

Manufacturing backshoring: a systematic literature review

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Abstract The purpose of this research is to review and analyze in a systematic manner the current research published in peer-reviewed international scientific journals on the backshoring of manufacturing. We identify 20 articles published from 2009 to early 2016. We classify and discuss the literature according to publication year, research methodology, industry type, and firm size. Using content analysis, we identify 25 factors that are relevant for backshoring decision-making and categorize them into seven clusters that influence the decision to move manufacturing back. These clusters are: cost, quality, time and flexibility, access to skills and knowledge, risks, market, and other factors. Further, we provide a research agenda for further research on the phenomenon of moving manufacturing back.

Keywords Backshoring · Global operations · Manufacturing location · Reshoring

1 Introduction

During the last decades, an increasing amount of research has been published about the reallocation of manufacturing through offshoring. Companies choose these actions for

several reasons, for example, to obtain cost advantages and proximity to customers (Londsdale and Cox 2000; Kakabadse and Kakabadse 2002; Kinkel and Maloca 2009). More recently, research has focused on the reverse movement, that is, moving manufacturing back, referred to as *backshoring* (Kinkel 2012, 2014; Canham and Hamilton 2013), *reshoring* (Gray et al. 2013; Ellram et al. 2013; Tate 2014; Fratocchi et al. 2016), or *back-reshoring* (Fratocchi et al. 2015a). In this paper, we choose to use the term backshoring.

The impact of manufacturing reallocation has attracted attention at the government level. Most national leaders want to have strong manufacturing sectors. Reasons include (i) job creation, including the creation of supporting jobs in the economy, (ii) generally higher wages than are found in the service sector, (iii) the tendency for manufacturing firms to spend more on research and development, with the potential for generating key innovations, intellectual property, and high-value jobs, and (iv) the potential for increased exports and reduced imports (EPRS 2014). For example, Germany has recently launched the “Industrie 4.0” program, making €200 million available and taking into account important aspects of location from technological, industrial, and social perspectives (Federal Ministry of Education and Research 2015). In addition, the U.S. Economic Development Administration has introduced “Make it in America”, a \$40 million initiative providing grants to support backshoring projects (Weisfuse and Comerford 2014). Thus, backshoring, designed to revive the manufacturing sector, have ramifications for policy-making at the national level.

As a counter-movement to offshoring, moving manufacturing back is gaining increasing interest from practitioners as well as from researchers. For practitioners, it is important to understand the rationales of both offshoring and moving manufacturing back to derive a balanced view on the global

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manufacturing footprints. For researchers, it is important to understand drivers, challenges, and effects, particularly in relation to any contingencies that can influence decisions for different types of firms and different types of situations. The reasons for backshoring are related to issues such as quality problems, loss of knowledge (e.g., between R&D and manufacturing), extended and uncertain lead times, and exchange rate variations (Leibl et al. 2011; Arlbjørn and Mikkelsen 2014; Stentoft et al. 2015; Gylling et al. 2015). In addition, Grappi et al. (2015) found that companies have experienced positive consumer reactions in terms of willingness to buy and pay for domestically manufactured products. Thus, the reasons for backshoring are different from the reasons for offshoring.

The importance of the topic of backshoring, as well as the fact that the number of research publications on various aspects on moving manufacturing back is increasing, makes it timely to do a structured literature review to establish the state of the art as well as to identify future research opportunities. Consequently, the purpose of this paper is to analyse the extant literature about moving manufacturing back. We refer to backshoring as the company decision to relocate activities back to the home country regardless of the ownership of the activities relocated, in line with Ellram (2013) and Gray et al. (2013).

The remainder of this paper is organized as follows. First, we present the methodology of the review in terms of search strategy for material collection, followed by a descriptive analysis of the distribution of articles across journals and over time. Next, we summarize and categorize the factors indicated in the extant literature as important in making decisions on backshoring. Further, we categorize and discuss the literature with respect to research methodology, industry type, and firm size. Finally, we synthesize the findings and develop a research agenda. We hope that this systematic literature review will contribute to the understanding of the drivers, challenges, effects, and contingencies related to moving manufacturing back and that it will encourage new research on this interesting and important topic that has relevance and implications for managers in manufacturing firms.

2 Methodology

This paper is based on a systematic literature review of peer-reviewed written articles in academic journals covering the areas of backshoring. We followed the guidelines in Denyer and Tranfield (2009); Rousseau et al. (2008); Rowley and Slack (2004), and Seuring and Gold (2012), among others. In particular, we utilized a content-analysis process model that combines qualitative and quantitative characteristics to evaluate descriptive and content-based categories and criteria; cf. Seuring and Gold (2012). This is in line with the conception of

Fink (2005) who defined a structured literature review as “a systematic, explicit, and reproducible design for identifying, evaluating, and interpreting the existing body of recorded documents” (Fink 2005, p. 3). This paper is based on a structured content-based literature review, following Seuring and Gold’s (2012) four main steps:

1. Material collection
2. Descriptive analysis
3. Category selection
4. Material evaluation

2.1 Material collection

The unit of analysis in this literature review is academic peer-reviewed journal articles as it is the main form of communication among scholars (Weintraub 2000). Thus, this review does not include “grey” literature produced in this area (cf. e.g. Fratocchi et al. 2015a,b, 2016). Grey literature covers publications such as newsletters, reports, theses, conference papers, government documents, bulletins, fact sheets, and other formats distributed free, available by subscription, or offered for sale (Weintraub 2000). The papers considered in the review were identified by searching in the EBSCOHost databases (Academic Search Premier and Business Source Complete), Science Direct, and Web of Science using the search terms *backshoring* and *reshoring* in the title, subject, and abstract fields. The search was not delimited in terms of time. The initial search resulted in 277 papers. After removal of duplicates, 178 unique papers were identified. From these, 84 papers were removed because they were outside the thematic scope, were book reviews, or were non-English contributions. This process resulted in 94 unique papers for detailed review.

We also used a reference snowballing technique consisting of backtracking to find earlier relevant sources and forward tracking to find articles that referred to the central sources. In addition, we checked the literature on “relocation” to identify possible instances of backshoring. Based on this list, all members of the research team made individual content analyses and evaluations about which papers to include in the review. At this stage, only papers with a main focus on the phenomenon of manufacturing companies’ act of backshoring passed the detailed review for inclusion in the final list; thus we explicitly address backshoring and not only moving manufacturing from one location to another. The final list of papers included in this systematic literature review consisted of 20 articles published from 2009 to 2016.

2.2 Descriptive analysis

According to Seuring and Gold (2012), descriptive analysis is an assessment of the formal characteristics of the material,

which is used to provide a base for subsequent content analysis. These characteristics are the number of publications per year and the distribution of papers across main journals.

2.3 Category selection

In developing analytical categories, the main choice is whether to develop them through a deductive process or through an inductive process – or to use a combination of both in a two-step process (Seuring and Gold 2012). In this paper, a two-step approach was applied, in which a basic frame of categories was first established based on existing literature, after which single categories were inductively refined during the material evaluation process. The final categorization scheme was driven primarily by the content analysis of the articles that are included in this review, and the collective interpretation of these by the researchers; cf. Rowley and Slack (2004).

2.4 Material evaluation

To implement the material evaluation process, the entire research team read all identified papers on backshoring. In this process, the papers were analyzed and coded in terms of characteristics and drivers. The reliability of this process was enhanced by discussions within the research team (researcher triangulation) and by ensuring documentation of this process. By systematically comparing interpretations and findings between reviewers, it was possible to minimize errors and produce a more robust data set, which is line with the recommendations from Denyer and Tranfield (2009) to employ two or more independent reviewers in systematic reviews. The research team, consisting of four researchers (three senior researchers and one research assistant), did collaborate and interact on all aspects of this literature review.

3 Findings

This section includes a descriptive analysis, followed by a content analysis divided into sections concerned with research methodology, industry type, firm size, and in particular, the drivers for moving manufacturing back.

3.1 Descriptive analysis

The earliest article identified in this review is Kinkel and Maloca (2009), which reported the results from a 2006 survey of 1663 German manufacturers as well as from more recent in-depth qualitative analyses of 39 companies. This survey showed that every fourth to sixth offshoring activity is followed by a backshoring activity within the following four years, mainly due to lack of flexibility and quality problems at the

foreign location. The next paper appears in 2012, after which there has been a considerable increase. Thus, most of the papers in this literature review are very recent; fourteen are from 2014 or later. The 20 articles were distributed among 12 different international scientific journals. The highest numbers of articles were found in the *Journal of Purchasing & Supply Management* (6 articles), *Business Horizons* (2 articles), *International Journal of Production Economics* (2 articles), and *Journal of Supply Chain Management* (2 articles). The other eight journals published one article each. The *Journal of Purchasing & Supply Management* produced a focus issue in 2014, from which four articles were obtained for the review.

3.2 Research methodologies

A variety of research methodologies have been employed to study backshoring. Fundamentally, these methodologies can be categorized into five groups: conceptual papers, case research, survey research, mathematical modelling, and mixed methods. Table 1 displays the distribution of literature sources across the various research methodologies.

The conceptual papers included issues and perspectives generally related to the phenomenon of backshoring. Gray et al. (2013) defined the phenomenon by making a number of assertions, for example, that “reshoring is fundamentally a location decision”. Fratocchi et al. (2014) offered a characterization of backshoring as part of the dynamics of firms’ internationalization strategies. Arlbjørn and Mikkelsen (2014) argued for further research on antecedents, motivators, and barriers of the use of globalization strategies and backshoring as part of them. They also ask for more studies of the role of technology such as automation to maintain production jobs in a high-wage country like Denmark. In a US-centric perspective to the “shoring” debate, Tate (2014) noted that the economic downturn, heightened emphasis on sustainability, and increasing customer expectations for flexibility and improved cost performance is driving firms to reconsider the shoring decisions and search for “right-shoring”. Kinkel (2014) argued that backshoring can act as a strategy to adapt to dynamically changing global markets and suggested that companies are continuing to internationalize their activities, but with greater sensitivity to critical factors than in the past. Finally, Fratocchi et al. (2016) develop a conceptual framework with two dimensions, i.e., the goal (“customer perceived value” vs. “cost efficiency”) and the level of analysis (“internal environment” vs. “external environment”) in the manufacturing backshoring decisions.

The four case research papers included a single case study in the bicycle industry (Gylling et al. 2015), as well as three multiple-case studies. Moser (2013) discussed reasons for backshoring production referring to experiences at eleven companies, and Martínez-Mora and Merino (2014)

Table 1 Categorization of the literature with respect to research methodologies

Research Methodology	References
Conceptual (incl. Research notes)	Arlbjørn and Mikkelsen (2014); Fratocchi et al. (2014, 2016); Gray et al. (2013); Kinkel (2014); Tate (2014)
Case research (single or multiple case studies)	Gylling et al. (2015); Martínez-Mora and Merino (2014), Moser (2013); Pearce (2014)
Survey research	Canham and Hamilton (2013); Ellram et al. (2013); Kinkel (2012); Stentoft et al. (2015); Tate et al. (2014)
Mathematical modelling	Ancarani et al. (2015); Cho et al. (2014); Wu and Zhang (2014)
Mixed method	Bailey and De Propris (2014); Kinkel and Maloca (2009)

interviewed directors at ten leading companies. Additionally, after studying 17 firms that moved production to the United States, Pearce (2014) identified five major factors that influenced the location decision.

There were five survey articles that involved four countries in total: Denmark, Germany, New Zealand, and the United States. Kinkel (2012) surveyed 1484 German manufacturing companies and found that export-intensive companies tended to re-concentrate their production capacities in an effort to exploit the benefits of higher capacity utilization and achieve a superior ratio of variable to fixed costs. In New Zealand, Canham and Hamilton (2013) studied 151 manufacturers, comparing offshoring, backshoring and staying at home, finding that backshoring and staying at home were similar in terms of drivers. Ellram et al. (2013) and Tate et al. (2014) used survey responses from 319 managers to discuss the manufacturing location problem in general and potential advantages of nearshoring or backshoring from the U.S. perspective. Finally, Stentoft et al. (2015) used a large-scale survey in Denmark to study the extent of and reasons for outsourcing and insourcing from and to Denmark, including backshoring.

The three mathematical modelling articles used different approaches to study issues related to backshoring. Cho et al. (2014) employed bivariate choice models to investigate firm-level decision making on production relocation strategies using data from Statistics Korea on 3374 Korean manufacturing firms. Wu and Zhang (2014) modelled a sourcing game in which competing firms chose between efficient sourcing (i.e., sourcing from overseas) and responsive sourcing (i.e., sourcing from a home country). Ancarani et al. (2015) used a modelling approach to analyze the time elapsed between the offshore and backshore decision.

Two articles used mixed methods. Kinkel and Maloca (2009) used a survey of 1663 German manufacturing companies in combination with qualitative analyses of 39 companies to study the backshoring versus offshoring trends in Germany, finding that not all companies paid sufficient attention to qualitative factors in their location decisions. Bailey and De Propris (2014) used interviews, policy reviews, and a

series of recent surveys to investigate backshoring in UK manufacturing.

3.3 Industry types

Of the 20 papers in this review, only three explicitly involved specific industries, which is detailed in Table 2. Two of these are case studies. Survey research typically used respondents from a variety of manufacturing industries, and the conceptual papers and mathematical modelling rarely dealt with specific cases.

Bailey and De Propris (2014) examined the UK automotive sector and found severe limits regarding how far the backshoring trend could go given the availability of skills and finance in the supply chain. Gylling et al. (2015) made a longitudinal case study of a Northern European bicycle manufacturing company and its two consecutive production location choices; the first involving offshore outsourcing production to a contract manufacturer in Taiwan and the second, only two years later, involving bringing production back home. They found that the company overvalued the cost benefits of offshoring, and explicitly emphasized the simultaneous effects of demand volatility, fixed-cost coverage, exchange-rate volatility, and offshore contract-manufacturer competency in the production location decisions of manufacturing firms. The ten companies in the study on the Spanish footwear industry (Martínez-Mora and Merino 2014) showed that, although all ten companies' offshored part or all of their production at the end of the 1990s, all have increased their production in Spain during the last 5 years. Although some of the companies have substituted all of the production that they had previously offshored, most have maintained offshore production activities, complementing this strategy with an increase in domestic production (Martínez-Mora and Merino 2014).

The conclusion that can be drawn from these three studies is that industry-specific contingencies seem to exist concerning the decision to move manufacturing back. Given the small number of backshoring cases in specific industries,

Table 2 Coverage of industries and reference to the literature

Industry type	References
Automobile	Bailey and De Propris (2014)
Bicycle	Gylling et al. (2015)
Footwear	Martínez-Mora and Merino (2014)
Manufacturing (in general)	Ancarani et al. (2015); Arlbjørn and Mikkelsen (2014); Canham and Hamilton (2013); Cho et al. (2014); Ellram et al. (2013); Kinkel (2012); Kinkel and Maloca (2009); Moser (2013); Stentoft et al. (2015)
N/A	Fratocchi et al. (2014, 2016); Gray et al. (2013); Kinkel (2014); Pearce (2014); Tate (2014), Tate et al. (2014); Wu and Zhang (2014)

more research is needed on the identification of industry contingencies.

3.4 Firm size

Despite the small amount of literature on backshoring, studies have included both SMEs (small and medium-sized enterprises) and large corporations. In particular, Bailey and De Propris (2014); Canham and Hamilton (2013), and Gylling et al. (2015) addressed SMEs, while the surveys by Kinkel (2012); Kinkel and Maloca (2009), and Stentoft et al. (2015) included both smaller and larger enterprises. Thus, backshoring is not constrained to larger firms; even SMEs consider moving manufacturing offshore and back.

3.5 Drivers for moving manufacturing back

The drivers for moving manufacturing back to manufacturing companies' home countries are listed in Tables 3 and 4. The specific issues are classified into seven distinctly different aspect categories: (i) cost, (ii) quality, (iii) time and flexibility, (iv) access to skills and knowledge, (v) risks, (vi) market, and (vii) other factors. The identification of these drivers as well as their classification into seven distinctly different aspect categories are fully driven by the content analysis of the extant literature, and based on full agreement among the four researchers.

The most commonly mentioned factor for moving manufacturing back among the 20 selected research articles was the changing costs of operations, mentioned in 15 articles as a main driver. Particular issues mentioned included increasing labor costs, increasing logistics costs, eroding cost advantage, higher-than-expected coordination efforts and transaction costs, miscalculation of actual cost, energy costs, productivity differences between locations, and need for small production runs. Thus, cost is a major consideration for moving manufacturing, not only for offshoring, but also for backshoring.

In addition, quality, time and flexibility aspects, as well as access to skills and knowledge, were frequently discussed in the literature as major drivers for moving manufacturing back

to its origin. Specific issues mentioned in terms of access to skills and knowledge were proximity to R&D resources, availability of skilled labor, and utilization of new technologies and automation. Also, risk aspects were frequently cited as factors for backshoring. These include the threat of losing know-how and intellectual property, volatility in the currency exchange rates, and supply chain risks. Market aspects include loyalty and patriotism, value of having the product manufactured domestically, staying close to the customers, and a shrinking market size in a target market. It should be noted that the former three factors are related to SMEs. Other specific drivers for backshoring found in the reviewed research literature included government incentives favouring a certain location, increased focus on core activities, and the correction of a misjudged decision.

A noteworthy number of factors have been added in the very recent literature, i.e. from 2014 and 2016. Some of these factors were cost-related, such as eroding cost advantage, miscalculation of actual cost, changes in the energy cost, and productivity differences between locations, indicating that the cost calculations were becoming increasingly more elaborate and that simple cost trade-offs were being avoided. Other issues added in 2014 and 2016 included demand volatility and supply chain resilience, proximity to R&D resources, increased focus on core activities, and shrinking market size. These new aspects add new perspectives that provide a fuller view of the consequences of changing manufacturing locations. Together, the addition of new monetary and non-monetary concerns indicates that the analyses and decision-making processes concerning the global manufacturing footprint are becoming more nuanced.

The drivers were covered somewhat differently, depending on the research methodologies employed. By combining Tables 1, 3 and 4, we can establish the relationship between drivers and research methodologies. Labor cost, a fundamental issue, was included in all research methodologies on backshoring. On the other hand, only one article mentioned market size, explicitly considered only in mathematical modelling (and then as a result of an a priori assumption to include this aspect in the model). Taking the perspective from the research methodology dimension, survey research was the

Table 3 Drivers for moving manufacturing back and related literature sources (part 1)

Aspect	Specific Issue	Literature Sources
Cost	Increasing labor costs	Bailey and De Propris (2014); Cho et al. (2014); Kinkel (2012, 2014); Pearce (2014); Tate (2014); Tate et al. (2014)
	Increasing logistics costs	Bailey and De Propris (2014); Kinkel (2014); Moser (2013); Pearce (2014); Tate (2014)
	Eroding cost advantage	Bailey and De Propris (2014); Fratocchi et al. (2014, 2016); Martínez-Mora and Merino (2014); Wu and Zhang (2014)
	Higher-than-expected coordination efforts and transaction costs	Kinkel (2012, 2014); Kinkel and Maloca (2009); Gray et al. (2013); Gylling et al. (2015)
	Miscalculation of actual cost	Kinkel (2014); Kinkel and Maloca (2009); Martínez-Mora and Merino (2014); Tate et al. (2014)
	Changes in the energy cost	Pearce (2014); Tate (2014); Tate et al. (2014)
	Productivity differences between locations	Pearce (2014)
	Need for small production runs	Canham and Hamilton (2013)
Quality	Quality not at an acceptable level	Arlbjørn and Mikkelsen (2014); Bailey and De Propris (2014); Canham and Hamilton (2013); Fratocchi et al. (2014, 2016); Gylling et al. (2015); Kinkel (2012, 2014); Kinkel and Maloca (2009); Moser (2013); Stentoft et al. (2015); Tate et al. (2014)
Time and flexibility	Delivery lead-time	Arlbjørn and Mikkelsen (2014); Bailey and De Propris (2014); Fratocchi et al. (2014, 2016); Kinkel (2012); Kinkel and Maloca (2009); Stentoft et al. (2015)
	Demand volatility and supply chain resilience	Bailey and De Propris (2014); Fratocchi et al. (2014, 2016); Gylling et al. (2015); Martínez-Mora and Merino (2014); Stentoft et al. (2015); Wu and Zhang (2014)
	Production and delivery reliability	Bailey and De Propris (2014)

Table 4 Drivers for moving manufacturing back and related literature sources (part 2)

Aspect	Specific Issue	Literature Sources
Access to skills and knowledge	Proximity to R&D resources	Arlbjørn and Mikkelsen (2014); Bailey and De Propris (2014); Kinkel (2014); Pearce (2014); Tate (2014); Stentoft et al. (2015)
	Availability of skilled labor	Bailey and De Propris (2014); Fratocchi et al. (2016); Kinkel (2012, 2014); Kinkel and Maloca (2009); Pearce (2014); Tate et al. (2014)
	Utilization of new technologies and automation	Arlbjørn and Mikkelsen (2014); Stentoft et al. (2015); Tate et al. (2014)
Risks	Threat of losing know-how and intellectual property	Kinkel (2014); Moser (2013); Tate (2014); Tate et al. (2014)
	Supply chain risks	Gray et al. (2013); Moser (2013); Tate (2014)
Market	Volatility in the currency exchange rates	Bailey and De Propris (2014); Gylling et al. (2015); Moser (2013); Tate et al. (2014)
	Loyalty/patriotism	Canham and Hamilton (2013)
	Value of “Made in X”	Canham and Hamilton (2013)
Other factors	Stay close to customers	Canham and Hamilton (2013)
	Shrinking market size	Wu and Zhang (2014)
	Incentives from governments	Moser (2013); Pearce (2014); Tate et al. (2014)
	Increased focus on core activities	Arlbjørn and Mikkelsen (2014); Stentoft et al. (2015)
	Correction of a misjudged decision	Gray et al. (2013); Moser (2013); Tate (2014)

methodology with the highest number of related factors, i.e. 18 (out of 25). Following closely are conceptual modelling (16) and case research (15). Researchers using mixed methods identified twelve, and mathematical modelling revealed only four factors. In mathematical modelling, the factors are determined a priori and is not a result of the study per se. We expect that case research will be able to identify a wider set of factors and lead the way for broadening the understanding of the phenomenon of manufacturing backshoring.

Our categorization scheme can be related to the framework in Fratocchi et al. (2016). They created a two-by-two matrix based on cost efficiency and customer perceived value versus internal and external environment in which they position various specific factors, thus offering an alternative view for structuring factors relevant to backshoring.

4 Suggestions for further research

The structured literature review revealed five areas deserving further exploration regarding moving manufacturing back. In the following, we briefly comment on each.

4.1 Global manufacturing footprint

The fundamental questions about the global manufacturing footprint for any manufacturing company include the following: Who should be doing what and where? Specifically, should we manufacture it ourselves – and if so, where? Should we outsource, and if so, what should be outsourced? Does it matter where this manufacturing takes place? As more perspectives are added to the manufacturing location decision-making process, the global manufacturing network may become more balanced, based on “rightshoring” and “rightsourcing” perspectives (i.e., optimal balances between offshoring and backshoring on the one hand and outsourcing and insourcing on the other) rather than on an assumed direction of manufacturing movement. This potential balancing is particularly possible if labor cost differences are diminishing between geographic market regions. In this case, access to skills and knowledge is likely to gain importance. However, manufacturing location decisions cannot be taken in isolation, but must be related to the global R&D network of the firm. Consequently, future footprint decisions need to integrate R&D and manufacturing location decisions, including joint considerations of production, supply chain, and development competences at various locations (e.g., Feldmann and Olhager 2013).

4.2 Country specific comparisons

Future research can compare practices between countries in terms of economic structures, labor environments, access to

natural resources and currency issues, and determine empirically how these practices relate to the decision to move manufacturing back. The size of the country may matter, because market size is an influential factor in deciding where to locate manufacturing. Therefore, smaller countries may miss the opportunity for manufacturing to be brought back to the original location; instead, manufacturing may be relocated to a larger and more central regional market, resembling the concept of nearshoring, i.e. manufacturing located in a country nearby. Further, future research can analyze how different labor market policies affect backshoring decisions, e.g. using the flexicurity model (*flexicurity* is a combination of *flexibility*, measured by a high level of worker mobility between jobs, *social security*, representing a generous system of social welfare and unemployment benefits, and *active labor market programs*, Madsen 2004; Emmenegger 2010).

4.3 Decision-making processes

Few researchers have examined the nature of barriers to moving production back. Such barriers may include lack of organizational and financial resources and lack of a proper foundation for decision (e.g. incomplete bill of materials and technical drawings) (Stentoft et al. 2015). Future research should address the questions of accessibility, relevance, representation, and accessibility of data for decision making about offshoring and backshoring. If relevant data is more accessible, then decision makers should be able to make better-informed decisions – not necessarily better decisions, but at least decisions based on better information. The practice of manufacturing relocation is not a static but a dynamic phenomenon (e.g., Gylling et al. 2015). Therefore, dynamic analyses need to be included in the decision support, for example concerning the rates of change in markets and currencies and explorations of the transition phases from the decision to actual implementation of the move.

4.4 Manufacturing innovations

Extant literature on moving manufacturing back to home destinations has lacked an explicit focus on how innovations in manufacturing technology could sustain manufacturing in Western countries. The recent initiatives in Germany and US are concerned with promoting innovative manufacturing technologies, such as automation and robotization (see Arlbjørn and Mikkelsen 2014), digitalization (e.g., industrial Internet), new high-tech materials (e.g., ultra-light or high-strength materials), or new process technologies (e.g., 3D additive manufacturing). Future researchers could explore the role of manufacturing innovations and disruptive technologies and their influence on the creation of new jobs in manufacturing.

4.5 Case studies and survey research

Finally, because the phenomenon of backshoring is relatively new, and the literature is still quite sparse, more in-depth case studies are needed to understand the specific rationale for moving manufacturing back and how to make backshoring successful (e.g. through labor market programs). Further, more survey research is needed to understand the extent of backshoring versus offshoring, as well as the specific drivers in each direction.

5 Concluding remarks

In this paper, we provided an in-depth overview of extant literature on relocation of manufacturing in terms of backshoring. The literature review consisted of an overview and a content analysis of the research to date. In particular, we identified issues and grouped them thematically into seven categories to highlight the main drivers of moving manufacturing back. This is an exciting but under-researched area with high practical relevance and which has attracted a considerable amount of research in the last two years. Based on the findings in this review, we outlined some suggestions for future research.

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