-of-unit criteria, but specified that reshoring will only ensue if ownership as well as control of the relocated business unit is kept in-house at the home country. Gylling et al. (2015) argued that reshoring should be defined as a company's activities being returned from another country to its home country, and emphasized that activities must be brought in-house.

Supplementing to the ownership and location changes, Gray et al. (2013) attempted to straighten out this definition debate by introducing generic expressions for reshoring. They founded four different reshoring types. The first type is *in-house reshoring*, i.e. firms relocating manufacturing activities conducted in wholly owned offshore facilities back to wholly owned facilities in their home country. The second type is *reshoring for outsourcing*, i.e. firms relocating manufacturing activities conducted in wholly owned offshore facilities back to suppliers in their home country. The third type is *reshoring for insourcing*, i.e. firms relocating manufacturing activities conducted by offshore suppliers back to wholly owned facilities in their home country. The fourth type, *outsourced reshoring*, refers to a firm relocating manufacturing activities conducted by offshore suppliers back to suppliers in their home country. This chapter focuses on in-house reshoring.

2.2 Knowledge Transfer

Knowledge is a reasoned judgement of facts, ideas, and beliefs (Bell 1973; Pritchard 2010), and comprises the collective wisdom resulting from organized loose data and information obtained through a process of observation, investigation, and first-hand experience (Bollinger and Smith 2001; Ambos and Ambos 2009). Knowledge should be accessible and validated by evidence (Kalling and Styhre 2003).

Traditionally, knowledge has been distinguished as tacit and explicit, being experiential and articulated, respectively (Simonin 1999). Tacit knowledge relates to experience and skills of people, and it can only be shared with people with similar or same background, whereas explicit knowledge can be long-term stored and circulated, using good technology software (Bonache and Brewster 2001). The tacitness nature of knowledge has been emphasized since knowledge is intangible (Kalling and Styhre 2003) and not measurable (Mowery et al. 1996). Tacit, intangible knowledge is nonetheless important to companies in order to sustain competitiveness in the market; it can stimulate organizations' innovativeness (Al-Salti and Hackney 2011; Khamseh et al. 2017). Although knowledge may be

explicated in writing, it is still distributed in a scattered manner, mostly inherited by individuals without awareness of its existence (Polanyi 1998; Kalling and Styhre 2003). Due to its ineffability, knowledge is furthermore characterized as ambiguous, something that is easier to display by practise than by verbal communication (Polanyi 1998; Simonin 1999). Its tacitness is also linked with its situational nature, because a specific piece of knowledge will never be applicable to all situations. Variations in for instance time, place, and human involvement necessitate flexibility (Prichard 2000; Kalling and Styhre 2003). Contemplating these conceptual ideas about knowledge, the present study defines knowledge as collective, organized information, and it is tacit in nature since explicated knowledge is still situational.

Knowledge and experience of individuals are regarded as a company's competitive advantage and knowledge asset in the resource-based knowledge view (Prichard 2000; Mowery et al. 1996; Enderwick 2011; Pérez-Nordtvedt et al. 2008). However, as a company's competitive advantage, this knowledge asset needs to be rare, inimitable, and non-substitutable (Bollinger and Smith 2001). Hence, knowledge-based organizations regard a high level of knowledge-sharing as their intellectual resource (Kalling and Styhre 2003), because a collective of knowledge allows individuals and companies to carry out tasks with higher efficiency (Ambos and Ambos 2009). Up-to-date knowledge furthermore allows companies, particularly entrepreneurs and SMEs, to lead their business to internationalization (Suárez-Ortega et al. 2016).

Knowledge transfer (KT) is an ongoing knowledge acquisition process (Lyles and Salk 1996). It involves a knowledge receiver acquiring knowledge from a knowledge sender through interaction of personnel, patent disclosure, publications, assets, and service exchanges (Albino et al. 1998). It also entails a knowledge reconstruction process (Szulanski 2000), since new knowledge might be discovered during the KT process (Lyles and Salk 1996; Szulanski 2000). The KT process does not include people involvement alone, but also the assistance of technology (Bhojaraju 2005; Ambos and Ambos 2009), for instance a data warehouse and digital communication channels. Utilizing technology permits knowledge exploitation to be maximized in a network (Ambos and Ambos 2009).

Extensive research on knowledge transfer has been conducted in a range of international businesses during the recent decades. For instance, Khamseh et al. (2017) studied the impact of knowledge transfer on innovation in French companies. Ahammad et al. (2016) investigated the impact of knowledge transfer and employee retention on the performance of British companies after cross-border acquisitions. Nell et al. (2016) sampled information about European-based multinational companies in their research on the significance of geographic distance for knowledge transfer effectiveness. Khan et al. (2015) surveyed companies in Pakistan, a developing country, in order to understand the characteristics of their knowledge transfer. Huong et al. (2013) studied knowledge transfer in Japanese software companies outsourcing to Vietnam. Pérez-Nordtvedt et al. (2008) examined the determinants of effective and efficient cross-border knowledge transfer among American organizations, while Bonache and Brewster (2001) and Tsang (1999) focused on the role overseas expatriates played in terms of knowledge

transfer in Spanish and Singaporean companies, respectively. In addition, Sparkes and Miyake (2000) looked into the influence of human resource management on knowledge transfer between Japanese companies and their Mexican and Brazilian partners. Earlier research by Lyles and Salk (1996) investigated knowledge acquisition from Hungarian-based companies to their parent companies during joint international ventures. To summarize, many scholars have conducted research on knowledge transfer from various perspectives and in a number of geographic contexts, and the importance of knowledge transfer to international business is hence acknowledged.

2.3 Knowledge Transfer Factors

An effective KT process relies on dynamic organizational and interpersonal factors. Organizational factors refer to elements generated by entities involved in the KT process, while personal factors refer to elements prompted by individual KT actors, such as knowledge senders and receivers.

2.4 Organizational Factors

Organizational factors, in terms of organizational culture, are able to affect the KT process and its actors at large (Fjellström and Zander 2017). Organizational cultures embolden ethnocentric mentalities of management and employees, in a manner perceived as disrespectful thus discouraging KT actors to share and learn, particularly by displaying an arrogant or humiliating attitude (Tsang 1999). Therefore, organizational cultures are deemed to have an impact on a company's capacity to receive, absorb, and transmit knowledge, and this includes holders as well as acquirers of knowledge (Albino et al. 1998). In contrast to bureaucratic cultures, a flexible organizational culture favours the willingness and efficiency of employees to exchange knowledge (Lyles and Salk 1996; Szulanski 2000; Al-Salti and Hackney 2011). It has furthermore been proved that KT between two organizations with different organizational cultures might bring about ambiguity of the transmitted knowledge (Simonin 1999). In comparison, Ambos and Ambos (2009) found that similar organizational practices of two parties are significantly beneficial to KT in multinational companies.

2.5 Interpersonal Factors

Interpersonal factors refer to those affecting interactions among knowledge senders and receivers, such as motivation, cultural distance, physical distance, linguistic distance, and experience.

Motivation not only influences the willingness of knowledge senders and receivers to share and obtain knowledge directly, it also affects support (Lyles and Salk 1996; Kalling and Styhre 2003) and passion in the KT process (Sié and Yakhlef 2009). The level of motivation varies and is dependent on the awareness of and the agreement with the KT goals in knowledge senders and receivers (Lyles and Salk 1996; Kalling and Styhre 2003), as well as the satisfaction gained by performing a task or receiving financial rewards (Sié and Yakhlef 2009). Motivation may also be classified as extrinsic and intrinsic. Knowledge senders and receivers that are motivated intrinsically are more passionate in transmitting tacit knowledge, because the level of personal experience sharing is higher (Sié and Yakhlef 2009), and the transferability of purposeful knowledge is also more prominent in highly motivated senders (Riege 2007). If knowledge senders find the KT to be beneficial to the receivers rather than to themselves, this might demotivate them, since they have to devote extra time and effort in the favour of the receivers (Lyles and Salk 1996; Kalling and Styhre 2003; Riege 2007). They furthermore risk losing their superiority and job security if they no longer are the unique owner of the knowledge (Simonin 1999; Kalling and Styhre 2003; Riege 2007; van Wijk et al. 2008). Meanwhile, knowledge receivers' learning motivation highly affects their knowledge absorption and learning capacity because of its direct impact on their collaborative behaviour and their involvement in the KT process (Lyles and Salk 1996; Szulanski 2000; Kalling and Styhre 2003). The higher the motivation is in knowledge senders and receivers, the more they will get involved proactively in the KT process (Szulanski 2000).

Cultural distance is another common determinant of effective KT since there is a risk of misunderstanding between knowledge senders and receivers, and a large cultural distance may result in a less smooth knowledge flow (Lyles and Salk 1996; van Wijk et al. 2008). Mowery et al. (1996) investigated KT in American-American and American-non-American strategic alliances, and proved that American-American alliances have a more advanced knowledge exchange because of similar cultural backgrounds. In contrast, cultural conflicts between the parties result in the KT being less effective in American-non-American alliances. Bonache and Brewster (2001) conducted a study on Spanish expatriates assigned from a Spanish bank to Latin America. As both are from Spanish/Latino cultures, they were able to enlarge the knowledge flow. Ambos and Ambos (2009) compared personal-based and technology-based communication and found that cultural differences have a large influence on personal-based interactions during the KT process. Consequently, a collective of personal national cultures not only contributes to the communication efficiency of individual knowledge senders and receivers, but also enhances the organizations' cross-cultural collaboration and learning capacity (Albino et al. 1998; Simonin 1999).

People sharing a linguistic background are able to minimize cultural and communication misunderstandings, because the parties involved can clarify confusions easier (Tsang 1999; Szulanski 2000; Ambos and Ambos 2009; Al-Salti and Hackney 2011). A language barrier is the biggest KT challenge between companies in the technology-related industry because of the ambiguity and intangible

characteristics of technological knowledge (Tsang 1999; Al-Salti and Hackney 2011). It is however also argued that language differences do not affect a technology-based KT process as much as a personal-based KT process, the reason being that knowledge can be codified to a common system language by technical infrastructure (Ambos and Ambos 2009). Nonetheless, given the chance to learn the foreign language before interacting with the foreign counterparties, people quickly adapt to the overseas cultural environment and avoid cultural misunderstandings (Tsang 1999).

An increase in physical distance between knowledge senders and receivers might intensify the communication barriers (Ambos and Ambos 2009; Al-Salti and Hackney 2011), one of the reasons being time differences hampering the arrangement of personal-based communication such as face-to-face meetings or even phone calls (Ambos and Ambos 2009). As a consequence, international companies encounter increased difficulties in controlling and managing KT collaboration and consistency (Al-Salti and Hackney 2011). However, a technology-based KT process is not necessarily affected by physical distance; there is no noticeable difference in sending e-mails to neighbours or overseas, (Ambos and Ambos 2009).

The experience of KT actors is classified into *expertise knowledge* and *KT experience*. Expertise knowledge is an accumulation of practical experience (Sié and Yakhlef 2009). With no related domains of basic knowledge, organizations and individuals may encounter increased challenges in terms of acquiring a smooth knowledge exchange (Mowery et al. 1996; Cheng et al. 2010) since their capacity of absorbing knowledge is highly linked with their expertise in that particular knowledge area (Simonin 1999; Sié and Yakhlef 2009; Cheng et al. 2010). If individuals are proffered up-to-date work-related knowledge, their capacity of absorbing new knowledge is enhanced (Al-Salti and Hackney 2011). In addition, the KT experience of an individual may affect his/her collaboration (Simonin 1999) and openness/protectiveness (Albino et al. 1998) during the KT process. Increased KT experience improves the ability of knowledge senders to convey an intelligible message when exchanging and sharing knowledge (Albino et al. 1998; Simonin 1999). Experts and knowledgeable people with little or no skill in knowledge-sharing and/or communication need to train their knowledge transferability (Riege 2007). Then again, knowledge receivers possess a higher absorption capacity when they are proficient in learning across cultural and language differences (van Wijk et al. 2008).

2.6 Knowledge Transfer in Reshoring

Although reshoring companies usually are able to predict the monetary costs, to accurately assess the quality results after reshoring is hard (Kinkel and Maloca 2009). Companies need to continually deal with the dynamic macroeconomic changes as well as the assurance of quality during their reshoring process (Bailey and De Propris 2014; Bals et al. 2016; Tate et al. 2014; Fjellström et al., in press).

Accordingly, companies are suggested not to over-focus on financial factors, because the monetary and resources investments in switching location may both offset the expected savings in the event of any failure during the reshoring process (Tate et al. 2014). Hence, Kinkel and Maloca (2009) and Tate et al. (2014) particularly highlighted how important knowledge transfer is for the value of reshoring.

Kinkel and Maloca (2009) found that unsuccessful knowledge transfer in an offshored site is one of the main driving forces behind reshoring, and that the failure is due to lack of expertise personnel in the offshored sites. Tate et al. (2014) highlighted that effective tacit knowledge transfer indeed contributes to the success of reshoring. Furthermore, availability of knowledge in the home country (or the unavailability of knowledge in offshored countries) is regarded as one of the most important motives for reshoring in order to maintain competitive advantages (Kinkel and Maloca 2009; Tate et al. 2014). Table 1 summarizes the use of knowledge in reshoring processes to acquire better quality control, product innovation, and market competitiveness (Kinkel and Maloca 2009; Tate et al. 2009; Bailey and De Propis 2014; Tate 2014; Gylling et al. 2015; Bals et al. 2016; Frattocchie et al. 2016; Fjellström et al., in press). Similar to other business relocations or partnerships, in-house reshoring requires communication with the offshored counterparty, encountering cultural, language, and geographical distance barriers raised by the company's home country (Kinkel and Maloca 2009; Gray et al. 2013; Tate 2014). Companies failing to practice effective knowledge transfer might as a consequence not attain the expected value of reshoring. To prevent this, Bals et al. (2016) advocated that companies should establish a platform for knowledge exchange and experience discussion.

2.7 *Challenges of Knowledge Transfer in Reshoring*

Exploring the manufacturing relocation perspective, Cheng et al. (2010) found that the challenges of knowledge transfer concern which types of knowledge that needs to be transmitted. They recognized that operational knowledge and experience are

Table 1 The use of knowledge in reshoring processes

Use of knowledge	References
Quality control	Kinkel and Maloca (2009), Tate et al. (2009), Bailey and De Propis (2014), Frattocchie et al. (2016)
Product innovation	Kinkel and Maloca (2009), Tate (2014), Tate et al. (2014), Bailey and De Propis (2014)
Market competitiveness	Kinkel and Maloca (2009), Tate et al. (2009), Kinkel (2012), Bailey and De Propis (2014), Tate (2014), Tate et al. (2014), Gylling et al. (2015), Bals et al. (2016)

Source Authors' table

the most difficult to share between individuals due to their tacit and situational nature. They also emphasized that knowledge being situational relates to the reason for relocation. If relocations aim at attaining higher efficiency, companies may utilize common expertise. However, if the purpose of relocations is to enter into new markets or to lower production costs, teaching and learning new knowledge are crucial. Linking these findings to merely one of the main challenges of reshoring, it is understandable why lack of knowledge and expertise in offshored sites may result in deteriorating quality of service and/or product (Kinkel and Maloca 2009; Tate et al. 2009; Arlbjørn and Mikkelsen 2014; Bailey and De Propis 2014; Bals et al. 2016; Frattocchie et al. 2016).

Another challenge is the learning environment (Riege 2007; Cheng et al. 2010). The knowledge transfer environment involves knowledge holders' transferability as well as acquirers' absorption capability (Cheng et al. 2010). Nonetheless, passion in knowledge holders can determine the success of knowledge transfer processes (Sié and Yakhlef 2009). When employees are in fear of losing their job or their superiority, their motivation for sharing knowledge always constitutes a challenge (Riege 2007), because they are supposedly diffusing knowledge merely for the benefit of the knowledge receivers (Lyles and Salk 1996; Kalling and Styhre 2003). It is therefore crucial that senior and middle management of organizations facilitate a comfortable knowledge-sharing environment in order to motivate and encourage their employees during the knowledge transfer process. Moreover, for obvious reasons, people involved in a reshoring process might encounter cultural conflicts and miscommunication, particularly when the two parties are distanced from each other (Ambos and Ambos 2009; McIvor 2013). Possessing dissimilar technical and educational backgrounds/experiences is also a challenge to knowledge transfer (Simonin 1999; Sié and Yakhlef 2009). Analysing the potential challenges of knowledge transfer is thus imperative when reshoring involves two or more geographical areas.

3 Method

The present investigation applied a qualitative approach to four multiple case studies. Semi-structured interviews were employed to acquire insights from key respondents. Secondary data were obtained from published scientific articles and books. In order to reach respondents with similar experience, preselected criteria were established (Cooper and Schindler 2014), which entailed targeting Swedish companies who had undertaken an in-house reshoring process. Such companies were explored in industry magazines, newspapers, and on the Internet. To establish in real life contact with appropriate but unfamiliar informants, the researchers made unsolicited calls, and sent out collaboration requests to the contact persons of 15 selected Swedish companies on their company websites, in magazines, and on social media (Fjellström and Guttormsen 2016). The interviews were performed individually, enabling the interviewees to freely express their social and personal

in-depth opinions and experiences of the research topic (Wengraf 2001). A set of predetermined guided questions was drafted that would reflect the interviewees' backgrounds along with company backgrounds, reshoring backgrounds, knowledge transfer backgrounds as well as knowledge transfer factors and methods. Table 2 outlines the profiles of the interviewees and their companies.

4 Empirical Data

4.1 Offshoring and Reshoring Background—Company A

Company A is a leading supplier in the mining tool manufacturing industry. More than ten years ago, the company offshored part of its production to in-house plants in South Africa and Brazil, with the purpose of entering into new markets. In efforts of optimizing their production network, the company later dedicated an analysis of the capacity availability and competence to their multinational manufacturing sites for a reorganization of the production and supplier network. Consequently, a decision to reshore was made, shutting down the two manufacturing plants in South Africa and Brazil, but keeping the local sales function in order to sustain local market knowledge. The reshoring started in 2013. After one and half years of arduous work by several departments, including R&D, supply chain, product management, and human resources, the reshoring process was completed in 2015.

In terms of the knowledge transfer process, Per revealed that their biggest challenge was dealing with low employee morale due to lay-offs. In the light of South Africa's national economy facing high unemployment rate, the employees in South Africa were treated with more caution. In an attempt to avoid demotivation of the employees, Company A introduced a productivity bonus, hoping to maintain the productivity and staff motivation on the South African site. Per added that the company also tried to retain the local management team.

> One key factor that we see is to be able to retain the local management team throughout this transition, because that is the people that the rest of the organization puts trust in, so if the local management team starts to drop off then, I think it can go very, very quickly before you have a disaster on the site.

In the end, half of the local management employees were retained in the company and relocated to Sweden.

Per agreed that cultures at the different sites were divergent; the cultural differences did however not challenge the knowledge transfer process during the reshoring experience. He claimed that culture is not a challenge as long as the people involved have "a very open mind and adapt to local situations … you cannot use one way of working or just one way of doing things because then it will not work in the end, as you work with different cultures". Nevertheless, he pointed out that lack of English proficiency in Brazilian employees did pose a big challenge. To address this issue, Per arranged weekly web meetings and monthly trips to Brazil.

Table 2 Interviewee and company profiles

Company	Respondent (Fictional name)	Experience in company	Department/ Position	Role in reshoring	Company industry	Reshored from	Date 2016/ Duration
A	Per	18 years	Manufacturing developing manager	One of the decision makers	Mining tools manufacturing	South Africa and Brazil	24 Nov 59 min 6 Dec 54 min
B	Mark	4 years	Project manager of operations	One of the decision makers	Furniture manufacturing	Germany	29 Nov 50 min
	John	6 years	Training leader	Training			12 Dec 39 min
C	Andreas	10 months	Site and market manager	Assistant to CEO	Industrial cutting tools manufacturing	Greece	9 Dec 61 min

Source Authors' table

He affirmed that meeting face-to-face aided the building of interpersonal relationships.

> When you sit down face-to-face, the language is still a problem, but if you start to build the relation, build a good relationship with the local people, you can find ways around that, that could be to draw sketches in paper, or using the whiteboard, it could be using gestures to show what you mean …

Recalling the knowledge required for reshoring, Per emphasized the importance of retaining R&D as well as manufacturing engineering knowledge. He acknowledged that the specifications and the machines employed to produce the mining tools are comparable in all the company's factories, i.e. in South Africa, Brazil, and Sweden. Nonetheless, even a minor adjustment of machine operation affects the product quality. He said:

> It is both the know-how and the competence in people, but it is also the software where you control the engineering information, or making sure that you have one deposit for all the engineering related data.

He furthermore described those minor adjustments made by the engineers as "hidden information" that the company wanted to minimize. He elaborated by giving some examples. Some manufacturing specifications have a tolerance span of ten millimetres plus/minus a few hundredths. However, the exact measurement is adjusted by the engineers in accordance with their personal experience, without telling the others—not because of unwillingness but because these adjustments are so small, and vary between cases. This demonstrates the limitation of computer drawings, and how it reflects on reality. Per said:

> Out on the shop floor there are not an exact science often, so even if you have a drawing that tells you something there is always room for some misinterpretation of what does it actually mean.

4.2 Offshoring and Reshoring Background—Company B

Company B is an office furniture design and manufacture company. More than ten years ago, the company acquired and offshored part of their chair production to a manufacturing plant in Northern Germany. This was an effort to enter Germany, the biggest customer market in Europe at the time. In 2013, when observing that the German market demand was decreasing, the headquarters' management team in Sweden began planning for reshoring to its three in-house factories in Sweden. The reshoring process was completed in 2014.

The chair models produced in Company B's German factories had never been produced in Sweden, and hence, for a successful production reshoring, Swedish employees needed extensive training in how to produce them. Both Mark and John highlighted that the knowledge as well as the new technique of manufacturing

machine operation were significant to the reshoring effectiveness. It was decided that the training of Swedish employees needed to be face-to-face with the German staff, to ensure that product knowledge as well as proficiency in operating the machines were secured. Company B arranged trips to Germany for approximately 30 Swedish employees. The training process lasted one and half years. Mark described the face-to-face training:

> In Germany … you always have someone to ask … It is like in school, when you have a teacher to ask or if you are doing it by yourself and don't have anyone to ask, and then you have to find the solutions by yourself or find the answers by yourself.

The training was planned by the production department in Sweden.

Mark and John maintained that the biggest challenge in the KT process was a lack of cooperativeness in the German staff. Mark noted that the Germans were demotivated to a great extent, because they knew they were going to be laid off. Their demotivation led to destructive behaviour; they destroyed some machines. Mark said:

> They can just cut one cable then that one machine doesn't work and can be tricky to find what they have done, it can be tricky to find this cable.

John furthermore remarked that one of the German team leaders had a big influence on the fellow staff. The Germans were of the opinion that the Swedes were about to steal their jobs, and thus avoided exchanging any knowledge and refused to cooperate.

In contrast, another German group was helpful. John attributed this to their intentions to work in Sweden. He said that this German group understood that reshoring had been decided, and that they were unable to change the decision. Instead of being destructive, they helped the Swedish staff secretly hoping that their job would be relocated to Sweden. He continued:

> One of them wanted to move here and the other two or three they wanted to work a couple of months in Sweden for extra money so they could get another job.

John did in fact refer them to work in Sweden for a couple of months.

When discussing cultural differences, Mark and John believed these did not account for much challenges, since the company had given instructions to the Swedish team prior to the training trips, yielding cultural awareness. Mark said:

> We should not be laughing or pointing fingers, we got instruction that we should be a little bit more respectful.

Mark and John noticed that in Sweden, employees mostly talk to other colleagues, even management, in a friendlier way. In Germany, however, the conversation needs to reflect more respect for the authorities in the hierocracy. Mark said:

> In Sweden, even if you work on the production floor, you can speak to the vice president of the company but in Germany they don't do that. It is a strict hierarchy there.

Moreover, people in Germany also talk in a different manner depending on the counterparty's authority or hierarchy. John shared:

> You have to call them not by name, and absolutely not by first name, so you have to call them Herr (Mr) or Frau (Ms).

In terms of language differences, Mark indicated that since the company brought along some German-Swedish bilingual employees as translators during the training trips, communication was not a big problem. Similarly, John—who speaks German and Swedish, and also took part in the training—described that if the German and Swedish staff experienced any language problems, "you can always use Google translate." He continued:

"We work with tools so you just show physically and point, because the machines are so loud anyway you have to point because if you talk you can't hear each other." He also recalled:

> Many (Swedish and German workers) got friends for life, and we had parties after work, and we tried to make things together after work, so the communication I don't think it was a problem between workers.

4.3 Offshoring and Reshoring Background—Company C

Company C is a subsidiary company of a manufactory group, producing high-quality industrial paper and plastic tools for die cutting and leather punching. In 2001, it offshored 50% of its punching tool manufacturing business to their newly acquired Greek company, which was one of only three leather punching manufacturers in Europe. Andreas explained that their acquisition in Greece aimed at securing a higher market share as well as lowering the production costs. He added:

> They (the Greek factory) had good production, they had good products even if we make real high-quality product we can't start selling a low-quality product.

One year later, Company C's owner decided to close the factory in Greece and to move everything back to Sweden. The reshoring decision was made quickly, because seizing the Greek company's customers had been the main acquisition reason, and they had achieved the objective.

Contemplating the knowledge transfer process, Andreas said that favourable termination terms were reached for the company's management as well as its employees. In consequence, the Greek staff members were cooperative during the whole knowledge transfer and reshoring process, despite some cultural and linguistic challenges. Andreas further explained that since the Greek company's motives for selling to the Swedish counterparty had been clear, the previous owner would be able to enjoy retirement after the factory had been sold.

Andreas furthermore credited the smooth reshoring process to the parent company's experience and manufacturing knowledge. He asserted that as a group, they have comprehensive support from the sister companies of the automotive and metal manufacturers:

> We have lots of production facilities, we have space, we have everything, we have other machines in other companies that can make special units and can make special punches … we have lot of benefits working with other sister companies that have other experience and knowledge … so we have lots of knowledge here!

While Company C wanted to seize the Greek partner's customers, Andreas indicated that the customer feedback was the pricy product. He further gave an example of big shoe-making companies. They might punch over 35 thousand shoes per day, and most probably need high-quality tools. In comparison with some smaller sized companies:

> (They) are making perhaps ten thousand a year, and because they are not using the punch so regularly then they don't need the most expensive punch.

In other words, some customers looked for a cheaper product. In order to extend the market share and cater to different customers' demands, the owner of Company C turned to the Greek factories to learn low-cost production. He was inspired by less manufacturing steps being applied by the Greek workers, resulting in lower manufacturing costs. Andreas said that this inspiration gave rise to the creation of a new product, leading to the company becoming more competitive in the market. After the reshoring, he believed that the company had enhanced the product value, in spite of lower manufacturing costs:

> We didn't decrease the product value, we added product value. Because, they (the Greek company) had cheaper steel for the punches, we have higher quality steel that we are using now, so we tell the customer that they would have a better-quality product than what they had back then in that moment and to the same price so it was a win-win situation solution.

5 Analysis

One of the most significant findings in the present study was that the main driving force behind an effective knowledge transfer process is knowledge holders' motivation. This was confirmed in all three case studies. The German employees at Company B realized they were losing jobs, and blamed the Swedish colleagues for this. This led to destructive behaviour, and they evaded knowledge exchange with the Swedish counterparty. This is in line with previous scholars' findings that knowledge holders recognizing their participation in knowledge transfer not being beneficial to them—or even resulting in a loss of their superiority and job security—they become demotivated to participate in the knowledge transfer process (Lyles and Salk 1996; Simonin 1999; Kalling and Styhre 2003; Riege 2007; van Wijk et al. 2008).

Another German group at Company B, however, had intentions to relocate to Sweden, and thus cooperated with the Swedish team. In comparison, the knowledge transfer and reshoring process of Company A did not face big challenges, because Company A's South African employees were offered productivity bonuses, and the South African management staff was offered job relocations to Sweden. In the third case, Company C, the Greek management as well as the employees had reached a favourable agreement on termination compensation. They were therefore willing to collaborate and to share their low-cost production technique with the Swedish team. The interview results showed that knowledge holders that are motivated intrinsically are more passionate, proactive, and collaborative when exchanging purposeful knowledge (Riege 2007; Szulanski 2000; Sié and Yakhlef 2009). The case studies presented here corroborate the studies of Lyles and Salk (1996) and Kalling and Styhre (2003), who also found that motivation directly influences knowledge senders' willingness to exchange knowledge.

A second finding of the present study was that the use of knowledge in reshoring has an impact on the selection of knowledge transfer communication. It was clear that the reshoring companies require manufacturing knowledge of machinery operations for quality control, product development, and to maintain market competitiveness. Ambos and Ambos (2009) mentioned that technology-related knowledge can be codified and explicated in written document, and thus, the knowledge transfer process need to rely less on interpersonal communication. Notwithstanding, the present investigation disclosed that even if machinery operation could be documented, face-to-face communication was still preferred. This is not surprising, because knowledge is situational (Prichard 2000; Kalling and Styhre 2003), and transferring any ambiguous and ineffable knowledge requires demonstrations and verbal explanations (Polanyi 1998; Simonin 1999). All respondents affirmed that face-to-face communications could clear up misunderstanding, facilitate immediate clarifications, and help building interpersonal relationships, thus counteracting cultural and linguistic challenges. This shows that when knowledge is hard to document because of confusions, the knowledge transfer process needs to rely more on social interactions (Lyles and Salk 1996). Company A also emphasized that face-to-face meetings facilitate the observation and recording of minor and hidden machinery operation technique. This supports van Wijk et al. (2008) who claimed that face-to-face communication solves the challenges of exchanging ambiguous information, and also strengthens the arguments by Enderwick (2011) that face-to-face meetings improves communication efficiency.

The present investigation furthermore revealed that, similar to other knowledge transfer processes, knowledge transfer during in-house reshoring is influenced by cultural, linguistic, and physical distances. This is inevitable since the offshored units are involved in the knowledge transfer process. However, while cultural distance is influential during the knowledge transfer interactions between offshored and reshoring units, all companies conducting in-house reshoring did not experience culture as the biggest challenge. This was a result of these companies raising cultural awareness prior to their interaction with the offshored counterparties.

In accordance with van Wijk et al. (2008), the present study disclosed that minimizing the risk of cultural conflicts makes the KT process more effective.

Linguistic difficulties were also brought up by all the companies conducting in-house reshoring, yet none of them considered language differences to constitute a major challenge. This disagrees with two previous studies that regarded linguistic distances as the biggest KT challenge (Tsang 1999; Al-Salti and Hackney 2011). The present study suggests that socialization may help solving the linguistic difficulties. Utilizing translators also reduces the language barriers. It should be noted however that the companies in the present investigation mainly deal with machine operation procedures, and in these, demonstration and observation of machine operation techniques are more important than verbal communications. This is in accordance with Ambos and Ambos (2009), who suggested that when the knowledge is codified for sharing, the process of transferring technological knowledge is less affected by language barriers.

The effectiveness of the KT process in the in-house reshoring companies was higher when the physical distance between the offshored and reshoring units was shorter. In line with Al-Salti and Hackney (2011), the companies realized that by setting up face-to-face meetings, thus shortening the physical distance between people, they achieved smoother communication and collaboration during the KT process. Hence they sent staff from the home countries to the offshored factories. This indicates that transfer of technology related knowledge works better in person. In addition, they all emphasized that face-to-face interactions might help them to obtain and fully comprehend the technological or manufacturing knowledge from the offshored units. This account differs from previous scholars' statement that physical distance plays a minimal role in technological knowledge transmission (Ambos and Ambos 2009; Nell et al. 2016). One may however argue that since the offshored units are being closed, the headquarters and the reshoring team will no longer have any other options to communicate and to learn from the employees of the offshored units. This was the reason for the companies in our case studies sending their staff overseas for an effective and efficient KT.

6 Study Contributions

The present study underlines the need for further research on knowledge transfer in reshoring (e.g. Sparkes and Miyake 2000; Bollinger and Smith 2001). First: It confirms that motivation has a great impact on knowledge transfer during reshoring, in line with findings by Riege (2007) and van Wijk et al. (2008). Second: The study shows that social interaction, such as face-to-face communication, aids organizations in avoiding knowledge transfer ambiguity (Enderwick 2011). Third: Culture and language differences have an influence on the outcome of knowledge transfer in reshoring, and efforts must thus be made to minimize cultural misunderstandings (van Wijk et al. 2008). The study extends the work by Kinkel and Maloca (2009) and Tate et al. (2014), by elucidating how knowledge transfer is secured in the

context of reshoring, but also by emphasizing the challenges of knowledge transfer during the reshoring process. This study manifests that in order to succeed in reshoring, it is vital to comprehend the motives behind the process.

The research on knowledge transfer in the reverse direction in terms of in-house reshoring scenarios was extended by the present study. By adding to the knowledge about transfer methods, previously reported by Lyles and Salk (1996), who identified the tacit-to-tacit knowledge transfer and the tacit-to-explicit knowledge transfer, this study proffered a more detailed insight in how the role of knowledge might affect the choice of knowledge transfer process during reshoring. Companies in need of acquiring knowledge of quality control, innovation, and market competitiveness, appeared to prefer socialization to internalization. However, if the knowledge involves machinery and manufacturing operations, companies seemed to opt for a combination of socialization and internalization.

The implication for managers, policy makers, and practitioners is that the knowledge transfer process needs to be taken into serious consideration when making plans for reshoring. Employees need to be involved in the reshoring process and to be motivated to share knowledge in order to ensure a smooth reshoring process. Face-to-face communication may be used to overcome cultural challenges. Reshoring contributes and stimulates the local economy in society.

The limitations of this chapter may serve as a starting point for further research. For instance, this study was conducted in a Swedish context. Further studies should extend the scope to include other case scenarios, i.e. various industries, contexts, and organizational sizes, in order to uncover new discoveries. Data may also be triangulated between the sender and receiver of knowledge. Future research needs to escalate the findings presented here, focusing more specifically on the influence of knowledge senders' motivations (at offshored sites) on knowledge transfer during the reshoring process. Another area to explore is how to manage effective knowledge transfer in a manufacturing reshoring process by means of socialization. The common theme is that the role of the individual, the human dimension, is crucial not only to organizational knowledge transfer but in particular to reshoring cases (Kinkel and Maloca 2009; Tate et al. 2014).

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Is 3D Printing an Enabling Technology for Manufacturing Reshoring?

Luciano Fratocchi

Abstract Technologies embodied in the "Industry 4.0" concept are expected to heavily influence the competitiveness of countries, industries and companies. In this scenario, one of the most relevant technological transformations is represented by additive manufacturing technologies (AMTs). According to some scholars and practitioners, the adoption of such technologies may have a relevant impact on the location of production activities of many manufactured goods. This paper aims to verify the hypothesis that AMTs may act as an enabling technology for manufacturing reshoring, i.e., repatriation of (in-/outsourced) production activities earlier offshored. The paper adopts an explorative research approach based on secondary data belonging to the Uni-CLUB MoRe Reshoring dataset, containing information on more than 700 manufacturing reshoring decisions implemented by companies headquartered in the main Western countries. Based on such a dataset, eight companies were selected since they based their reshoring decisions on the adoption of AMTs. Findings from the analyzed case studies seem to confirm adoption of such technologies may contribute to the firm's decision to repatriate production in the home country. At the same time, AMTs seem to influence the firm's decision in terms of governance mode.

Keywords Reshoring · Additive manufacturing · 3D printer · Manufacturing · Case study

1 Introduction

The "Industry 4.0" scenario is attracting increasing interest from scholars, practitioners and policy makers. Technologies embodied in the "Industry 4.0" concept are expected to deeply influence the competitiveness of countries, industries and

L. Fratocchi (✉)
University of L'Aquila, L'Aquila, Italy
e-mail: luciano.fratocchi@univaq.it

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companies. In this scenario, additive manufacturing technologies (AMTs) are expected to promote the most relevant technological change.

Terms such as additive manufacturing (AM), 3D printing (3DP), rapid manufacturing, digital manufacturing, direct manufacturing, and generative manufacturing (Ebert et al. 2009; Holmström et al. 2010; Hopkinson and Dickens 2001; Vinodh et al. 2009) are generally used synonymously (Oettmeier and Hofmann 2016). In the rest of the paper the terms AMTs and 3D technologies (3DTs) will be used to refer to a combination of general purpose technologies (Garrett 2014; Kothman and Faber 2016) which build a product layer-by-layer based on its digital representation (Berman 2012). After years where 3DTs have been used mainly for rapid prototyping purposes, now they are more and more affecting the value chain as a whole.

According to some scholars and practitioners, the adoption of 3DTs may have a relevant impact on the location of production processes of many manufactured goods (Berman 2012; D'Aveni 2013; Gress and Kalafsky 2015; Laplume et al. 2016). Actually, such processes are often organized according to a global value chain (GVC) approach; i.e., distinct production stages with value being added in several different countries. In recent years, the dynamics of GVCs are becoming more pronounced and we can observe a diversified set of strategic decisions in terms of location of manufacturing activities. After decades of offshoring strategies, recently industrial companies have been deciding to revise their decisions in terms of manufacturing activities' locations. Among other alternatives (such as further offshoring and near-reshoring), they are also considering the manufacturing reshoring option, i.e., the repatriation of production to the home country, independently of the governance mode (insourcing vs. outsourcing) (Fratocchi et al. 2014).

The paper aims to verify the hypothesis that 3DTs may act as an enabling technology for manufacturing reshoring. In order to investigate this topic, the following research questions are considered:

(a) *Do benefits characterizing AMTs (e.g., high product customization, small production lot) adequately match motivations pushing companies to reshore their manufacturing activities to the home country (e.g. proximity to customers, R&D vicinity to production)?*
(b) *Are 3DTs and reshoring decisions diffused in the same set of industries?*
(c) *Does AMT adoption influence the governance mode (insourcing vs. outsourcing) of the reshored manufacturing activities?*

In order to shed light on such research questions, an explorative approach based on secondary data will be implemented, referring to evidence collected in the Uni-CLUB MoRe Reshoring dataset (Ancarani et al. 2015; Fratocchi et al. 2014, 2015a, b, 2016). This dataset contains information (e.g., home/host country, motivations, governance mode) belonging to more than 700 manufacturing reshoring decisions implemented by companies headquartered in the main Western countries. Based on such a dataset, eight companies were selected since they implemented their manufacturing reshoring decisions after adopting 3DTs.

Findings from the analyzed case studies seem to confirm the idea that AMTs may contribute to the firm's decision to repatriate production to the home country. At the same time, such technologies seem to influence the adopted governance modes after reshoring implementation.

The rest of the paper is divided into four main sections, the first of which is focused on the literature review. More specifically, three research streams are investigated and summarized: (a) reshoring definition and motivations; (b) benefits offered by AMTs and their diffusion among industries; and (c) the impact of 3DTs on the supply chain (SC). In the second section the adopted methodology is presented, while in the third the research findings are presented and discussed. Main conclusions—including managerial and policy implications—are provided in Sect. 4.

2 Literature Review

2.1 Manufacturing Reshoring

In recent years, the topic of manufacturing reshoring has gained momentum in the popular and specialized press (Booth 2013) and in reports by consulting firms (Sirkin et al. 2012; The Boston Consulting Group 2013). In times of global crisis, policy makers of several Western countries have seen reshoring as a partial solution to reduce unemployment rates (Tate 2014), and as a means to support re-industrialization (Pisano and Shih 2009, 2012).

An increasing number of scholars have been investigating this topic since 2007 (for an up-to-date literature review, see, among others Fratocchi et al. 2016 and Stentoft et al. 2016). Most of the extant literature is focused on defining and positioning the phenomenon (Ellram 2013; Fratocchi et al. 2014; Gray et al. 2013) and pinning down its underlying motivations (e.g. Ellram et al. 2013; Foerstl et al. 2016; Fratocchi et al. 2016; Kinkel 2014; Stentoft et al. 2016). With respect to the definition of manufacturing reshoring, a certain consensus has apparently been reached regarding many of its distinctive features—although a few of them remain (e.g., governance mode and countries where manufacturing activities are reshored). In this paper the author assumes as a reference the conceptualization proposed by Fratocchi et al. (2014) who define the phenomenon as "a voluntary corporate strategy regarding the home country's partial or total re-location of (in-sourced or out-sourced) production to serve the local, regional or global demands." In other words, manufacturing reshoring is a reverse decision with respect to an earlier implemented offshoring; therefore it may be conceptualized as a possible step of a nonlinear firm's internationalization process (Fratocchi et al. 2014, 2015a; Vissak 2010; Vissak and Francioni 2013; Vissak et al. 2012).

The identification and analysis of the reasons why firms decide to repatriate manufacturing activities are among the most common topics in reshoring studies;

therefore, a vast and varied array of motivations have been identified by scholars (for up-to-date literature review, see Bals et al. 2016; Fratocchi et al. 2016; Stentoft et al. 2016). Recently, Fratocchi et al. (2016) identified 38 distinct motivations, drawn either from the extant literature on reshoring or from drivers declared by companies sampled in the Uni-CLUB MoRe reshoring dataset. This dataset will be adopted in this paper for investigating the proposed research questions; therefore its main features will be analyzed in depth in the methodological section.

The last issue of the manufacturing reshoring literature relevant for the aims of this paper is represented by the governance mode implemented after the repatriation decision. As earlier noted, scholars do have not a unanimous position on this issue. More specifically, some authors only consider the case of reshoring choices coupled with insourcing strategies. The misleading interpretation regarding reshoring and insourcing originates from the diffused idea of commonalities among offshoring and outsourcing firm decisions (Mudambi and Venzin 2010). In this respect, Arlbjørn and Mikkelsen (2014) acknowledged that decisions about governance mode are conceptually independent of locational decisions, but they can be practically combined with the reshoring decision. Similarly, Bals et al. (2016) stated reshoring and insourcing are "interconnected" decisions. However, Gray et al. (2013) clearly pointed out that decisions regarding manufacturing locations (e.g. offshoring vs. reshoring) and governance mode (in-sourcing vs. out-sourcing) are two different managerial decisions. Therefore, they identified four alternative typologies of reshoring strategies: in-house reshoring, reshoring for outsourcing, reshoring for insourcing and outsourced reshoring. More recently, Bals et al. (2016) and Foerstl et al. (2016) enlarged this classification to include the cooperation alternative (e.g. joint ventures, strategic partnerships and long-term contracts) among the governance modes, thus identifying six alternatives, including the four proposed by Gray et al. (2013).

2.2 Additive Manufacturing

AMTs have been developed since the 1980s and were generally adopted for rapid prototyping, i.e., a fast build-up of prototypes and mock-ups. However, over the past few years, 3DTs have been increasingly adopted for producing industrial parts in several industries (Oettmeier and Hofmann 2016). Finally, they are also used for so-called "bridge manufacturing", i.e., a first small series of the product in order to launch it on the market. After product demand rises, more "traditional" manufacturing technologies are implemented (Berman 2012). The huge diffusion of AM among manufacturing companies is confirmed by large sales of industrial-grade 3D printers: according to D'Aveni (2015), such technologies represented one-third of the entire volume of industrial automation and robotic sales.

Compared to other, more "traditional" manufacturing technologies—such as milling and injection molding—AMTs offer distinct advantages. In order to investigate them, it is useful to group them according to the following categories:

(a) Cost: refers to the production process costs and the possibility to economically realize specific typologies of products (e.g., small lots);
(b) Customer: concerns issues impacting on the customers' perceived value;
(c) Design/product features: refers to the benefits related to the product design phase (excluding costs) and the product technical characteristics;
(d) Eco-sustainability: concerns a reduction in waste and energy consumption.

Table 1 summarizes the breakdown of benefits cited in the extant literature according to the proposed categories. Design/product feature and Costs are the two most cited categories of 3DT benefits. With respect to the former (design/product issues), some authors suggest that in the future 3DTs will make customers able to directly print products with their own 3D printers after downloading the design online. In this way the consumer also assumes the role of producer evolving to the prosumer role (Kothman and Faber 2016; Mohr and Khan 2015). This, according to Berman (2012), will be the third and final evolutionary phase of 3DTs. Regarding production costs, D'Aveni (2015) reports that General Electric Aviation will reduce its manufacturing costs of fuel nozzles for jet engines since AM permits them to directly produce a final product earlier, which is composed of 20 separately cast parts.

The manifold set of advantages offered by AMTs induces companies to adopt them in several industries, both in business-to-business and business-to-consumer contexts. In Table 2 industries cited in the academic extant literature are summarized. Firms' case studies cited in these academic sources show that technologies under investigation are adopted in different Western countries, though US evidence is more diffused. In this respect, Gress and Kalafsky (2015) recall that according to industry experts, the US is expected to remain the largest 3DP market until 2020 when Europe will become leader in terms of total sales of such technologies.

Further insights, in terms of diffusion of 3DTs, were recently offered by Laplume et al. (2016) who classified sectors in terms of their readiness to implement such technologies:

(a) already adopting AMTs on a large scale (5 out 24 ISIC sectors);
(b) expected to adopt them in the near future (10);
(c) not adopting (presently and in the near future) (9).

Comparing the classification proposed by Laplume et al. (2016) with the findings summarized in Table 2, it seems those authors assumed a more restrictive approach, such as in the case of aerospace and automotive industries (both expected to adopt investigated technologies only in the near future) which are already highly cited in the extant literature.

AMTs are expected to have a huge impact on business activities inducing scholars to classify them as "revolutionary" (Goulding et al. 2013), "disruptive" (Berman 2012; D'Aveni 2015; Hyman 2011; Kothman and Faber 2016; Rylands et al. 2016), "game-changing" (Kothman and Faber 2016) and even "magical"

Table 1 Benefits of 3D technologies

Benefit category	Benefit	Reference
Cost	Reduction of production costs (especially for small batches) since no object-specific tools are needed	D'Aveni (2015), Mellor et al. (2014), Petrick and Simpson (2013), Rylands et al. (2016)
Cost	Reduction of production costs since assembling is no longer required	D'Aveni (2015)
Cost	Possibility to economically manufacture complex and unique parts	Berman (2012), Holmström et al. (2010), D'Aveni (2015), Cohen et al. (2014), Petrick and Simpson (2013), Rylands et al. (2016)
Cost	Less waste material, reducing costs and improving the firm's eco-sustainability	Khan and Mohr (2016), Kothman and Faber (2016), Janssen et al. (2014), Mellor et al. (2014), Mohr and Khan (2015)
Customer	Possibility to economically offer customized outputs	Cohen et al. (2014), Petrick and Simpson (2013), Mellor et al. (2014), D'Aveni (2013, 2015), Mohr and Khan (2015)
Customer	Enabling printing at point of purchasing/consumption	D'Aveni (2013), Mohr and Khan (2015), Petrick and Simpson (2013), Rylands et al. (2016), Tassey (2014)
Customer	Shortening lead times and lowering inventories since (printing "on demand")	D'Aveni (2013), Petrick and Simpson (2013), Mellor et al. (2014), Mohr and Khan (2015)
Design/Product features	Rapidity in design changes	Berman (2012), D'Aveni (2015), Mellor et al. (2014), Mohr and Khan (2015)
Design/Product features	Increased freedom of design	D'Aveni (2013), Cohen et al. (2014), Mellor et al. (2014), Mohr and Khan (2015), Petrick and Simpson (2013), Rylands et al. (2016)
Design/Product features	Improve the optimization and integration of mechanical, thermodynamic and electrical functions of products	Glasschroeder et al. (2015)
Design/Product features	Possibility to produce lightweight objects (grids and hollow structures)	Petrovic et al. (2011)
Design/Product features	Building in a single piece objects formerly composed of several subcomponents	D'Aveni (2015)
Eco-sustainability	Improve eco-sustainability of final products (e.g. lighter automobiles or airplanes will be more fuel-efficient)	D'Aveni (2015)
Eco-sustainability	Less waste material, reducing costs and improving the firm's eco-sustainability	Khan and Mohr (2016), Kothman and Faber (2016), Janssen et al. (2014), Mellor et al. (2014), Mohr and Khan (2015)

Table 2 Industries adopting additive manufacturing

Industry/Product	Reference	Firms	Firm's home country
Aerospace	Atzeni and Salmi (2012)	Boeing	USA
	Mellor et al. (2014)	Lockheed Martin	USA
	D'Aveni (2015)	Aurora Flight Science	USA
	Gress and Kalafsky (2015)	General Electric Aviation	USA
	Oettmeier and Hofmann (2016)		
Automotive (including parts)	Ruffo et al. (2007)	Red Bull F1 team	Austria
	Bradshaw et al. (2010)	BMW	Germany
	Cooper et al. (2012)	Honda	Japan
	Mellor et al. (2014)		
	D'Aveni (2015)		
Camera lens accessories	Bradshaw et al. (2010)		
Construction	Kothman and Faber (2016)		
Electronics (including PCs)	Mellor et al. (2014)	Google (for outsourced consumer electronics products)	USA
	Gress and Kalafsky (2015)		
	D'Aveni (2015)		
Filter and filtration solutions	Rylands et al. (2016)	Anonymous company	UK
Food processors (replacement parts)	Bradshaw et al. (2010)		
Footwear	Berman (2012)	Timberland	Turkey (at the time Italy)
Household (replacement parts)	Bradshaw et al. (2010)		

(continued)

Table 2 (continued)

Industry/Product	Reference	Firms	Firm's home country
Houseware	Berman (2012)	Alessi	Italy
Lighting	Mellor et al. (2014)	LUXeXcel	The Netherlands
	D'Aveni (2015)		
Medical & dental applications (e.g. Dental crown, Hearing aids molds, Prosthetic limbs)	Berman (2012)	Align Technology	USA (worldwide HQ Netherlands)
	Mellor et al. (2014)	Anonymous company	Germany
	D'Aveni (2015)	Anonymous company	Switzerland
	Oettmeier and Hofmann (2016)		
Measurement devices	D'Aveni (2015)		
Sunglasses	D'Aveni (2015)		
Telecom infrastructure	D'Aveni (2015)		
Wallpaper	Rylands et al. (2016)	Anonymous company	UK

(Massis 2013). The disruptive potential of such technologies was clearly evident in the US hearing aid industry where companies "converted to 100% additive manufacturing in less than 500 days […] and not one company that stuck to traditional manufacturing methods survived" (D'Aveni 2015). Among the issues influenced by the disruptive nature of 3DTs, supply chain management (SCM) activities are the most relevant according to the extant literature.

2.3 Additive Manufacturing Technologies and the Supply Chain

Oettmeier and Hofmann (2016) state that research addressing AMTs may be classified in six autonomous streams; one of them investigates such technologies in

the context of SCM. More specifically, authors assume 3DTs have an effect on all the three elements comprising an SC (Lambert 2014):

(a) network structures: i.e., the member firms and their interconnections;
(b) processes: regarding activities producing a specific output (e.g., supplier relationship management, manufacturing flow management);
(c) components: belonging to methods implemented to integrate and manage business processes across the SC (e.g., IT infrastructures).

Consequently, AMTs influence not only the firm adopting them but also its suppliers and customers. This has relevant consequences, among others, for governance mode (make vs. buy) and location (home vs. host countries). With respect to the former (governance mode) there is no convergence among scholars. For instance, Berman (2012) maintains that AM adoption induces firms to prefer outsourcing, since product designs are easy to share. D'Aveni (2015) shares such an expectation, pointing out the potential role of "platforms", such as eBay, Autodesk and 3D Systems (the first company to commercialize 3D printers). In contrast, Ruffo et al. (2007) found the make option to be preferred, not only in terms of mere production costs but also of logistics costs and delivery time.

The impact of AM on the geographical location of manufacturing activities was deeply discussed in the extant literature; however, scholars do not share the same position in this respect. Some of them point out that 3DTs will greatly reduce the need for labor, especially in the (almost total) absence of the assembling phase. Therefore, low wage countries will lose their competitive advantage, while shipping times and costs for producing offshore will remain (Berman 2012; D'Aveni 2013; Kianian et al. 2015). However authors' positions partially differ in terms of product typologies—for instance, Berman refers only to those manufactured in small lot sizes and time span. Kianian et al. (2015) expect manufacturing repatriations only in the near future. At the same time, Mohr and Khan (2015) suggest that the adoption of 3DTs will permit a quick response to changes in customer demand both in terms of volume and product features. Therefore, it is preferable to locate production activities in the home country, reducing lead times, which in turn mitigates the risk of product obsolescence. However, their expectations are related only to small volume productions of goods having high technological features.

On the other hand, Gress and Kalafsky (2015) maintain that at least large batch and cost-sensitive productions will still remain in low cost countries. The same choice should be implemented for the final assembly of consumer electronics products and cars, since they allow longer lead times. However, the same authors suggest small batch specialized or customized consumer products may be relocated to the home country.

Finally, D'Aveni (2015) states that firms adopting AMTs will decide where to print their products "in real time, adjusting shifts in foreign exchange, labour costs, printer efficiency and capabilities, materials, energy costs and shipping costs".

3 Methodology

The earlier conducted literature review clearly shows the relevance of research questions addressed in this paper:

(a) *Do benefits characterizing AMTs (e.g., high product customization, small production lot) adequately match motivations pushing companies to reshore their manufacturing activities to the home country (e.g. proximity to customers, R&D vicinity to production)?*
(b) *Are 3DTs and reshoring decisions diffused in the same set of industries?*
(c) *Does AMT adoption influence the governance mode (insourcing vs. outsourcing) of the reshored manufacturing activities?*

Yin (1994) states that the research strategy to be adopted must be chosen on the basis of three elements: (a) type of research question; (b) extension of investigator control over investigated behavioral events; and (c) nature of events with respect to the time dimension (historical vs. contemporary). Since there is limited empirical evidence on the research questions investigated in this paper, this research is exploratory in nature. At the same time, the analyzed events are contemporary and the investigator has no control over them. Therefore, a research methodology based on secondary data is well suited to meet the requirements of answering the proposed research questions. This research methodology was already applied both in International Business and in Operations Management research (Roth et al. 2008; Yang et al. 2006). Among sources of secondary data, a specific role is played by written records such as newspapers and magazines, which have been considered particularly useful when no other sources are available (Cowton 1998; Franzosi 1987; Mazzola and Perrone 2013). This might be the case of manufacturing reshoring, since the unit of analysis is often at the product or component level (rather than at the firm level) and therefore public secondary data are difficult—if not impossible—to obtain (Gray et al. 2013). Moreover, Judd et al. (1991) state that written records, such as newspapers, are suitable sources for longitudinal and multi-country studies. This is confirmed by Yang et al. (2006) who found that 20 empirical articles published in six leading international business journals from 1992 to 2003 adopted samples based on newspapers articles.

Secondary data adopted to investigate the proposed research questions belong to the "Uni-CLUB MoRe reshoring" developed by five Italian Universities (Catania, L'Aquila, Udine, Bologna and Modena & Reggio Emilia). To the best of author's knowledge, the Uni-CLUB MoRe dataset is the most relevant in terms of the number of single reshoring decisions and home/host countries. This dataset has already been adopted in several researches on such a phenomenon (Ancarani et al. 2015; Fratocchi et al. 2014, 2015a, b, 2016) since it contains evidence of manufacturing reshoring decisions implemented—or at least announced—from 2011 to the end of 2015. Information was gathered from several sources: historical archives of relevant national and international business newspapers (e.g. Wall Street Journal, Financial Times) and business magazines (e.g. The Economist, TIME, Bloomberg

Businessweek); white papers by major consulting companies (e.g. Boston Consulting Group, McKinsey, Accenture); and the only public database currently available (www.reshorenow.org). For each observation, information was recorded on the company involved; company size; industry; headquarters country of origin; year in which backshoring strategy was implemented; year in which offshoring strategy was implemented; "abandoned" host country; declared motivations for backshoring; greenfield versus merger and acquisition entry mode. In order to avoid misinterpretation of the text, each observation was reviewed by two independent researchers of the group and cross-validated. In case of different positions, a third researcher was involved.

At the end of 2015, manufacturing reshoring decisions sampled in the dataset totaled 728 belonging to 600 companies, since some of them implemented more than one decision (from to two to six). Reshoring firms are widespread among 29 home countries, of which 21 are placed in North America and Europe, confirming that this is mainly a phenomenon belonging to Western countries. With respect to host countries, almost one half (350) of the sampled decisions belongs to China and the other 84 the rest of Asia. In terms of industries, firms belong to 22 manufacturing sectors but the first five account for more than half (370) of the total amount of firms' decisions (Table 3).

Reshoring motivations were declared by more than three out of four sampled companies; such firms cited from one to ten different drivers. Among these drivers, eight firms explicitly cited the adoption of AMTs (Table 4).

Finally, with respect to the governance mode adopted before and after the manufacturing reshoring decision, the majority of sampled firms do not implement any change. More specifically, 385 out of 661 decisions (for which governance mode data are available) prefer to maintain the insourcing mode, while 138 continue to outsource their production activities even after repatriation (Table 5).

In order to investigate the first proposed research question (eventually matching 3D benefits and reshoring motivations) a two steps approach will be implemented:

(a) first of all, each driver included in the dataset is compared with the benefits of 3DTs found in the extant literature. This will permit the author to verify—at a general level—if AM has the potential to support reshoring strategies;
(b) secondly, attention will be focused on the eight companies declared to have adopted 3DTs. More specifically, the reshoring motivations they cited will be compared with AM benefits reported in the extant literature. In so doing, a more fine-grained check will be implemented to shed new light on the research questions under investigation. In order to enrich the knowledge of the eight companies, further secondary data were collected from annual reports, firms' Internet sites and other news sources.

The main features of the sampled companies are summarized in Table 6. It is worth noting that only one company (Nomiku) limited the reshoring decision to the prototyping activities; other companies also repatriated series production. All the sampled firms reshored from China and Taiwan, confirming the available findings on host countries (Fratocchi et al. 2015a; Kinkel 2014). Six of the sampled

Table 3 Breakdown of reshoring companies by industry

NACE Code	Sub-code	Description	No. Of decisions		% of total decisions
26		Manufacture of computer, electronic and optical products	97		13.3
27		Manufacture of electrical equipment	78		10.7
14		Manufacture of wearing apparel	67		9.2
28		Manufacture of machinery and equipment n.e.c.	64		8.8
32	Other manufacturing			64	8.8
	32.1	Manufacture of jewelry, bijouterie and related articles	2		
	32.2	Manufacture of musical instruments	5		
	32.3	Manufacture of sports goods	11		
	32.4	Manufacture of games and toys	23		
	32.5	Manufacture of medical and dental instruments and supplies	10		
	32.9	Other manufacturing n.e.c.	13		
29		Manufacture of motor vehicles, trailers and semi-trailers	53		7.3
25		Manufacture of fabricated metal products, expert machinery and equipment	50		6.9
15		Manufacture of leather and related products	49		6.7
22		Manufacture of rubber and plastic products	42		5.8
30		Manufacture of other transport equipment	35		4.8
31		Manufacture of furniture	32		4.4
10		Manufacture of food products	22		3.0
20		Manufacture of chemicals and chemical products	19		2.6
21		Manufacture of basic pharmaceutical products and pharmaceutical preparations	11		1.5
23		Manufacture of other non-metallic mineral products	11		1.5
13		Manufacture of textile	10		1.4
24		Manufacturing of basic metals	9		1.2
17		Manufacture of paper and paper products	5		0.7
16		Manufacture of wood and of wood products and cork, except furniture	4		0.5
11		Manufacture of beverages	3		0.4
18		Printing and reproduction of recorded media	2		0.3
12		Manufacture of tobacco products	1		0.1
Total			728		100.0

Source Uni-CLUB MoRe reshoring dataset

Table 4 Motivations declared by reshoring companies

#	Reshoring motivation	No. of decisions
1	Logistics costs	136
2	"Made in effect"	124
3	Offshored production poor quality	122
4	Labor costs differentials' reduction	103
5	Total cost of ownership	101
6	Increasing service level	97
7	Lead time	82
8	Government aids	69
9	R&D vicinity to production	68
10	Firm's global reorganization	68
11	Coordination costs foreign units	63
12	Minimum size lot	40
13	Host country HR inadequacy	33
14	Global economic crisis	29
15	Organizational flexibility	28
16	Walmart incentives (only for US firms)	26
17	Emotional elements (e.g. patriotism)	17
18	Trade mark counterfeiting	16
19	Availability of production capacity at home	15
20	Host market low attractiveness	15
21	Social pressure at home country (e.g. unions)	12
22	IP issues	12
23	Duties for re-import	10
24	Process automation/New production technologies	9
25	Energy costs	8
26	Adoption of 3D technologies	8
27	Absence of suppliers in the host country	6
28	Eco-sustainability	3

Source Uni-CLUB MoRe reshoring dataset

Table 5 Governance mode adopted by reshoring companies

Ex ante versus Ex post governance mode	Number of decisions
IN–IN	385
IN–OUT	4
IN IN & OUT	2
OUT–IN	132
OUT–OUT	138
n.d.	67
Total	728

Source Uni-CLUB MoRe reshoring dataset

Table 6 Characterization of reshoring companies adopting 3D technologies

Year of reshoring	Company name (Group Holding)	Home country	Product line	Host "left" country
2013	Element 14	UK	Computers (Raspberry Pi)	China
2013	Brinsea Product	UK	Egg incubators	China
2013	Maxx Sunglasses	USA	Sunglasses	Taiwan
2014	Nomiku	USA	Kitchen appliance for sous vide cooking technique	China
2014	Thinklabs Medical	USA	Medical stethoscope	China
2014	Inertia Racing Technology Wheels	USA	Bicycle components (carbon based wheels)	Taiwan
2016	Superstar Components	UK	Bicycle components (pedal sets)	China
2017 (planned)	Reebok (Adidas Group)	USA (D)	Athletic shoes	China

Source Uni-CLUB MoRe reshoring dataset

companies are small in terms of employees, while Element 14 belongs to the UK retailer group Premier Farnell (listed on the FTSE) and Reebok is part of the German Adidas Group listed at the "Deutsche Börse" stock exchange in Frankfurt. This finding clearly shows ATMs are affordable for both large and small/medium enterprises, since 3D printers' costs have dramatically fallen in recent years.

With respect to the second research question (industry matching) the two steps research method described earlier is implemented with some adjustments. Specifically:

(a) first of all, the eventual matching among industries cited in AM literature and those sampled in the adopted dataset is verified. After this, industries characterized for the presence of both phenomena will be evaluated in terms of their magnitude, i.e., the relevance of reshoring decisions made by them with respect to the total repatriation decisions;
(b) attention will then be paid to the eight companies declaring to have adopted 3DTs, whose industries will be verified by those of the extant literature.

With respect to the governance mode, attention will be directly paid to the sampled companies, verifying the eventual changes in governance mode between the offshoring and reshoring phases.

4 Results

Referring to the first research question, Table 7 summarizes the results of the comparison between reshoring motivations and AMTs benefits. Findings shows that eight out of 28 motivations sampled in the Uni-CLUB MoRe reshoring dataset are matched by at least one of the 3DTs benefits cited in the extant literature.

Table 7 Comparison among reshoring motivations and AM benefits

#	Reshoring motivation	3D benefit (literature review)	Other explanations
1	Logistics costs		Adopting AM assembling is no longer required, the number of components will decrease reducing transportation needs
2	"Made in" effect		The product is printed in the home country so it may benefits from the "made in" effect
3	Offshored production of poor quality		Additive manufacturing may assure product quality and its replicability
4	Labor costs differentials' reduction	Reduction of production costs since assembling is no longer required	
5	Total cost of ownership	Reduction of production costs (especially for small batches) since no object-specific tools are needed	
		Reduction of production costs since assembling is no longer required	
		Possibility to economically manufacture complex and unique parts	
		Reduced waste material, reducing costs and improving the firm's eco-sustainability	
6	Increasing service level	Possibility to economically manufacture complex and unique parts	
		Rapidity in design changes	
		Enabling printing at point of purchasing/consumption	
		Possibility to produce lightweight objects (grids and hollow structures)	
7	Lead time	Shortening lead times and lowering inventories since (printing "on demand")	
8	Government aids		Some countries developed a specific policy to support diffusion of AM technologies (see, for instance, Gress and Kalafsky 2015; Kianian et al. 2015; Rylands et al. 2016)

(continued)

Table 7 (continued)

#	Reshoring motivation	3D benefit (literature review)	Other explanations
9	R&D vicinity to production	Rapidity in design changes	
		Increased freedom of design	
		Improve the optimization and integration of mechanical, thermodynamic and electrical functions of products	
		Possibility to produce lightweight objects (grids and hollow structures)	
		Building in a single piece objects formerly composed of several subcomponents	
10	Firm's global reorganization		
11	Coordination costs foreign units		For instance, those related to coordination among R&D, engineering and production in the design phase (Berman 2012; D'Aveni 2015; Mellor et al. 2014; Mohr and Khan 2015)
12	Minimum size lot	Reduction of production costs (especially for small batches) since no object-specific tools are needed	
13	Host country HR inadequacy		
14	Global economic crisis		
15	Organizational flexibility	Rapidity in design changes	
16	Walmart incentives (only for US firms)		
17	Emotional elements (e.g. patriotism)		
18	Trade mark counterfeit		
19	Availability of production capacity at home		
20	Host market low attractiveness		

(continued)

Table 7 (continued)

#	Reshoring motivation	3D benefit (literature review)	Other explanations
21	Social pressure at home country (e.g. unions)		
22	IP issues		
23	Duties for re-import		
24	Process automation/New production technologies		
25	Energy costs		
26	**Adoption of 3D technologies**		
27	Absence of suppliers in the host country		
28	Eco-sustainability	Improve eco-sustainability of final products (e.g. lighter automobiles or airplanes will be more fuel-efficient)	
		Reduced waste material, reducing costs and improving the firm's eco-sustainability	

Moreover, for another four drivers the matching is deduced on the basis of the technical features of 3DTs; for instance, the possibility of reducing/eliminating assembling activities determines the reduction in transport costs for components, supporting the "logistic costs" reshoring driver. At the same time, the possibility to print directly in the home country, permits companies to benefit from the so-called "made in effect", i.e., the higher value customers recognize when products are manufactured in a specific country. Finally, national government aids to promote the adoption of AMTs were cited by several scholars (Gress and Kalafsky 2015; Kianian et al. 2015; Rylands et al. 2016). Therefore, it seems there is a relevant overlapping between reshoring motivations and 3DTs' benefits in at least half the analyzed cases. In this respect, it must be noted that such an overlap is referred to in nine out of the ten most relevant motivations in terms of reshoring firms' citations. Consequently, it seems—at least at a general level—that AM may represent an enabling technology for manufacturing reshoring.

In order to verify such a finding from a more fine-grained perspective, it is useful to pay particular attention to motivations (other than 3DTs adoption) declared by eight firms belonging to the Uni-CLUB MoRe reshoring dataset (Table 8). The most cited reshoring driver (five out eight companies) is lead time; this finding is

particularly interesting since this driver is one of the most cited in both the extant literature on AMTs (D'Aveni 2013; Mellor et al. 2014; Mohr and Khan 2015; Petrick and Simpson 2013) and in the dataset evidence (15% of total decisions for which motivation was available). The relevance of this motivation is confirmed by the magnitude of time savings declared by investigated companies: for instance, Superstar components (operating in the bicycle industry) had a shift from 7/8 months to a few days while Brinsea Products went from 16 weeks to one week. The impact of such a time reduction on the firm's competitiveness is easy to evaluate.

A further reshoring motivation declared by the eight sampled companies belongs to more strategic issues. More specifically, two companies pointed out that AMTs not only make it possible to reshore their manufacturing activities but also to modify their product range and/or their market positioning. More specifically, Max Sunglasses—initially operating in only the sunglasses business—diversified its product assortment to include chess sets and gift items. At the same time, Superstar components—initially a niche high price manufacturer—enlarged its customer targets to become an affordable alternative to low-cost Taiwanese contractors. This finding is coherent with the most recent debate regarding manufacturing reshoring, where some scholars stated that such a decision is "more than just a geographical shift of operations. It is also a reconfiguration of systems" (Mugurusi and de Boer 2014, p. 275) and/or a firm's strategy redefinition (Grandinetti and Tabacco 2015).

Focusing attention on the second research question, Table 9 summarizes the results of comparisons, in terms of industry diffusion, of the two investigated phenomena: AMTs and manufacturing reshoring. Data clearly show a complete overlapping in eight out of the ten more relevant industries in terms of reshoring evidence. At the same time, it is confirmed that the Laplume et al. (2016) expectations, in terms of adoption time of 3DTs, are quite restrictive with respect to the extant literature and theoretical findings.

When considering the eight sampled companies, the huge variety of applications of AMTs is confirmed once more. Such firms offer seven different typologies of products, since two compete in the same business (bicycle components) (see Table 6). They belong to five different industries since Brinsea Products and Nomikou both belong to the "Manufacturing of electrical equipment group" (NACE Code 27). All five industries are among the ten most relevant in terms of number of manufacturing decisions according to evidence from the Uni-CLUB MoRe reshoring dataset. Therefore, a diffused matching in terms of industries among the two analyzed phenomena seems confirmed.

The last investigated research question is regards the governance mode, i.e., the choice among insourcing and outsourcing in both the offshoring and reshoring phases. As pointed out earlier, in the extant literature there is no convergence among scholars. At the same time, empirical data regarding reshoring manufacturing induce us to expect that companies do not change their governance mode while transferring manufacturing activities back to the home country. Quite unexpectedly, analysis of the eight companies offers totally different evidence. More specifically, in the seven cases for which data are available (excluding

Table 8 Reshoring motivations declared by companies adopting 3D technologies

Reshoring motivation	Brinsea Product	Element 14	Inertia Racing Tech.	Max Sunglasses	Nomiku	Reebok (Adidas Group)	Superstar components	Thinklabs
Lead time	x	x		x		x	x	
Strategic elements (e.g. diversification strategy)				x			x	
Interactions R&D/Engineering/Manufacturing					x			X
Higher product innovation					x			X
Made in effect		x						
Lower stock holding	x							
Difficulties in insuring overseas activities	x							
Prototypes' costs			x					
Control over the production process							x	
Proximity to customers						x		
Production costs						x		

Table 9 Comparison among manufacturing reshoring and AM technologies diffusion among industries

NACE Code	Sub-code	Description	No. of decisions	% of total decisions	Industries/Products cited in AM literature	Diffusion according to Laplume et al. 's (2016) classification
26		Manufacture of computer, electronic and optical products	97	13.3	YES (several products)	In the future
27		Manufacture of electrical equipment	78	10.7	YES (Lighting, Domestic appliance)	In the future
14		Manufacture of wearing apparel	67	9.2		In the future
28		Manufacture of machinery and equipment n.e.c.	64	8.8		Today
32	Other manufacturing		64	8.8		Today
	32.1	Manufacture of jewellery, bijouterie and related articles	2			
	32.2	Manufacture of musical instruments	5			
	32.3	Manufacture of sports goods	11			
	32.4	Manufacture of games and toys	23			
	32.5	Manufacture of medical and dental instruments and supplies	10		YES	
	32.9	Other manufacturing n.e.c.	13			
29		Manufacture of motor vehicles, trailers and semi-trailers	53	7.3	YES	In the future
25		Manufacture of fabricated metal products, expert machinery and equipment	50	6.9	YES (Houseware)	In the future
15		Manufacture of leather and related products	49	6.7	Yes (Footwear)	Never

(continued)

Table 9 (continued)

NACE Code	Sub-code	Description	No. of decisions	% of total decisions	Industries/Products cited in AM literature	Diffusion according to Laplume et al. 's (2016) classification
22		Manufacture of rubber and plastic products	42	5.8	YES (Filters)	Today
30		Manufacture of other transport equipment	35	4.8	YES (Aerospace)	In the future
31		Manufacture of furniture	32	4.4		In the future
10		Manufacture of food products	22	3.0		In the future
20		Manufacture of chemicals and chemical products	19	2.6		Never
21		Manufacture of basic pharmaceutical products and pharmaceutical preparations	11	1.5		In the future
23		Manufacture of other non-metallic mineral products	11	1.5		Today
13		Manufacture of textile	10	1.4		Never
24		Manufacture of basic metals	9	1.2		Never
17		Manufacture of paper and paper products	5	0.7	YES (wallpaper)	Never
16		Manufacture of wood and of wood products and cork, except furniture	4	0.5		Never
11		Manufacture of beverages	3	0.4		Never
18		Printing and reproduction of recorded media	2	0.3		In the future
12		Manufacture of tobacco products	1	0.1		Never
Total			728	100.0		

Brinsea Products), the governance mode adopted during the offshoring phase was outsourcing; on the other hand, after the manufacturing reshoring all companies shifted to the insourcing alternative.

5 Conclusion

In this paper the eventual contribution of 3DTs to the manufacturing reshoring phenomenon has been investigated. Due to the lack of earlier studies on this issue, an explorative research approach was adopted based on secondary data. More specifically, three research questions were developed, the first of which is regarding the eventual relation between AMTs' benefits and manufacturing reshoring motivations. The latter were defined on the basis of an in-depth literature review (see reference in Table 1), while the former were extracted by the most up-to-date and internationally widespread available dataset on reshoring decisions (Uni-CLUB MoRe reshoring). A further investigation was then developed, analyzing the eight cases of companies belonging to the dataset which declared having implemented 3DTs. Findings of both analyses provided evidence that there is a large overlap among 3DTs' benefits and reshoring motivations.

The second research question is regarding the eventual homogeneity among the industry diffusion of two investigated phenomena: 3DTs and manufacturing reshoring. Also in this case, findings based on the analysis of the extant literature (see reference in Table 2) were compared with both the information contained in the manufacturing reshoring dataset and that of the eight sampled companies. A diffused overlapping among these three elements was also found in this case.

Finally, the third research question is regarding the eventual changes in governance modes implemented in the offshoring and reshoring phases. While AM scholars did not reach a homogeneous theoretical position (e.g. Berman 2012; D'Aveni 2015; Ruffo et al. 2007), evidence from the dataset supports the idea that no changes are generally implemented. On the contrary, evidence deriving from the eight case studies shows the adoption of 3DTs induces the re-insourcing of the manufacturing activities after the reshoring implementation. This finding could, at least partially, be explained by the size of the investigated companies, i.e., mainly small ones. More specifically, it is possible to speculate that AMTs—which generally do not require huge investments—make production technically and economically feasible for such a type of company, since there is virtually a total absence of scale economies with respect to more "traditional" technologies (adopted in the offshoring phase). As a consequence, when adopting 3DTs and reshoring production activities, firms are induced to re-insource them.

The main limitation of this paper is the impossibility to generalize findings, due to its explorative nature. However, it does shed new light on an under-investigated topic which seems very relevant for both International Business and International Operation Management scholars. In this respect, AM and manufacturing reshoring phenomena are expected to influence the competitiveness of industrial companies in

the near future. Further research should be implemented in order to enlarge evidence and reach more generalizable findings.

In terms of implications, those regarding policy makers seem to be particularly relevant. In the extant literature there are several examples of national policy supporting the diffusion of 3DTs (see, among others, Gress and Kalafsky 2015; Kianian et al. 2015; Rylands et al. 2016). At the same time, there is evidence also of various legislations supporting manufacturing reshoring (Bailey and De Propris 2014a, b; Fratocchi et al. 2015b; Guenther 2012; Livesey 2012). In analyzing such policies, some communality emerges, such as aids for human capital building and/or incentives for renewing production systems. Therefore, an effort should be implemented to integrate these two types of public policy.

Finally, with respect to managerial implications, it must be pointed out that the decision making and implementation phases are extremely critical for both the strategic decisions: adoption of AMTs (Rylands et al. 2016) and manufacturing reshoring (Bals et al. 2016). Therefore managers should develop specific decision supporting tools; among them, the Total Cost of Ownership (Ellram 1995) seems to be one of the most useful approaches.

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Blockchain and Sensor-Based Reputation Enforcement for the Support of the Reshoring of Business Activities

Gustavo Marfia and Piergiorgio Degli Esposti

Abstract A common ground for many small businesses which are based and operate in Europe, capable today of standing against the waves of the globalization and the online economy, is the added value given by: (a) the quality of their services/products, and, (b) the trust they receive from their customers. Interestingly, such businesses are capable, in many cases, of maintaining the fidelity of a customer base, which is willing to pay more for their services or products when compared to what it would be paying when resorting to other channels. Such competitive advantage may be maintained as long as the quality of such services is high, one of the key factors that may also encourage and sustain the reshoring of many businesses to Europe. However, the quality of the products of many businesses is often hard to detect for a customer. Many exemplar cases may be individuated in organic farming and sustainable fashion and textiles. For instance, an average buyer may experience a very hard time when trying to distinguish at first sight an apple which has been obtained following organic protocols from one that has been produced following industrial procedures (e.g., use of chemical fertilizers). The same can be said for clothes, how may a consumer say whether given ethical rules and quality standards have been employed while weaving, knitting, felting, and braiding textiles? Because of these problems, in order to guarantee customers no malicious exploitations have been perpetrated, many of such companies resort to centralized and private certification programs. Unfortunately such certification programs can be expensive, long to implement, and even dishonestly exploited. In this scenario, we propose an integrated approach, based on two distinct and well-known ICT technologies, the Blockchain principle and sensor platforms, as a practical solution to preserve trust, increase the value of products and/or services and hence to encourage the reshoring of business activities. In particular, the model we here propose well applies to those business sectors whose actors share some type of immaterial asset related to the values that they convey with their products,

G. Marfia (✉)
Department for Life Quality Studies, University of Bologna, Bologna, Italy
e-mail: gustavo.marfia@unibo.it

P.D. Esposti
Department of Sociology and Business Law, University of Bologna, Bologna, Italy

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which also, in many cases, represents their shared vulnerability point. Two exemplar business sectors where the proposed approach may be applied are represented by organic and sustainable productions in addition to all those which benefit from their association with specific geographical areas whose products, for given categories, are highly valued by customers (e.g., Made in Italy for fashion products). Because of the latter, the proposed approach may represent a viable pathway for the reshoring of companies from abroad.

Keywords Reshoring · Blockchain · Sensors · Made in Italy

1 Introduction

Many small businesses which are based and operate in the western world are capable today of standing against the waves of the globalization and the online economy thanks to the added value given by Manski (2015): (a) the quality of their services, and, (b) the trust they receive from the customers. Interestingly, such businesses are capable, in many cases, of maintaining the fidelity of a customer base which is characterized by a willingness-to-pay (WTP) which is high when compared to what it would be willing to pay when resorting to other distribution channels. A long term sustainability of such paradigm is clearly strongly connected to a long-standing tradition of reputation and quality.

However, quality is a product attribute that is often hard to detect for a customer. An exemplar case is the one given by organic groceries or dairy products. How is it possible to distinguish at first sight a genuine product from a counterfeited one, or how is it possible to say that sustainable codes of conduct or no chemicals were employed during a production process? For this reason, to protect customers, but also to gain their trust and secure their WTP, many companies resort to centralized and private certification programs. For example, in the agri-food segment, regulation protocols, in accordance with global standards, have been created to govern entire food sectors such as organic products and denomination of origin, to cite well-known ones, whose compliance is verified by certification or accreditation agencies (Renard 2005). Unfortunately such certification programs have shown weaknesses, as they have been subject to attacks and malicious exploitations, as recent scandals have reported (MII 2016; Forbes 2015, 2016; Cornucopia 2015; EWFC 2016). Moreover, in addition to the cited certification programs scandals, recent field studies indicate that third-party-certification programs should not only implement more democratic procedures, but also commit to ensure compliance beyond audits (Konefal and Hatanaka 2011).

Other business sectors which heavily rely on such forms of trust are those that certify their products to be hand-made or Made in Italy, for example, as both conditions are often used to justify higher costs and prices to the eyes of the consumer (Snaiderbaur 2009). Concerned customers may also value those

companies which expressively guarantee the non-exploitation of labor or the non-utilization of any illegal resources (e.g., Libera or AddioPizzo), anticipating or complementing the existing institutional and regulatory pressures against such phenomena (Libera 2017; Addiopizzo 2017; Barrientos 2013).

A unifying characteristic that may often be found across the companies that benefit from such perception of selling *high quality* products is their relatively small size compared to the market that they address, while being at the same time capable of responding to the highly individualistic requirements of their customers. Interestingly, such characteristic often lets companies survive and prosper while operating within the same arena (Kupiec and Revell 1998; Marsden and Smith 2005). A second characteristic, that may also be often found, is that any reputation damage caused by one firm (a business that is found not complying to the stated ethical principles and/or quality standards, for example) may have dangerous effects for all, as companies operating in given segments may be perceived as categories rather than as single businesses, hence easily paying the price of being confused with others which operate in the same segment (Kapferer 1995).

In this situation, the opportunity set in front of such businesses is that interesting customer bases may be found: customers belonging to these groups are generally prone to accept higher prices set for products that may be perceived as *special*, as long as what is promised (i.e., quality in some form) is effectively given (Park and Kim 2016). A possible threat, as anticipated, is that such system may work as long as it works for all, because any reputation damage caused by one of the businesses which provide a product or a service may seriously affect the reputation of all those companies which provide articles falling in the same segment (Roehm and Tybout 2006).

For this reason, a certification process that guarantees the quality of products should never be perceived as faulty, in any of its aspects. Such problem is highlighted in Janssen and Hamm (2012) where, for example, the authors analyzed the behavior, in terms of consumer preferences and WTP, for different organic logos of 2441 consumers of organic food in six European countries. Their results show that very few consumers trusted the generic labelling with the prefix *organic* without a certification logo, whereas the highest price premiums were awarded to those logos that were well-known and trusted, as they were perceived as following strict organic standards and controlled by reliable quality assurance systems. In essence, a product that underwent a rigorous certification process strongly benefitted in terms of perceived value (augmented product component, as defined in marketing studies) (Armstrong and Kotler 2009).

It is hence clear that transparent and easily understandable certification protocols amount to key ingredients in the construction of trust and for the support of the augmented product component of the value of a good (Nuttavuthisit and Thøgersen 2015). As a consequence, such protocols could play a key role to encourage the reshoring of given businesses from second and third world countries, as possible higher production and compliance costs could be absorbed by the WTP of a large customer base.

The reshoring of activities from other countries has, in fact, become a solid opportunity which has attracted the interest of both companies and the research community (Fratocchi et al. 2012, 2013, 2014; Gray et al. 2013; Stentoft and Mikkelsen 2014; Stentoft et al. 2015, 2016; Bals et al. 2016; Zhai et al. 2016; Grappi et al. 2015). In fact, many of the cited studies observe an increasingly growing trend enacted during the past few years where management decisions tended to reconsider previous outsourcing and offshoring decisions, often revoking some of these (McIvor 2013; Ellram et al. 2013). The majority of such works analyze such phenomenon focusing on the advantages that could be secured in terms of the reduction of supply chain costs. In this particular sector, in fact, the idea that emerges above others is that, while offshoring procedures have often been pursued to exploit low labor costs, they have also produced non-negligible amounts of unexpected costs, ranging from subsequent increases of labor costs to any economic burden caused by lacks of quality and flexibility, speed and simplicity of doing business.

More recently, it is possible to find research initiatives which have also analyzed the role that the adoption of a reshoring strategy could have on consumer perception, i.e., on how a consumer might appreciate and value the fact that a company has decided to reshore its activities for some meritable reason. In Grappi et al. (2015), for example, the authors underline how a company may benefit from the implementation of reshoring, finding motivations which well exceed those of immediate economic nature, as consumers appear to positively evaluate and reward such type of decisions. In their work, the authors cite the example of Natuzzi, a manufacturer of sofas and chairs, which in year 2014 decided to relocate its production plant from Romania to Italy, declaring the reason of such doing was that of saving 1000 jobs in the south of Italy. Such finding is corroborated by a second study, (Grappi et al. 2017), which, considering the specific scenario of fashion businesses, underlines the importance of complying to ethical and sustainable values, proving, again, such aspects may be beneficial to the reputation and possible marketing of a brand.

In essence, a brief literature review of the available research on reshoring exhibits a trend where such strategy is being valued by companies not only for its immediately measurable advantages (e.g., savings of some kind in terms of production costs), but also for those advantages which may be cultivated in the mid to long term, thanks to an improvement of the reputation of a brand.

In such scenario, it is clear by now that solid and reliable certification programs may represent the keystones for the success of reshoring initiatives. As anticipated, though, such programs have not demonstrated being immune from critical aspects affecting their reliability. In this scenario, this paper argues that a certification programs could rely on three key technological components which could be put to good use to enforce robust and transparent procedures founded on product information: (a) real-time assessment, (b) accessibility to reliable information, and, (c) guarantee through shared trust and responsibility. In the following these three technological components are revised, in order to provide the presentation of an architecture that may be perceived as trustworthy and reliable to end customers.

2 Architecture

The architecture presented in this work relies, as anticipated, onto three ICT-based components integrated into a single framework, engineered to provide consumers with transparent certifications for the products that they are interested to buy. Each of these components responds, respectively, to one of the aforementioned product information requirements: (a) real-time assessment, (b) accessibility to reliable information, and, (c) guarantee through participatory trust and responsibility. In the following we discuss how each of such components may be pursued.

2.1 Real-Time Assessment

A real time assessment of physical information may be performed through the deployment of sensor networks (Akyildiz et al. 2002). Sensor networks are being widely used in various application areas, which include the monitoring of food integrity and safety and the assessment of labor conditions. In the following we briefly discuss two examples that well fit the scenarios considered in this work.

Many different researches have been published in the past decade in the area of the application of sensors for the assessment of food safety. In fact, efforts independent from the growth of the organic economy have been made to expedite and miniaturize the tests required to reveal biological and chemical hazards, as traditional means of analysis tend to be expensive, time-consuming, insensitive, and/or require bulky instrumentation and considerable scientific expertise. The most recent advancements along this line have led to the adoption of an emerging branch of sensing science, which, in fact, may have the potential to address many of such problems: nanotechnology (Bülbül et al. 2015; Wang and Duncan 2017; Yoon and Kim 2012). However, the rapid growth experienced by the organic business compartment (the latest research from marketing company Organic Monitor reports that the international sales of organic food and drink approached 80 billion US Dollars in 2014) have increased the tests of interest to the food industry, as research efforts are being made to distinguish organic from non organic products (Niggli et al. 2016). As a witness of this phenomenon, the authors of (Song et al. 2016), for example, present a low cost portable near infrared spectrometer to differentiate organic from non-organic categories of apples, reporting a classification accuracy of 98%.

The areas of application of sensing technologies, however, well exceed those of pathogen and chemical monitoring. In fact, multimedia sensor networks may be put to good use to check the adherence of a production process to other values of interest. For example, face recognition technologies, when employed in acceptable ways at a workplace, may be useful to verify the location of workers at all times, verifying that they do not exceed their due hours of work, or that they are not employed in tasks which are not compatible with their qualifications, in order to

certify fair working conditions (Schroff et al. 2015). Along the same line, vision recognition technologies may be employed to verify: (a) the compliance working protocols with ergonomically-sound movements and postures, or, (b) that production quantities adhere those compatible with given quality or authenticity standards (Gatchel and Schultz 2014; Marfia and Roccetti 2017). In Marfia and Roccetti (2017), for example, the authors argue the possibility of realizing a low-cost system capable of helping prevent overexertion injuries with the construction and assessment of a prototype which they prove can distinguish the execution of correct from incorrect postures during work.

Now, without pretending of giving here an exhaustive description of the endless opportunities set by the use of sensor technologies in business, the examples provided in this Subsection aimed at giving a picture of their use in supporting reshoring activities. In fact, their pervasive and widespread use in everyday tasks will be clearly supported by their growing power and availability at very small cost. Hence, it is plausible to imagine today a possible scenario where reshoring activities may benefit from the creation of the Internet of Things (IoT). The IoT representing a networked interconnection of everyday smart objects, which will lead to a highly distributed network of devices aiming at providing reliable communication means for the data exchanged by human beings as well as with other devices (Xia et al. 2012; Atzori et al. 2010). In this scenario, the IoT may represent the bridge closing the gap between high quality products and their customers.

2.2 Accessibility to Reliable Information

The augmented value of a product created with the use of real-time assessment means can grow making such process transparent: the information derived from sensor readings should be readily available to customers as soon as it is created. On the customer side, this step may be simply implemented resorting to the World Wide Web, which may well be integrated with IoT technologies (Berners-Lee et al. 2000). Customers could, for example, utilize their mobile phones to access a webpage reporting the sensor information related to the product that they are buying, simply scanning a QR code placed on the package of the good (Liu et al. 2008). Similar user behaviors could be supported resorting also to other mechanisms, for example leveraging on the use of RFIDs (Xia et al. 2012; Atzori et al. 2010).

It should be noted, however, that the use of technology cannot get much farther than this, when aiming at providing means of measuring and reporting information related to a product. No guarantee, in fact, is given regarding the fact that the correct sensor has been employed, or that a sensor deployed to monitor the quality of a production process is placed in the correct place or is utilized to measure the correct variable. All information systems exhibit weaknesses which appear insurmountable when approached in absolute terms. The question at this point is, how can the real-time certification system really be trusted without the participation of a third party entity that ensures that the correct procedures are enforced?

Interestingly, reputation and trust are two areas that have been thoroughly analyzed by the computer science community, especially in connection with electronic commerce (Marti and Garcia-Molina 2006). For many online systems, in fact, major problems amount to the trustworthiness of the transactions that they support, as well as guarantee the validity of the opinions that they report. Clearly, it is practically very difficult to enforce honest and accurate reporting on transaction outcomes by all peers. Many reputation systems do not verify the integrity or reliability of the information that is provided, they instead assume that honest users are more frequent than dishonest ones, and that collecting information from a large number of peers will result in a relatively accurate assessment of a peers' behavior. Others, just as in real life, assume that any information provided by a personal friend is likely to be considered more accurate than that of an unknown peer in the network. They hence weigh opinions using the previously determined reputation scores of the peers who provided them. Information collected through transitive trust may also be weighted by the reputation rating of the least reputable peer in the trust chain (Feldman et al. 2004; Kamvar et al. 2003; Page et al. 1999).

Despite the approaches that have been described, the aforementioned mechanisms may result not sufficiently robust to handle given problematic cases. In e-commerce, for example, huge number of fake customers may be maliciously created to pump up reviews to achieve a high reputation (i.e., sybil attack). A potential solution to such problem can arrive from Blockchain technologies (Swan 2015; Zhai et al. 2016; Zheng et al. 2016). In Carboni (2015) the author proposes a reputation model based on Blockchain, in which a customer signs a receipt if satisfied with the service and willing to provide a positive review. After signing, a service provider pays a small percentage of the payment to the network as a voting fee to discourage the sybil attack. Using this framework, a service provider's reputation is computed adding up the received voting fees.

In the following we briefly introduce and then analyze how the Blockchain framework may be extended to implement a participatory trust and reliability mechanism for end users for the scenarios of interest.

2.3 *Enforcing Participatory Trust and Reliability*

As reported in Swan (2015): *the blockchain concept is a new organizing paradigm for the discovery, valuation, and transfer of all quanta (discrete units) of anything, and potentially for the coordination of all human activity at a much larger scale than has been possible before*. Before proceeding the discussion of how Blockchains may benefit reshoring activities, it is worth providing a brief description of the phases such technology has transitioned through. In fact, it is already possible to identify different phases in the Blockchain evolution, even if such technology has been introduced only in 2009. With Blockchain 1.0 its community refers to the exchange of money based on such mechanism: it is no more and no less than a currency (even if its acceptance as such differs from country to

country). Blockchain 2.0 is related to contracts and financial applications, whereas 3.0 has been envisioned to embrace all other areas beyond currency, finance and markets.

For the aim of constructing and sustaining the high levels of trust and reliability, the emerging economic and sociologic models inspired by Blockchain technologies appear as interesting solutions. Without giving the details of such technology, the basic concept that should be understood is the fact that, with such systems, any transaction between two parties will be successful as long as the entities that participate in the Blockchain network validate such transaction. In other words, considering the currency application of Blockchains, actor *A* can pay a given amount of money to actor *B* as long as all those that use the same type of currency guarantee that such transaction is viable (i.e., *A* has the funds to pay *B*), implementing hence a decentralized system of trust. Such type of interactions and validation process is made possible by the use of a shared ledger, where all those who take part in the network track and validate all exchanges of value within the network.

One of the benefits of the consensus models supported by Blockchain technologies is that they could possibly enforce cooperation within the businesses which operate within the same segment. In fact, in a decentralized trust network, a business' reputation would determine whether a transaction may or may not be executed: with such model malicious players would not be able to get their transactions executed or recognized by the network. In essence, any transaction regarding resource access, use and transfer may require assent by consensus, obtained based on behavior of the actors involved in the transaction. This behavioral pattern simply constitutes the foundation on which a network of businesses is constructed. The Blockchain may, hence, be used to enforce such behaviors in order to support the augmented value of the goods produced by a community of businesses.

Of course, many possible objections may be made to the idea that a Blockchain-based reputation infrastructure could enforce the construction of trustworthy networks of businesses. Malicious groups of companies, for example, could build their own smart networks. Nevertheless, Blockchain technology can be interpreted as a system of checks and balances for incentivizing and producing certain kinds of shared values and ways of conduct, while limiting others. In essence, if such system works well, the easiest solution for any actor is to participate and carry on business as expected. Thus, this is here obtained making any transaction of value to a business require some form of access or authentication that is consensus-signed, which cannot be obtained unless the business is accepted as an active member of the network. This can only be obtained through standing in terms of reputation, reputation which is continuously fueled pursuing the constitutive values of the network.

Interestingly, these do not represent new concepts to the agri-food sector, for example, where it is already possible to find experiences that, without the use of the Blockchain, already point into a direction of shared responsibility and reputation. What is lacking, so far, is a mechanism that may make the implementation of such concepts feasible. An interesting case is the one reported in Radomsky et al. (2014): such work describes the experience of the EcoVida Brazilian farming community,

group that has already implemented a participatory certification program (EcoVida 2017). EcoVida amounts to a representative example, among others (CNG 2017; OFNZ 2017; KF 2017), where farmers all know each other and all know each others' farms, as each member of the network pays visits to his/her peers' land, together with an ethics committee which is involved in these regular visits. For such type of organizations, trust is built upon a participatory process where each producer oversees the behavior of others.

3 Methods

Before discussing a few examples, it is now possible to summarize the conditions that should be sought in order to implement a participatory certification program that may be put in place resorting to the technologies discussed in Sect. 2. In essence, we picture that systems, like the one described, may well apply to those business sectors which:

1. Address with their products customer bases which may be willing to pay more as long as high quality products are provided;
2. May effectively benefit from the production of high quality products, whose value may be easily understood and considered worthy;
3. Are not monopolized by only a few actors, i.e., their market is shared among many different companies;
4. Do not see situations where the relationships among competing companies are heavily jeopardized for some cause (e.g., small market, aggressive and/or unfriendly competition, etc.).

Traditionally, business sectors which meet such criteria are those where customers are particularly concerned with the quality of the goods they are buying, as for example in the agri-food sector. Such rationale indirectly explains why participatory certification programs have been independently founded across the globe (EcoVida 2017; CNG 2017; OFNZ 2017; KF 2017).

For the aforementioned reasons, one of the two cases that will be discussed in the following Section concerns Organic Farming. The second case is drawn among others which also meet the conditions discussed in this Section: Made in Italy. As for the Organic Farming case, in fact, the Made in Italy sector also may benefit from a wide customer base interested at such type of products, because perceived as high quality ones for specific product segments (e.g., fashion). Taking into consideration the specific fashion segment, this amounts to an economic sector whose market is divided among a great quantity of different and independent small and medium enterprises, as in the specific Italian scenario (Berra et al. 1995). Since many Italian fashion companies have implemented offshoring and outsourcing strategies in the past decades in order to reduce their labor costs (Cerruti 2008), this appears as an interesting sector where a strong and transparent use of certification programs may lead to a reshoring of such activities.

4 Use Cases

As discussed in the previous Sections, the proposed model well applies to those business sectors where business actors share some type of immaterial asset, which potentially represents the augmented value of the product or service that they provide but also represents a possible vulnerable point. In the following we discuss how the proposed ICT-architecture could contribute to the augmented value of a product, referring to two specific examples. We then conclude this Section discussing what may happen in a worst case scenario, i.e., in a situation where one or more members decide to cheat a participatory certification system based on the ideas proposed in this work.

4.1 Organic Farming

In this particular sector, the immaterial asset that companies share is their reputation regarding the fact that produce is grown following organic protocols. As of today, a farming company is granted organic production status for the land that it owns after an inspection and laboratory analysis performed by a third-party certification entity which grants the organic status. After this step, a company can label its products as organic, sending them to the market.

Because of the increased costs of such product, situations have been reported in the news where companies have sold higher amounts of produce than what they actually harvested on the land that was truthfully certified as organic (i.e., cases have been reported in the recent news where companies sent to the market the production of 500 ha when only 10 were effectively certified as organic) (MII 2016). Resorting to the methodology proposed in this paper, such phenomenon could be contrasted as follows.

In the first place, the farmers that join a network agree to equip their fields with low cost sensors, in charge of monitoring in real-time, for example, the levels of unwanted chemicals, and with video cameras, used to estimate the size of crops. The information recorded by sensors is shared (the same is done for video camera feeds), both in real-time on web platforms, but is also available at later times, in order to let customers appreciate the fact that produce is never exposed to chemicals.

Now, in order to combat a problem as the one reported in MII (2016), also other relevant information such as crop sizes or market sale information should be shared and recorded on the Blockchain. In fact, in this way, for example, all the members of the business network can check the amount of produce sold on the market with the production expected for the amount of land that has been certified as organic. Such information can also be validated through sensors: video cameras may be employed to record and witness what has been done during key phases of the production cycle. The moment a member wants to sell its products, all other members are required to agree, otherwise that the transaction may not take place.

Bypassing such step, a farmer is exposed to a situation where his/her products are not certified by all members, hence their augmented value to the eyes of a customer decreases.

4.2 Made in Italy

This example is similar to the previous one, in fact a one-to-one mapping could be made. Reputation in this scenario is built upon the fact that a product is manufactured in a specific country, Italy in this case, according to Italian traditions, labor expertise and governmental regulations. The Made in Italy brand has proven to be a selling point for certain categories of goods, including fashion (Snaiderbaur 2009).

The temptation a malicious business may face is that of importing low cost goods from foreign countries and selling them as Made in Italy ones. A methodology apt to encourage well-doing, while protecting customers, amounts to the one where, again, businesses transparently share information concerning their manufacturing processes and the amount of goods they sell, letting other businesses validate the trustworthiness of such information. In essence, the authenticity of Italian-made clothes and garments can be guaranteed resorting to sensors platforms and shared blockchain ledgers, used together to transparently communicate the quality of production processes to end customers.

4.3 A Practical Cheating Example

Now, it is interesting to analyze the outcome of situations where part or all businesses agree to cheat with respect to the correct doing. Say, for example, organic farm *A*, which produces apples, decides to increase its revenue, buying non-organic apples at a low prices and selling them as organic at a high price. In order, for this, to be convenient, *A* will sell both: (a) the genuinely grown organic apples, plus, (b) the low cost apples it buys. Consider now how the validation process may be enforced by other companies. Upon receipt of the transaction bills of *A*, which we assume correct (unless they are also forged, but we will have to believe that at some point something is genuine and not counterfeited), it is possible to observe three possible situations:

1. All companies deny their validation of *A*'s transactions, as something is wrong → this represents a satisfactory behavior for the consumer, as it protects its interests;
2. All companies agree to *A*'s transactions, as they have all found an agreement against the interests of consumers → unsatisfactory behavior for the consumer;
3. Some companies validate *A*'s transaction, some do not → positive behavior for the consumer, also in this case the interests of consumers are protected.

Both 1. and 3. are satisfactory for a customer, because *A*'s transactions will be validated only as long all companies validate that transaction and a wrongdoings are blocked by the group of companies which were not able to reach a consensus. In fact, if consensus is missing, the given transaction will not be validated and the general interest of consumers will be preserved. The only really unsatisfactory behavior can be found with 2. However, we should also consider that in reality this represents an extreme and unlikely case. First of all, the fact that 2. occurs means that all companies are misbehaving, exhibiting a felony carried out by an entire group of businesses (e.g., all those that produce apples in this case). This is extremely unlikely, the moment such behavior were unveiled, all companies would be held responsible with extremely bad consequences for the entire category.

5 Conclusion

In this work we envisioned an ICT-based framework that may be put to good use to solicit and encourage the reshoring process of companies that have moved their activities abroad. To do this we first individuated one possible key element that may lead a company to reshore its production processes, concentrating the discussion on the role of certification programs. In fact, certification programs may be key to reshoring processes, as certain standards of quality, but also of trust, are sought by premium customer bases. The problem is that not always given stated values are really implemented by producers, resulting into a possible damage for an entire product category. Unfortunately, certification services have exhibited limitations and scandals which have also appeared on the news in different countries. For this reason we have discussed the particular case of agri-food, where certification processes are pervasively used today. Resorting to such sector, we have uncovered the limitations of existing third party certification and exhibited the potential hidden in participatory certification programs, where groups of companies guarantee one for the other. In addition to this, we have also exhibited the existing commonalities between the agri-food sector and the Made in Italy one, concentrating on the fashion sector.

Specifically, the Made in Italy fashion augments the value that is perceived by a customer, encouraged into his/her willingness-to-pay more for a product that has higher quality standards to his/her eyes. This, hence, appears as a driving force for the reshoring of a company that has been moved abroad. To harness this potential, we have discussed how it is possible to build participatory certification solutions which may scale, leveraging upon three technological pillars: Sensors, WWW and Blockchain technologies. Sensors, or more generically the Internet of Things, are here used to provide means of measuring and quantifying vast ranges of phenomena (e.g., use of chemicals, labour exploitation, etc.). The WWW, instead, amounts to the main way of access to any sensor information from anywhere, at any time, to anyone. Finally, Blockchain technologies are here put to good use to support the construction of reliable and trusted networks of producers, which sharing part of

their information end up gaining in terms of transparency, compliance and reputation, all characteristics many customers are willing to pay for.

This work comes with many limitations, as it is based on a literature review and on a discussion which does not build upon any field data, specifically gathered for this study. For this reason, future work should invest on understanding the feasibility of the envisioned solutions, verifying their applicability to the business sectors considered in this work.

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Part III
Emblematic Evidence

Reshoring Strategy: Case Illustrations of Japanese Manufacturing Firms

YoungWon Park and Paul Hong

Abstract Increasingly, turbulent global market factors and the mature domestic market conditions dictate firms from the advanced nations (e.g., United States, Western Europe, Japan) to pursue reshoring strategy. Literature review includes articles that provide understanding on the relationship between offshoring and reshoring. Through case studies, we further examine reshoring strategy of Japanese firms in China. We discuss first the historical background of outsourcing strategy of Japanese firms from 1960s to 2010. The multiple case studies of Japanese firms suggest that successful reshoring strategy requires advanced planning for preparing right contexts and careful coordination of goals implementations in terms of strategic cost reduction, productivity enhancements and strategic alliances with suppliers in China. In this sense, the learning outcomes through offshoring in China are reapplied in achieving successful reshoring strategy. Another important finding is that reshoring strategy is to strengthen the mother factories at home base for their long term global competitiveness.

Keywords Reshoring strategy · Case illustrations · Japanese manufacturing firms

Y. Park (✉)
Faculty of Economics, Graduate School of Humanities and Social Sciences,
Saitama University, Saitama, Japan
e-mail: ywparkjp@gmail.com

Y. Park
Manufacturing Management Research Center, Graduate School of Economics,
The University of Tokyo, Hongo 7-3-1, Bunkyo-Ku Tokyo 113-0033, Japan

P. Hong (✉)
Information Operations and Technology Management College of Business and Innovation,
University of Toledo, Toledo, OH 43606, USA
e-mail: Paul.Hong@Utoledo.edu

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1 Introduction

Increasingly, turbulent global market factors and the mature domestic market conditions dictate firms from the advanced nations (e.g., United States, Western Europe, Japan) to pursue reshoring strategy (Ellram 2013). Rising labor cost, unreliable quality performance of suppliers in emerging economies and added burden of logistics cost have contributed to this changing emphasis (Ferdows et al. 2016; Ellram et al. 2013). Besides, highly publicized policy initiatives of host countries and strong strategic commitment do influence such reshoring decisions of global firms (Gray et al. 2013). The new Trump administration has consistently urged American global firms to return back to the States through visible media coverage. In case of Japan, Abe's new economic policy (i.e., Abenomics) is based upon "three arrows" of fiscal stimulus, monetary easing and structural reforms (Economist 2013). In response, Japanese firms in China have considered reshoring as an attractive strategic option.

This article aims to examine reshoring strategy of Japanese firms in China—the largest world market. Since 1960s, in the context of rapid export growth, Japanese firms have pursued offshoring strategy and expanded their manufacturing facilities in low labor cost countries—in particular, China and South East Asian nations. In particular, with its geographical proximity and large domestic market potential, Japanese firms have aggressively implemented off shoring goals in China. Over the years, the productivity growth in Chinese facilities has not kept up with the rapid labor cost hike. This has much to do with Chinese government effort to enhance the living standards of workers in the context of rapid industrialization. The focus of this article is not mainly the firms that choose China options for mere low labor cost advantage. Rather, the real reason for reshoring is to achieve overall competitive advantage. Other reasons are to keep viable business ecosystem at home base through maintaining their core competencies. We employ multiple case studies to examine the current issues of reshoring that Japanese firms have experienced.

Note: For the purpose of protecting proprietary nature of business, the names and other minor details are changed but the content of the case firms fairly represents the business reality.

2 Literature Review

With the opening of China in 1970s, massive moving manufacturing facilities from advanced economies (e.g., USA, Japan, and Germany) have caused a huge change in national manufacturing capabilities (Manning et al. 2008). Free trade movements (e.g., NAFTA and other bilateral agreements) facilitated such transfer of manufacturing capabilities from advanced economies to emerging economies. As nations started seriously to examine the role of offshoring on industry competitiveness and

their impact on national economy by 2010, there has been serious debate on offshoring and reshoring not merely as business concerns but as social and political issues from optimistic and realistic perspective (Friedman 2005; Lampel and Bhalla 2011; Larsen 2016).

Literature of offshoring and reshoring is interrelated in that both are about the relocation of business processes (e.g., manufacturing, accounting, IT) from one country to another. Offshoring is seeking competitive advantage at foreign operations while reshoring is moving back to domestic operations (Blinder 2006; Sirkin et al. 2011). In particular, offshoring and reshoring in the contexts of Asian businesses involve global firms from Japan and Korea related to China and Southeast Asian nations (Park and Hong 2012; Hong and Park 2014). For the purpose of this chapter our focus is on offshoring/reshoring of manufacturing firms in Asian contexts.

Manufacturing offshoring involves relocation of some or whole manufacturing processes for seeking comparative advantage in terms of cost competitiveness and market proximity. When we consider manufacturing processes, in view of complexity from R & D, engineering and process design and final assembly, in early stage of offshoring, manufacturing firms tend to focus on labor-intensive final processes (e.g., assembly). As economies of scale increase with the expanding market potential, the scope of offshoring also becomes much more extensive.

As Korean (e.g., Hyundai, Samsung) and Japanese (e.g., Toyota and Honda) manufacturing firms offshore their manufacturing functions to China, they tend to target market segment and build their own supplier ecosystem in certain region such as in the city of Beijing, Dalian, and Guangzhou. However, with increasing manufacturing complexity, supply chain networks are extended and companies naturally lose quality control over all their suppliers and often result in increased risks. As Toyota Recalls suggest, such lack of control of suppliers is a kind of huge issues for the manufacturing firms with global brand reputation. To ensure high quality standards for global markets, manufacturing firms employ various control measures.

Kang et al. (2009, 2012, and 2014), examine three types of control mechanisms (i.e., social control, process control, and outcome control) for innovation seeking (i.e., high premium value products) and efficiency-seeking (i.e., routine commodity products).

Table 1 is a summary of several articles that discuss the offshoring and reshoring from changing perspectives. This includes various articles starting from enthusiastic support for offshoring to revitalize the economies and pursue global prosperity (Friedman 2005; Blinder 2006). As more firms relocate their manufacturing facilities through offshoring, practical issues become visible and explicit. These offshoring firms find securing qualified human resources through recruitment, education and training and promotion enormously challenging (Oki 2009; Larsen 2016). Low cost advantage also has a certain dark side. Japanese companies used offshoring to exploit Chinese laborers meeting Chinese local standards which often was in violation of the Employment Security Act and Labor Standard Act in Japan which stipulates that no foreign workers, regardless of their operating locations, can

Table 1 Offshoring and reshoring: A review of changing perspectives

Authors	Firms contexts	Offshoring/ reshoring	Major findings
Blinder (2006)	Examine offshoring phenomena from American perspective	With the growing free trade movement, offshoring is perceived as an instrument of industrial revolution	This is one of early writings on potential positive aspect of offshoring in general with careful note of possible negative side effects
Kang et al. (2009, 2012, 2014)	Korean, USA, Japanese firms	Manufacturing firms engage with Chinese local suppliers as well as their own affiliated subsidiaries	Implementing diverse forms of process, outcomes and social controls is crucial to ensure desirable quality performance standards on consistent basis
Lampel and Bhalla (2011), Manning et al. (2008), Schmeisser (2013), Larsen (2016)	Prudent and realistic assessment of pros and cons of offshoring	After more than a decade of experiences of offshoring, both academic researchers and strategic management engage in systematic and historical reviews of benefits and costs of offshoring	Once overlooked hidden and unexpected costs of offshoring are carefully examined while appreciating the benefits of offshoring in terms of cost advantage and productivity enhancements and expansion to emerging markets
Park and Hong (2012), Hong and Park (2014)	Korean, Japanese firms in emerging BRICs markets (i.e., Brazil, Russia, India and China)	Global firms from Korea and Japan build manufacturing facilities and their affiliated supply chain network to achieve successful market penetration	In addition to engineering design and manufacturing-based technology competence and customer competence by sensing changing customer needs at local contexts, organizational integrative linkage competence is crucial for sustain-able competitive advantage in emerging markets
Ellram et al. (2013), Sirkin et al. (2011), Ferdows et al. (2016)	Decision contexts of offshoring and reshoring of major global firms	Offshoring and reshoring require location decisions for effective relocation of major manufacturing facilities	Location decision of manufacturing facilities involves careful consider-action of diverse socio-economic-political-strategic factors

(continued)

Table 1 (continued)

Authors	Firms contexts	Offshoring/ reshoring	Major findings
Clampit et al. (2015), Fratocchi et al. (2016)	Examination of internal and external drivers of offshoring and reshoring	Internal and external motivations of offshoring and reshoring of major firms are examined	Both offshoring and reshoring are not merely firm-specific and productivity-driven decisions but value-driven and competitiveness-seeking industry level decisions
Gray et al. (2013), Foerstl et al. (2016), Stentoft et al. (2016)	Logical argument for re-shoring is supported by quality research inquiry and findings	This topic discusses practical benefits and theoretical rationale of reshoring in broad contexts and considers what is unclear and unknown	The macro-contexts (e.g., global, national, industry level factors) of reshoring and micro-factors (e.g., firm specific motivations) of reshoring are discussed and future research issues are presented

be treated differently. Thus, secret violation of these labor laws in China and other offshoring locations often result in heavy private damage settlements (Gu et al. 2008; Li and Barnes 2008; Su et al. 2009; Rubin 2009). Besides, as more global firms operate in China, the fast turnover rate and lack of employee loyalty are quite problematic for Korean and Japanese firms (Park and Hong 2012; Hong and Park 2014). However, moving highly innovative and premium value products with deep technological know-hows to China is less likely because of concerns of intellectual property rights, increasing labor costs, and turbulent market conditions (Herath and Kishore 2009; Tate et al. 2008, 2009). Recently, job losses and wage erosion in advanced countries—USA and Japan in particular–have generated intense opposition to offshoring (Ferdows et al. 2016; Toloken 2016). As the benefits of offshoring are offset by the need for reshoring—primarily domestic political pressure and perceived threats of competitive advantage, several global firms from USA and Japan have begun to bring their operations back to their own countries through reshoring.

Reshoring is the reverse process of offshoring so that manufacturing firms move back to the country they left in response to changing global market conditions and favorable domestic contexts (Bailey and De Propris 2014; Fratocchi et al. 2014; Macchion et al. 2015; Stentoft et al. 2016). The combined factors of negative impact of offshoring and potential benefits of reshoring make firms choose reshoring options (Ancarani et al. 2015; Fratocchi et al. 2016).(For name and year) In view of the rising middle class in emerging economies (e.g., China, India), reshoring is often done in a small scale first. Manufacturing firms consider their overall global market strategy as the key in deciding the extent of reshoring options. Since moving manufacturing facilities into other places is costly, the reshoring decision involves serious consideration of manufacturing location decision in the

form of global production network (Ellram et al. 2013; Gray et al. 2013; Ferdows et al. 2016). Motivations of reshoring decisions suggest that they are more or less "value-driven and country-specific motivations" over "efficiency-driven and firm-specific ones" that consider economic, social, ethical and political dimensions (Fratocchi et al. 2016; Foerstl et al. 2016).

Figure 1 provides external and internal drivers and outcomes of offshoring and reshoring. This is adapted to the applied review scheme of offshoring by Schmeisser (2013). What is different is that two types of drivers (i.e., macro-and micro-) are considered. Instead of phenomenon, we consider process outcomes of offshoring. Assessments are about evaluating if offshoring is worth continuing in view of changing dynamics. After the serious assessments of offshoring, many firms have chosen their paths of reshoring. In this context, other complex drivers (macro-and micro-) would facilitate reshoring with relocation decisions. Process outcomes are the results of reshoring and assessments are to consider overall effects of reshoring. At this time, firms that have implemented reshoring do not revert back to offshoring. However, in view of slow growth of domestic markets in most of advanced economies (e.g., USA, Japan, Germany, UK, France), it would be probable that different forms of offshoring would be considered in the future. Thus, movement from reshoring to offshoring is in dotted line.

Although offshoring and reshoring decisions are firm-specific in practices, the motivations of offshoring and reshoring are industry-wide and often respond to macro-factors. For example, in implementing offshoring, macro-factors (e.g., political arrangements, trade negotiations, foreign direct investment conditions) need to put in place before firm-level considerations (e.g., market assessment, location decisions, and logistical configurations) are materialized. In similar ways, reshoring decisions also require macro-level preparations (e.g., favorable domestic market conditions, policy incentives, and human resources availability) and micro-level responses (e.g., strategic offerings of new products and services, capital resources allocations, and locations decisions). Both offshoring and reshoring are business decisions based on changing market dynamics. In this sense, specific features of offshoring and reshoring will continue to evolve and change according to emerging market needs.

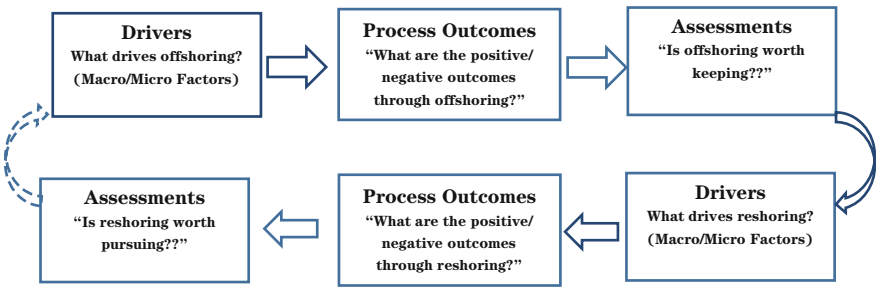

Fig. 1 Drivers, phenomenon and outcomes of offshoring and reshoring

In the next section we conduct case studies to examine the scope, complex factors, and decision-making processes of offshoring and reshoring that involve Japanese global firms.

3 Case Selection Process

In view of recent nature of reshoring phenomena, the literature on this subject is still in the early stage of development (Ellram 2013; Gray et al. 2013). For sound theory development in this area, it is essential to observe, examine and report the actual findings.

For this purpose, the field study has been conducted. Figure 2 is a summary of case study processes which involve research team (left column) and case study participants (right column) and decision contents (middle column). We first defined selection criteria in terms of actual offshoring and reshoring experiences. Among the potential candidates of the initial selection (10 + firms), two Japanese global firms, Toyotomy and Ohashi Corporation were finally chosen. Although multiple cases are desirable, these two companies met all the selection criteria (e.g., global firms, history of offshoring and reshoring, open to participate in research by allowing field interviews and survey of their key business documents) and provide meaningful results (Eisenhardt 1989; Jensen 2012; Ketokivi and Choi 2014). After confirming their willingness to participate in this research, we made appointments

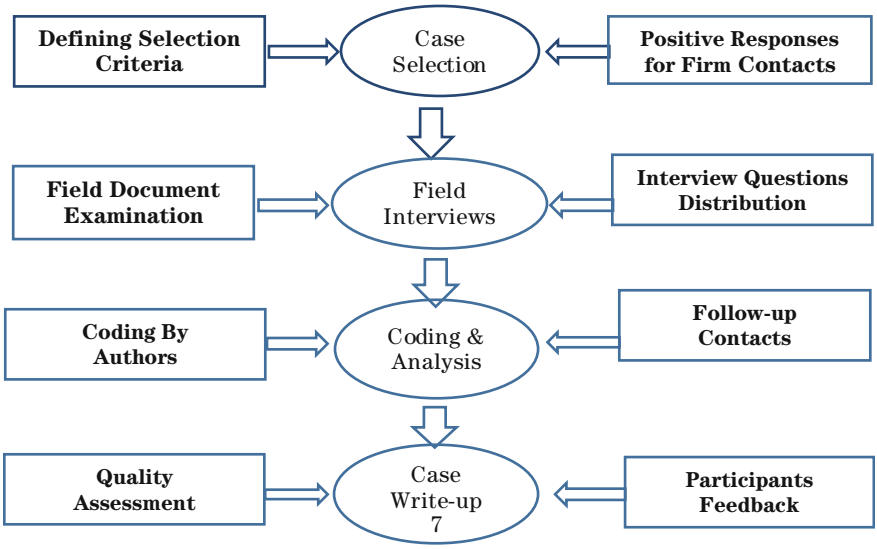

Fig. 2 Case study process summary

with senior managers for extensive interviews. Besides, we also visited the firm sites both in Japan and other countries (e.g., China, Vietnam, and Brazil). We also distributed the sample interview questions in advance for their review. In our interviews, we inquired about the history of offshoring and the background of reshoring decisions.

4 Finding of Case Studies

4.1 Case of Air Conditioner Firm

4.1.1 An Overview of Toyotomy Corporation

Toyotomy started in 1929 at Kyoto and it was incorporated at 1937. Since 1966, the registered name of the firm is Toyotomy Corporation. The number of its worldwide business units is 210 (28 in Japan and 182 outside of Japan). As of December, 2016, Total number of employees is 60,000 including 7000 of employees in Japan. Toyotomy Corporation's business areas include (1) household and applied business division, (2) chemical division, (3) hydraulic division, (4) defense division, (5) After service division, (6) Electronic system division with R & D and IT support specialization.

Toyotomy Corporation's annual sales (in 2015) are about 2000 billion yen and it is the largest in the industry. 90% of its business is from air conditioners and cooling systems and 10% from chemical division products. Toyotomy Corporation, except during 2007–2008 Financial Crisis, it has shown consistent sales increase since 2000. Note: 530 billion yen in 2000, with aggressive M & A and global market expansion, as of 2016, its sales exceeds 2000 billion yen.

Toyotomy Corporation has implemented mid- to long-term series of "Five-Year-Planning" since 2005. As these strategic planning initiatives bear fruit, it grew into a major firm with global competitiveness. For example, in 2010 (when annual sales were 1.1 billion and profit rate was about 6%) it formulated 2 billion sales goals for 2015 which seemed to be somewhat too ambitious and unrealistic. However, the CEO was quite resolute about this goal and did not waver. The whole firm did the utmost efforts and expanded its business unit goals. Amazingly, it has achieved the projected sales goal in 2015. The sales ratio of Toyotomy Corporation in 2000 was 26% from global markets and 77% from domestic market. In 2015, the ratio was upside down completely—global markets (77%) and domestic sales (23%).

The domestic production centers are four complex manufacturing units with five stand-alone factories. First, Yamaguchi manufacturing unit (established in 1941) produces chemical, specialized machineries, hydraulic and large size air conditioners. Second, Kanji manufacturing unit (established in 1983) specializes in fluorine chemical products. Third, Saitama manufacturing unit has two affiliated factories–the first one (started in 1978) produces business purpose air-conditions

and compressors and the second one (established in 1963) focuses business purpose air conditioners only. Fourth, Chiba manufacturing unit (established in 1970) specializes in household air conditioners (room use) and boilers. For the purpose of reshoring, we examine the case of this Chiba unit more in detail later.

4.1.2 Air Conditioners for Global Market

In this section, we examine the process of global expansion of Toyotomy Corporation in four distinct periods. Note that our reshoring study focuses on the production of household air conditioners.

(1) Prior to 2000—preparation for global production

Until 2000, it expanded the availability units of air conditioners and initiated market optimization strategy. In 1972, it established an availability plant for package air conditioners in Belgium. In 1990, similar factories were built in Thailand and China. These three production centers in Belgium, Thailand and China still assume the role of mother factory for the specific national market. The main issue was how to produce package air conditioners outside of Japan. With high profit rate of package air conditioners, it was attractive to produce them in other countries. In 1990s, the Southern European market was gaining the management attention. In view of growing market potential it kept acquiring several marketing firms through M & A.

(2) Expansion of global production centers: 2000–2004

The early 2000s, the emphasis was the market expansion in Europe and China. As the senior management and marketing predicted, the demand for air conditioners has substantially increased from 2000. According to the management motto, "Meet the demand of the regional market from the regional production" and market optimization strategy, more production facilities for air conditioners and compressors were built. In 2003, it opened a factory for household air conditioners in Czech Republic. With increasing demand in China, it also constructed the second factory in Shanghai, China in 2003. With the establishment of such production centers, factories for component parts were also built in other production centers in these countries. In 2001, compressor factory in Thailand, in 2003 Suzhou, China, and in 2004, Czech Republic. In 2002, "Toyotomy Corporation Code Strategy" (TCCS) was introduced. TCCS is about developing and design global platform products in Japan and production in multiple production centers of these countries.

(3) Expanding global production centers:2005–2009

In the latter part of 2000s, it achieved rapid volume increase in global markets through M &A and strategic alliance in the emerging markets. M&A strategy was to overcome Toyotomy Corporation's primary weakness in low cost air conditioners and large size air conditioners. For this purpose, in 2006 it acquired Onari

Corporation for low cost air conditioners market and Mitori Corporation for large applied air conditioners segment. In Europe it also acquired Revil Corporation in 2008 for heating and hot water piping.

In 2008, it established strategic alliance with Konsaku Corporation, the largest air conditioner manufacturer in China. The competitive advantage of Konsaku Corporation was in low cost room air conditioners. For cost competitiveness, the joint venture with Konsaku Corporation proved to be tremendous know—how gain to reshoring efforts of Toyotomy Corporation from 2014. In 2009, it also established a similar factory in India.

(4) Expansion of global production centers: Post-2010

After 2010, it defined room air conditioner market expansion as the top priority in anticipation of huge increase in global markets. In 2012, it acquired GM (No. 1 leader position in US room air conditioner market) and in 2014 it built air conditioner factory in Manaus, Brazil. In 2012, it completed the production of large room air conditioner factory in Suzhou, China. Suzhou Factory is the highest among all the global factories in terms of production capacity (i.e., up to 3 million units). Through Konsaku Corporation Toyotomy Corporation has achieved (1) high level of insourcing (cost management, developing novel technology), (2) low cost manufacturing capabilities through economies of scale production. In particular, adoption of injection molding, die and mold technology with hoop materials and utilization of manufacturing facilities in China were all the learning outcomes from Konsaku Corporation.

4.1.3 Learning Outcomes Through Strategic Alliance with Konsaku Corporation

Toyotomy Corporation engaged transfer of room air conditioner manufacturing technology. Toyotomy Corporation offered inverter technology to Konsaku Corporation which in turn accepted outsourcing function of mini-air conditioners for Japanese consumers. Inverter is about automatic adjustment of motor velocity according to changing room temperature. Inverter air conditioners save energy cost up to 30% compared to non-inverter air conditioners. Toyotomy Corporation developed this inverter technology which the rival firms from Korea and China were not able to.

As of 2007, in room air conditioner market, 100% of domestic use was the inverter style but in China it was only 6%. With high initial cost, the inverter percentage is relatively low in USA (with low energy cost) and emerging economies (e.g., China, India and Brazil), After 2008, with increasing energy saving pressure and lobbyist activities, energy regulation requirements for both household and business use have become more stringent in the regions (e.g., USA, China)

where customers use both winter heating and summer cooling system. In China, no firms including Konsaku had license of using inverter technology. Toyotomy and Konsaku decided to increase the ration of inverter air conditioners in response to such broad energy saving pressure. By 2012, 55% of air conditioners sold in China were inverter style. Since inverter technology was classified as Toyotomy's core competence, design, production and quality control managers were concerned about free technology transfer. However, by 2008, Toyotomy and Konsaku established strategic partnership with the following details.

First, manufacturing outsourcing of inverter room air conditioner for Japanese market. In 2009, Konsaku started production up to 500,000 small inverter room air conditioners for Japanese customers. With this arrangement Konsaku quickly gets access to Japanese manufacturing capability (*i.e., monozukuri*).

Second, joint development of global inverter model. As Toyotomy offered energy saving technology and Konsaku shared low cost sourcing know-how, it was possible for them to develop global inverter air conditioner model.

Third, volume discount of raw materials through collaborative group sourcing. As two firms formed joint sourcing teams, they were able to achieve group discount from raw material component suppliers.

Fourth, collaborative production of core component parts. This joint Konsaku-Toyotomy Corporation established a manufacturing facility for inverter electronic component parts and compressor. These core component parts were sold to all Toyotomy's global production network units.

Fifth, joint mold development. With strategic partnership with Konsaku, Toyotomy could pursue developing die & mold technology at high quality and low cost. Annual model change for room air conditioner requires additional die & mold cost burden. With low labor cost in China, two firms succeeded in developing low cost molding technology.

4.1.4 Reshoring Strategy

(1) From Joint Venture with Konsaku to Reshoring to Japan

Prior to 2008, according to "regional optimization policy", facilities in Japan handled the production requirement for Japanese customers. From 2008, with strategic alliance with Konsaku, offshoring in China occurred. By 2010, Konsaku was entrusted with meeting most production requirements for the domestic demand in Japan.

In time, the offshoring through Konsaku included design and marketing areas and thus substantially enhanced the effect of cost reduction and profit increase. From 2011, Konsaku handled all the production for room air conditioners and business use air conditioners. However, from operations and production perspective, such wholesale offshoring has devastating effect on factory utilization and

employment in Japan. With high labor cost for R & D and engineering personnel in Japan, Toyotomy of Japan could not compete with Toyotomy-Konsaku of China even in new product development. In 2012, Toyotomy Corporation established a new 100% ownership subsidiary in Suzhou, China apart from Konsaku. Toyotomy pursued strategic cost reduction and yet, Konsaku Corporation was doing better. In 2013, it developed base model (i.e., global shared model) for standardization of component parts. Identical products were produced in the manufacturing plants of Konsaku Corporation, Toyotomy Corporation in China and Toyotomy Corporation in Japan. The main reason for getting identical products was (1) parallel production for responding to the increasing demand for the high temperature areas; (2) comparison of cost differences between plants in China and Japan.

(2) Reshoring to Japan

In 2014, it reduced the outsourcing volume of household room air conditioners from Konsaku Corporation. It also reshored the operations to Japan from the Suzhou plant. Coincidently, Japanese government's favorable monetary policy facilitated its return to Japan. However, the firm's reshoring was more or less based on strategic intent of strengthening the domestic base. The management consensus is to maintain core capabilities in mother factories in Japan for sustainable competitiveness in global markets. Toyotomy has strengthened five core–R & D, manufacturing, procurement, quality and HR-capabilities. To compete with production cost with Chinese firms, Toyotomy has focused on the following strategic priorities.

First, demonstration of base model and standardization of component parts. In 2002, Toyotomy implemented "Toyotomy Corporation Code Strategy". The real challenges for global product strategy are how to develop flexible platform products for global markets that accommodate the different legal, size and customer requirements in each country. However, as each business unit of different country engaged in development of products that fit specific national market requirements, the actual products in the market were quite different from the original platform product from Japan. From 2013, Toyotomy introduced the concept of base model. Japanese lead design engineers come up with key devices of air conditioners, compressors and heat exchangers that fit the changing needs of specific market segments of global markets. For example, two types of electric fans are strong wind generator and noise-free modules. Such development is done only in Japan. The development team provides diverse module options for global markets. Then, in each global market segment, production unit can choose and configure different sets of modules. With such base model development, the number of component parts was substantially reduced. Consequently, associated die & mold and other manufacturing costs were also greatly reduced.

Second, realization of high productivity lines. An example of Toyotomy's productivity enhancement efforts is labor requirement reduction project. By

removing line balancing requirement of household and business purpose fans, the number of workers at the production floor is adjusted. In the past, half of propeller fans with injection molding failed in the standard test requirements. With improvement of injection molding blue print, revising line balancing position and installation of autonomous machine units, there was no need for balance adjustment upon inspection. With enlargement of insourcing (i.e., internal production of component parts), line productivity has increased. For example, in the case of flash micro-computer, with postponement strategy of electronic component parts, the inventory level is reduced by 25%.

Toyotomy's reshoring strategy focuses on improving cost competitiveness and productivity performance. This involves integration of R & D, engineering, marketing, and production. Other initiatives of upgrading production capabilities are noteworthy based on its strategic alliance experiences with Konsaku. In this sense, learning outcomes through offshoring is an important element of reshoring strategy.

4.2 Health Care Firm Case

4.2.1 An Overview of Ohashi Corporation: A Healthcare Firm

Ohashi Corporation has six strategic business units: control machinery, electronic components, automotive component parts, social system, healthcare machinery and others. 13% of the total sales (700 billion yen) of Ohsahi are from healthcare business unit. Ohashi's management philosophy and mission statement, is "Contribution to building an environment for the healthy living of all people" and its strategic priority is to offer "the world's best products and services". As of 2015, annual sales of healthcare unit are about 90 billion and its employees are 4569 (883 in Japan and 3686 outside of Japan). R & D Centers are in Kyoto, Japan and Dairen, China. Three major factories are Morita in Japan, Dairen in China and one in Vietnam. Distribution centers are 8 in Japan and 15 for global markets.

Ohashi offers a wide variety of healthcare equipment and machinery such as diagnostic devices (e.g., temperature, blood pressure), low frequency stimulator/therapy devices. Ohashi's long-term strategy (2011–2020) is directed to achieve a theme, "All for healthcare innovation" with two supporting value innovation and process innovation goals. Value innovation is to create and deliver social needs (i.e., advance discovery of social needs and provide solutions for blue ocean markets). Process innovation is to achieve outstanding operations for red ocean markets. Its products focus on creating innovative value in new areas of business. Such innovative product development and supporting process innovation make this firm achieve sustainable competitive advantage in global markets. In the next section, we examine "make-to-availability" (MTA) which is to link supply chain with market needs in real time.

4.2.2 Ohashi Corporation's Production System Reform

Serious innovation efforts of Ohashi's production system started in 2010. At this time, Ohashi's business performance was fairly successful. The prospect of Healthcare market was quite favorable. In particular, there was explosive growth potential in emerging markets. However, global financial crisis in 2008–2010 and sluggish Japanese economy result in huge sales decline. Instead of combining fragmented functional-specific innovation efforts, the senior management decided to pursue strategic and supply chain level innovation.

First, prior to 2009. A turning point of Ohashi's production improvement efforts was adoption of its own version of Toyota Production System (TPS) in Morita Factory in 1986. In 1993, it established a new manufacturing facility in Dairen, China and afterward implemented TPS. Later, it started MTA in Dairen plant. Subsequently, in 2012, MTA was adopted in both facilities in Vietnam and Morita Factory in Japan as well.

Between 2010–2012, there was huge shift in the macro business environments. In the contexts of rapid labor cost increases in emerging economies (e.g., China), shortage of young skilled workers and Tsunami-related supply chain disruption in Japan, proactive responsive measures for quality, cost and delivery (QCD) included several initiatives: (1) quality area (zero defect inspection program), (2) cost (integration of fixed cost and productivity improvement programs and low cost automation (LCA)), (3) delivery (smoothing demand, MTA production methods, optimal production location strategy), (4) human resources development (low cost automation (LCA), skilled labor education and training program).

Second, 2010–2012. Between 2010–2012, it implemented the production system based on real time demand. Opportunity cost and profit losses are mostly related to unreliable forecasting of future demand. With unpredictable demand patterns, production volumes remain unstable and sourcing requirements are much bigger than the actual demand needs. Unsold products remain as excessive inventory items and discount sales are done at the later times. In response, Ohashi switched from make to stock (MTS) to make to availability (MTA) according to real time demand.

In 1983 Ohashi adopted its own adapted version of Toyota Production System (TPS) which thrives on level production and advance forecasting of demand. Ohashi has initiated series of effective communication practices involving strategic customers, suppliers and cross-function operation teams. Afterward, Ohashi has adopted make to stock (MTS) for new products, make to order (MTO) for large scale orders and make to availability (MTA) for routine orders. To its suppliers, internal forecasting information of customer specific orders is provided. By applying MTA, it achieved drastic lead time reduction (from 97 days to 18 days between Dairen, China and distribution center, Japan). Domestic inventory level also significantly improved. Outstanding total lead time reduction was possible with the elimination of the 56 days demand forecast cycle constraint, production management by priority rule and waiting time control. The expansion of MTA areas resulted in production standardization. Other improvement details for inventory and

cost control include decreasing production processes, IE enhancement, low cost automation (LCA), and production automation.

Third, after 2013 and beyond. Based on the foundational work until 2012, Ohashi Corporation has pursued the goal of customer-focused factory with three specific goals, "Quality excellence", "Lower Price", "Greater Speed". Factories in Japan, China and Vietnam assume the leadership role for global manufacturing network that strives for quality control development (QCD) and human resources development (HRD). Thus, the reshoring focus from 2014 is to strengthen Morita Factory in Japan as mother factory of the world replacing the similar role in China in prior years.

4.2.3 Reshoring Strategy of Ohashi Corporation

Ohoshi Corporation's major reshoring initiatives are to enhance manufacturing capabilities (i.e., monozukuri) and comprehensive human resources development. Ohashi Corporation uses the term, "Production Mother" rather than "Mother Factory". From 2014, its high value production has been switched to Morita factory in Japan. As of 2014, the ratio of domestic reshoring was no more than 5%. Production volume in China was 55% and 40% from Vietnam. By 2018, its plans to raise Japan's domestic production up to 10 and 90% from China and Vietnam.

The manufacturing mission of Ohashi Corporation was how to build professional teams that facilitate a large scale of mature innovation technology know-how for rapid global market expansion. Another goal was to improve manufacturing capabilities (i.e., monozukuri) of Ohashi Corporation as a whole. Skill variety refers to empowering individual workers with unique manufacturing functional competence. Professional teams are noted for their savvy business mindset and expert strengths. Mature innovation technology is a high level of technology know-how.

Manufacturing Master Program (MMP) in Japan is to aim at raising up highly skilled workers with a high level of technology know-how and outstanding productivity enhancement. There are several practical paths for becoming MMPs. The specific goal of 2013 was to catch up with overseas factories in terms of QCD aspects. The subsequent goals of 2014 were to lead one step ahead of other overseas factory in QCD performance measures. In 2015, the goal was to become Production Mother that warrants broad recognition. In reality, all these specific goals have been well-attained since 2013.

The conditions of becoming Production Mother in Ohashi Corporation are development of innovative production technology and mass production technology. Innovative production technologies include bonding, forming, surface mount, assembly, and inspection evaluation technology respectively. Mass production technology requires three essential technologies—industrial engineering (IE), total participatory maintenance (TPM), and total quality control (TQC). The plan is to transfer these technologies to other factories in other countries. Japanese governments' Production Management Bureau (PMB) is responsible for overseeing the education and training program of manufacturing masters in excellence (MMIE). In

2013, the total number of MMIE 1st level certificates holders was ten times of those in 2011. Most of MMIE holders have at least five years of work experiences in manufacturing firms. Instructors that completed the University of Tokyo's Instructor School program are qualified to engage in training for MMIE.

5 Discussion

Cast study results suggest several lessons. First, reshoring through learning effects from offshoring experiences. Toyotomy Corporation has built the foundation of reshoring through strategic alliance with Konsaku Corporation. It also took advantage of Japanese government easy monetary policy. The strategic cost reduction programs in China have integrated front-end R & D/marketing with back-end operations and distributions. Its productivity enhancement initiatives include improvement efforts of diverse production technologies. Successful supply chain cost reduction experience with Konsaku Corporation was certainly a key element of implementing reshoring strategy.

Second, reshoring for rebuilding mother factories at home. In the case of Ohashi Corporation, its focus was to rebuild the mother factory for global manufacturing show-case. From 2014 it moved the production base from Dairen, China to Morita, Japan. Between 2001 and 2013, its majority production volume was from facilities in China. Starting 2014, high premium products were exclusively from domestic plants. Its reshoring strategy is to rebuild domestic facility as of first importance and other factors were additional supportive role only.

In spite of promised benefits of offshoring in terms of greater flexibility at lower costs, firms have experienced major structural and managerial challenges dealing with potential tensions, disruptions and operational failures which resulted in serious brand image problems of firms (Lampel and Bhalla 2011; Clampit et al. 2015).

This study aims to provide qualitative details of reshoring cases of Japanese global firms. Future study may examine the cases of other Japanese global firms. For comparative study, it would be useful to conduct similar studies for other firms from USA and European countries. Longitudinal examination of cost and benefits of offshoring and reshoring needs further examination in the coming years (Vivek et al. 2009).

6 Conclusion

We contribute to reshoring phenomenon by proving relevant literature review that defines both external environmental (i.e., macro-) factors and internal firm-specific (i.e., micro) factors and thus explain relationships between offshoring and

reshoring. Through systematic process of case selection, we also present case studies of Japanese firms that engaged in offshoring and reshoring. The findings of case studies suggest that reshoring decisions require careful considerations of costs and benefits of offshoring and value-driven long-term business decisions.

Senior management would find our study useful in strategizing offshoring and reshoring processes (e.g., prepare, plan) and middle level managers learn from practical issues related to operations practices and how to perform measures related to offshoring and reshoring.

Both offshoring and reshoring are important location decisions of major business functions and facilities in response to changing market dynamics. Just as offshoring was never meant to be permanent business solution, so is reshoring in the current circumstances. Reshoring makes sense because AI-empowered automation would offset labor cost pressure for tomorrow's manufacturing firms. However, in view of enormous growth potential in emerging economies, it is reasonable that many global firms may soon make a legitimate business case for offshoring their vital business processes again—primarily for market proximity. In the digitized and networked world, merely keeping facilities within domestic sphere may not be realistic and sensible options. Future research may examine the diverse impacts of reshoring and consider different options for meeting emerging market requirements. The debate of offshoring and reshoring does not end but may continue. Naturally, turbulent, dynamic and growing global market contexts would provide opportunities for fruitful research in the coming decade as well.

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The Chinese Bittersweet Cake in Orbea's Internationalization

Berrbizne Urzelai and Francisco Puig

Abstract Orbea is the oldest and biggest bicycle manufacturer in Spain and one of the most recognized bike brands in the world. With more than 175 years in the market, in the year 2007 Orbea decided to set up its third manufacturing plant in the Industrial park of Kunshan. After 8 years with activity there, in 2015 the company decided to close down the factory and reallocated its resources closer to the Headquarters. Some of the reasons that influenced its entry and exit decisions had their origin in the specific context of investment (place): China and the country-of-origin (COO) cluster in Kunshan. Other reasons of the reshoring and backshoring were related with the evolution of the sector, public support services (space) and market positioning in Asia- Pacific. However, as a result of that process, the company has acquired some knowledge and experience that will shape the strategy of Orbea. The objective of this case study is to analyse the role of the place and the space in the international relocation strategy of Orbea. This will involve studying the main decision factors as well as the major organizational adjustments related to the linkage between the structure and the location. The chapter compares the main literature on entry reasons, location mode and offshoring with the interviews conducted to Orbea's managers during the period 2013–2016. This work will guide business practitioners in their international manufacturing strategy and academics to contribute to the study of the advantages generated in specific contexts such as COO clusters.

Keywords Offshoring · Reshoring · Cluster · Bicycle · Orbea · China

B. Urzelai (✉)
University of the West of England, Bristol, United Kingdom
e-mail: urzelaib@gmail.com

F. Puig
Department of Management, University of Valencia, Valencia, Spain
e-mail: francisco.puig@uv.es

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1 Introduction

Over the last 15 years, companies in more developed countries, especially those in traditional manufacturing industries (textiles, toys, bicycles, etc.), have made important changes in their relationship with foreign supply and sales markets (Buckley and Ghauri 2004). This evolution has become visible in the spatial reorganization of productive activity, by transferring certain activities of the value chain (offshoring) to low-cost countries, as is the case of Spanish firms in China. The process has been especially intense in the last decade, especially in manufacturing industrial clusters (Belussi 2015). As a result of this process, the mortality rates of local companies have increased, thousands of jobs have been lost and there has been a decrease in competitiveness due to the transfer of specialized knowledge and the externalization of productive competencies (Puig and Marques 2010).

As a result of diverse factors of globalization (WTO -World Trade Organization-agreements, new technologies or the reduction of transport costs), we are currently undergoing a period of intense changes, which at all levels, are questioning these measures and that reflect a new wave of localization, relocation and reverse delocation patterns (reshoring and backshoring) of companies and their activities (Lahiri 2015). The European backshoring rate topped the offshoring one in 2013 (Bals et al. 2015) and Spain, along with Italy, Ireland, or Germany is one of the main backshoring destinations (Za 2014). However, despite its socioeconomic importance and increasing trend, most empirical studies on the internationalization of firms and offshoring have neglected this new approach (Gray et al. 2013).

This case study analyses the whole process that the main Spanish bicycle manufacturer (Orbea) took from establishing a manufacturing plant in China, until it decided to close down that subsidiary and reinforce its activities in Europe. For that, the case is based on international business literature and follows the logic described by the eclectic paradigm of Dunning (OLI) (Dunning 1988). Specifically, after the bittersweet result of its offshoring process into China, the case discusses two main aspects of managerial interest about the spatial reorganization of the productive activity: (a) was it a good strategy to go to China? and (b) ¿what can we learn from this experience?. All these elements have been analyzed taking into account the singularities of the bicycle industry. The case is organized as follows. Section 2 provides a literature review. Section 3 presents the sector and the firm object of the research. Section 4 analyses and discusses the findings. In the last section, implications and conclusions are discussed.

2 Literature Review

2.1 Going International: Motivations, Location and Mode

In general, companies might find internal or external triggers to go international. When internationalizing into distant (BRIC) markets, Ulrich et al. (2014) found

that, control, flexibility and risk were evaluated less important internal factors than personnel and financial resources, while for external factors, the most important was market potential whereas the trade barriers, cultural distance as well as the political and economical risk are viewed as main obstacles. Other aspects such as managerial training, support policies or entrepreneurial culture of the company can also act as facilitators of that decision.

Internalisation theory (Buckley and Casson 2016) and Dunning´s (1988) eclectic paradigm of ownership, internalisation and location advantages (OLI paradigm) are some of the most accepted theories that explain why firms decide to establish units abroad. Those 3 elements of the OLI paradigm are considered simultaneously conditions and drivers. In line with Kedia and Mukherjee (2009) the theory suggests a framework to explain through the ownership advantages (O) why firms choose physical investments (greenfields or acquisitions) rather than other modes such as licensing, importing, etc. Location (L) advantages could be used to understand the existence of raw materials, lower costs, etc. of those locations, which explain the nature and destination of investments, especially for efficiency-seeking firms in developing countries. (I) Internalization refers to the advantages of own production rather than producing through a partnership. Particularly, internalisation and location advantages are the main arguments for offshoring production to low-wage countries (Kinkel and Maloca 2009).

Dunning (1988) proposed four types of foreign direct investment (FDI) motivations: (1) resource-seeking, (2) market-seeking, (3) efficiency-seeking, and (4) strategic-asset seeking FDI. Cantwell and Mudambi (2005) state that firms locate in a host country with a motivation to either exploit or explore their resources. In the case of firms investing in developing countries like China we can find two main motivations: (a) market-seeking and (b) efficiency-seeking (Puig et al. 2016).

Although the relationships among the FDI motivations and the location choice are well established in the literature (Kim and Aguilera 2015), many companies do not act so rationally and decide to invest in learning processes or imitation. Especially under situations of uncertainty, such as entering foreign markets, actors tend to prefer relationships with homogenous others and often imitate compatriot firms when selecting foreign market locations (Pangarkar and Yuan 2009). In these cases, location decisions are very often determined by the knowledge of foreign market opportunities, which is commonly acquired via existing interpersonal links rather than systematic market research. It is usual for networking, in the form of social and business interactions, to take place in agglomerations and clusters. Studies on agglomeration have examined the location patterns chosen by firms when entering foreign markets, especially when it comes to distant markets. According to Tan and Meyer (2011), two of the most visible types of co-location are the industry clusters (interconnected firms specialised in a particular field) and the country- of-origin (COO) clusters (interconnected firms by ethnic ties). The existence of networks that are locally embedded in a place could be seen as a source of competitive advantage. Moreover, institutions, especially in transitioning economies such as China, can play a critical role when it comes to create the appropriate place that includes infrastructure, resources, knowledge, and skills

needed by firms. Government policies often use industrial clusters as a development strategy that provides those factors, attract investment and improve the performance of the firms.

When a company internationalizes another important decision to adopt is the entry mode, since this selection will influence the future performance of the company (Dikova and Brouthers 2016). Although several options will probably be available, the entry mode decision will have to be made considering several external and internal factors. In line with Morschett et al. (2010) as external factors we can find the socio-cultural distance, the country risk/demand uncertainty or the market size and growth, while as internal, the firm´s size, international experience, or product are determining. The capital to be invested, the sector of activity or expected profitability could also influence this decision. The adequacy of the different entry modes associated to the level of ownership (WOFE vs. JV) and the establishment mode (greenfield vs. acquisitions) will depend mainly on the degree of control and the commitment that the firm wants to adopt.

2.2 Offshoring and Reshoring

The economic downturn that begun in 2007 has highlighted the international reorganization and relocation of the business activities. The terms "delocalization" and "multilocation" has continuously been mentioned in the media, business and political debates, often referring to companies that seek efficiency and markets and thus close down their operations and relocating their activities to emerging countries. However, it is not the same to delocalize or re-localize a firm or an activity. According to authors such as Contractor et al. (2010) or Puig and Marques (2010) in the case of manufacturing firms four modes of productive strategies can be considered: (1) classical delocation, where plants are closed domestically and reopened abroad; (2) the externalization of activities, as a contract between domestic/foreign firms (outsourcing); (3) the transfer of activities among subsidiaries of the same firm located in different countries (offshoring); and (4) the multilocation, when firms carry out several strategies of re-organization and re-location simultaneously.

In the last decade, two kind of response have been predominant (Carballo-Cruz 2012), proactive and defensive. The first one is a response followed to increase profit margins and competitive capacity, to accumulate knowledge and manage complex production networks in international markets (market-seeking). The defensive response is driven by the increase of labour costs, reduction of margins and the increase of competition in the local market (efficiency-seeking).

Over the last few decades, many scholars have examined the complex phenomenon of outsourcing and offshoring, at country, industry, firm and managerial levels. While outsourcing is defined as a "what" strategy that hands over an organizational activity to a (domestic or international) supplier, the offshoring is a locational strategy related with the place and with "where" to transfer specific parts

of their business processes (Ellram et al. 2013). Manufacturing offshoring is becoming an increasingly interesting option for firms to enter new markets (Coucke and Sleuwaegen 2008). Jensen and Pedersen (2011) analysed the economic geography of offshoring and found that while manufacturing is relocated into low-cost destinations, research and development goes into high-cost destinations. Puig et al. (2016) analysed a sample of 31 Spanish firms and found that manufacturing firms with efficiency-seeking entry reasons were associated with clustered locations to a higher level than trading-service firms (market-seekers).

At a global scale, advanced activities are mainly attracted to North America, while Asia attracts as many advanced activities as Western Europe. However, as evidenced in manufacturing, the nature of the activity is an important determinant of the location choice of the firm (Jensen and Pedersen 2011). As Tate et al. (2014) mention, although companies have started to move towards inland China looking for lower labour costs, the higher transport cost and pipeline inventory of these regions are offsetting the labour cost benefits. As wages are increasing sharply in China, countries such as Vietnam or even Mexico are attracting the attention of foreign investors and have provoked a new wave of relocation.

Offshoring strategies also create many challenges for the firms when decisions are based on costs, or due to the distance (geographic and institutional) between the host and home locations, or unexpected changes (Larsen et al. 2013). Firms start to see the disadvantages of offshoring when those locations lengthen their delivery times, surfer quality issues, increase wage rates and labour shortages or home countries strengthen their position and productivity by employing new technologies (Bals et al. 2015). As a result of these changes firms are forced to re-concentrate parts of their production from own foreign locations or foreign suppliers. When this process takes place and implies going back to the domestic site in the home country, it is called backshoring (Kinkel and Maloca 2009) or reshoring (Ellram 2013). Irrespective of the terminological choice, all the definitions acknowledge this phenomenon as a location decision that involves production activities, and modifies an earlier implemented off-shoring decision by re-establishing certain productions in the country of origin (Fratocchi et al. 2016).

Kinkel and Maloca (2009) analysed offshoring and backshoring activities of 1663 German manufacturing companies and showed that every fourth to sixth production offshoring activities were followed by a backshoring within the following 4 years, mainly due to lack of flexibility and quality problems at the foreign location. Kinkel (2012) found that particularly export-intensive companies tended recently towards (re-)concentrating of their production capacities, trying to exploit the benefits of higher capacity utilisation and a superior relation to variable costs to fix costs at their existing locations. The decisions to disengage can arise through imperfect information, unpredictability of events that manifest in not reaching expectations or in problems with the offshore location (Bals et al. 2015). Quite often, firms that backshore as managerial or operational adaptation are following differentiation strategies that are not compatible with the offshore location (Martinez- Mora and Merino 2014). Recently Fratocchi et al. (2016) proposed a theory-based classification of 31 motivations for reshoring according to the goal

(customer perceived value vs. cost efficiency) and the level of analysis (internal or external environment). They call for a reconsideration of the "smile" approach to internationalization, in particular, the need for co-location of R&D and manufacturing or the need for proximity with customers to manage customization and increase the quality of interaction. Also, although remarkably distant, it is worth emphasising the increase of competitiveness of the country-of-origin (Spain), due to available skilled labour to a lower cost and the increase of labour costs in the host country (China or other Asian economies). Moreover, the empirical studies (Puig et al. 2016) also recognizes other determinants as the logistic costs, financial needs or cultural differences and, specially, the difficulty of having a proper product and/or to access Chinese markets.

3 The Bicycle Sector

The changes in the space namely globalization are a source of challenges that firms need to face, along with the specific threats of the place and the sector. The understanding of these challenges is useful to better understand the environment in which firms operate and how they can be more efficient in the implementation of their strategies. Besides, each sector is formed by several sub sectors that differ from each other in terms of the characteristics of the products and the situation of the markets, as well as their added value. In this sense, it is recommended that the study of the offshoring strategy is analysed by considering the sector-specific characteristics of the bicycle in a given context like Spain.

3.1 Definition of the Sector

The bicycle sector can be considered global, although it has its peculiarities in each country. All over the world bicycles are used for different purposes (travel, leisure, etc.) and everything indicates that its use is becoming popular. While in countries like India the bike is a basic means of transportation (although not yet accessible to everyone), in the USA or Spain the bike is associated to the practice of sport. This aspect leads us to emphasize that the current characteristics of customers, markets and products re very heterogeneous between countries and regions, and that there is an important atomization of market and players.

According to the main sectorial association in Spain (AMBE 2016), the bicycle sector would be that which covers all business areas related to the manufacturing, distribution and marketing of cycling products, not just at a competition level, but also for leisure segments or as a means of mobility. This definition allows us to associate it with other sectors, known as "traditional manufacturers". In addition, it provides a distinction of three broad areas of analysis: complete bicycles, components

(spare parts) and accessories (textiles, footwear, helmets, electronics and others), being the first one, manufacturing of bicycles, the most relevant (AMBE 2016).

It is important to note that the manufacturing of bicycles comprises 7 main subsectors with unequal characteristics and revenues: mountain, road, triathlon, urban, leisure, kids and electric. In those countries where the bikes is used mainly as a means of transport, the consumption of locally produced "urban" bikes is dominant (for example, Hero Cycles Limited in India). In places where the use is associated to the practice of sport, the road or mountain bikes that are produced globally are more popular (for example, Giant in the USA).

In fact, if we look at the number of units sold, the main subsector of this industry is the mountain bikes (48%), followed by the kids (36%) and urban (9%) ranges, being the percentage of road and e-bikes quite low (5% and 2%). However, if we focus on the revenues of the sector, we observe several differences. Mountain sector concentrates 63% of the revenues and road bikes 17%, being the other three ranges, almost equally divided, and accounting for the rest 20% of the revenues. The reasons of that asymmetry rely on the sales unit price that in Spain, in average, is around 1400 euros.

Similar to other sectors as textile, toys or footwear we could say that the customer knows and values the product and its cost, and is aware about the attributes of what he/she is purchasing (such as its functionality, fashion trends, specifications, others). As AMBE (2016) points out, in this sector, the importance given to the intangible aspects of the product (such as branding and design) is increasing. It is significant that, in the ranges or mountain and road bicycles, two different business models coexist. On the one hand, the one that chooses to compete on costs and that, in many cases, adopts the brand of vertically integrated companies (Decathlon, El Corte Ingles and Sprinter). On the other hand, the market segment of high value-added bicycles in which there are hundreds of brands, many of them domestic (Gazelle in Holland or Raleigh in the UK) but many other international (Trek, Specialized, Cannondale, Giant, Felt, Look, Fuji, Colnago, BMC, Cervelo, Scott, Canyon, Pinarello, Bianchi and Orbea) (Ochoa and Arana 2007).

Another important feature of this industry is the international scope of the production and marketing activities. Firm can easily multilocate the different activities of their value chain. This aspect is the key and a trigger for the implementation of offshoring strategies (Contractor et al. 2010). In general, Asia is the geographical area in the world where the largest number of bicycles are produced. In general, China stands out as the leading global manufacturer (about 60%) followed by Japan (especially for components). In Europe almost 40% of production is concentrated in Germany (18%) and Italy (23%), the main markets are USA and the EU, highlighting the Netherlands, especially in the segment of urban bicycles (CONEBI 2016).

On the other hand, despite the fact that this sector supports high tariffs in order to avoid anti-dumping, if we take into account the data offered by CONEBI (2016), the commercial flows of bicycles between China and EU28 in the period 2005-2015 were on average, around 40 billion euros for imports from China, but barely 5 billion for exports to China (8/1 ratio). Although it is remarkable that while imports

appears to be stable (with ups and downs) the exports has an increasing tendency. Regarding the commercial flows between China and Spain, the indicators are similar, on average, imported bicycles accounted 1 billion euros and exports were about 100 million euros, highlighting a significant growth from 2011 onwards, where the value of exports accounted 300 million in the following years (ratio 10/3).

3.2 The Firm Orbea and Its Internationalization

The Orbea Cia. was founded in 1840 in Eibar (Gipuzkoa, Spain) in a region (Basque Country) with an important tradition in the metal sector. In its beginnings the company's activity as the manufacturing of firearms and ammunition. In 1926, after World War I, the family that owns the company (the Orbea-Murua family) decides to diversify the activity and focus on the bicycle sector (Orbea and Cia. is created). Their more than 85 years of knowledge in the metal-mechanical sector and the expertise they had in twisting tubes and welds encouraged them to take an important step in the two-wheeler market. Orbea's growth was impressive and in just ten years it became a leading company at a national level. In 1969 it suffered a crisis due to family problems. In order to avoid its disappearance Orbea was transformed into a cooperative society (Orbea S. Coop.) and incorporated into Mondragon business group. In 1975 it was located in the same place (Mallabia) where nowadays its headquarters is (that accounts for about 200 employees). Although with some ups and downs, during the next 20 years the company continued to grow unstoppably. Those ups and downs came from the crisis of the 1970 s, a reconfiguration of the sector that experienced a greater demand for mountain and road bikes, and the emergence of new international competitors. The commercial success that Orbea had due to the sponsorship of the cycling teams that were several times winners of the most important cycling competitions in the world (Miguel Induráin effect) was impressive (Ochoa and Arana 2007).

As a result, in 1998 Orbea began its internationalization process. During its expansion process, motivated mainly by external factors, it tried to look for new markets to sell its prestigious bicycles. This activity began in France but it acquired much more importance in the USA. With a strategy focused on the mid-high range it continued to expand and now Orbea is present on over 50 markets in all five continents. Besides its exporting activity, in 2005 the company also adopted off-shoring and multilocation strategies in Portugal and USA. While in the plant in Spain the firm´s activity included the design and manufacturing of almost all the products of its range, the other subsidiary in Portugal manufactured kids and mountain bikes and in USA and Australia the company established two assembly plants.

In 2007 Orbea decided to set up a plant in an Industrial park in Kunshan (a country-of-origin cluster in China). La new factory called "Orbea Kunshan" had a

total of 23.333 m^2 (5.3000 built m^2) of modern facilities, around 50 employees and manufactured mountain and road bikes. These facilities were similar to those which Orbea already had in Spain and Portugal (around 230 employees there). After 8 years with a bittersweet performance in Kunshan, in 2015 the company decided to re-shore the factory and reallocated its resources to Portugal and Spain. From this process a couple of interesting questions arise: (a) was it a good strategy to go to China? and, (b) which strategic aspects did Orbea learn from that international experience?

4 Methodology and Data

In line with Yin (2009), to answer the questions before asked we have chosen a case study approach and Orbea Kunshan as the case setting. The key principle underlying the selection of our case is their representativeness because the findings could be transferable to other firms involved in the spatial reorganization of their productive activity.

The data used come from different sources such as company reports in AMADEUS database, the compilation of press releases, informal conversations[1] and two formal semi-structured interviews: (1) to the General Manager of the subsidiary on 25th of March 2013, (2) to the General Manager of the company on 15th of April 2015.[2]

All of this information was completed with a visit of the authors to the headquarters on 14th of January 2016, and a more far-reaching research done in Mondragon Kunshan Business Park (Urzelai and Puig 2016a, b). The contrast of these sources allows a triangulation of the information and give a greater validity to the research (Yin 2009).

5 Analysis and Discussion

5.1 Going to China

In quite a relatively short time, China has emerged global having joined the WTO, strengthened ties with ASEAN, hosting the 2008 Olympics and becoming according to some, not only the regional leader in East Asia but the future world

[1]The authors took part in several spontaneous conversations during lunch and coffee breaks at the park itself and in out-of-work events organized by the Basque House in Shanghai. These conversations provided a more detailed understanding of staff members' opinions and feelings.

[2]The authors are very grateful to Zigor Aldama (journalist of Vocento Group) for his collaboration, and the University of Valencia for their partial financial support (UV-INV-AE16-488900).

superpower. It is impressive that while other developing nations generally experience periods of boom and bust, China has enjoyed a steady growth-rate above 9% since the 1980s and in the last 20 years 250 million people in China have been lifted from poverty (Fernandez and Underwood 2006). China has a lot of attractiveness in both sides: production and market. It has the large and low-cost labour force, a relatively good infrastructure for exports and the ability to purchase inputs at world prices. Moreover, the China's internal market is enormous and it is rapidly growing (Branstetter and Lardy 2006). These aspects and the fact that China has a favourable regime for foreign investors made this country and important location.

Orbea, as other firms, did not ignore China´s attractiveness. Furthermore, the company had to consider other external factor linked to the legal environment, i.e., the antidumping law and taxes that in 2007 the sector had, could be eliminated.

> "There was a lack of knowledge and uncertainty about the antidumping taxes that the bicycle had. The tax is of 48.5% but at that time and after China entered the WTO, some indicators were telling us that there could be a liberalization" *General Manager of Orbea (Aldama, personal communication, 15th April 2015).*

> "Orbea comes to China as a measure of facing a forecasted situation. China is putting a lot of pressure so that custom tariffs that are applied to bicycles produced in China are eliminated. When this occurs, as it happened in other sectors, all firms will come and we will be ready to compete with the Chinese firms" *General Manager of Orbea (Aldama, 2007, translated).*

The company acted proactively to adopt a position before the sector got liberalized. The plant was built seeking efficiency but market too, especially for Europe:

> "The plant was thought to produce 40-60 thousand units for Europe" *General Manager of Orbea (Aldama, personal communication, 15th April 2015).*

However, the liberalization did not happened and thus, Orbea had to rethink its strategy in China and move towards the Asian market. Besides, the company had realized that the image associated to the bicycle in China (as a mean of transport) was also changing and that it could become not only a way of transport but an element for entertainment and social positioning.

> "We saw quite clearly in 2007 just before the Olympic games. People started following-up bicycle-related sports activities. The Tour took place in Beijing, there were requests to the cycling teams to come to Europe, etc., a huge change […]. In 2010 we started the commercial activity for the domestic market" *General Manager of Orbea (Aldama, personal communication, 15th April 2015).*

> "Market research we have conducted indicates that the trend for cycling in China will grow very sharply in the next five years. However, we also noticed that brand presence, even though it is better known than we thought, is still somewhat low, so good brand positioning, combined with marketing efforts will be vital to our success in China" *General Manager of Orbea Kunshan China* (Orbea 2011).

> "The international firm wants its Kunshan factory in China to be the epicentre of the expansion process that Orbea is undertaking in the Region, both in terms of production and distribution" *Global Marketing Manager of Orbea* (Orbea 2011).

5.2 The Offshoring Strategy

In the internationalization development part of Kunshan plant was also had a logistic value and served to source the subsidiaries in the US and in Australia. This plant acted supporting a kind of multilocation strategy. According to Orbea (2011) the setting up of the Orbea factory in China, in addition to responding to logistical reasons (most Orbea suppliers can be found in Asia) was due to a global positioning strategy. The country-of-origin cluster also acted as an attractive location factor and centripetal force.

> "This plant reaches markets that are closer to China than to Spain. In fact, the markets served by this plant are Asia, Australia, the US, and South America. This plant also has logistic value, as most bike manufacturers buy 70 to 80% bike parts in Asia: frames, group sets, saddles, seat posts… It's a decision based on logistics and profitability. Being in China, you save 40 days in shipping and cut down costs. We assemble the bicycles in Kunshan and then send them to these markets. This makes us more competitive" *General Manager of Orbea Kunshan China* (Orbea 2008).

> "We were mainly concerned about being near the customers and establish a market position, reduction of costs was not the main reason" *General Manager of Orbea Kunshan China (Urzelai, personal communication, 25th March 2013).*

The market expansion was taken through different actions. One example was the sponsoring of events such as the Mongolia Bike Race, an epic mountain bike race in which 120 bikers from all around the world compete for 10 days and 1200 km through the arid lands of Mongolia.

> "This event is part of our establishment in Asia and we hope to turn it into an event of character and international significance […] In fact we are sending some of our Orbea riders out to the race and there will be other world class riders" *Global Marketing Manager of Orbea* (Orbea 2011).

What was originally a centre to produce and export bicycles was gradually been transformed into the real Orbea headquarters in Asia (Orbea 2011).

> "The Chinese plant is a milestone in the Mallabia-headquartered company's history, *intended to meet market demands as efficiently as possible" General Manager Orbea Kunshan China* (Orbea 2008).

> *"It's a special moment for Orbea, before we only exported and now we are only selecting distributors to help us to project* our brand to Chinese consumers. At the end of this year and Orbea bicycles will be available in stores" *General Manager Orbea Kunshan China* (Orbea 2011).

Orbea was already operating in Asia and Australia before setting up their manufacturing plant in Kunshan. So how had the plant changed their approach and how was the process to reach their market goals?

> "Orbea had already built a brand and an image for itself in the region, but now, with the plant in China, we're stronger. We can provide better services, supplying a wider range of products. Now Orbea Australia can offer better customer services. The same applies to

> Orbea USA. We're where demand is. Before this plant was set up, we used to sell our products on order. Now we're going to produce larger lots, with a four- to five-month estimate of orders to be placed" *General Manager of Orbea Kunshan China* (Orbea 2008).

The pricing strategy in China focused on a category of around 1500–2000 dollars as the market has big player such as Gigant or Merida.

> "We have the capacity to compete above 1500, not only manufacturing in China but in Spain and Portugal, but below that it is very difficult, and the main players have more than 80% of the distribution" *General Manager of Orbea (Aldama, personal communication, 15th April 2015).*

The way to access the market was to find sponsorship and distribution leaders that could drive the Orbea brand in China.

> "Orbea will simply apply the same criteria in China as it has given fantastic results in the rest of the world: find those dealers that are as close as possible to the users at all levels, so that the triangle Orbea - shops - users work with absolute fluency" *General Manager of Orbea Kunshan China* (Orbea 2011).

Multilocation strategy has been often mentioned by Orbea as their approach to internationalization. The company clearly distinguishes this strategy from delocalization strategy.

> "Multilocation has to do with production diversification based on profitability. Orbea's plant in China isn't the result of delocalisation or relocation, as we don't transfer production lines from Mallabia to Asia. The ultimate goal is to reach users by meeting their demands. We need to open markets in different places to serve customers where demand is and thus be really competitive. Orbea is always seeking the best opportunities to meet market needs" *General Manager of Orbea Kunshan China* (Orbea 2008).

As mentioned before clusters are no longer the outcome of FDI, but the precondition for attracting FDI to China (De Propris and Driffield 2006; Puig et al. 2016). The manufacturing plant was established in the country-of-origin business park that was promoted by Mondragon Business Group. In fact, Orbea was one of the four founding members of Anaitasuna, the General Service company that was set up in the park to help the members with their establishment process and to deal with government institutions.

> "Other companies joining the same place was an influential location factor as being together as part of a group is important and a big support […] it helps to develop guanxi, as the bigger you are the better guanxi you can get […]. Proximity matters as you can talk everyday about your problems. I know people that had been sent to remote places in China and they have not been more than one year there" *General Manager of Orbea Kunshan China (Urzelai, personal communication, 25th March 2013).*

> "There is vision that this place is attractive to be, and in a country where guanxi matters, to have a relationship (with the local authorities) facilitates things. Besides, to have so many firms from different sectors operating in the same geographical area gives an added value on knowledge about HR, finance, negotiation with banks, etc. We act as a cluster and negotiate as a group (industrial park)" *General Manager of the park's general service company (Urzelai, personal communication, 25th March 2013).*

The General Manager of the plant, involved in the setting up of the firms, explained this establishment process:

> "Orbea settled in China with three other companies in the Mondragón group, namely, Oiarso, Wingroup, and Orkli. Our plant is located in Kunshan, just 40 kilometres away from the country's economic hub, Shanghai. It took us one year to get the factory started […]. By May 2007, we had built the plant, set up the machinery, and hired the people. Orbea Mallabia (HQ) sent specialists for different sectors (quality control, assembly lines, and production, for instance), so that they could help us get the plant started. At the beginning we manufactured five mountain bike models, something simple to start with, let's say" *General Manager of Orbea Kunshan China* (Orbea 2008).

Economic development and growth in China has been strongly linked to the FDI and the agglomeration of industrial activity in certain regions of the country, especially in the Eastern provinces. Although historically Chinese institutions and local governments had been active in attracting foreign investment by giving firms tax incentives to attract anchor companies, the policy is moving towards supporting inner provinces ("Go West "policy) and firms in the Eastern regions had noticed that.

> "A few years ago, there were benefits for foreign investors, but little by little, the quota limit was reached. China's held the leadership in foreign investment for ten years. Now that the quota limit has been reached, corporate taxes are being levied. In the past, foreign companies didn't have to pay corporate taxes for the first three to five years, but now it's no longer so" *General Manager of Orbea Kunshan China* (Orbea 2008).

5.3 The Bittersweet Experience

According to the OLI paradigm there is a set of (net) competitive advantages stemming from the country-of-origin and the position of the FDI that influences the investment motivation, namely, efficiency seekers versus market seekers. As mentioned previously, Orbea redefined its strategy towards a mix efficiency-seeking and market-seeking approach in China and they thought it was a matter of time to reach success.

> "With these raw materials and the strength that the Orbea project has already demonstrated in other parts of the world it is only a matter of time before planet Asia surrenders to the benefits Orbea models offer and the style of leisure that identifies the brand" *Global Marketing Manager of Orbea* (Orbea 2011).

However, the domestic market did not reach the maturity point that the company expected, and this was one of the main reasons for Orbea to take disinvestment measures in Kunshan.

> "Nowadays we are in a very tight situation, even if we are from the beginning in this park, this year for example we did not earn money. This means we need to tight our belts and we have very strict targets this year" *General Manager of Orbea Kunshan China (Urzelai, personal communication, 25th March 2013).*

> "The domestic market did grow that much and although our selling capacity has had significant growth (selling more than 1.5 million euros), the sells did not fulfil all the expectations" *General Manager of Orbea (Aldama, personal communication, 15th April 2015).*

> "The problem is that the factory is underutilized and that in China we sell around one and a half million euros. That's only about 1200 bikes a year. Considering that the rest of the countries we export from Kunshan account for a total of 15,000 units per year, and that markets like Australia and Japan, where the devaluation of the yen has decreased the purchasing power of the population, it does not have much sense to continue with the manufacturing here" *General Manager of Orbea* (Aldama 2015).

IP protection and the risk of brand counterfeiting is often regarded as an external reasons for reshoring (Fratocchi et al. 2016). For Orbea, although this was not a determining factor for their relocating decision, it was a challenge that they had to face in China.

> "I have found an Orbea frame, a copy in taobao (Chinese online shopping website). You can be protected and you are protected by law. However, what can happen is that there is someone illegally putting some Orbea copies in the market. And with this one… I mean, you are protected but you cannot avoid it" *General manager of Orbea Kunshan China (Urzelai, personal communication, 25th March 2013).*

As Fratocchi et al. (2016) argue, internal organization efficiency is an important reshoring reason. We think that in a spatial reorganization of the reverse process managers have to be careful. The activities to be relocated must follow an efficiency criteria but they also have to be coordinated with the company's global strategy. In this sense:

> "We needed to be more efficient logistically and productively. The scenario had changed and there was a need to reorganized things" *General Manager of Orbea (Aldama, personal communication, 15th April 2015).*

> "We had built a relationship with the local government and they respect us because they know that the decisions we adopt had a deep reflection behind. We are with factories of own construction and property (not rented). The government understands that there is a commitment to stay. However, this is something that is changing and firms now, due to the financial situation back in Spain, want to rent the facilities (not buy)" *General Manager general service company of the park (Aldama, personal communication, 15th April 2015).*

> "The process is going very well. We met the local government and gave them our explanations on why we have taken this decision. We also went to the labour bureau and have started with the internal communication. On 30th June of 2016 the production activity will stop" *General Manager Orbea (Aldama, personal communication, 15th April 2015).*

Regarding other centres in Australia and the US, during this time the company has also taken some measures due to the supply chain coordination costs and inventory levels there (cost efficiency- internal environmental factors described by Fratocchi et al. 2016).

> "In Australia we had a subsidiary with own stock and now we have decided just to have a distribution model. As for the US is concerned we had 1 warehouse in the west coast and 1 in the east coast to attend the manufacturing that was taking place in Asia and Europe,

and now we have centralized both of them" *General Manager of Orbea (Aldama, personal communication, 15th April 2015).*

From the perspective of the location in the reverse process, the firm had to choose the location that offers the best conditions for undertaking those activities. In 2015 Orbea found that looking at the location of their most important markets, the production in China (with sales that were lower than expected) did not make much sense.

"Our sales are on an 80% for Europe- US and for and 20% for Latin America -Asia" *General Manager of Orbea (Aldama, personal communication, 15th April 2015).*

The rising costs (especially labour cost) in China were not a factor that determined the decision. However, the monetary situation, and the potential situation where a free trade agreement is signed among Europe, Canada and the US influenced the new strategy.

Although Orbea has closed the factory in Kunshan in 2015, the company still maintains its activity through distributors.

"We continue and will continue in the Chinese market. We have 40 distribution points here and we will continue working with them; we even continue collaborating with Skoda and we maintain all the agreements that we had. We do not disclaim the option of manufacturing in China, but we have to rethink how to do it. To have our own plant does not have sense" *General Manager of Orbea (Aldama, personal communication, 15th April 2015).*

Finally, the company needed to reconsider those parts of their value chain that they wanted to keep in in-house or not. The Chinese backshoring decision has reinforced the activities of the HQ and Portugal. The design and know-how is being developed further to give the customers a more flexible and personalized service.

"We have re-organized the manufacturing in Portugal and Mallabia (Spain) and make our home factory in Spain our global center of customization. It is now the center of manufacturing of, let´s say, the bike of your dreams. In a sense, an exclusive bike painted with the colours you want, with the components you want, etc. Due to this we are transferring some manufacturing to Portugal and make investments (we acquired a plant of 9000m in Portugal where we were rented) that allow us be agile and close" *General Manager of Orbea (Aldama, personal communication, 15th April 2015).*

As a result of this process, Orbea has learnt that being in China nowadays means you need to be looking at the internal market. However, approaching the Chinese market is not that easy and firms should deeply reflect on their strategy before approaching the Red Dragon.

"To stay in China you need to have a strong domestic market. If not, you really need to reflect on that. Coming to China to produce and export that to Europe does no longer have much sense. To produce here you first need to have a domestic market, a volume and neighbouring markets. But of course, the Chinese market is potentially so big that everyone wants to try. Probably other firms must be reflecting about the situation of their production establishments in China" *General Manager of Orbea (Aldama, personal communication, 15th April 2015).*

6 Conclusions

The objective of this case study was to analyse the role of the place and the space in the international reorganization of Orbea's productive activity. While much of the literature has analysed the offshoring decision from either an economic or a strategic perspective (Ellram et al. 2013), we have integrated both visions into what we call the geostrategic view of offshoring. This geostrategic approach is an original contribution from which we can better understand the intersection between firm characteristics, strategy and location, and its effect on firm performance. The trajectory of the analysed company, which has more than 175 years of history, its leading position in the bicycle industry at a national level and the reputation as one of the most prestigious brands in the world draws some interesting lessons for the future.

The study conducted shows that the determining factors and drivers of the decision to go abroad and return back, are coherent and logic within a strategy, and can be classified as rational. The motivations that led to that decision (search for efficiency and markets) as well as the location in a COO cluster and the entry mode as WFOE (wholly foreign owned enterprise) with an owned plant also seem appropriate. However, after 9 years of activity, the company had to close down. Was it then a bad strategic decision the international reorganization of the production into a cluster in China? We do not think so, the quote that can best justifies this reasoning is the following:

> "We were positioned in a medium range price so the influence of the labour cost was not the problem […]. The tariff barriers did not remove […] The Euro and the Dollar is almost in parity and there is a free trade agreement (FTA) expectation between US, Canada and Europe […] the FTA implies that (if put it is put in force), a bike delivered to the US from Europe will be 11% cheaper than delivered from China" *General Manager of Orbea (Aldama, personal communication, 15th April 2015).*

So what lessons can be drawn from this *bittersweet* experience? On the one hand, the best offshoring strategy can be threatened if the *space* does not provide the expected evolution, as it happened in this case. Although the institutional distance with countries like China has been reduced, and the clustering can offer an adequate investment environment, this was still insufficient. That leads to a first recommendation for managers, who need to be more sensible to the changes in the environment, and question in a systematic way its evolution. The use of scenario analysis or other strategic management forecasting tools could help the managers reduce their uncertainty. On the other hand, an unforeseen evolution of the situation provokes a reactive reformulation of the international strategy. This fact, when it comes to offshoring, is extremely risky not only due to the nature of the investments but also the resources needed. In this sense, a second recommendation for managers is that reshoring and backshoring decisions should be implemented in the most rational way possible. This implies that firms should not base their offshoring decisions just on cost and saving related factors (Kinkel 2012) but also on more intangible factors such as the valuable knowledge and experience that they had acquired through that international process.

This chapter suffers from several limitations which future research may overcome. First, the sample of firms was drawn from only one case (Orbea in China). One should therefore not generalize the implications of our findings without examining the specific characteristics of the business environment and bicycle sector in China. It could also be interesting to study whether co-location can be used by the firm for future implementations, or it is not considered as a location and entry mode due to that experience gained in China. Second, although the two most relevant managers were interviewed (General Manager of the company and General Manager of the subsidiary in China), the inclusion of other views from people involved in the decision- making process would enrich the research Therefore, future studies should consider, on one hand, other firms with subsidiaries in China (f. ex. Giant or Specialized) and, on the other hand, more participants from the same firm to obtain a greater consistency in the qualitative data.

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Country of Origin: Reshoring Implication in the Context of the UK Fashion Industry

Arooj Rashid and Liz Barnes

Abstract Since the 1990s there has been a significant trend in offshoring clothing production in the UK fashion industry. The trend of producing overseas has occurred with the aim of attaining lower labour cost advantages and is influenced by a range of factors, such as labour cost, the labour-intensive nature of the work, price pressure caused by other retailers, and unpredictable market demand. Recently, there has been increasing debate about bringing manufacturing back to the UK, especially in the clothing sector, in order to reduce lead-time and to provide better quality products. However, no research to date has addressed the implication for re-shoring in the context of country of origin. Thus, to fill this gap, qualitative research was undertaken to understand the concept of country of origin in the context of re-shoring as well as the implications linked to re-shoring. The chapter briefly outlines the changing role of retailers and manufacturer brands in the UK, highlighting how the differences between the two are blurring, while also outlining the different dimensions of country of origin in the context of retailers and manufacturer brands using a case study approach. Each dimension of country of origin, e.g. country of manufacture, country of parts, country of design and country of brand origin, also provides implications for re-shoring in the UK; this is supported by semi-structured interviews with key informants from the UK fashion industry. The chapter ends with a conclusion which summarises the study and provides avenues for further research.

Keywords Manufacturing · Branding · Re-shoring · Fashion and clothing

A. Rashid (✉) · L. Barnes
School of Materials, The University of Manchester, Manchester, UK
e-mail: arooj.rashid@manchester.ac.uk

L. Barnes
e-mail: liz.barnes@manchester.ac.uk

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1 Introduction

Offshoring of apparel production has been a key feature of the fashion supply chain, in response to the need for lower production costs in a highly price competitive market, despite. In recent years there has been some emphasis on the repatriation of apparel production this research analyses the impact of country of origin on brands in the UK fashion industry in the context of re-shoring of production. The work considers the challenges and issues linked with the strategic decisions associated with re-shoring fashion production in the UK, Therefore, supported by a series of case studies and semi-structured interviews with different types of retailers, brands and manufacturers, this chapter will highlight how re-shoring could affect the UK fashion industry. The chapter will focus on four dimensions incorporated within the broader concept of country of origin (COO), namely country of manufacture, country of design, country of parts and country of brand origin.

2 Literature Review: Setting the Scene—The Changing Roles of Retail and Manufacturer Brands in the UK Fashion Industry

The structure of the UK fashion industry has evolved since the 1990s, with mass manufacturing production being shifted overseas to gain lower labour cost advantages (Barnes and Greenwood 2006). These structural changes were due to a number of characteristics, such as downward price pressures, increased international sourcing, high product variety, high volatility and a market place with low predictability (Perry and Tower 2013). For instance, according to Just-style (2000), the fashion manufacturing industry faced significant job losses across the UK when the famous British retail brand Marks and Spencer, once known for selling only British-made goods and a by-word for British quality (see also Abrams 1999), dropped its contracts with many UK-based suppliers that were well known internationally for producing own brand labels and changed to sourcing products from countries such as Morocco and Indonesia, where wages and other costs were low (Abrams 1999; Burns 2012). This hyperbole by Marks and Spencer came through when it simply failed to see that the high street had evolved and competitors were offering better products at lower prices (Burns 2012), manifested by the increased price competition from value retail brands, e.g. Primark and New Look, which were satisfying the demand for ‘cheap clothing’ for the mass-market by providing a variety of affordable products in a retail setting whilst manufacturing products overseas. These value retailers enjoyed a growth in sales as the majority of the customers with disposal income (following the economic recession) were not really interested in where things came from, but instead wanted cheaper products with new designs made to British standards. Thus, designing a product in the UK can be considered an important factor that can impact a brand image.

Competition and pressure in the fashion industry grew further with the development of own-brand retailers such as Next and River Island. These types of brands (i.e. retail brands) are positioned as middle-market brands, targeting a mass market by providing products and processes (i.e. service) that are owned, controlled and marketed by the retail company. In other words, the product in a retail brand setting, which is sold under a separate brand name, serves to provide tangible attributes, which are produced by a third-party manufacturer but are solely designed, named and sold exclusively by a retail store. This type of strategy allows a retailer to create a unique position in the marketplace by creating a range of product categories that are identical or similar to the retail store's name and design, primarily because they are recognised by their brand name, which reflects the qualities, values and personalities associated with the retail store (image) (Sullivan and Adcock 2002; Vignali et al. 2006).

On the other hand, 'process' in a retail brand setting is described as the experience that consumers encounter as they walk into the store (Davies 1992). Process in a retail environment is determined by a multitude of retail store characteristics, including location, convenience (e.g. Sullivan and Adcock 2002), in-store design and ambient environment (Kent 2003; Stuart 2013), staff levels and behaviour, customer service, support for the local environment as well as delivery options, fixtures and warranties, and credit policies (e.g. Davies 1992; Foster and McLelland 2015). However, following the emergence of own brand retailers within the UK fashion industry, more brands have come into the market, such as niche own-brand retailers (e.g. Hobbs London and Boden) as well as international fast fashion retailers, such as H&M, ZARA and Mango (McColl and Moore 2011). Design-led brands such as Hobbs London and Boden entered the market as own-brand retailers, but providing premium products and marketing strategies. Nonetheless, there have been a number of controversies taking place in the media industry with regards to manufacturing in certain parts of Asia, such as the factory collapse in Bangladesh in 2013 (Bolle 2014). Consequently, it has emerged from the interviews with key informants from the UK fashion industry and representatives of fashion companies that are supplying high-end fashion brands, that premium retailers and/or brands with an image of providing quality designed products are equally as involved in offshoring production and global sourcing as the value and middle-market fashion retailers are. However, how they are differing is by the choice of their country of manufacture. For example, to attain lower labour costs while maintaining a reputable brand image, premium retailers favour manufacturing in countries such as Romania, Sri Lanka and Macedonia. However, the manufacturing structure for such types of retailers is even more complex to understand as some of these brands, such as Hobbs London, currently also operate a vertical supply chain, whereby the company has ownership of factories based in Italy, producing footwear products with unique craftsmanship.

Furthermore, as mentioned earlier, the structure of the UK fashion industry became even more complex when international retailers entered the market, introducing a fast fashion strategy (e.g. Zara and Mango), which meant providing new fashion in retail stores within 2–3 weeks via integrated supply chains and manufacturing at a nearby location. The pressure of price, quality and the benefit of

a superior profit margin as well as control of the product have pushed the manufacturer brands to become retail-oriented businesses.

By definition, manufacturer brands are branded products, owned and created by a unique label by manufacturers or suppliers and then sold for distribution to various third party retailers such as department stores, independent stores and others. However, with the price pressure from retail brands (e.g. Primark, Matalan and so on), many manufacturer brands have changed their ways of doing business over the past two decades. For example, some manufacturer brands (e.g. the German company Hugo Boss) were once also manufacturers in their own right. In other words, they had ownership of the manufacturing facilities and the processes involved in the production (Dicken 2015). However, faced with high production costs in developed regions and the domestic European market, many manufacturer brands moved their production overseas, in order to attain lower labour cost advantages, and sourced their material from a range of countries with expertise in producing and providing quality material, whilst the designing of the conceptual idea and the engineering remained in the home country. This chapter focuses on country of origin in relation to re-shoring from the fashion industry perspective, in the context of where the structure of the fashion industry has increasingly evolved. Consequently, the next section presents a historical overview on country of origin.

2.1 Country of Origin Historical Overview

Country of origin is generally associated with the 'Made in Country Name' label, referring to the place where the product was manufactured. The concept of country of origin was first introduced and endorsed in the United States in the 1890s, with the basic requirement for imported products (or their containers) to be marked with the foreign country of origin. Prior to the 1890s, country of origin labelling was not considered a legal requirement, but rather used as a marketing tool to provide consumers with information about the goods and manufacturing process and also acted to 'protect' domestic producers (Ha-Brookshire 2012; Morello 1984; Rohr et al. 1996), enabling the buyers to differentiate them from international competitors. However, following World War I, it became compulsory for all products imported into the U.S. to include country of origin information. This was intended as a punishment for the defeated countries, such as Germany, and helped consumers to identify and avoid products from the former enemy countries, with the intention of creating a bad reputation for the industries from the defeated countries (Ha-Brookshire 2012). However, Germany had a long-standing reputation of excellency in engineering and therefore the "Made in […]" label had a positive impact, as consumers used this to identify and purchase German products. Regardless of the impact German-made products had, a law was introduced in the U.S. that stated that any imported product transformed or finished within the United States after importation was considered a domestic product and thereby did not require marking under the U.S. right of law (Ha-Brookshire 2012).

Following on from the U.S. right of law regulation, the www.gov.co.uk website shows that in the UK it is not compulsory to label products with the 'Made in […]' label. However, if the brand feels the need to distribute the product with the 'Made in […]' label, then they must follow the rules under the Sale of Goods Act 1979, which states that all products must be 'fit for purpose', be of satisfactory quality and fit the description. Basically, it is a punishable offence to apply any false description and thus such labels must clearly state the country in which the product or good was made or produced (Papadopoulos and Heslop 2014). Ensuring that a label portrays correct information has become particularly important in an environment where demand and the development of globalisation and global sourcing has increased. This is also the case where all the mass manufacturers have moved their production overseas to countries with lower labour costs, such as China, India and Bangladesh, to achieve location advantages. Nonetheless, labelling a product with 'Made in China', for example, is still deemed important for retailers as it provides consumers with information that helps them to make an informed decision.

In addition to this, the trend towards offshoring has obscured the understanding of country of origin because retailers now locate different dimensions of COO in different countries to attain lower labour cost, take advantage of country expertise, and be able to satisfy the market demand. In other words, designing the conceptual idea often takes place in the home country, which is similar to the brand origin. The material is, however, sourced from another country and the product is often manufactured in another country to save on material cost and to obtain quality expertise. Thus, this leads to fashion brands with hybrid or multiple origins involved in the production of their product.

The emergence of hybrid or multi-national origins, for instance a product designed in a home country with material sourced from another and manufacturing from a completely different country, has made it difficult for buyers to identify the origin of the branded products and has led to a different conceptualising of COO, e.g. country of parts, country of design, country of manufacture and country of brand origin. Nonetheless, the complexity of the country of origin dimension and the fact that consumers use COO to evaluate the quality of the product based on place of manufacture in particular has resulted in an increasing debate about bringing fashion manufacturing back to the UK.

2.2 Dimensions of Country of Origin

This section will discuss country of origin dimensions, e.g. country of manufacture, country of design and country of parts, which are increasingly important in the production process; these will be discussed in the context of the UK fashion industry. Each dimension will be supported with an illustrated case study of a fashion retail brand or manufacturer brand drawn from a secondary source to illustrate the importance of re-shoring.

2.2.1 Country of Manufacture

In the UK, the term 'country of origin' refers to the place where the last finishing of the product takes place, thereby equating it with the 'Made in […] epithet (e.g. Fetscherin 2010; Insch and McBride 1998). However, with many companies using a hybrid sourcing strategy, country of manufacture has been replaced with the terminology of country assembly, which is defined as a separate construct in the literature of country of origin, referring to the place where the assembly process may take place, given that part of the components or the finishing may need assistance from another country (Li et al. 2000). For example, a fashion retailer may construct some part of the products in China, but the last finishing, such as adding the seam, may take place in the UK, and thus a brand may then use 'Made in the UK' as a product label.

Nonetheless, in terms of bringing manufacturing back to the UK, it has emerged from the interviews with the key informants from the UK fashion industry that re-shoring is something that is being considered; however, this depends on the brand's strategic business plan and on the type of product and segmentation. For example, the Alliance Project (2015) reports that for luxury products, provenance and exclusivity hold value for the end consumer and for upper and mid-market Best of British ranges, while for the lower and mid-markets, fast fashion (see the case study below) holds the value. The interview with the textile researcher from Company I showed that re-shoring is profitable for soft products (e.g. blouses and dresses), because there are the skills to produce such types of products, but also that it enables a rapid supply of products and allows measuring the profit from the margin erosion. In other words, having a rapid supply of products close to the market will enable the brand to be more accurate with their product ordering and also enables the retailer to manage other risks more effectively (such as control the product quality and inventories). For example, Dorothy Perkins, a UK middle-market (high street) brand, has undergone several changes over the last few decades. The company originally operated under the name H.P. Newman and had ownership of 12 shops. The main focus of the retail brand was ladies' hosiery and underwear, and so the company was named Ladies Hosiery and Underwear Limited (fiber2fiber.com 2016; arcadiagroup.co.uk 2016; dorothyperkins.com 2016). However, since the 1960s, many changes have taken place regarding Dorothy Perkins, such as the development of over 250 shops under the name Dorothy Perkins on the British high street. Following this, in the 1990s Dorothy Perkins was bought by Arcadia, along with other companies such as Burton, Evans, Topshop/Topman, and Miss Selfridge (fiber2fiber.com 2016). After being bought by Arcadia, Dorothy Perkins developed the brand even further by introducing more lines into the retail environment, such as the Secrets' lingerie and nightwear range, and also by establishing online retailing and international expansion and recognition. For example, Dorothy Perkins products are currently sold on the international pure-play retailer Zalando.

Along with all these developments, Dorothy Perkins has also undergone several changes in terms of manufacturing products overseas and considering re-shoring.

For example, Arcadia, the parent company of Dorothy Perkins, is actively involved in global sourcing and offshore production, manufacturing products in countries such as Turkey, China, India and the USA. Turkey has been the second-largest clothing exporter with a net export value of US $12.7 billion, following China's figure of over US $70 billion. Indeed, China is the leading manufacturing country, providing a lower price and superior clothing quality (Tao and Fu 2007). The advantage of sourcing from Turkey includes the ease of procuring fabric (due to the country's high-quality cotton cultivation and its technologically advanced textile production), the low policy costs (due to Turkey's liberalized access to the European Union), and the relatively low shipping costs (due to its proximity to Europe) (Tokatli and Kizilgun 2009). Moreover, until very recently in 2015, the tycoon of the Arcadia group, Sir Phillip Green, considered supporting UK manufacturing, revealing that more homegrown companies now supply his retail empire (White 2016). The support towards local manufacturing is increasingly on the rise in the Arcadia group because it is believed that cutting the dependence on overseas manufacturers such as China (which is witnessing an increasing growth in manufacturing costs) can provide greater capabilities and scope, such as bringing in design ideas and responding more swiftly and by manufacturing and transporting more quickly. In contrast to the UK, China can take about five to six months to manufacture and transport products to the UK (White 2016). Thus, it can be concluded that country of manufacture is important in terms of proximity, reducing lead-time and quickly responding to market demand.

2.2.2 Country of Design

The purpose of this section is to illustrate the importance of designing products in the UK and how this impacts brand image. Designing is an important and the foremost part of the manufacturing process and involves engineering and the development of concept and style, such as the silhouette of the garment or the craft design and ergonomics, i.e. prints and patterns (Jaffe and Nebenzahl 2001; Li et al. 2000).

Supported by an illustrative case study example of a design-led retail brand, this section will now highlight the importance of designing products in the UK and how this has implications for the brand image, brand message and country reputation. However, designing the product may not necessarily be used as a direct promotional tool. For example, Jigsaw is a premium British retailer established in 1972 by John Robinson. The company first opened stores in Hampstead, London and Brighton (Jigsaw-Online.com 2016) and has since expanded with over 70 stand-alone stores in the UK, 36 concessions—mainly in John Lewis (Jefford 2016)—and a successful e-commerce business which emphasises British heritage and the importance of style (e.g. Jigsaw-Online.com 2016). Moreover, Jigsaw also has ownership of additional own label lines, including Jigsaw Junior, Jigsaw Home and Jigsaw Menswear (internetretailing.net 2016), selling stylish clothing at affordable prices. Along with the transformation from retail to wholesale-oriented business (manufacturer brands),

the company has increasingly focused on providing an excellent experience with a high level of recommendation and an in-store atmosphere.

Jigsaw's brand mission is to provide designs that are timeless, independent-minded and fun as well as create something is beautiful, meaningful and lasts for years (Jigsaw-Online.com 2016). The designs (e.g. silhouette and patterns) are created in the UK by the design team, both in-house (Jigsaw-Online.com 2014) and by other freelance designers (e.g. Collete Brown) (Jigsaw-Online.com 2015). The in-house designing process involves each step, from sketching the initial stages to fitting the final garment (Jigsaw-Online.com 2014). The advantage of Jigsaw designing the products in-house in the UK is that they are able to take inspiration from the nearby surroundings, such as the market and the V&A art gallery, and adapt it quickly into a design idea for eager customers (see also Jigsaw-Online.com 2014).

In terms of sourcing, the CEO of Jigsaw reported in an interview by Russell (2014) in Just-style that the company has two main sourcing portals, namely China and Romania. It has been reported that the main issue Jigsaw faces in China is not inflation but rather currency change. However, Jigsaw is also involved in sourcing accessories and fabric from Spain, Italy and Turkey. There is some sourcing from the UK involved as well; however, the challenge is where the sources are. Nonetheless, the CEO reported that they have their own pattern rules and source their fabric from leading mills around the world and this, along with their heritage, is what their marketing strategy is based on.

To sum up, Jigsaw's illustrative case study highlighted the importance of designing the product in the UK and the impact this has on brand identity and brand image.

2.2.3 Country of Parts

Country of parts refers to the place from which the material is sourced (see also Rashid et al. 2016). Country of parts, in this case, is where the raw material or fibre used in garment production is sourced (Ahmed and d'Astous 2008), or where the accessories such as zips, trims and/or buttons are sourced from. Country of parts is important in both manufacturing and branding because it represents the quality of the product and thus impacts the product image and often has associations with the heritage of the brand (refer also to the Jigsaw example in Sect. 2.2.2). For example, Pringle of Scotland is a premium brand known throughout the world that places its origin in the town of Hawick, Scotland, the United Kingdom. The brand has over 200 years of history and is considered one of the oldest luxury fashion brands in the world (Pringleofscotland.com 2017), founded as it was by Robert Pringle in 1815 as a manufacturer of knitted hosiery. Throughout the 19th century, Pringle manufactured undergarments (vests and stockings), but after decades of research and the foundation of the company in the Edwardian period Pringle embraced and encouraged the technical innovation of knitted outwear, particularly with Scottish cashmere, and even coined the term 'knitwear' to describe its ever-growing collections.

The switch in production sparked over 30 years of successfully selling men's and women's luxury knitwear, with the garments modelled by high profile and fashionable movie stars from Margaret Lockwood to Lauren Bacall (Vintagefashionguild.org 2017). Its profile as manufacturer of hosiery and the development of knitted outwear, especially Scottish cashmere, has sparked up Pringle of Scotland's brand history over the years, allowing the brand to become the oldest luxury fashion brand despite the changes that took place in its structure. For example, during the 1980s Pringle's increasingly lost its way both style-wise and financially, becoming unfashionable and associated mainly with sportswear, and lost out to the rise of cheap imports. In 1999, after 10 years of worsening business, the company was sold to its sister company Ballantyne. By this point, the company had also reduced the production side of the business, largely producing run-of-the mill sports knit rather than the cashmere and patented Argyle patterns. Eventually, the brand and its remaining factories in Hawick and Galashiels were bought by Hong Kong businessman Kenneth Fang, who placed Kim Winser (formerly of Marks & Spencer) in charge as CEO. Reflecting the successful rebranding strategy of Burberrys, Pringle repositioned itself as an exclusive designer-driven, vintage-tinged line available from glossy boutiques and luxury department stores (vintagefashionguild.org 2017).

Today, the company operates both a retail brand strategy and a manufacturer brand strategy, selling the products under its own exclusive retail store (e.g. at a flagship store in London and at other outlets) as well as selling products in other luxury department stores. However, with the history of being the pioneer of British knitwear (Scottish cashmere) and a champion of British history, the company celebrates the relevance of knitwear in contemporary fashion (Pringlesofscotland.com 2017).

Supported with an illustrative case study of the luxury fashion brand of Pringle of Scotland (see above in this section), this section has shed light on how having a history of being a manufacturer of a certain type or being the innovator of certain type of material has an impact on the brand's identity and brand image. However, there are certain implications that have been identified with reference to re-shoring (sourcing materials from the UK), specifically in this evolving global economy; this will be addressed in the findings in Sect. 2.2.4.

2.2.4 Country of Brand Origin

Country of brand origin refers to the place where the brand was born or where the headquarters of the brand is located (Samiee et al. 2005; Thakor and Kohli 1996). The purpose of this section is to highlight the impact that country of brand origin has on the UK fashion industry, supported by the illustrative case study of Musto, a leading clothing performance brand, and whether country of brand origin has any implications for re-shoring.

Musto is a leading British manufacturer of cutting-edge performance apparel with a history of over 50 years (Musto.com 2017) of providing specialist equipment

for sailing and equestrian competitors. The brand has developed its recognition among other performance-led brands (e.g. Barbour, Henri Lloyd) by using the latest technology fleece to help buyers withstand the forces of Mother Nature (e.g. rain and wind). It quickly became popular when it was first introduced into the UK market in the mid-80 s by the founder of the Musto brand, Keith Musto. The fleece was inspired by a new fabric that had hit the States through a company called Molden Mills (Musto.com 2017) and was immediately sourced for the UK market, creating two Musto products, Snug Blouson and Snug Shirt. Today, these two products are still the most popular Musto products, selling up to 30,000 items each year since the range was launched. Along with these two popular items, Musto is also currently involved in making products from GORE-TEX® and Windstopper® materials, which make the product both water and windproof as well as highly breathable. For its leading performance in active wear and in providing quality clothing for country sports and sailing to both Her Majesty the Queen and His Royal Highness The Duke of Edinburgh for their outdoor lifestyle, in 2010 Musto received the Royal Warrant in recognition of their work (Marketingweek 2010).

In terms of manufacturing, from the very start Musto was determined to not make clothing products (unlike their competitors, e.g. Barbour), but were more interested in providing better clothing products that stood out regarding performance as there was both a need and a demand for better clothing. Nonetheless, being the leaders in providing cutting-edge performance wear, the Royal Warrant and their history as innovators in being the first to bring fleece into the UK market has always kept Musto in the strong position of being British leaders in performance active wear. Thus, British identity remains an important part of the brand's heritage.

To conclude, it is evident that country of brand origin is important for brands that were historically involved in manufacturing or were the innovators of a specific material (see also Rashid et al. 2016).

3 Methodology

In order to obtain an in-depth understanding of the importance of country of origin in the context of re-shoring, an interpretive, qualitative research approach was undertaken (see also Rashid et al. 2016). Furthermore, an investigation into the issues and challenges associated with this, and which therefore have implications for re-shoring, was conducted from industry perspectives. The research objectives were achieved by conducting 14 semi-structured, face-to-face interviews with key informants from the UK fashion industry, whereby these were selected using the judgemental approach based on their knowledge and influence in their companies' manufacturing and branding strategies. The interviewees were chosen from ten major companies from both the retail and manufacturing sectors in the UK. Due to concerns of commercial confidentiality, it is not possible to identify the specific organisations that participated in this research (Doherty 2000) (Table 1).

Table 1 Respondents from the UK fashion industry

Company	Organisation type	Interviewee position
Company A	Pure own brand—fast fashion retailer	Buyer
Company B	Pure own brand—quality led retailer	Head of Department
Company C	Premium brand—performance design led retailer	Senior Designer
Company D	Premium brand—performance design led retailer	Buyer
Company E	Premium brand—wholesale brand and manufacturer	CEO
Company F	Premium fashion—wholesale brands brand	Marketing Director
Company G	Premium fashion retailer	Creative Art Director
Company H	Multi-channel retailers—wholesalers and own brand retailers	Head of Department
Company I	Component supplier	President of Apparel and Footwear
Company J	Component suppliers and brand	Non-Executive Director
Company K	Clothing manufacturer and suppliers for high street fashion retailer	Technical Manager
Company L	Designers and manufacturers for design led brands	Senior Fabric Technologist
Company M	Textile research and funding organisation	Textile Researcher
Company N	Textile research and funding organisation	International Director

The interviews, which were qualitative in nature, were adapted from the current literature on fashion supply chain management (e.g. Barnes and Greenwood 2006; Orcao and Perez 2014), country of origin (e.g. Bilkey and Nes 1982; Mostafa 2015; Piron 2000) and were aimed at obtaining the viewpoints of the key informants regarding the importance of re-shoring fashion production to the UK. The 30 to 60-minute interview sessions were conducted at the workplaces of the key informants and were recorded by audio and then transcribed. In order to systematically identify the themes and patterns within the data, the analysis conducted manually using the inductive approach and the thematic analysis technique (King and Horrocks 2010).

4 Findings: Country of Origin Implications for Re-Shoring

This section will present a finding and discussion concerning the industry's perception on the implications for re-shoring, supported with information drawn from the semi-structured interviews conducted with the key informants from the UK fashion industry. The discussion is structured to discuss the implications for re-shoring according to the following dimensions: country of manufacture, country of design, country of parts and country of brand origin.

4.1 Country of Manufacture: Implications for Re-Shoring

As can be seen in Sect. 2.1, consumers evaluate the quality of the product based on the place of manufacture or the brand origin. Moreover, an interview with the CEO of Company E, a manufacturer and retail brand known for its British heritage in the lifestyle brands, suggested that '*British means quality in some countries, such as Japan and Scandinavia*'.

Thus, on the basis that manufacturing in the UK can be perceived as a unique selling point representing quality and can also support a reduction in lead-time (see also Gov.co.uk 2014), there has been increasing debate about re-shoring manufacturing back into the UK.

Nonetheless, all interviews with key informants from the UK fashion industry, e.g. Company A, B, C and others, highlighted several issues regarding re-shoring manufacturing back into the UK, *such as a lack of the skills, recourses and expertise needed to manufacture quality products*. For instance, it is found that an industry's perception of a country is often influenced by the skills, resources and expertise a country provides for the manufacture of products. This in part is because, with an increased demand for global sourcing and offshoring garment production, in order to gain lower labour cost advantages, many European countries, including the UK, have lost the expertise, i.e. the skills, to manufacture quality garment products. In other words, a key informant from Company A suggested that '*the skilled labour force is now in their 60s and the younger generation (post baby boomers) lacks the manufacturing skills to produce quality products*'.

Furthermore, the CEO of Company E also argues that European countries, and the UK in particular, also *lack the necessary resources, such as automation or machinery*. It was further explained that "*in the UK they have been trying to work on this for years, however, the cost is very expensive*; in other words, *the wages are too high to cover all the costs*" *(CEO of Company E)*. According to the marketing director of Company F, this basically means that to *produce quality products, the industry needs to invest a lot of money to train those of the younger generation* who are fit enough to do the labour-intensive work.

Furthermore, it was explained by a senior respondent from Company H that with *the younger generation's better education*, e.g. increased standard of living, *they do not necessarily want to work in clothing factories*. However, the industry believes that there are the skills for basic products (e.g. Company A), and thus all respondents pointed out that *fashion companies that focus on fast fashion products are manufacturing from nearby locations, e.g. the home country or nearby locations such as Turkey, in order to reduce their lead-time and provide quick delivery*. Additionally, in terms of investing money in machinery to support the labour-intensive work, all the key informants from the UK fashion industry pointed out that a *very small percentage (5%) of the UK market actually cares about where the product is manufactured and that the UK market is concerned more about price than quality (Company H)*. Therefore, whether re-shoring will be profitable/valuable for the fashion industry remains an on-going topic.

As a result, it can be determined that country of origin from a manufacturing aspect is considered important for fashion retailers that are using fast fashion as a strategic business plan. Additionally, re-shoring will also have added benefits, such as control of the production, fewer inventories and so on.

4.2 Country of Design: Implications on Re-Shoring

Similar to the case study of the Jigsaw, the interview with the key informants from the UK fashion industry, e.g. Companies C and G, with expertise in designing products and technical background confirmed that *country of design has an increasing impact on the brand image*. This is because the style, design and fitting of the products represent some of the most important factors judged by consumers when making a final purchasing decision. Thus, the respondent from Company C suggested that *if the designers are based in the country they are targeting (the UK), then they can gain more knowledge about customer preferences and desires and design the product accordingly.*

Another key reason regarding how country of design (in the UK) impacts brand image has emerged from an interview with the key informant from Company M that *British designers are popular for generating quality style ideas, and thus even with less direct marketing effort, products designed in the UK can have an increasing impact on a UK fashion brand's image.*

4.3 Country of Parts: Implications for Reshoring

As outlined in Sect. 2.2.3, country of parts relates to the material used in the production process. This material is associated with where the yarns, zips and buttons are sourced from or where the fibres are manufactured. In terms of its implications for re-shoring, based on the interview with the respondent from Company E, F, G and M, it is evident that country of parts is considered as *one of the costliest yet important elements in the production process* (see also Rashid et al. 2016), one which represents quality. For example, in the case of Jigsaw (see Sect. 2.2.2) the company emphasizes how they source their material from leading mills around the world, whereas in the case of Pringle of Scotland (see Sect. 2.2.3), it is evident how the history of manufacturing knitwear and the current use of cashmere is highly important for the brand image. Therefore, this is emphasised in the brands' stories to this day.

Nonetheless, in terms of the implications for re-shoring, respondents from Companies C, G and L, who are experts in fashion manufacturer brands and manufacturing companies, have suggested that *it is difficult to find sources in the UK that provide such quality material* (see also the case of Jigsaw). According to Company G and H, *some of the major issues linked to sourcing material from the*

UK include the climate issue. For example, raw material such as cashmere, cotton and other natural fibres are popularly outsourced from remote and isolated locations such as China, Iraq and Pakistan (see Towers et al. 2013), with China being the leading exporter of cotton apparel in the world (Ha-Brookshire 2012), *because of the skills and advanced technologies required* (Company H).

Another issue is associated with the lack of wool. For example, the president of Company I emphasised that *there are not enough sheep in the UK to produce the required masses of wool and thus the use of wool is something that can be found only in very niche brands and products*. Another issue the fashion industry is increasingly facing regarding material is the transportation cost; for example, a respondent with design expertise from Company C explained that *transportation cost becomes a concern when companies are manufacturing products overseas in China and other Asian continents, due to lack of resources for the manufacture of niche products in the UK*.

4.4 Country of Brand Origin—Implications of Re-Shoring

In terms of the impact that country of brand origin has re-shoring, firstly all respondents, e.g. Company C, F, I and others in the industry, indicated the view that *place of manufacture has very little impact on UK consumer purchasing decisions*, and thus some fashion retailers, *such as* Company B, that are not providing fast fashion strategies are debating *whether it is worth bringing manufacturing back to the UK or not* (Company B). This view has been presented by Company B with the concern that UK consumers are concerned about cheaper prices more than they are about quality (see also Rashid et al. 2016), although UK consumers do want their products to be manufactured to a certain standard. Nonetheless, there are some dimensions of country of origin which the industry takes pride in promoting, such as all respondents have indicated the importance of *heritage history* (Companies B and E) and the *Royal Warrant* (Company F)—(see the example of Musto in Sect. 2.2.4), the association with *UK mills* (Company J) (if the brand is involved in sourcing from the UK; see also the case study of Jigsaw), British manufacturing with the label Made in UK if the brand is manufacturing in the UK, such as Topshop (see also Dorothy Perkins in Sect. 2.2.1), and/or *making labels stand out and have an association with reputable country image, e.g. Italian fabric* (Company B)—(see also Rashid et al. 2016).

5 Conclusion

The focus of this chapter was on the implications of country of origin on re-shoring with specific reference to the UK fashion industry. The concept of country of origin was associated with four dimensions, namely country of manufacture, country of design, country of parts and country of brand origin.

Each dimension of COO in the literature review has been supported with a case study example of different fashion retailers and brands, illustrating how different retailers and brands consider different dimensions to be important; however the chapter also addressed the implications each dimension had on re-shoring, and the findings for this were drawn from the semi-structured interviews conducted with the key informants from the UK fashion industry. For example, country of manufacture, which refers to the place where the product is manufactured (e.g. Fetscherin 2010; Insch and McBride 1998), has been supported with the case study example of middle-market retail brand Dorothy Perkins in Sect. 2.2.1, addressing how Dorothy Perkins is currently involved in overseas manufacturing, including in Turkey and China (aracadiagroup.co.uk 2016), but is considering manufacturing in the UK in order to reduce lead-time and provide better quality products. However, the findings of this chapter illustrate that there are implications for re-shoring in the UK, such as a *lack of skills* and *resources, although there seems to be some skills for very basic products. Thus, it can be concluded that re-shoring as a strategic* business plan is something that is being considered by some of those fashion retailers who are particularly focused on providing fast fashion linked to quick delivery. However, there are other brands who are still having a considerable debate due to the lack of skills and resources.

On the other hand, country of design, which refers to the place where the concept or style of the product is engineered (Jaffe and Nebenzahl 2001; Li et al. 2000), e.g. silhouettes and patterns, has been illustrated with the case study of the premium design-led brand Jigsaw. The case study of Jigsaw in the literature review section illustrates that designing the product in-house is important for retailers because it enables them to control the understanding of the changing market demand and to swiftly create new design ideas. Other benefits have also been identified from the interview conducted with the key informants of the UK fashion industry, such as how country of design impacts a brand image. In the same vein, in the case of Jigsaw the designer also mentioned her inspiration and how this was transferred into her product designs very swiftly.

With reference to country of parts, the section was supported by the case study of Pringle of Scotland, which is recognised all over the world as a luxury fashion brand and is well known for its rooted Scottish history, its manufacture of hosiery and its use of Scottish cashmere. Following the case study, findings regarding the implications for re-shoring material was addressed, which highlighted how sourcing material in the UK can be deemed an issue due to the lack of a suitable climate and resources in the UK, and thus fashion brands often source their materials from a range of countries that are known for their expertise. This, therefore, makes a contribution towards the literature of fashion branding, COO and global sourcing.

The last dimension of this chapter was country of brand origin, which was supported by the illustrative case study of Musto, a leading British performance apparel brand known for historically introducing fleece to the British market. However, in terms of the implications that country of brand origin has on re-shoring, the interviews with the UK key informants provided evidence that country of brand origin has far less implications on re-shoring, as only a very small

percentage of customers actually care about where the product is manufactured so long as the product is cheap and designed according to customers' standards, thus country of design is deemed important. Thus, it can be concluded that country of brand origin has very little impact on re-shoring. Nonetheless, brand origin is an important element for all types of fashion brands as it contains an emotional heritage association, which often allows manufacturer brands (in particular) to hold a strong position in the marketplace. This, consequently, makes a significant contribution towards brand association, brand positioning and consumer behaviour.

To conclude, it is evident that country of origin is important for all types of brands. However, how each country of origin dimension is important varies depending on brand expertise, strategic business plan, brand positioning, identity, and brand message. Nevertheless, there is no doubt that the implications for re-shoring, such as lack of skills, resources, labour cost and weather issues, have a significant influence on managerial strategic decision-making, and this contributes managerial implications.

5.1 Managerial Implications

Along with the theoretical contribution, the study provides insight regarding the challenges and issues that fashion companies may have to face if they bring manufacturing back to the UK, such as the fact that the wages are still too high (it is expensive to manufacture in the UK), there are limited skills to manufacture quality fashion products that specifically require labour intensive work (Perry et al. 2013), and there is limited capacity and machinery. Moreover, in terms of sourcing material, it is evident from the results that to produce quality products, it is necessary to source material from a country that has the relevant expertise, such as embroidery from India or cotton from China, because, based on industry perception, it seems that material represents the quality factor in the production process. Finally, it has emerged that to provide quality products that fit customer's needs, companies need to have a strong understanding and knowledge about the customers' demands, and this can be easier if the designers are based in those specific countries.

5.2 Limitations

This study has made several contributions regarding the drivers as well as the challenges and issues with regards to re-shoring fashion production, which were previously limited to the UK market. Nevertheless, the study has identified several challenges and limitations in doing this research. The findings can only be generalised according to the size of the sample. For instance, the process of identifying the industry experts was deemed to be difficult as fashion companies provide a

limited database on the Internet detailing the experts involved in the industry. Secondly, it is time consuming, as the interviews with industry experts often required travelling to different cities and towns in order to obtain rich data. Furthermore, another limitation was that at the time this research was being conducted, the UK voted to leave EU ('Brexit'), and thus this can have further implications for re-shoring, both negative and positive.

5.3 Future Research Direction

In terms of future research direction, as mentioned in the limitation section, the key challenge was that at the time this research was being conducted, the UK voted to leave EU; this can in the long run have further implications for re-shoring, in both negative and positive ways, and thus can be a potential research topic that can contribute towards knowledge on global shifts and implications for re-shoring.

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Reshoring: A Stage in Economic Development or a False Patriotic Tune? The Case of the Polish Apparel and Footwear Industry

Beata Stępień and Michał Młody

Abstract The aim of this paper is to examine economic and political grounds and consequences of near-reshoring and reshoring activities in Polish apparel and footwear sector. As the consumers and companies perspective is taken, the applied method is a combination of surveys conducted amongst Polish apparel and footwear companies and consumers together with some statistical analysis about the evolution of this sector in Poland and anecdotal evidence about reshoring and near reshoring activities. The paper contributes to literature by taking both a value-driven and a political economy perspective and enhances the understanding as to how reshoring and near-reshoring can both reshape business models and serve as smart tools of a new protectionism at the level of the national or regional economy.

Keywords Reshoring · Near reshoring · Polish apparel and footwear industry · Consumer ethnocentrism · Populism · Consumer patriotism

1 Introduction

A global defragmentation of supply chains in the form of outsourcing and offshoring in the 80s and 90s has not proven to be the long-term optimal solution for many companies (Ancarani et al. 2015; Kinkel and Maloca 2009; Kinkel 2012). The gradual upgrading of manufacturing capacity and efficiency in the offshore recipient countries went along with the rise of production costs and resulted in these countries losing their global cost competitive advantage (Gray et al. 2013;

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B. Stępień (✉) · M. Młody
Poznań University of Economics and Business, Poznań, Poland
e-mail: beata.stepien@ue.poznan.pl

M. Młody
e-mail: michal.mlody@ue.poznan.pl

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Ellram 2013). Political turmoil in many parts of the world only adds to the costs of transport and raises the risk of long distance, on—time deliveries (Sardar et al. 2016).

Changes in the global economic and political landscape also affect the demand side. Delivering good quality/price ratio products on time is no longer a winning business model. In order to be successful on the market companies not only have to react to increasing costs of offshore production and delivery but also take into account a change in consumer perception of the value created within supply chains. As a sustainability awareness grows (bolstered up by human rights' violations in offshore production plants) and ethnocentrism relapses (partly as a result of a growing fear of terrorism and a populism rise in many countries), sustainable and local production serves as the value item that grows greatly in importance (Urry 2015, p. 241).

Therefore, "repatriating manufacturing to the country of origin" (see The Economist 2012) or bringing companies' activities back home seems to be not only the result of cost and risk analysis, but also a smart, long—term marketing strategy, with patriotic and sustainable implications amply communicated to the public.

Evidence of both near-reshoring and back-reshoring has multiplied over the past few years in the economic press, consulting firms' white papers (The Economist 2013; Sirkin et al. 2014) and in academia (Holz 2009; Kinkel and Maloca 2009; Leibl et al. 2011; Kinkel 2012; Ellram 2013; Dachs and Kinkel 2013; Gray et al. 2013). The relevance of this globally rising phenomenon was also recognized by the United Nations Conference on Trade and Development (UNCTAD 2013, pp. 26–30).

Both reshoring and near-reshoring phenomena gain in importance primarily in the western, developed economies. The USA plays the leading role in supporting this idea and activities with the "old" Europe slightly behind, but also eager to restore the industries historically considered as the source of nations' international competitive advantage (Shih 2013; Westkämper 2014). But is the reshoring phenomenon only a feature of highly developed economies? Can we treat these activities as a sign of an economic maturity where local production is restored by dint of consumer willingness to pay more for safer, more sustainable production and where local manufacturing and purchases are regarded as a patriotic act propping up the local economy? Is reshoring a manifestation of the rise of a social economy or a smart fusion of cost and risks analysis together with a redefinition of the value chain?

In this chapter we try to answer these questions by utilizing the perspective of a still developing economy—Poland; an attractive offshore base with a growing number of reshoring activities registered. The paper contributes to literature by taking both a value-driven and a political economy perspective into reshaping supply chain strategies. It enhances the understanding as to how reshoring and near-reshoring can both reshape business models and serve as smart tools of a new protectionism at the level of the national or regional economy.

We will analyze the case of the fall and the subsequent revival of the Polish apparel and footwear industry. Poland served as an important offshore basis for

many western apparel and footwear companies in the late 80s and early 90s and then lost the cost battle against Far Eastern production plants and now has once again become the popular offshore location for many textile premium and luxury brands. This evolution went along with a fast economic development in Poland and the growing purchasing power of local consumers.

We will show both the economic and political grounds and consequences of near-reshoring and reshoring activities in a country that cannot yet be considered a mature economy. The consumers, companies and the country perspective of the reasons for reshoring and its consequences will be also shown, juxtaposed and discussed.

The remaining part of this paper is structured as follows. In the theoretical part we elaborate on reshoring types and their economic and political drivers. We also analyze here the main features of the global and European apparel industry. Scrutinizing this information we develop several hypotheses about the relationships between the political and economic drivers of reshoring to both companies and consumers in the apparel industry in Poland. The next section, method, describes a mixed approach to hypotheses testing; a combination of electronic and paper survey analyses conducted amongst Polish apparel enterprises and consumers, with an explanatory secondary data analysis (Polish apparel industry statistics and news announcements about reshoring activities). The remaining parts of the paper include findings presentation and conclusions where we test the hypotheses and try to answer the questions about the nature and interrelatedness of reshoring drivers and consumer perception of this phenomenon. We also further hypothesize over the possible development of the reshoring phenomenon in Poland and provide some managerial insights into the apparel companies considering the ways of monetizing reshoring activites by effective communication strategies to their clients and consumers.

2 Theoretical Background

2.1 Is Reshoring a Return to Home?

Reshoring is defined as a partial or total relocation of previously offshored company activities to the home country (Fratocchi et al. 2016). Reshored activities can: stay in-house (within the company's international hierarchy; from offshore subsidiaries to their own domestic facilities); be externalized domestically (from offshore subsidiaries to domestic suppliers); be internalized at home ("insourced", from offshore suppliers to their own domestic facilities), or be transferred from offshore suppliers to domestic ones (see also Gray et al. 2013).

But reshoring can also mean a reallocation of offshore activities by placing them somewhere near home base. To reshore can be viewed as bringing business operations back home but it does not have to be the case. Relocating production

activities (previously off-shored in a relatively distant country) to a third country within the firm's home region cannot be called bringing these activities back home. In this paper we will use two terms. We define reshoring as bringing offshored activities back home, whilst moving offshored activities to countries near the home base will mean near-reshoring for us. We will not call near-reshoring those relocation activities that take place outside the region; they are defined as off-shoring relocations.

Reshoring, such as offshoring or outsourcing in general, is one of the relocation strategies. As an inverse process in relation to offshoring, reshoring can be treated as the de-internationalization; a decrease of company involvement in foreign markets (Welch and Luostarinen 1988), taking the form of either voluntary or forced foreign divestments (Calof and Beamish 1995; Benito and Welch 1997). But not all reshoring activities are divestments, as some relocations regard already externalized activities, already performed by suppliers (see e.g. Fratocchi et al. 2014). Reshoring can also imply investments in the reshore location, providing it is incorporated into the company value chain.

2.2 Drivers of Reshoring

Reduction of operations costs, risk minimazition, access to new markets, vicinity to key customers, access to new knowledge and the search for superior tax incentives and subsidies are amongst the most important motives of reshoring. According to A.T Kearney's report (Van den Bossche et al. 2015), the main reasons for bringing production home in the companies surveyed are: delivery time improvement (23%), quality improvement (21%), freight (15%), or wage cost improvement (15%). The other important reasons are: customer responsiveness (10%), improvement of image (15%), productivity (9%) and government incentives (8%). The BCG survey (Sirkin et al. 2014) on reshoring motives shows that the top three drivers are: (1) the need to shorten the supply chain, (2) a reduction of shipping costs and (3) being closer to customers. According to Kinkel (2012), the dominant motive for relocating production back or near home is the expected labour costs' reduction. The reshoring drivers are quality problems in offshore production plants, followed by the lessening flexibility of offshore firms, on time delivery problems and rising labour and coordination/monitoring costs (Kinkel 2012, p. 706).

The decision to reshore can be a result of either internal or external constraints, both being push or pull factors. Pull factors include the diminishing costs of business operations at home, free production capacity or the escape from intellectual property theft (see e.g. Tate 2014). The driver can also be to regain/win more share in the home markets, regain/make use of access to emerging local know-how or other resources. Push factors at the offshore locations include rising production costs and risks, quality problems stemming partly from monitoring costs, or the limitations of labour competency in the offshore country (Kinkel 2012). The American Reshoring Initiative devides reshoring reasons in a similar way: into

positive (why to reshore) and negative (why not to offshore). As their analyses show (see Reshoring Initiative 2016a, b), the most frequent positive grounds for reshoring are home government incentives (251 cases reported), followed by skilled local workforce availability (148 cases) and the shorter lead time to market (146 cases). The most popular reasons for refraining from offshoring are a combination of growing risks and costs in the offsore locations (quality problems—133 cases; freight costs—117; rising wages—87).

As many of reshoring drivers stem from growing costs and risks of offshoring; many can perceive it as a trial to compensate losses caused by miscalculation of benefits, costs and risks of offshoring (see Gray et al. 2013; Ancarani et al. 2015). But in a long term extrinsic factors dynamically change the results of many cost/risk calculations. Even optimal business solutions for the time t1 prove to be sub-optimal at the time t + N, and—as not every type of resource (including business network relationships, organizational knowledge etc.) can be transferred or replaced—these sub-optimal solutions pertain. The physical and mental distance between the offshore location and the home country implies costs and a risk of monitoring and coordinating offshored activities, regardless of whether they are outside or within the companies' value chain. Not only the costs of managing offshore suppliers but also those arising from corruption or losses connected with losing intellectual property or damaging customer relationships through late delivery or poor quality should be taken into account but their precise estimation seems a challenge. As political instability rises within a region but not necessarily in the offshore country itself but along the transport route, the associated risks and costs rise, as well as the cost of transportation, despatch, administrative duties, inventory or potential product damage, late or non-delivery.

Taking the network or resource based perspective; companies offshore their activities in order to join networks and gain access to the resources of foreign partners or to develop their own resource base. Coming back home with some value chain activities suggests that either: (1) the benefits embedded in these offshore networks and the value of resources (used by the networks in question) vanished, diminished or no longer prove globally valuable, competitive; (2) the potential benefits of joining some new, domestic networks/alliances seem more beneficial. In both cases the costs of staying within the offshore networks outweigh expected benefits but with different grounds for reshoring activities. In the first case the comparative competitive advantage of the offshore location deteriorates (e.g. due to rising labour costs, an increasing tax burden, tightening of regulations, etc.), whilst in the second the home base gains in attractiveness.

2.3 Political Resonance of Reshoring

Reshoring has attracted growing attention as a goal of public policy in the Western world. The political debate on reshoring is visible especially in the United States where this phenomenon raises high hopes (The Boston Consulting Group 2013,

recent statements of President Trump, see below). This topic is also raised to a lesser extent in Europe (Leibl et al. 2011), which could be due to the smaller presence of European companies in China than those from America. Since reshoring is closely related to the investment attractiveness of countries political actions directed at its improvement have particular importance in this context (OECD 2011).

In the USA reshoring has already become an important economic development strategy (Parkins 2015; Nash-Hoff 2016). Organizations such as the International Economic Development Council (IEDC) or Reshoring Initiative not only analyze reshoring drivers or show the diverse of costs that companies with offshore locations seem to overlook, but also focus on „helping manufacturers to recognize their profit potential and the critical role they play in strengthening the economy by utilizing local sourcing and production" (see http://www.reshorenow.org). IEDC received a grant from the U.S. Economic Development Administration to spread awareness of reshoring trends, tools and resources, in order to ease the process of returning home. Financial and alternative incentives for companies that reshore their activities back home have already been developed and are in use. These are state or local tax breaks, low interest loans, grants directed to business together with workforce development plans, real estate availability, research, networking and promotional support or infrastructure improvements (Crater et al. 2015).

Reshoring is also an important part of D. Trump public announcements. For example, he justifies the cancellation of Ford's plans to build plant in Mexico as a partiotic act (The Guardian 2017) and promises a set of financial incentives to those companies who reshore their activities back to US (Toloken 2017) which is a superfluous declaration as these incentives have already been introduced and work quite well. The populistic undertone in such statements is clearly visible[1] and represents reshoring activities as patriotic symbols.

Reshoring is also promoted (but not so ostentatiously as by D. Trump in US), in the European Union. According to the European Economic and Social Committee "*The EU's current industrial policy aims to improve the existing legislative framework and increase the competitiveness of businesses*" (Iozia and Leirião 2014). The flagship initiative "*An Integrated Industrial Policy for the Globalization Era*" (EC COM 2012) together with "*European Industrial Renaissance*" (EC COM 2014) defines the plans for European Union reindustrialization. Complementary with these rules some countries undertook unilateral initiatives in order to support reshoring (and hence reindustrialization). The British Government proposed a 245 million GBP fund to help rebuild British manufacturing prowess and additional financial resources under the "*Advanced Manufacturing Supply Chain Initiative*" (Ernst and Young 2015). The Dutch Government proposed a vision for domestic companies to come back, with a strong emphasis on creating a competitive business

[1]The term "populism" is used here in a negative sense. According to Economist (July, 4th, 2016): "*Trumpism looks set to earn its own dictionary entry: An unpleasant but often politically successful mix of populism, nativism and xenophobia, delivered with a dollop of cynicism*".

environment instead of offering direct financial support (De Backer et al. 2016). Similar actions are implemented in other countries as well. Although up until now the European Union has not been focused on reshoring as such, the current policy of reindustrialization aims at boosting industrial innovativeness, productivity and the quality of goods manufactured in the EU by implementing a set of different incentives. Such an industrial policy may improve the competitiveness of EU which could intensify the reshoring trend. The EU institutions have some measures to assist but many things depend on the internal policy of individual member countries.

Last, but not least, one of the important trends that seem to reinforce reshoring activities is the global rise of populism, clearly visible both in mature (such as US) and still catching—up economies (such as Poland). Bringing manufacturing back home serves in such rhetoric (of external enemies and poor and pure citizens and local enterprises longing for protection) as the new, veiled form of protectionism, where both purchasing local goods and producing them locally is announced as a patriotic act contributing to the economic development of the home country. Populism can be perceived as creating a normative pressure that boosts consumer ethnocentrism (CET). It may well enhance the general proclivity of buyers to prefer domestic goods over the foreign ones, serving then as an enduring form of non-tariff barrier (Shimp and Sharma 1987). As Shankarmahesh (2006, p. 147), notes: "*CET can be institutionalized in the form of an informal government procurement policy that unduly favours domestic companies*" (see also Kotabe and Helsen 1998).

Even though some empirical evidence on the positive correlation between the level of patriotism and CET was stated (Sharma et al. 1995; Han 1988; Klein and Ettenson 1999), there are also some contradictory findings (Bannister and Saunders 1978) implying that we should rather distinguish between patriotism (as an attachment to the homeland) and a "misplaced patriotism", that boosts CET. The latter term refers to the portrayal of reshoring in populistic announcements as an act of patriotism.

The level of CET is also related to the stage of economic development. According to Schuh (1994) in the early stages of transition towards a market economy (which was the case of CEE countries) there will be a general consumer preference towards foreign products (of a Western, more developed country of origin). Along the upward movement, at the intermediate stage of economic development, CET increases. The consumer experiment with clothing by Good and Huddleston (1995), conducted in Poland and Russia proves this.

This leads us to hypothesize that:

H1: In Poland, a country in an intermediate stage of economic development, presently affected by the new populist wave, there will be a strong notion of CET, reflected in both entrepreneur and consumer attitudes towards locally manufactured goods.

H2: Due to populistic promises (i.e. to protect local companies from the foreign competitive gamesmanship) there will be a strong expectation from Polish companies to provide financial incentives to undertake reshoring activities.

2.4 The Characteristics of the Global Apparel Industry

The apparel industry (i.e. ready-made clothing) is characterized by low capital intensity and the high intensity of labour (Keane and Velde 2008; Nordas 2004). It is one of the oldest, most global (Dickerson 1999) and geographically de-fragmentized sector in the world that fully utilizes global free trade advantages through global sourcing and offshoring. It was the production and export of garments that boosted East Asia's early export growth (Bonacich et al. 1994; Gereffi 1998, 1999) and which has later been upgraded to a full-package model of commercial subcontracting (Bair and Gereffi 2003).

The global apparel and footwear market is now worth $1.7trn, having grown by 4% in 2016, and with a strong growth of 7% yearly (from 2013) in sportswear (Roberts 2017). The average annual growth rate of this sector is 5%.

The number of people employed globally in this sector has risen dynamically over the last 20 years. In 1990 there were 14.5 million employees in the apparel manufacturing, whilst in 2014 more than 24.8 million worked in this sector. All together the textile and clothing sector grew from 34.2 million employees in 1990 to 57.8 million in 2014 (Fashion United 2017). But these people are mainly employed in Far Eastern countries. China is the largest exporter of apparel in the world, followed by India, Italy, Turkey and Bangladesh. These five largest exporters supply 54.4% of the total worldwide trade in apparel, with China alone accounting for 36.5% (Fashion United 2017).

However this considerable production concentration in cheap labour countries does not mean that the textile and apparel sectors had difficulties derailed in European economies. Quite the contrary; EU exports represent more than 30% of the world market whilst the EU Single Market is also one of the most important in terms of size, quality and design. However, small and medium enterprises are still at the core of the industry in the UE, representing 99% of the 175,000 companies. These companies directly employ 1.69 million workers. 86% of companies have less than 9 employees. Women constitute 70% of all employees in the sector (Euratex 2016).

Table 1 shows the global distribution of value in the whole textile, apparel and leather products sector.

Even though the data in Table 1 clearly indicate that the trend of shifting production towards emerging industrial economies is growing, there is also a visible, although relatively moderate rise, of production in other developing economies, which may be a sign of an emerging near-reshoring activities to this part of the world.

Table 1 Distribution of value added in the world—selected divisions and years (%)

Division/year		Industrialized economies							Developing and emerging			
									Industrial economies[d]			
		All	Europe		East Asia	West Asia	North America	Others	All	Emering industrial economies[c]	Other developing economies	Least developing countries
			EU[a]	Other[b]								
Textilies	2005	49	17.8	1.3	10	0	18.7	1.4	51	42.5	6.8	1.5
	2010	34	13.6	1.1	7.3	0.1	10.7	0.9	66	56.5	7.2	2.6
	2014	28	11.2	1	6.4	0	9	0.7	72	61.2	7.2	3.3
Wearing apparel	2005	46	21.2	1.4	11	0.4	9.9	1.6	55	46.1	5.9	2.5
	2010	32	16.5	1.4	7.8	0.5	4.3	1.1	68	57.9	6.1	4.4
	2014	24	12.4	1.3	5.7	0.5	3.4	0.9	76	63.4	6.2	6.3
Leather and related products	2005	49	34.5	1	7.9	0	4.2	1.2	51	46	4.7	0.5
	2010	36	25.6	1.2	5.5	0.1	3.1	0.8	64	58	5.1	0.6
	2014	32	22.7	1.1	4.4	0	2.7	0.6	69	62.7	5.2	0.6

[a]Excluding non-industrialized EU

[b]Andorra, Iceland, Lichtenstein, Monaco, Norway, Russian Federation, San Marino, Switzerland

[c]Including China

[d]Including Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Georgia, Greece, Latvia, Montenegro, Poland, Republic of Moldova, Romania, Serbia, The former Yugoslavian Rep. of Macedonia, Turkey, Ukraine

Source Own compilation based on UNIDO (2016)

The value added within the chain in the textile and apparel industry is a typical "smile curve", where sewing and finishing remains labour-intensive and creates relatively the smallest/small portion of value monetized by all participants within the chain. Most value in the apparel sector is added at the initial (planning, design) and retail stage with branding and marketing playing the crucial role (Goto 2012; Kaplinsky 2005). In these "buyer-driven chains", big brand owners and retailers from developed countries coordinate manufacturing in developing countries (Gereffi 1999; Gereffi and Frederick 2010; Goto et al. 2011; Schmitz and Knorringa 2000). But this coordination seems to be more and more challenging in order to meet "fast fashion" requirements. Supply chains in the apparel sector have been vastly reconfigured, as rapid and frequent shipments of small amounts are now required due to more collections in a season. Suppliers close to the market are used to producing trendy, "fashion" items, whilst long-distance, offshore manufactures produce cheap, "capsule" clothing with a stable forecast. These shifts are accompanied by a global consolidation of suppliers; big, agile enterprises that not only cut and sew w garments, but source materials, coordinate logistics, design and rapidly deliver on time (Staritz 2012; Pickles et al. 2015). These suppliers can either be original equipment manufacturers (OEM), or further intergrate design functions (ODM) or even undertake marketing and branding activities (becoming original brand-name manufacturers—OBM). What is also interesting to note is that many ODM suppliers from Japan, Korea or Hong Kong tend now to offshore intensive assembly functions to cheaper labour force countries and reposition themselves into OBM companies (Fukunishi et al. 2013).

The radical transformation of the apparel sector has also been the case in EU countries. The mass production of simple products is being reduced with the expansion of more higher value-added products being offered on the market. High-end specialisation, flexibility and the development of innovative products (e.g. technical textiles) has to be continued in order to build the competitive power of EU industry worldwide.

According to Mehrjoo and Pasek (2015) the apparel industry utilizes three different generic competitive advantages: cost advantage, speed and brand equity. The composition of these competitive factors determines the segment of consumers and the marketing strategies of companies in the sector. Cost advantage is a major component of company strategies competing in a mass fashion segment. Global retail fashion brands (Kmart, Tesco, Wallmart, Lidl) are good examples of cost optimization. A constant search for the cheapest production locations in the world is then one of the major business concerns. Speed mainly characterizes the so called fast fashion; where a quick response to changing consumer taste goes in line with cost—efficient, globally dispersed yet agile supply chains.. The more the upper segments of consumers are served by the companies, the more brand equity plays the central role in creating the value pie offered on the market. However, going up market does not make brand owners drop their cost optimization efforts or narrow their consumer' base.

Taking the above into consideration, we hypothesize that:

H3. Poland (with its relatively cheap labour force and highly skilled workers) serves as a cost effective near-reshoring location to the high end brand owners from France, Great Britain, Germany. Location proximity and production of trendy premium apparel reduces the quality coordination problems and diminishes the cost of frequent shipments and late delivery risks.
H4. The Polish apparel industry is in the intermediate stage of development. Both labour intensive production (provided mainly by small and medium enterprises) and a repositioning to OBM (being the case of large apparel companies) is visible.

2.5 Customer Perception of the Value Chain and Its Impact on Reshoring Activities

Business operations do not only deliver positive value for both companies within the supply chain and their customers (as the value chain perspective suggests, see Porter 1985), but also generate a certain amount of harm (see Polonsky et al. 2003). The same supply chain generates both benefits and costs; although not necessarily the same groups are equally affected by both. A steady stream of new products and effective marketing campaigns stimulate consumer demand. Global volume consumption of apparel accounted for over 100 billion garments in 2015, this is twice as much than in 2000 (Euromonitor International 2016). According to estimates, by 2015 the global apparel industry produced around 400 billion square meters of fabric. These fabrics are produced from nearly 100 million tonnes of fiber and filament yarns. About 40% of which are agriculturally derived and 60% synthetic (Gugnami and Mishra 2012). The effect of high consumption is the pollution of the planet by the usage of great amounts of chemical products (a quarter of the chemicals produced in the world are used in textiles) and natural resources (the textile industry uses more water than any other industry apart from agriculture). The apparel and footwear industry is the second biggest polluter of freshwater resources on the planet (Conca 2015). Around 10% of global carbon emissions result from fashion industry. There is also the issue of fabric waste (around 15% during the production process of clothes) (Rehman 2016). Despite considerable volume consumption in markets such as Germany and France, recycled textile waste, which includes worn clothes, remains relatively flat (the only exception is the UK) (Euromonitor International 2016).

The continuous endeavour to lower costs in this sector results also in shameful examples of human rights violation and violence in offshore sweatshops (see e.g. Rouge 2016; Zwolinski 2006; Wöhrle et al. 2016). The search for lower costs of manufacturing also entailes the loss of employment in both the European and American textile and clothing industries. For example, in the period of 2006–2015 employment in the European Union (EU) declined in fashion-related industries:

from 2.6 mln to less than 1.7 mln employees (around 1 mln in clothing and in 0.635 mln in textiles) (Euratex 2016), which results in unemployment for the low skilled, mainly feminine workforce.

With a growing expectancy for companies to become socially committed, not only in areas that are related to their businesses (e.g. Matten and Crane 2005; Young 2004), enterprises have to re-consider the composition of their supply chains to address this issue and demonstrate their responsible and caring face to the public. Sustainability awareness is a sign of consumer reaction in a post-modern society, where individuals not only weigh up, but also actively react to environmental hazards, violations of human rights or bad working conditions in the third world (Giddens 1991; Dupuis 2000; Tallontire et al. 2001). Many empirical findings demonstrate that these reflexive, ethical consumers tend to be rather middle-aged and from the higher income and well educated group (Roberts 1996b; Carrigan and Attalla 2001; Maignan and Ferrel 2001).

Environmentally responsible, sustainable activities create and present an additional, ethical value for the customer and reshoring is one of the ways to build and communicate this. As Ashby (2016) proves in her empirical case study analysis, the reshoring of previously offshored processes can enable greater supplier control and more visibility (see also Caputo and Palumbo 2006).

Sustainability and credibility is one of significant attributes associated with a brand (see e.g. Clark 1987; Thakor and Kohli 1996). Both characteristics are connected with the perception of the country of origin. Many global firms highlight the national origins of their brands and treat this information as the quality, heritage, competence and high social standards indication (Balabanis and Diamantopoulos 2008; Money and Colton 2008; Oetzel and Doh 2009). The more premium the brands, the more frequent and more important is the usage of a country of origin tag in the communication strategy (see e.g. Chevalier and Mazzalovo 2008; Calori et al. 2000; Shukla 2011).

Numerous studies have proven, that the country of origin has a considerable influence on the quality perceptions of a product amongst both consumers and within B2B buyer—seller relations (see e.g. Bilkey et al. 1982; Roth and Romeo 1992). The empirical evidence also shows, that LDCs (Least Developed Countries) are considered to be both more risky production destinations and lower quality producers (see e.g. Gaedeke 1973), but for many buyers (both consumers and business purchasers) the country of origin bias can be offset by price concessions (see e.g. Schooler and Wildt 1968; Hampton 1977; Haakansson and Wootz 1975).

Even though ethically engaged consumers feel responsible towards society (Vermeir and Verbeke 2006; De Pelsmacker et al. 2003), they do not necessarily fully transform their attitudes to purchasing decisions. The ‘attitude and behaviour gap’ between consumers declarations and actual purchases in the area of green, fair trade or goods with a “sustainable production” label has been widely evidenced (see e.g. Hughner et al. 2007; Vermeir and Verbeke 2006; Boulstridge and Carrigan 2000; Roberts 1996a, b).

Taking the above into consideration, we hypothesize the following:

H5. Poland as a country of origin will be a sign of a good quality for consumers, due to relatively high environmental standards and human rights and labour protection (in comparison with Far East offshore apparel production locations).
H6. The more educated the consumers, the higher will be their willingness to pay more for locally produced goods.
H7. The more affluent the consumers, the higher will be their willingness to pay more for locally produced goods.
H8. The age of consumers is positively correlated with the preference of domestically produced apparel over the foreign production.

3 Method

In this chapter we analyse the grounds for the emergence and future growth of reshoring activities in Poland. To do so we combined different methods of research, such as:

- statistical macro data analysis (in respect of the dynamics and structure of the Polish apparel and footwear industry),
- short case study analysis (exemplifying the near-reshoring and reshoring grounds and development),
- an analysis of the preliminary results of an e-survey (e-questionnaire) directed to more than 1800 Polish apparel and footwear companies about: the level of economic patriotism represented by Polish apparel and footwear companies, major production motives and reshoring by the companies from those industries,
- an analysis of the preliminary results of a printed questionnaire directed to 600 Polish consumers about their level of ethnocentrism, knowledge about Polish brands and perception of reshoring activities in the apparel and footwear industry in Poland.

The statistical sources for the analysis of the Polish apparel industry dynamics and structure come primarily from the Central Statistical Office (Poland), The European Apparel and Textile Confederation (EURATEX), Euromoney Institutional Investor plc (EMIS) and MarketLine Research Reports. The case study data are drawn from a search of newspaper and the Internet data, industry websites and branch magazines. We used keywords indicating the return of Polish apparel/footwear companies and revival of the Polish apparel industry.

The questionnaire conducted amongst businesses and consumers used Likert's 5-level scale: (1—strongly disagree and 5—strongly agree). The data obtained in the course of the research procedure were statistically analysed with the use of IBM SPSS Statistics program. Spearman's rank correlation coefficient was used to analyse the strength of the relationship between variables.

The e-survey among Polish apparel companies was conducted in January 2017 amongst 1800 companies from the apparel and footwear industry in Poland. Before the survey was distributed five open semi-structured interviews had been conducted in order to build the questionnaire content. The questionnaire pre-tests were done amongst 10 apparel companies. The invitation to participate in the survey was distributed twice with an interval of one week.

The research amongst the consumers was conducted between December 10, 2016 and January 10, 2017. We received 426 completed questionnaires. The sample was very diversified in respect of the respondent's sex, age, income and education (see Table 5). Young people aged 18–35 constituted the vast majority. The average disposable income per month was quite low or average (up to 4000 PLN). The monthly net income of 6% of the respondents was 8000 PLN. The sample was quite diversified as far as education is concerned, however people with elementary and vocational education and with a Ph. D accounted for 3% of the respondents.

Below we firstly comment briefly on the structure and dynamics of the Polish apparel industry where we separate and analyze three stages of industry evolution during last 25 years: the fall of a giant, vestigial existence and rejuvenation. Then we elaborate on several case studies: examples of near-reshoring and reshoring, that have taken place in the Polish apparel industry. The next subsections of findings and discussion are devoted to the analysis of the surveys conducted amongst Polish apparel companies and Polish consumers.

4 Findings, Discussion

4.1 The Evolution of the Polish Apparel Industry and the Emergence of Reshoring and Near-Reshoring—Statistical Analysis and Anecdotal Evidence from the News

Poland served as an important offshore basis for many western apparel and footwear companies in the late 80s and early 90s, then lost the cost battle against Far Eastern production plants and now once again has become the popular offshore location for many textile premium and luxury brands. This evolution went along with a fast economic development of Poland and the growing purchasing power of local consumers.

After 1989, together with a revolutionary political and economic transformation of the country, the Polish textile, apparel and footwear industry, (being a substantially important sector in the economy thus far), suddenly collapsed. The grounds for this deterioration were a breakdown of exports to Eastern markets, difficulties in finding new export partners in western markets and a drastic decline of domestic demand. The Polish market was flooded with cheap apparel from

Turkey and China and the introduction of liberal economic rules (with no help for state-owned companies to adjust to a new situation) only expedited the bankruptcy of many companies in the sector. The massive sale or liquidation of assets, resulted in a more than 40% decline in production and numerous lay-offs (Lachiewicz and Matejun 2006).

As a response to this sudden collapse the slow re-industralization process began with the aim of reviving and re-modelling the industry into a more innovative sector, capitalising on the newest advances in technology and the creativity young designers.

Table 2 shows the dynamic changes in the number of enterprises, investment outlay and revenue.

Table 2 Economic entities, employment, investment outlay and revenue from the total activity of enterprises

	1985	1990	1995	2000	2005	2010	2014
	Employment (thousand people)						
Manufacture of textiles	351.8	285.9	184.8	101.7	58	49.7	45.1
Manufacture of wearing apparel	192.9	153,8	297.6	237.7	150	94.5	76.3
Manufacture of leather and related products	140.4	117.8	91.6	53.9	29.2	30.2	22.4
	Economic entities						
Manufacture of textiles	1619	–	–	–	3506	4699	5072
Manufacture of wearing apparel	3183	–	–	–	20,336	14,702	12,908
Manufacture of leather and related products	3010	–	–	–	4696	3210	3222
	Investment outlay (mln zl)						
Manufacture of textiles	–	–	320.2	424.5	397.2	257.8	458.1
Manufacture of wearing apparel	–	–	231.3	247.7	376.4	171.0	177.9
Manufacture of leather and related products	–	–	78.5	136	108.0	142.6	174.7
	Revenue from total activity (mln zl)						
Manufacture of textiles	–	–	5062	8021	6973.1	7231.7	9562.0
Manufacture of wearing apparel	–	–	3088	9545	5628.8	5059.7	4818.9
Manufacture of leather and related products	–	–	1838	3371	2020.0	2371.0	3785.6

Source Central Statistical Office (Poland)

The three sub-sectors employ over 180,000 people, which constitutes 6% of the total working population in Poland. With more than 18,000 firms operating in this sector, Poland is ranked second in the EU behind Italy (Euratex 2016) and the third as far as the number of employees is concerned (behind Italy and Romania) (Euratex 2016). The manufacture of textiles, clothing and leather products (with footwear being the largest in the sub-category), is responsible for 0.6% of the total gross value added (GVA) in the Polish economy (EMIS 2016).

Labour costs in Poland are relatively small, with the productivity indexes rapidly rising, what makes it an attractive subcontracting location to many industries (see OECD Labour productivity forecast 2017). As the average hourly labour cost in UE is about EUR 25.0 (excluding agriculture and public administration), significant differences between EU Member States still remain, with Bulgaria (EUR 4.1) and Romania (EUR 5.0) being the lowest hourly labour costs recorded and Denmark (EUR 41.3) the highest.

Nowadays Polish apparel and footwear brands compete successfully with foreign ones, with the two largest Polish players (LPP in apparel and CCC in footwear) having the biggest share in both domestic segments. From year to year the market is becoming more consolidated; 15 major retailers generate 47% of sales in the apparel sector and 10 footwear companies have 41% in the market. The largest segment of the apparel retail industry in Poland is womenswear (49.5% of the industry's total value) followed by menswear (35.9%) and accounts for 2% of the value of the European apparel retail industry (MarketLine 2015).

There are more than 40 well-known and very popular Polish fashion brands, but the majority of them offshore manufacturing to Far-Eastern destinations (Olejak 2015). The majority of manufacturing plants is found within Łodź province; a region historically being a home base of textile production. The companies with Polish capital, based there produce mainly small yardage goods with less than 10 employees, mostly women.

According to the forecast estimations done by Lewiatan (the biggest Polish entrepreneurs' association), if all Polish apparel and footwear companies brought their manufacturing back home it would have created more than 100 thousands jobs in the sector. But Lewiatan future estimations for the growth of the reshoring trend in Poland are very cautious; we can count on 2–3% yearly rises which should lead to approximately 4 to 6 thousand new jobs vacancies (Otto 2013). But slowly growing reshoring and a near reshoring trend is clearly visible. In Table 3 we present the evidence of reshoring and near-reshoring activities that were publicly announced in Polish newspapers, industrial magazines or on the companies' websites.

In spite of the fact, that economic grounds of both reshoring and near reshoring are the same (better quality, quicker response to the market), the usage of reshoring in the marketing campaings considerably differs among near-reshoring recipients and big Polish contractors, transferring offshore activities to local suppliers. While reshoring is readily and widely communicated by Polish brand owners, both near reshoring cases and the respective local outsourcing contracts remain either confidential or are at best barely tracked down as the public announcements.

Table 3 Examples of reshoring and near reshoring activities in Poland

Company name	Type of operational distribution	Declared grounds/drivers	Nature of activities	Source of information
Kastor S.A.	Near—reshoring recipient	Flexibility, fast response to clients' supply requirements and high quality of production combined with relatively low labour costs	Repair activities, replenishment of highly demanded, quickly sold collections that are offshored and produced in bulk in China. Supplier to German, French, British, Dutch, Belgian and Danish premium apparel brand owners	Sudak (2013, September 5)
Łuksja sp. z o.o.	Near—reshoring recipient	High quality of production combined with relatively low labour costs	Supplier to many foreign premium and luxury brands (e.g. Burberry, Max Mara, Marc Aurel); dynamically expanding its scope of production and near reshoring services, but most of the contractors names remain secret	www.luksja.com.pl
Warmia S.A.	Near—reshoring recipient	High quality of production combined with relatively low labour costs	Supplier to such premium and luxury brands as: Hugo Boss AG oraz Bugatti GmbH, Dressler, Pikeur, Burberry	www.warmia.eu
Próchnik	Reshoring	quality and marketing grounds	Revival of local production; intensive marketing campaigns communicating bringing the whole production back home	www.prochnik.pl

(continued)

Table 3 (continued)

Company name	Type of operational distribution	Declared grounds/drivers	Nature of activities	Source of information
LPP	Reshoring	Labour costs rise in offshore location, currency fluctuations, need for a quick reaction to market needs	A steady, dynamic growth in repatriation of offshore production and its transfer to local suppliers (LPP does not manufacters internally, as it utilisses an integrator business model); replenishment of highly demanded, quickly sold collections that are still offshored and produced in bulk in China. 17% of apparel for upper, but still mass—fashion brand (Mohito, belonging to LPP) is produced back home now	(Kapiszewski and Mayer 2015, Forsal.pl, 24.10.2013)
CCC	Reshoring	Labour costs rise in offshore location, marketing grounds	A steady, dynamic growth in repatriation of offshore production and its transfer to local suppliers (30% rise of this trends in comparison with 2012)	(Kapiszewski and Mayer 2015, Forsal.pl, 24.10.2013)

Even though we can not fully prove our hypotheses 3 and 4 (as the evidence is anecdotal) we observe that Polish companies become cost and quality attractive near shore suppliers to many high end brands from more economically developed (and than more expensive in terms of labour costs) EU countries. Location proximity, agility and a high quality of production seem to be the main drivers of near reshoring and reshoring activites in Poland and they are already a growing trend. We can also claim that the Polish apparel industry is in the intermediate stage of development. Labour intensive production (provided mainly by small and medium enterprises) serves both to foreign brand owners or Polish brand owners (such as CCC, LPP), while many middle companies reposition themselves from labour intensive assembly functions (CMT) into more innovative, niche, premium brand owners.

4.2 E-Survey Results Amongst Companies in the Polish Apparel Industry

The empirical data were collected from 67 companies involved in the apparel and footwear industry in the year 2017 (the online questionnaire response rate accounted for 4%). The sample characteristic is presented in Table 4. The analysed companies were micro, small and medium size entities, which accounted for 97% of the sample. The majority of the analysed companies are involved in the apparel, footwear and clothing accessories industry; however, some of the entities were at the same time involved in value added activities such as packaging, distribution or trade/retail.

As for the ownership structure of the companies Polish capital (89.5%) was prevailing, foreign capital was involved in 3% of the companies and mixed capital (foreign and local) in 7.5% of the researched entities. The major recipients of almost 2/3 of the analysed companies are their business clients and 34% of the entities target individual consumers. A bit more than 1/5 of the analysed companies sell their products solely in Poland, whereas for 37.9% of the companies the overseas markets are the main source of income (over 50%).

Table 4 Sample characteristics—companies

Criterion		Percentage (%)
No. of employed:	Up to 10	23.9
	Between 11 and 50	37.3
	51–250	35.8
	Over 251	3
Type of activity	Production of apparel/footwear/clothing accessories	91.0
	Production of accessories for the apparel/footwear industries	7.5
	Distribution/packaging/storage	7.5
	Trade/retail	26.9
	Other services in the apparel/footwear industries	10.5
Geographical scope of sale	Solely in Poland	21.2
	Up to 20% of income comes from overseas operations	30.3
	Between 21 and 50% of income comes from overseas operations	10.6
	Over 50% of income comes from overseas operations	37.9
Time of activity	Less 5 years	3.0
	Between 6 and 10 years	4.5
	Between 11 and 20 years	12.1
	20 years or more	80.3

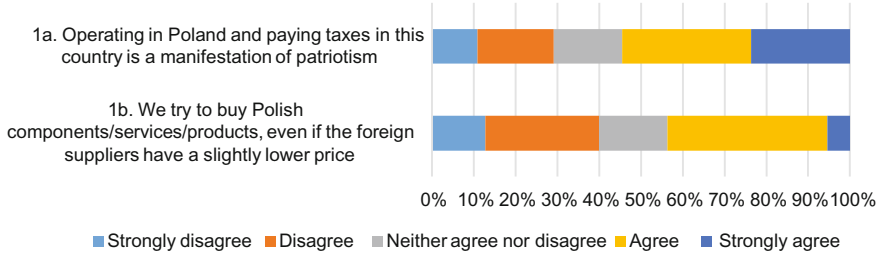

Fig. 1 Economic patriotism among Polish companies

More than a half of the analysed companies believe that their major asset is a decent price offered to customers (individual and business) for goods of decent quality. 17% of the companies use low price strategies, whereas 27% of the entities offer high quality products at quite high prices. One company in seven (15%) says that their main purpose is to meet the niche needs of the customers. Almost 86% of the analysed companies has never outsourced any production or manufactured anything themselves overseas. Within the last 5 years 8% of the companies have moved their manufacturing operations to Poland, whereas 6% have relocated some of the production overseas.

The responses to particular statements presented in the figures show the level of acceptance of a particular phenomenon/view: (strongly disagree—1 to strongly agree—5).

Firstly we examined the political and social undertone of operating in Poland; the level of "economic patriotism" among surveyed enterprises in order to see their propensity to reshore activities back to Poland and the possible existence of "patriotic motive" to do so. As we can see from the Fig. 1, the evaluation of the "economic patriotism" amongst the companies is not clear. The majority of the companies (54.5%) believe that their activity in Poland shows patriotism, whereas at the same time 1/3 of the companies (1a—3.38 on average) claim otherwise. On the other hand, the percentage of the companies which do not agree to buy Polish less price competitive components and services is relatively high (1b—2.98 on average). It may indicate that the companies are forced to use overseas suppliers because they operate in a highly competitive market. The data can also be interpreted in a way, that the companies might regard maintaining these operations in Poland as the as the patriotic act. Some informal mails, sent by respondents indicate, that Polish entrepreneurs (mainly small companies owners) consider themselves as patriots, because they still manage to run the business in this country, in spite of numerous administrative obstacles they encounter (mostly being number, frequency and awkwardness of regulatory changes).[2]

Interesting findings come from the analysis of the validity/legitimacy of production in Poland (Fig. 2). The level of acceptance of statements 2a, 2b and 2c

[2](See eg. World Bank Doing Business Report, 2016).

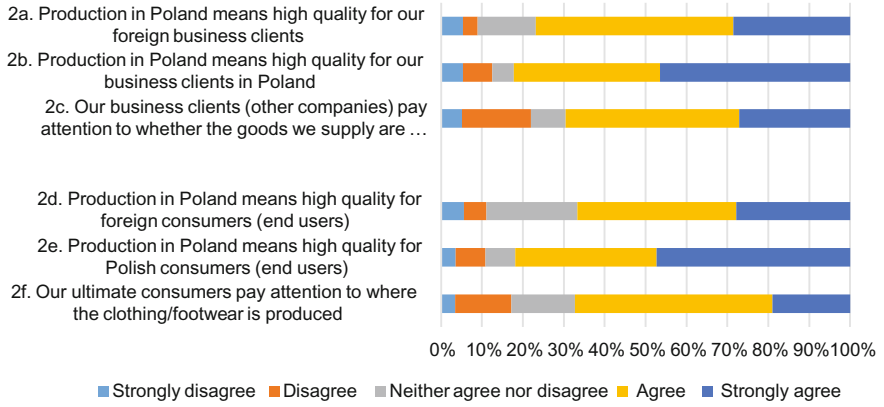

Fig. 2 Evaluation of the validity/legitimacy of production in Poland for business clients and end users. *Source* Own elaboration based on conducted empirical research

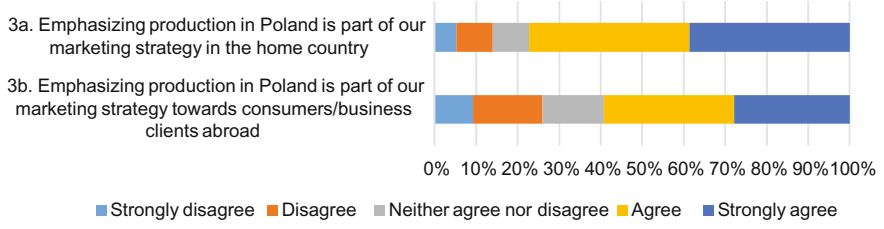

Fig. 3 Production in Poland and its impact on marketing strategy

refers to business clients, whereas 2d, 2e and 2f—the individual ones. The entrepreneurs believe that the production process in Poland guarantees high quality—both for the business recipients and end users. The vast majority of analysed companies are convinced that both their business clients (69.5%) and end users (67.3%) pay attention (agree/strongly agree) to where their goods are produced.

The perception of the production location is reflected in marketing communication practices of the Polish companies from the sample. Over ¾ of the analysed companies supplies information on the domestic market where the apparel/footwear is produced. Certain tools are used to measure it—social media, POS or product labelling (3a—3.96 on average). Poland as the country of origin is less emphasized overseas (3b—3.52 on average) even though it is perceived as positive by both business partners and foreign consumers It may result from the fact that Polish producers serve often as subcontractors for foreign premium brand owners, who rather tend to communicate their home base as the country, if not of origin, then of design (such as the tag—Designed in France) (Fig. 3).

The second part of the survey concerned the possibility to relocate the production process. The respondents evaluated the importance of four factors: quality,

marketing, risk and costs of reshoring possibilities for companies that realize (as captive offshoring or offshore outsourcing) their production outside Poland. The most often indicated factor (agree/strongly agree) was the high quality of production in Poland (49.1%—3.44 on average). The risk/unpredictability of production and its costs overseas are perceived as important by over 1/3 of the analysed firms (4b—3.18 on average; 4c—3.22 on average). What is particularly interesting (as far as the previous results are concerned), is the fact that the statement related to marketing has the lowest level of acceptance. Only one in four companies believes that this factor is an important cause of companies reshoring (4d—3.02 on average). The high percentage of answers: neither agree nor disagree may result from the limited production activity outside Poland of the analysed companies. The data also indicate that companies are more "resistant" to the political resonance of reshoring activities, as are consumers (see below). They regard the economic and risk drivers of such activities as more conducive than appealing to consumers' ethical and patriotic convictions. The results can also stem from the sample structure as the respondents are mainly small and medium enterprises, serving the B2B sector, having limited financial and marketing potential to effectively create and communicate their own, domestically recognized brands to the public (Fig. 4).

In the context of the above responses it is interesting to see the ratio of the companies to the type of the production that should be relocated to Poland. On average, one in four respondents believes that the companies which perform labour-intensive production should not relocate their production to Poland and 46.3% of the analysed entities think otherwise (5a—2.59 on average). At the same time the majority of the analysed companies (76.3%) believe that reshoring of Polish apparel and footwear companies should be supported by administrative and tax incentives (5b—4.16 on average) (Fig. 5).

But these strong expectations for an administrative support stay in contradiction with the interest and usage of the already provided incentives for this sector. National government programmes (e.g. INNOTEXTILE or the Clothing, Accessories and Leather Goods Trade Promotion Programme) turned out to be insufficient, which is reflected in a quite small number of reshoring instances in the

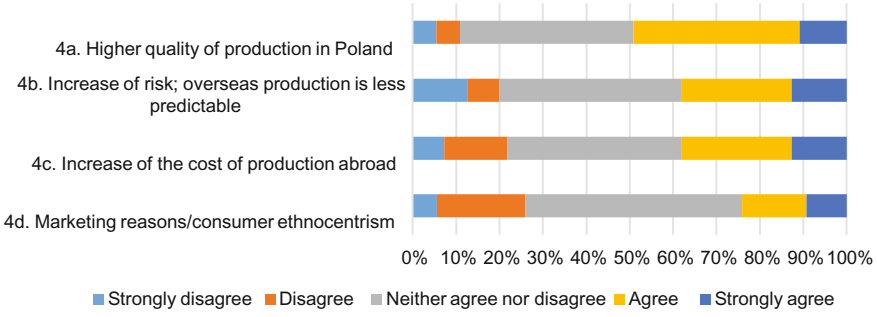

Fig. 4 Main causes of reshoring of apparel/footwear companies

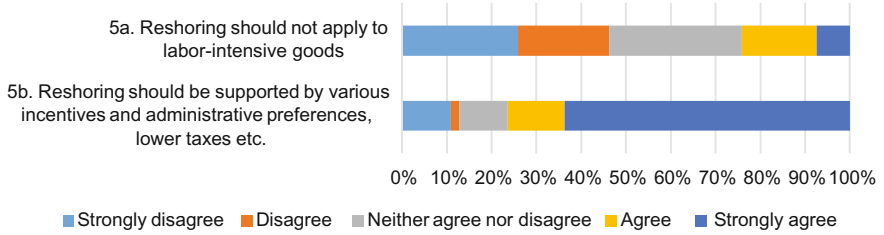

Fig. 5 Reshoring and the expected support from the authorities

business (bearing in mind the scope of production outside Poland). At the same time the respondents believe, that labour-intensive production reshoring makes sense against the prevailing offshoring trend at the turn of the 20th and the 21st centuries.

Expectations for financial and administrative incentives are now being fuelled by populism rise in Poland. Many companies may start expecting direct subventions to these companies, that would decide to bring the production back home (which is highly improbable to happen). In this sense, we claim our hypothesis 1 as positively tested, but cannot be related to the whole apparel industry in Poland (due to the small sample and its structure).

H1a: In Poland, a country in an intermediate stage of economic development, presently affected by the new populist wave, there will be a strong notion of CET, reflected in *both entrepreneur attitudes towards locally manufactured goods—approved.*

H2: Due to populistic promises (i.e. to protect local companies from the foreign competitive gamesmanship) there will be a strong expectation from Polish companies to provide financial incentives to undertake reshoring activities—approved.

4.3 Questionnaire Amongst Consumers in Poland

A questionnaire amongst consumers in Poland was a supplement to the research done on the companies. Our aim was to juxtapose consumers' and companies' views about reshoring perception and prospects of its' future growth. The research was focused on the following areas: (1) the level of "consumer patriotism"; (2) consumers' willingness to pay more for goods manufactured in Poland; and (3) consumers' familiarity with the Polish brands. Each area was analysed with the respondents' age, education and income in mind (Table 5).

The findings presented in Table 6 show the level of acceptance of a particular statement (the higher the score means the stronger acceptance). Polish consumers are characterized by quite high ethnocentrism and are willing to choose Polish clothes and shoes even if they can choose a similar product manufactured overseas. However this does not fully correspond to the declared interest (paying attention to)

Table 5 Sample characteristics—consumers

Criterion		Percentage (%)
Sex	Female	68.4
	Male	31.6
Age	Under 18	0.7
	18–25	51.5
	26–35	32.3
	36–45	10.0
	46–55	1.9
	56 and over	3.6
Average monthly nett income	Up to 2000 PLN	50.8
	2001–4000 PLN	33.1
	4001–8000 PLN	10.1
	8001–15,000 PLN	3.6
	15 001 and more	2.4
Education	Elementary	0.5
	Vocational	1.2
	Secondary	37.6
	Higher (B.A./B.Sc. or Engineer)	26.2
	Higher—M.A./M.Sc.	33.1
	Ph. D., Postdoctoral, Professor	1.4

Table 6 Polish consumers' enthnocentrism level

Statement	N	Average
Consumer's ethnocentrism		
1a. Buying goods (apparel, footwear, accessories) manufactured in Poland shows patriotism	426	3.43
1b. Should I have the option to buy Polish or similar overseas apparel brand, I choose the Polish one	426	3.61
1c. Should I have the option to buy Polish or similar overseas footwear, I choose the Polish one	426	3.59
Paying attention to the country of origin		
2. When shopping I pay attention to the country of origin	426	3.22
Willingness to pay more for the same goods manufactured in Poland		
3a. I am willing to pay about 10% more	426	3.06
3b. I am willing to pay about 15% more	426	2.71
3c. I am willing to pay about 20% more	426	2.37

in the country of origin, which turns out to be on the average level (2). The willingness to pay more for clothes and shoes manufactured in Poland is also quite high, even though the price sensitivity is clearly visible. 40.2% of respondents claim that they are willing to spend 10% more, yet if the price is 15 or 20% higher

Table 7 Relation of consumer ethnocentrism to income, age and education

Statement	Average monthly income	Education	Age
Consumer's ethnocentrism			
1a. Buying goods (apparel, footwear, accessories) manufactured in Poland shows patriotism	0.225**	0.207**	0.312**
1b. Should I have the option to buy Polish or similar overseas apparel brand, I choose the Polish one	0.268**	0.246**	0.378**
1c. Should I have the option to buy Polish or similar overseas footwear, I choose the Polish one	0.221**	0.238**	0.343**
Paying attention to the country of origin			
2. When shopping I pay attention to the country of origin	0.198**	0.217**	0.312**
Willingness to pay more for the same goods manufactured in Poland			
3a. I am willing to pay about 10% more	0.287**	0.271**	0.360**
3b. I am willing to pay about 15% more	0.276**	0.241**	0.336**
3c. I am willing to pay about 20% more	0.226**	0.208**	0.303**

Significance $**p \leq 0.01$ $*p \leq 0.05$ (bilateral), N—426
Source own elaboration based on IBM SPSS results

the consumers are not so enthusiastic (only one fifth declares, that they are ready to pay 20% more).

Table 7. presents relations between various variables (income, age, education) and responses results (presented in Table 6) with the use of Spearman's rank correlation.[3] In all seven analysed statements showing a positive correlation with the respondents' characteristics can be observed, even though the level of correlation is quite varied and comes from the weak correlation ($0.1 < |r| \leq 0.3$) to average ($0.3 < |r| \leq 0.5$). This means that the further up the scale we go of the analysed characteristics (average income, education, age) the higher the acceptance of particular statements.

The respondents over the age of 25 with an income higher than 2000 PLN declare purchasing Polish apparel, even when having an option to buy a similar one manufactured overseas, and the higher the income, the higher level of acceptance of this statement. The respondents with an income above average (over 8000 PLN), with a university degree and (as in case of ethnocentrism) over 25 years old pay special attention to the country of origin. 67.1% of the respondents aged 26–35 and 78% of the respondents aged 36–45 declare that they pay attention to the country of origin. In case of people under 26 the percentage is only 34%.

[3]We are aware that the correlation itself does not determine the causal relationship between two variables but it is one of its conditions (Babbie 2008, p. 547).

We can observe a similar tendency in the responses about the willingness to pay more for clothes and shoes manufactured in Poland. The majority of respondents who earn more than 4000 PLN is willing to pay 15% more for Polish goods. They are usually people with a university degree aged 25–45. These data allow to treat the following hypotheses as positively tested:

H5. Poland as a country of origin is a sign of a good quality for Polish consumers—approved

H6. The more educated the consumers, the higher will be their willingness to pay more for locally produced goods—approved

H7. The more affluent the consumers, the higher will be their willingness to pay more for locally produced goods—approved

H8. The age of consumers is positively correlated with the preference of domestically produced apparel over the foreign production—approved.

The research also verified Polish consumers' familiarity with the mass—fashion brands, in order to check the grounds for possible patriotic declarations, as we believe that the condition for active "patriotic consumerism" is the proper recognition of brands' country of origin. The questionnaire listed 19 Polish apparel and footwear brands—their names did not indicate directly the country of origin, however all of them are Polish (which does not always correspond to the place of manufacture).[4] Twelve brands are targeted both at male and female consumers, six are for women only and one—men only. All the brands have extensive retail chains in Poland. The consumers were asked to indicate whether the brand is Polish or not.

The average indicator of correct responses was 53.3% for all the respondents, however, there was a slight difference between men (55.5%) and women (52.2%). Only two out of all the analysed brands—4F and Reserved—were perceived as Polish by 4 in 5 respondents (80.6 and 80.2 accordingly), probably as the result of the brand's wide presence in the media (the owner of 4F is the sponsor of the national team).

Figure 6 shows the brand recognition in relation to the average monthly income, education and age of the respondents. The clear diversification can be seen in each analysed criterion. It is however surprising how low brand recognition is amongst young people. The presented data show that the higher the education and income, the higher the country of origin awareness. The relatively low familiarity amongst the group earning most refers to 2.4% of respondents, which may indicate, that these consumers preferably purchase premium and luxury brands and have a limited awareness of Polish mass—fashion apparel.

The findings of the research show that Polish consumers present a moderate level of "consumer patriotism", and when they have an option to choose between two similar products: one produced in Poland and the other one overseas, they more often pick the local product. At the same time we can observe the relatively high price sensitivity which is to some extent related to the moderate level of income

[4]4f, Americanos, Big Star, Carry, Cropp, Diverse, Gatta, GinoRossi, House, Lavard, Medicine, Mohito, Monnari, Outhorn, PrettyOne, Reserved, Sinsay, Solar, Tallinder.

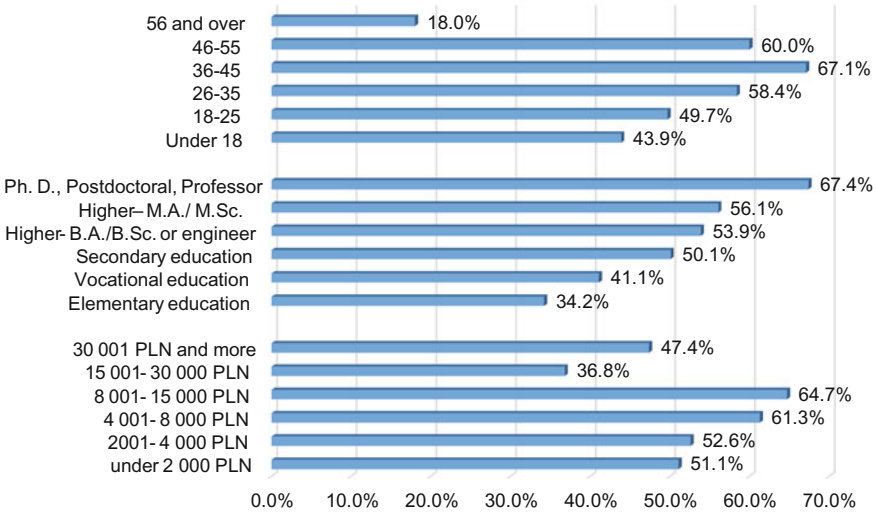

Fig. 6 Brand recognition in age, income and education groups

amongst consumers. Due to visible ethnocentrism, the consumers are willing to pay slightly more for apparel and footwear manufactured in Poland.

Taking above into consideration, we can certainly claim that there is a strong notion of CET in Poland, reflected in consumer attitudes towards locally manufactured goods (see H1). However, indicating that a high CET among Polish consumers is a clear result of latest populism rise, would be an overuse. It might be the case, that the populistic undertones, although widely visible in Poland, only strengthen already high and strong CET among Polish consumers, as a recognized feature of the intermediate stage of country' economic development (see Good and Huddleston 1995).

5 Conclusions

The research presented in this paper contributes to the existing literature studying the reshoring phenomen in the following areas.

Firstly, we demonstrate, that reshoring can emerge and spread not only in highly developed, mature economies (UNCTAD 2016), but also in a country at the intermediate stage of development and serve as an indicator of the effective catching-up process.

Secondly, by analysis of reshoring activities in the Polish apparel and footwear sector we clearly demonstrate that a careful distinction between reshoring types (such as near-reshoring and back-reshoring, see Fratocchi et al. 2014) is crucial to the

understanding for the grounds of their emergence, development and consequences for host country economies at different stages of their economic development.

Thirdly, apart from the economic or managerial perspective we propose an analysis of reshoring phenomenon from a political point of view as it helps the understanding of the interconnections between global and local political tendencies (such as the rise of populism) and their impact on consumer behaviour and companies' reshoring activities.

Lastly, we show how both the industrial settings and the consumer attitudes towards either sustainable and/or patriotic consumption can boost or suppress reshoring activities.

Recent reshoring activities in Poland can be treated as early bird signals of future economic maturity but with a long road ahead. Both reshoring and near reshoring activities co-exist in the Polish apparel sector although the industry serves mainly as the near—reshoring location (as it attracts foreign, mostly EU premium and luxury brands) with back reshoring activities still lagging behind. There is also a great difference between Polish local market leaders and the vast group of small firms serving as low cost production providers. The first ones, being big OBMs or brand owners without their own production facilities, undertake reshoring activities and outsource the production to local suppliers. The grounds for such a repatriation are mainly rising costs and risks in the offshore locations combined with the need to quickly respond to the domestic or neighbouring foreign markets.

As the reshoring growth is appreciated by both highly and moderately developed economies (as it is perceived as one of methods to restore traditional sectors), the political reinforcement of such a trend is both probable and expected by companies. Not only financial and administrative incentives would help this trend to grow, but also the new wave of populism, that is currently sweeping across the Western world (including US, Poland, Hungary, etc.).

Reshoring can serve as a veiled form of protectionism and populist announcements only create a normative pressure and enhance consumer ethnocentrism (CET). The findings suggest that Polish consumers are prone to patriotic, somewhat populistic ideology. The local manufacturing and purchases of products that are "made in Poland" are regarded both by companies and consumers as a patriotic act (that can further lead to the propping up of the local economy), but the consumers' willingness to pay more for this kind of production is still quite low, mainly to their limited purchasing power. If we additionally take into account the "attitude/behaviour gap" (Moraes et al. 2012; Perry and Chung 2016), treating a strong CET as the major premise of reshoring, would be far from prudent.

5.1 Managerial Implications

The reshoring activities of companies can be used in marketing communication strategies as the additional component of brand equity with social awareness, environmental and social components.

The reshoring phenomenon is regarded by many consumers as a sign of the development towards a more sustainable economy and/or more patriotically oriented. In such settings, reflexive, ethical consumers actively react to environmental and social hazards and therefore are willing to support those reshoring initiatives, that help to reduce global harm or help to develop the local economy because of patriotic motives. As an active social awareness (and aptness to cover additional costs of such activities) is the domain of rather well educated, high earners, these grounds for reshoring activities are more likely to incubate and evolve more dynamically in mature, well developed economies. A patriotic tone, however, can win approval in many consumer groups, regardless of their education or income level.

Even though the relocation of production to the home base countries (and its retention) can be expected and appreciated by both governments and consumers, such activities seem to be advisable and effective only to those brands, that are recognized as local. The precondition of using reshoring as the value adding factor is an investment in a better recognition of brands such as the local ones.

5.2 Limitations and Further Research Ares

The research suffers from some more limitations. The first is in regard to the companies' sample structure, with the relatively low percentage of producers employing more than 251 employees and few companies with production outside Poland. Future research should focus solely on the entities that use captive offshoring or offshore outsourcing in their strategy. It would be valuable to show the influence of the supply chain recomposition on company operations and strategy on both local and foreign markets.

The research amongst consumers was conducted on a diversified group of respondents, yet a more balanced sample, mainly as far as earnings are concerned, could provide more precise findings. Future research should focus on the relationship between the consumers' place of residence and their attitude as to where the apparel and footwear originates as well as their brand recognition. As people living in small towns have limited access to major retail chains, therefore, their selection criteria of brands may be different. It would also be interesting to refer the level of declared consumer patriotism to the interest in the production location together with capturing the actual purchasing decisions.

Even though we can clearly observe a high level of CET in Poland we cannot claim that it is a mere result of this latest rise of populism in this country. New, further research is required in order to explore the possible interconnectedness between the political preferences of consumers and their perception of various forms of protectionism (including reshoring financial support).

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