



REIMAGINING FINLAND AS A MANUFACTURING BASE: THE NEARSHORING POTENTIAL OF FINLAND IN AN INDUSTRY 4.0 PERSPECTIVE

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Received 10 June 2018; accepted 13 June 2018

Abstract. After decades of globalization and outsourcing the idea of “bringing manufacturing back home” and the twin concepts of backshoring and nearshoring have received much attention in recent years. Recent positive stories from the Finnish manufacturing industry suggests Finland as an attractive target for nearshoring, yet little to none has hitherto been made of this connection. This article (i.) examines recent relocation literature with a focus on nearshoring and manufacturing in high-cost environments, (ii.) explores the location advantage of Finland, (iii.) analyses cases of recent manufacturing developments in Finland within this context as single incidents or signals of change, and (iv.) discusses this development within the perspective of Industry 4.0.

Keywords: nearshoring, location advantage, manufacturing relocation, high-cost environments, manufacturing 4.0, industry 4.0, industrial strategies, corporate foresight.

JEL Classification: D21, F23, L60, O25.

Introduction

Over the past few years, a remarkable thing has happened in Southwest Finland. Major manufacturing sites have boomed and more than 30,000 new jobs have been created in the region (YLE, 2018). This development is even more noteworthy as it has happened against a backdrop which was, in fact, rather grim.

“The Great Recession” after the onset of the financial crisis hit Finland hard (Suni & Vihriälä, 2016). In 2009 alone, Finland lost 8.5% of GDP. Finland’s manufacturing sector also experienced a decline. From 2007 to 2016 the manufacturing workforce in Finland was reduced by about 90,000 jobs to a level of 307,000 employees (Heikkilä, Martinsuo, & Nenonen, 2018).

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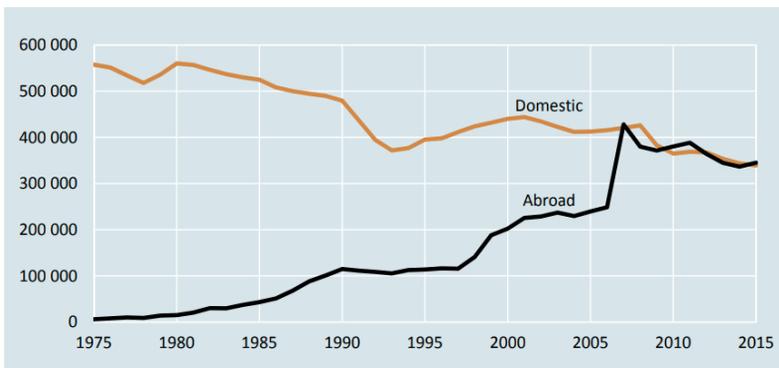
In some ways, this followed trends visible for decades. Finnish manufacturing industry had also been exposed to the “New Globalization”, the world has experienced since 1990 (Ali-Yrkkö, Lehmus, Rouvinen, & Vihriälä, 2017), and manufacturing work has moved abroad, as firms in global competition have sought to optimise efficiency by reconfiguring their value chains and relocating discrete value-added activities and tasks to the most appropriate locations (Slepniov, Brazinskas, & Wæhrens, 2013).

Today, some 30% of Finnish manufacturing firms (with more than a hundred employees) have offshored parts of their business activities, and about 40% of Finnish corporations’ global employment is now located abroad (Ali-Yrkkö et al., 2017). The location trends of Finnish manufacturing companies over the past 40 years can be noted in Figure 1 which shows the gradual decline of Finnish domestic employment combined with (until the latest decade) increased foreign employment of Finnish manufacturing.

Notably, outsourcing and offshoring have been supplemented by increased productivity so that despite the decreased workforce, Finnish manufacturing output has not declined.

Internationally, there have been signs – and much discussion on the possibility – that the offshoring-tide might be turning (Stentoft, Mikkelsen, & Johnsen, 2015). The idea of “bringing manufacturing back home” in forms of “backshoring” (transfer of production back to the home country) or “nearshoring” (transfer of production back to a country neighbouring or close by the home country) has picked up much media and academic attention in the past half-decade (Fratocchi, Di Mauri, Barbieri, & Nassimbeni, 2014; Backer, Menon, Desnoyer-James, & Moussiegt, 2016).

The context of nearshoring might be particularly timely to explore. A study by Miebach Consulting (2017) concluded that “*Nearshoring is the major future shoring strategy*”, and that an increasing amount of companies are producing in closer proximity to their markets rather than moving production abroad. More companies in the study believed nearshoring to be a high-impact trend than for offshoring, onshoring or local production.



Note: Because of statistical change, the number of foreign employees artificially rose significantly between 2006 and 2007.
Sources: Statistics Finland, Bank of Finland, Etna and authors’ calculations.

Figure 1. Foreign and domestic employment of Finnish manufacturing, number of employees (source: Ali-Yrkkö et al., 2017)

This article aims to explore the manufacturing boom of Southwest Finland in the context of this discussion. The examination builds on two main cases: The German-owned shipyard Meyer Turku and the automotive plant Valmet Automotive manufacturing cars for Daimler. There are key differences between the cases in terms of e.g. ownership and functions and positions in manufacturing ecosystems, but centrally to both is Western European owners and customers willing to bet big on facilities in Finland. This can essentially, we will argue, be considered a form of *nearshoring*.

In order to make this claim, we will first briefly examine the expanded strand of relocation literature related to nearshoring. Within this context, our primary focus is nearshoring to small open economies and high-cost manufacturing environments, i.e. on Finnish conditions or on economic conditions similar to those in Finland.

The second part of this article will be devoted to an exploration of the particular location advantages of Finland. Following this, the article will briefly present recent – and highly reported – positive cases of manufacturing developments in Finland. As mentioned these include in particular the growth of the Meyer Shipyard in Turku and the Valmet Automotive factory in Uusikaupunki; two engines of growth with a large effect on the regional economic situation of Southwest Finland.

The main idea of this article is to discuss these developments within the context of theories and literature on nearshoring and then in extension within the context of Industry 4.0.

In identifying these cases as weak signals of a possible untapped nearshoring potential of Finland, this article makes a unique contribution to the literature. Hitherto, most – and to an extent, the only – focus has been directed towards manufacturing nearshoring to perceived low-cost environments, e.g. through the offshoring of manufacturing production from Western Europe to Central and Eastern Europe or from Scandinavia to the Baltics.

In fact, to the best of our knowledge, not a single peer-reviewed article has ever before considered Finland as a possible destination for nearshoring of manufacturing. If there is nearshoring potential for Finland, it has not yet been properly understood, and for this reason, the potential might be mostly untapped. The arguments presented here are therefore of high value for both practitioners and policy-makers interested in the industrial wellbeing of Finland.

1. Cases as weak signals

The weak signal analysis is the activity of picking up scattered pieces of a puzzle before all the pieces of the puzzle fit together (Mendonca, Cardoso, & Caraca, 2012; Kaivo-oja, 2012). Weak signals can be an early warning of threats, but also advanced information of opportunities, which is how we use them in this article. While the concept of weak signals is used widely in the business literature, an exact definition of the term is hard to find (Mendonca, Pina e Cunha, Kaivo-Oja, & Ruff, 2004).

In general, it can be understood as information on potential change of a given system toward an unknown direction, or as *“the early signs of possible but not confirmed changes that may later become more significant indicators of critical forces for development, threats, business and technical innovation”* (Saritas & Smith, 2011).

As weak signals often emerge in underspecified form, readers of weak signals risks superimposing their own meanings to the identified weak signal. As signs have no inherent meaning, interpreters will by default use previous knowledge and experience to decode incoming stimuli (Mendonca et al., 2012).

In this article, we draw on recent singular economic developments much reported in the popular press, which taken together can ever so slightly be detected from available statistics on the Finnish economy. This calls for reflections of methodological risks. Firstly, newspaper articles might oversell stories about local manufacturing successes. Secondly, individual incidents may form a pattern primed to be repeated, or the connections between incidents might be coincidental, ie. noise rather than signals.

To a certain point, further research can alleviate these concerns, as researchers can perform case studies that are more elaborate or choose to “wait-and-see” as the macroeconomic trends progress. However, the novelty and the value of contribution in describing clearly identifiable “strong signals” or “loud and late warnings” may be less significant and less relevant as calls for new actions.

2. Nearshoring of production: notes from the literature

From the point of view of location and distance from headquarters, companies can locate activities (Slepniov et al., 2013):

- In close proximity (domestically)
- At a medium distance (nearshoring)
- At a great distance (offshoring)

This decision can be considered part of the companies’ globalisation strategies (Arlbjørn, Lühtje, Mikkelsen, Schlichter, & Thoms, 2013). It should be noted that near-, back- and *offshoring* in this article relates only to the physical location; differences in ownership are defined by in- and *outsourcing* (Foerstl, Kirchoff, & Bals, 2016). While certain recent studies explicitly take account of organizational boundaries (e.g. Nujen, Halse, Damm, & Gammelseter, 2018), we are concerned here only with the location decision.

There is extensive documentation in the business literature that companies are increasingly realizing that offshoring might have hidden costs (cf. Larsen, Manning, & Pedersen, 2013), and that there is a “dark side” to global sourcing (Stanczyk, Cataldo, Blome, & Busse, 2017). The length and complexity of global value chains can expose companies to the large level of supply risk in the event of adverse shocks and make them less agile in the event of changing consumer demand (Backer et al., 2016).

By choosing nearshore locations organizations might enjoy the benefits of lower production costs, while at the same time benefiting from lower transaction costs in comparison with offshore locations (McIvor, 2013). With a noteworthy description from *The Economist* (2005), this entails the activity of moving business “*to countries that are quite cheap and rather close rather than very cheap and far away*”.

In other words, companies might purposefully be opting for *medium* cost savings and a *medium* level of risk and transaction costs, compared to both the options of domestic production (or sourcing) or of far offshore production (or sourcing). This relationship between increasing risks, increasing savings potentials and increasing distance is illustrated in Figure 2.

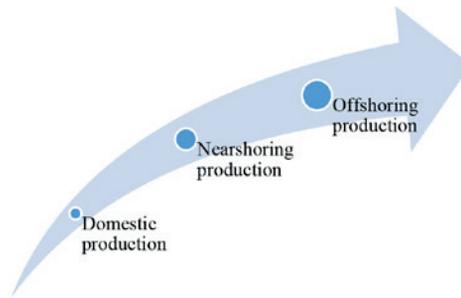


Figure 2. Location of production with increases in risks and potential savings

This follows a general important point in international business literature, namely that *distance stills matters* (e.g. Ghemawat, 2001). In fact, the tendency of preferring nearshoring in sectors otherwise favouring virtual working has been seen as reinforcing exactly this point (Carmel & Abbott, 2007).

Nearshoring might in this sense limit some of the perceived barriers for offshoring jobs, such as lack of competences and language difficulties at the offshoring destination (cf. Sten-toft, Olhager, Heikkilä, & Thoms, 2016).

Nearshoring might also make it possible to recalibrate a wider range of business functions. Traditionally, advanced economy countries have been the preferred location for advanced business activities (Jensen & Pedersen, 2011). As an example, in Europe, empirical studies show that firms offshore R&D to high-income countries such as Germany and France rather than to low-income countries such as Bulgaria and Romania (Tuhkuri, Lööf, Mohammadi, & Rouvinen, 2016).

However, much of the early literature on European nearshoring have focused on the movement of business activities (manufacturing, service, IT) to lower-cost regions in Central and Eastern Europe (e.g. Meyer, 2006; The Economist, 2005). A survey of early literature on nearshoring also showed that all identified studies treated the USA and Western Europe as *client location* rather than as a *destination for nearshoring* (Carmel & Abbott, 2007).

This is still true for academic literature on nearshoring in Finnish contexts. A Google Scholar search (7.3.2018) for “nearshoring + Finland” provides 344 results, yet only one – a 2013 engineering studies bachelor thesis (!) – concerns Finland as the nearshoring target (rather than e.g. Finnish outsourcing to Lithuania).

As global value chains are reconfigured, it seems likely that studies will appear with country-specific analyses of nearshoring attractiveness and perhaps the antecedents of this. One recent example analyzed the feasibility of nearshoring European manufacturing located in China to Russia (Panova & Hilletoft, 2017), while another study concerns nearshoring attractiveness of countries in the Central Eastern European (CEE) region (Lorincz, 2018). By placing Finland as the destination target of nearshoring, this present article, therefore, provides the first such peer-reviewed contribution within this emerging literature strand with a focus on Finland.

The very distinct lack of literature on the possibilities of reshoring to Finland is supplemented by the fact that the concept of nearshoring has not quite received as much academic attention in recent years as perhaps deserved. As the literature grows on reversal of offshoring decisions (e.g. Gylling, Heikkilä, Jussila, & Saarinen, 2015; Stentoft et al., 2016; Nujen et al., 2018), and as more attention is devoted to the bi-directionality of global movements of manufacturing activities (Vanchan, Mulhall, & Bryson, 2018) most research still focus on production either at *home* or *far offshore*. Research on moving or relocating production to the near-abroad has not received the same attention, even though empirical studies show evidence of trends towards ‘regional rebalancing of value chains’ (Backer et al., 2016) and high company interest in opportunities provided by nearshoring (Miebach Consulting, 2017).

3. Explaining location choices: why manufacture in Finland?

By configuring activities around the world, companies reap benefits such as gaining access to natural resources or lower wage-labour, closeness to important markets or gaining access to knowledge and other strategic resources (Slepniov et al., 2013).

One of the seminal works on manufacturing location decisions is John Dunning’s argument for location as ‘a neglected factor’ (1998) with four main variables influencing the location of value-added activities for multinational enterprises. Foreign Direct Investments (FDI) can be

- i. resource seeking
- ii. market-seeking
- iii. efficiency seeking
- iv. strategic asset seeking.

Natural resources play a considerable role in the Finnish national economy, e.g. in forest and mining industries, and this factor is still seen as attracting foreign investments to the country (see e.g. Helsinki Sanomat, 2018). Although the Finnish market is small, strong coupling to it makes firms more likely to manufacture in Finland (Ketokivi, Turkulainen, Seppälä, Rouvinen, & Ali-Yrkkä, 2017).

Building on previous literature, Jensen and Pedersen (2011) further explained relevant attributes for location choices under four headings – cost levels, human capital, business environment, and distance. These groupings of relevant attributes are shown in Figure 3 below and includes the variables related to *cost levels*, to *human capital*, to the *business environment*, and to *interaction distance*.

A comprehensive analysis of Finland’s manufacturing attractiveness might include comparative analyses of each separate attribute indicator. For this present article, it will suffice to note that Finland is a country with low political risk, well-established infrastructure, and efficient logistics. For several selected indicators of competitiveness more or less corresponding to the attributions listed by Jensen and Pedersen, as seen in Table 1 below, Finland ranks as among the best in the world, and at a comparative level with neighbouring countries or above, using the selected indicators of competitiveness adapted from Vihriälä (2017) as a starting point.

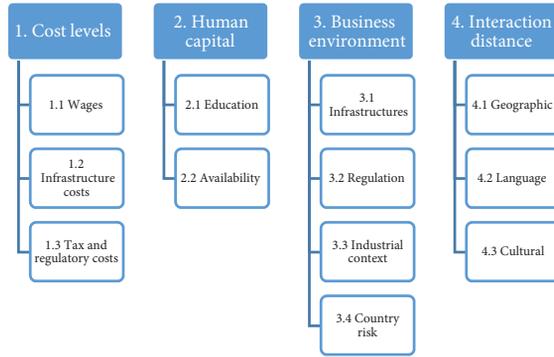


Figure 3. Important attributes for location decisions (based on Jensen & Pedersen, 2011)

Table 1. Performance of Finland, Sweden and Germany for selected indicators of competitiveness (Adapted from Vihriälä, 2017)

		Finland	Sweden	Germany
Human Capital	WEF – Human Capital Report 2016	1	2	11
Education	OECD Better Life Index	1	11	7
Innovation	World Bank WGI Index	3	6	5
Quality of Institutions	WEF Global Competitiveness Report	1	3	6
Network Readiness	WEF Global Competitiveness Report	2	3	15
Digitalization	EU Digital Economy and Society Index	2	3	11
Proficiency in English	Education First (EF)	5	3	9
Globalization	KOF Index of Globalization	11	8	27

There are able evidence that firms location decisions when reshoring has moved from being primarily cost-dominated to being more complex with decision drivers such as proximity, access markets, risk resilience, and supply chain flexibility (see e.g. Cohen et al., 2017 for literature references). A theoretical way of framing it is to note that firms are increasingly concerned with total cost of ownership analysis instead of simple cost calculations (Stentoft et al., 2015).

However, cost are still clearly an important variable in manufacturing decisions. Finland is considered a high-cost manufacturing country (e.g. Ketokivi et al., 2017), but considering actual average wages Finland might be competitive, if not with Central and Eastern European countries, then at least with countries in Finland’s Western and Southwestern neighbourhood, as seen in Figure 4, which based on OECD-data (2017) depicts average wages in Finland and selected countries around it.

All in all, with Finland scoring well on indicators of competitiveness and (relatively) lower wages, Finland could be an attractive country to invest in. However, Finland has a relatively low level of foreign direct investments compared to other EU-countries surrounding the Baltic Sea, and the share of value added by foreign-controlled enterprises is similarly lower than in e.g. the Baltic countries. This can be seen in Figure 5.

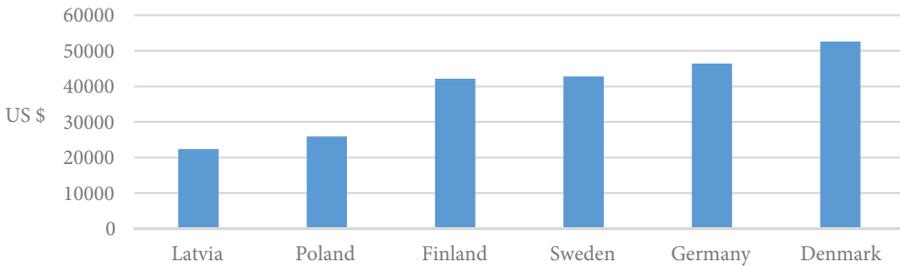


Figure 4. Average wages in US\$, 2016 or latest available (own, from OECD-data, 2017)

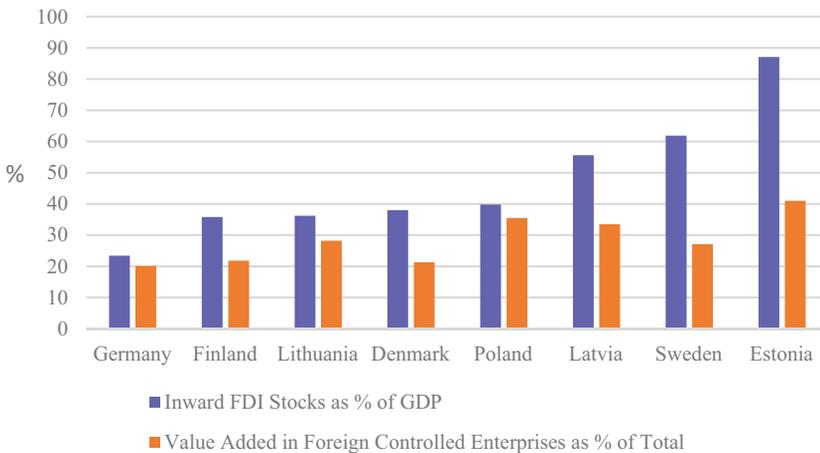


Figure 5. Inward Foreign Direct Investment (FDI) Stocks in % of GDP 2015 and Value Added in Foreign Controlled Enterprises as % of Total 2015 (own, from Eurostat, 2018)

We might, therefore, conclude that despite Finland being a potentially attractive manufacturing destination, the country has not previously taken full advantage of its possibilities. This conclusion would seem aligned with the noted decline of Finnish manufacturing totals over the past decade.

4. Manufacturing on the upswing: comeback, a new trend or just a fad?

As noted, recent developments in the region of Southwest Finland has however been highly positive. The German-owned shipyard Meyer Turku Oy has seen a turnaround in recent years, with revenue rising 33 pct. in 2016 alone to a yearly total of €792 million (Business Insider Nordic, 2017), and the company has announced further planned investments of more than €185 million (Meyer Turku, 2017).

Carmaker Valmet Automotive has increased production volumes due to new manufacturing contracts with Mercedes-Benz. Employment at the manufacturing plant rose from 2,300 employees in March 2017 to around 4,000 in February 2018 (Valmet Automotive, 2017,

2018). At the end of 2017, Valmet Automotive was the biggest private employer in the region of Southwest Finland; a year before it had been the third biggest (Turun Sanomat, 2018).

In February 2017, Valmet Automotive was awarded a Daimler supplier for Partnership as “a flexible and reliable contract manufacturer who contributes to Mercedes-Benz Cars production strategy by offering state-of-the-art technology” (Daimler, 2017).

Both Meyer Turku and Valmet Automotive has opened 2018 with new major orders, and in total, an estimated 30,000 jobs have been created in Southwest Finland alone over the past few years (YLE, 2018).

The effects of the past few years are only beginning to show up in the economic statistics, as detailed statistics become available with a lag. As Figure 5 shows, some effects can already be detected. This can be seen by comparing value added from relevant manufacturing sectors in the region of Southwest Finland (28 *Manufacture of machinery and equipment n.e.c.*, 29 *Manufacture of motor vehicles, trailers and semi-trailers*, 30 *Manufacture of other transport*) with the total value added from manufacturing in Finland. The economic performance of these sectors in this single region is only a small part of the total Finnish manufacturing industry; the share and the importance have increased, however, and a further rise must be expected for 2017.

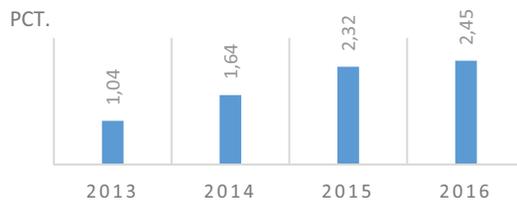
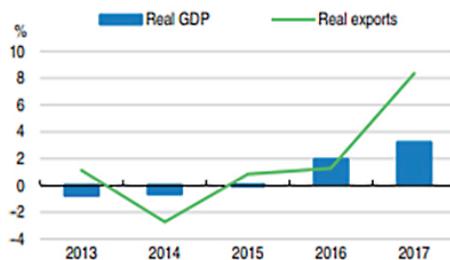


Figure 6. Value-added of manufacturing sectors 28–30 in Southwest Finland as share of total added value in Finnish manufacturing industry (source: own calculations based on the Statistics Finland, 2018)

The question, then, is whether the regional manufacturing upswing is an early sign of a possible general trend for Finland, something due to unique circumstances in Southwest Finland, or an unsustainable fad soon likely to finish?

As it is, the Finnish economy, in general, has picked up speed since 2016, as output and exports are currently growing strongly. Growth has been boosted by a strong revival in exports, cf. Figure 6, although there are still some warning signs for the future (OECD, 2018) (Figure 7).

Output and exports are growing strongly¹



1. OECD estimates for 2017 exports.

Figure 7. Output and exports of Finnish economy (OECD, 2018)

5. The impact of Industry 4.0 on nearshoring

Since the term was coined in Germany in 2011, there has been much talk of the coming Industry 4.0. As the term has come to symbolize a great many things, a precise definition of the concept might not be available. Illustrating the width of the concept, Lu (2017) summarizes Industry 4.0 as “*an integrated, adapted, optimized, service-oriented, and interoperable manufacturing process which is correlated with algorithms, big data and high technologies.*”

It is marked by highly developed automation and digitization processes and by the use of electronics and information technologies (IT) in manufacturing and services. Industry 4.0 can transform the industry in several ways (Roblek, Mesko, & Krapez, 2016):

1. Digitization of production – information systems for management and production planning;
2. Automation – systems for data acquisition from the production lines and using machines;
3. Linking manufacturing sites in a comprehensive supply chain – Automatic;
4. Data Interchange.

Advanced manufacturing techniques allow radically short lifecycles and an intensified customer orientation with individualized products (Brettel, Klein, & Friederichsen, 2016). In other words, Industry 4.0 provide the framework for the ultimate focus on *flexibility, customer-orientation* and *state-of-the-art technology*, and advanced manufacturing techniques make this competitive in price (Brettel, Friederichsen, Keller, & Rosenberg, 2014). Already by the year 2025, most manufacturing production processes could be almost entirely autonomous according to the OECD (Backer, DeStefano, Menon, & Suh, 2018).

An intimate relationship between reshoring (to the home country) and various forms of technological innovations applied to manufacture – variations of the concept of Industry 4.0 – has previously been suggested in the literature (e.g. Bals, Kirchoff, & Foerstl, 2016; Barbieri, Ciabuschi, Fratocchi, & Vignoli, 2018; Moradlou, Sawhney, Backhouse, & Mountney, 2017). Beyond numerous case studies, the aggregated empirical analysis also suggests that e.g. investments in robotics have slowed down, and in some cases stopped, offshoring and helped maintain manufacturing in developed economies (Backer et al., 2018). Mastering new manufacturing technologies provide competitive edge due to increased operational efficiency and replacing manual work with automated processes decreases the importance of wage differentials. Similarly, manufacturing firms might prefer to move the operation home in order to exert full control over the complete process without any risks to intellectual property. In Finland, there is also evidence that companies engaging in manufacturing innovations have also been more likely to move previously offshored production back to Finland (Martinsuo & Chaoji, 2017).

In other words, the hypothesis that there is a link between advances in advanced manufacturing – variations of technologies under the umbrella term Industry 4.0 – and manufacturing location decisions appears to be confirmed by empirical evidence. The idea that Industry 4.0 will underpin new patterns of production and new patterns of locations can therefore not easily be discarded.

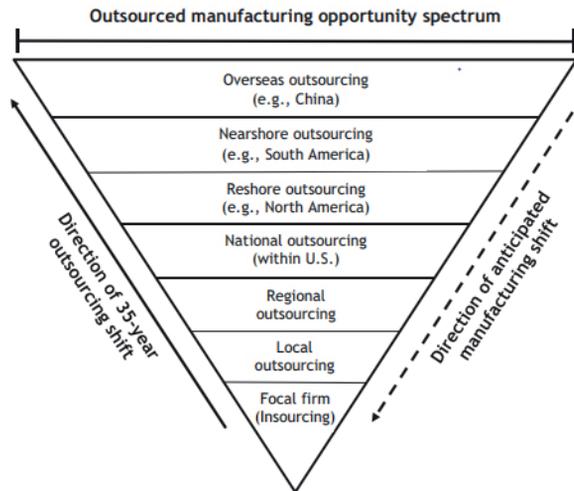


Figure 8. The proposed outsourcing-to-insourcing shift (source: Hartman et al., 2017)

A visualisation of the perceived possible shift from offshoring-to-homeshoring and from outsourcing-to-insourcing can be seen in Figure 8, which shows the direction of the outsourcing shift over recent decades, and the perceived possible reversal for the next decades (Hartman, Ogden, Wirthlin, & Hazen, 2017).

Even if empirical studies suggest a correlation between advanced manufacturing investments and manufacturing location decisions, this ideal-type visualization can still be considered speculation. A recent survey showed that while in Germany, the inventor and frontrunner of the concept, Industry 4.0 are expected to increase reshoring of German manufacturing, the general estimation of the importance of reshoring of Industry 4.0 remains questionable among German practitioners (Müller, Dotzauer, & Voigt, 2017). Backer et al. (2018) similarly notes that while investing in robots seems to have a negative effect on the pace of offshoring, it cannot (yet) be seen as triggering reshoring.

However, some trends seem likely to prove impactful, e.g. that increased use of automation, robotics, and artificial intelligence will put more onus on the availability of skilled labour capable of installing, adjusting and maintaining the automated production.

6. Reimagining Finland as a manufacturing base: elements of strength

Slepnirov et al. (2013) describe the strategic reasoning for why a Swedish automotive company choose to nearshore manufacturing operations in the Baltics. It allowed for investment-neutral growth and required lower costs to guarantee and maintain the necessary quality.

This conclusion is very close to the implied value Valmet Automotive provides for Mercedes-Benz as *flexible, reliable* and able to provide *state-of-the-art technology*.

In providing flexibility and reliability, a Finnish manufacturer might distinguish itself from competitors located further away from the customer. A key driver for a possible

'regional rebalancing of value chains' is that relocation of production in countries far away increases supply risks and decreases the ability to react to adverse shocks and changing consumer demands (Backer et al., 2016).

Customer-orientation is similarly important. The success of an industrial ecosystem will depend in large measure on its responsiveness to innovation and customer needs, and manufacturers in high-wage countries should, therefore, design their operations not only based on operational effectiveness, but on the ability to synchronize output with customer demand (de Treville, Ketokivi, & Singhal, 2017; Schonberger & Brown, 2017). Finally, the need for high-quality products is among the most cited reasons for reshoring production (Stentoft et al., 2016).

As noted, concepts of flexibility, customer-orientation and state-of-the-art technology are all intricately linked to developments of Industry 4.0. Possessing these dynamic capabilities might determine whether manufacturing companies in Finland will thrive in the coming decades or not.

Using these optics, the success of Meyer Turku and Valmet Automotive can be seen as inspirational; a manufacturing development which *can* be replicated by other companies in Finland, if the right capabilities and business model strategies are available.

As automation and digitization become increasingly important in the manufacturing process, availability of other types of skills might determine advantages of manufacturing locations. Finland can be well placed to take advantage of this development, as Finland performs well in comparisons of human capital, education, innovation, network readiness and digitalization. These are main elements of strengths relevant when reimagining Finland as a major European manufacturing base.

Conclusions

After a very rough decade for the Finnish economy and a noteworthy decline in manufacturing jobs, things have recently been looking up in the region of Southwest Finland. Thousands of jobs have been created in the manufacturing of cars and cruise ships, and the importance of these sectors for the whole of the Finnish manufacturing industry has risen, visible in the national economic statistics.

In this article, the two cases have been used as examples of nearshoring. They offer an interesting value-proposition for their clients and customers with production in a country that is quite cheap (or assumingly at least cheap enough) and rather close, possible providing more reliability (fewer supply shocks) and flexibility (including the ability to handle changing customer demands) than competitors in low-cost countries far away.

It appears therefore that the two cases provide examples fitting the recent academic literature on the concept of re- and nearshoring. Yet, the idea of Finland as a possible destination target in this context has not been described prior to this article. The article therefore uniquely concludes that Finland has a hitherto unarticulated, and possibly, untapped potential for improving its manufacturing base with nearshoring of manufacturing. This potential is reinforced further by the development of Industry 4.0 in which new digital skills and new manufacturing techniques provide competitive edges.

This study has some clear limitations and there are still major uncertainties regarding the extent of the impact. Our conclusions could benefit both from additional and from more elaborated case studies. Further conceptual refinements will also be necessary in order to take this research topic forward.

We do believe, however, that this study provides and exemplifies some very fruitful areas for future research. A better understanding of driver for nearshoring and the antecedents for capabilities enforcing this can be highly valuable for Finnish industrial stakeholders and policymakers. Key lessons will be similarly important in other high-cost and high-skill countries.

The connection between re- and nearshoring, manufacturing in high-cost environments and Industry 4.0-techniques will also be key elements to explore for the next decade of business research; first perhaps conceptually and then through the use of more and more empirical research in parallel with the uptake of new technologies. As manufacturing and manufacturing research moves forward, this is going to be an interesting field to follow.

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