

Territorial Servitization and the Manufacturing Renaissance in Knowledge-based Economies

Esteban Lafuente

Department of Management, Universitat Politècnica de Catalunya (Barcelona Tech)
Email: esteban.lafuente@upc.edu

Yancy Vaillant

Department of Strategy, Entrepreneurship & Innovation, Toulouse Business School (TBS)
Email: y.vaillant@tbs-education.org

Ferran Vendrell-Herrero

Birmingham Business School, University of Birmingham, United Kingdom
Email: f.vendrell-herrero@bham.ac.uk

Abstract: The analysis of how the development of knowledge-intensive business service (KIBS) sectors in certain territories contributes to rebuild the competitive advantage of manufacturing businesses—a process described as territorial servitization—has increasingly drawn scholarly and policy attention. The collection of nine papers in this special issue brings new insights into how institutional and spatial as well as socio-economic and industry-specific attributes underpin the development of territorial servitization. By adopting a multidisciplinary perspective that combines a variety of frameworks (organizational, place-based, economic geography), the mechanics and the relationships underlying territorial servitization as well as its territorial economic repercussions are developed. This editorial note first portrays territorial servitization as a local hybrid value chain and argues that effective territorial servitization requires a value adding fit between manufacturers and KIBS. Also, we provide a number of yet unresolved topics that deserve academic attention.

JEL codes: L26, O14, R58

Keywords: Territorial servitization, knowledge-intensive business services (KIBS), manufacturing, regional development

FOR REFERENCING PURPOSES, PLEASE CITE THIS WORK AS:

Lafuente, E., Vaillant, Y., Vendrell-Herrero, F. (2018). Territorial Servitization and the Manufacturing Renaissance in Knowledge-based Economies. *Regional Studies*, in press. doi: <https://doi.org/10.1080/00343404.2018.1542670>

Territorial Servitization and the Manufacturing Renaissance in Knowledge-based Economies

1. Introduction

The objective of this special issue is to develop theory and empirical evidence that provoke and fertilize the scholarly debate on the emerging research stream dealing with territorial servitization (Lafuente, Vaillant, & Vendrell-Herrero, 2017). Territorial servitization has been conceptualized as the capacity of territories to generate outputs from the various types of mutually dependent associations that manufacturing and knowledge-intensive service businesses (KIBS) create and/or develop (Lafuente et al., 2017, p. 20).

Notwithstanding the increased reliance of business-level servitization research on the connection between these two economic agents (manufacturers and KIBS) (Rabetino, Harmsen, Kohtamäki, & Sihvonen, 2018), the central questions on the territorial effects of the interplay between manufacturers and KIBS remain unaddressed in the emerging research stream of territorial servitization.

The first central question relates to the building blocks of territorial servitization. What is the mechanics of territorial servitization processes? While servitization research offers insights on how manufacturers can benefit from service-augmented products (e.g., Bustinza et al., 2018), it is crucial to provide clear definitions of the factors shaping territorial servitization processes so that scholars can build a significant and informative stock of research on this subject.

The second central question deals with the environment within which territorial servitization processes take place. What regional attributes are more conducive to territorial servitization? Much has been said about how territories' characteristics as well as specific policies contribute to territorial development (Rodríguez-Pose, 2013). In this sense, our objective is to identify key territorial attributes that promote territorial servitization.

Throughout this editorial note we address these two subjects, and then provide an overview of the collection of nine papers included in this special issue on territorial servitization. Finally, we offer a set of research questions with guidelines to direct future research.

2. Convening Territorial Servitization: Definitions and mechanics

2.1 Convening territorial servitization

The provision of knowledge-intensive services is widely recognized as one of the key engines for the consolidation of knowledge-based economies (European Commission, 2012). Servitization, defined as the ability of manufacturing firms to introduce value-adding services into

their operations (Vandermerwe & Rada, 1988; Cusumano, Kahl, & Suarez, 2015), plays a key role in this process by developing innovation capabilities and by realizing a shift from products to product-service systems. The number of manufacturers adding services to their offer is rising, with recent evidence indicating that the proportion reaches up to two thirds of manufacturing firms in developed economies (Crozet & Milet, 2017).

The renaissance of local manufacturing sectors has been found to result in some cases from the presence of a dynamic knowledge-intensive business service (KIBS) sector (Arnold, Javorcik, Lipscomb, & Mattoo, 2016). KIBS are both sources and carriers of knowledge that inject advanced services—i.e., servitization—across new and incumbent manufacturing businesses, thus positively impacting territories by enhancing the value-added of manufacturers' products (Lafuente et al., 2017). The local presence of knowledge-intensive services has been shown to help new manufacturers internalize the cost of offering advanced services (Jacobs et al., 2016), while at the same time contribute to alleviating operational weaknesses linked to their liability of both newness and smallness (Lafuente et al., 2017). As such, servitization and the benefits of knowledge-intensive service provision do not necessarily have to be fully integrated within the manufacturer's internal value chain. There are (meso-level) territorial benefits to (micro-level) business servitization.

Territorial servitization takes form from the value-adding benefits of servitization across KIBS and manufacturers of the local hybrid value chain of a specific territory, a process highly connected to the concept of related variety described by Frenken, Van Oort and Verburg (2007). Territorial servitization is found to contribute to local competitiveness and growth through the virtuous cycle generated when a resilient local manufacturing base attracts or stimulates the creation of complimentary KIBS businesses, which in turn facilitates the creation of new manufacturers (Lafuente et al., 2017). KIBS ventures tend to agglomerate together with new and incumbent manufactures, developing linkages and strategic alliances, and therefore opening a virtuous entrepreneurial circle, which in turn positively influence the renaissance of manufacturing.

The servitization of regions offers an opportunity for local manufacturing economies to resume growth and sustain long-term competitiveness. As such, the renaissance of manufacturing through territorial servitization not only enables the upgrading of existing manufacturing competences, but it offers an opportunity to develop and anchor new technological capabilities within regions. These can potentially support industrial resilience leading towards better distributed and sustainable socio-economic growth and prosperity (Lafuente et al., 2017).

The key for regional performance, according to Rocha and Sternberg (2005) and Frenken et al. (2007), does not come from economic territorial specialization or from the pure quantitative agglomeration of firms in a region, but rather from the inter-connections and complementarities that

link these together. From this we can extrapolate that territorial servitization, as a meso-level process linking services and industry within a local hybrid value chain, facilitates local knowledge diffusion and enhances the local impact of manufacturing activity on regional outcomes.

Within a servitization frame, internal large-scale economies were substituted by external economies related to the existence of skilled workers, specialized suppliers, and an informal system of knowledge diffusion. This path of development using territorial servitization which share a stock of work-related and knowledge-intensive services in local settings with locally interweaving patterns of production and marketing ramifying out from this experience is conducive to the creation of a diversified, but related, industrial fabric (Bellandi & Sforzi 2004).

2.2 The mechanics behind the Territorial Servitization process and its value-adding character

A region demonstrating territorial servitization is characterized by having a hybrid value chain composed by a network of integrating manufacturers and service providers. As services, and notably knowledge-intensive services, are becoming a strategic priority of manufacturing firms (Lafuente, Vaillant, & Leiva, 2018), the local presence of such a hybrid value chain can offer a bundle of total solutions that deliver value to customers over the entire usage life of the manufacturer's product, from purchase to disposal (Goncalves, Hines, & Sterman 2005). Together with complementing the manufacturers' offer by allowing them to supply their clients with higher value-added product-service systems, a local hybrid value chain allows these manufacturing firms to servitize throughout their own production process. Firms within a local hybrid value chain continually interact and share information across all phases of the production process (Lin, Jiang, Liu, & Wang, 2014). Effective servitization requires the co-ordination and active tangible as well as intangible transfers across the different players of the local hybrid value chain.

The mechanics behind territorial servitization can be understood in terms of the theory of organizational fit by Miles and Snow (1984). These authors laid down the basic theoretical premises that later served to understand vertical integration (Harrigan, 1984) and value-chain integration theory (Stonebraker & Liao, 2006), and in turn helps to understand the mechanics behind territorial servitization and its influence over local territorial value-adding improvements.

Miles and Snow (1984) conceptualized four different levels of organizational fit that they associated with organizational performance. From this perspective, territorial servitization is coherent with what Miles and Snow called Early Fit, which we interpret more as Value-adding Fit. From this view, it can be interpreted that it is not sufficient to simply have in a defined territory the presence of manufacturers and KIBS, they must interact and have an adequate level of organizational fit throughout the entire local hybrid value chain. If not, we are faced by a situation

described as Minimal Fit among strategy, structure and process across firms of the value chain, resulting in the failure to effectively and efficiently amalgamate for any prolonged period of time. In this scenario, there are no significant interactions between local manufacturers and local KIBS firms. Consequently, resources and knowledge are not effectively circulated throughout the entire local hybrid value chain and the desired territorial servitization benefits are not attained. In such a scenario, manufacturers either internalize their service provision or source them from outside the region. Similarly, KIBS will mostly supply non-local manufacturers or modify their services in order to cater to local consumer markets.

A Tight fit across the firms of a local hybrid value chain is much more desirable. Tight fit is the “underlying causal dynamic producing excellent performance and a strong corporate culture” across a value chain (Miles & Snow, 1984, p. 10). Tight fit occurs when the different firms and units of a value chain operate with a sufficient level of fit in terms of strategy, technology, structure and process, that they easily complement each other and can adopt local synergetic interactions without the need for disruptive adaptations of their activities. Tight fit is important for valuable interactions to occur across a local hybrid value chain. Manufacturers can therefore effectively buy, instead of make, their service provision by locally outsourcing their service function, enabling them to offer a higher value product-service system to their clients. This forms an initial level of territorial servitization that may not be sufficient to optimize territorial outcomes.

For optimal territorial servitization, what is required is Value-adding fit. Derived from what Miles and Snow (1984) called Early fit, Value-adding fit occurs when there is some incremental misalignment between the different players at distinctive levels of the local hybrid value chain that force the transmission of knowledge and skills across firms in order to allow for effective territorial servitization. Much like the innovation benefits of Schumpeter’s (1934) creative destruction resulting from deviations away from equilibrium, such incremental mismatch provokes the dynamic reinforcing loop that promotes the discovery and articulation of new patterns of strategy, structure, and processes across the local hybrid value chain. A positive bullwhip effect is created where the value-adding benefits of territorial servitization pulls the different agents of the local hybrid value chain to greater levels of knowledge and skill utilization, allowing for the renaissance of incumbent manufacturers, and producing local opportunity for the generation of new KIBS as well as manufacturing ventures. In this manner, the entire local hybrid value chain, and by extension the local economy of which it forms part, collectively benefits from the generated knowledge-intensive value adding territorial servitization.

There is, however, a fourth scenario described as Fragile fit (Miles & Snow, 1984), where the players of the local hybrid value chain fail to evolve at a similar pace and where the bullwhip

effect eventually leads to excessive divergence and ultimately to a scenario of Minimal fit. Vulnerability to both shifting external conditions and inadvertent local unraveling may easily set firms upon distinct trajectories, falling victim to deteriorating fit. Fit that was once Tight or even Value-adding then fails to sustain its inter-firm compatibility over time. This is often the case when inter-firm connections and productive networks are artificially stimulated through policy or institutional intervention (Capello & Kroll, 2016).

3. The contributions of this special issue to the territorial servitization literature

This special issue includes nine articles that contribute significantly to advance the theory and empirical evidence of territorial servitization. By analyzing the different approaches adopted by the selected papers (Table 1), we observe that territorial servitization can be researched from multiple angles, and that the unit of analysis varies from firm, industry, and territorial levels of analysis. Note that part of the value of the collection of papers included in this special issue results from the capacity to bring together multiple theoretical premises from different fields, including organizational and place-base frameworks as well as arguments closer to economic geography.

The richness of these papers also becomes evident in the variety of methods employed—spanning from qualitative studies to quantitative approaches based on regression models and spatial econometrics—and in the geographic diversity of the analyzed settings, covering single European countries, the US, as well as multi-country comparisons and cross-regional studies including 121 regions from 24 EU countries. By using multiple analytical methods, the selected papers contribute to identify patterns and territorial attributes that are conducive to territorial servitization processes.

The diversity of the selected papers is entirely consistent with and further reinforces the arguments and logic presented above on the need to analyze both the mechanics and outcomes of territorial servitization processes.

Three of the manuscripts included in the special issue deal with relevant *institutional and spatial attributes* that impact KIBS and manufacturing businesses. First, in his study of 401 German NUTS-3 regions during 1994-2010, Wyrwich (2019, in this issue) presents evidence of the role of the spatial context on the rate of new professional and technical KIBS. The local manufacturing base is unrelated to KIBS' formation rates in regions with developed market institutions and a solid KIBS base (Western Germany). On contrary, the demand of KIBS' services by local manufacturers increases in Eastern German regions lacking a consolidated KIBS sector (prior to German reunification). This spatial co-location effect decreases over time as the KIBS sector develops.

Second, the paper by Horváth and Rabetino (2019, in this issue) evaluates one of the territorial servitization hypotheses proposed by Lafuente et al. (2017). Specifically, the authors

employ spatial econometrics (spatial Durbin model) on a sample of 121 EU regions (24 countries) for 2012-2014 to verify whether the characteristics of the local manufacturing industry affects the KIBS' business creation rate, and whether the quality of the entrepreneurial ecosystem moderates this relationship. The results show that a solid manufacturing base is a prerequisite for greater KIBS' formation rates. Also, this study reveals that the entrepreneurial ecosystem—i.e., the institutional setting backing entrepreneurship (Acs, Autio, & Szerb, 2014; Lafuente, Szerb & Acs, 2016)—is an important *institutional attribute* that contributes to create/develop a solid KIBS sector.

Third, Figueroa-Armijos (2019, in this issue) analyzes the effect of public funding programs devoted to support new and incumbent manufacturing and KIBS in the United States. She finds that such public transfers pay off for both manufacturers and KIBS, in terms of higher survival rates and sales levels. Thus, support policies (e.g., public funding) are relevant *policy-related attributes* that help develop manufacturing and KIBS sectors, which constitute a prerequisite to establishing the adequate foundations for territorial servitization to take hold.

The paper by Bellandi and Santini (2019, in this issue) employs mixed methods (quantitative and qualitative) to analyze different territorial servitization trajectories in the textile industrial district of Prato (Italy). The authors find that certain characteristics of industrial districts (e.g. structure of productive know-how and entrepreneurial activity) are important drivers of territorial servitization. These characteristics represent *economic and socio-cultural attributes* that should be accounted for in future work on territorial servitization.

Finally, a group of five papers focus on different *industry-related attributes* and their connection with the mechanics and outcomes of territorial servitization processes (Table 1).

In this last group, two out of the five papers employ qualitative methods—semi-structured interviews—to identify how KIBS interact with product businesses. We link these two papers to the *mechanics of territorial servitization*. As a result of conversations with 24 managers and ten experts in the Wind-to-Energy industry, Gebauer and Binz (2019, in this issue) find that KIBS-led territorial servitization processes contribute to the diffusion of service competencies which, in turn, enhance the competitiveness of both the Wind-to-Energy industry and the focal territories—in terms of employment generation—at different intensities throughout the industry's life cycle stages. Liu, Lattemann, Xing and Dorawa (2019, in this issue) analyze three territorial servitization models in Germany (Bremen). Consistent with our arguments presented in Section 2, the authors find that the matching between service specificity (professional or technical) and manufacturers' demand conditions the type of collaboration between KIBS and manufacturing firms. Additionally, De Propris and Storai (2019, in this issue) explore the evolution of KIBS and manufacturing sectors in the UK in 2010 and 2015. The authors find that high-tech manufacturing sectors are not co-located

with KIBS sectors. Territorial decoupling—evident in the concentration of KIBS in urban areas and in the concentration of manufacturing sectors in rural regions—and the capacity of the highly developed KIBS sector in the UK to satisfy the relatively geographically close manufacturing demands are invoked as main explanations for this result. In this case, not all KIBS are the same and not all servitization relations require the same level of geographic proximity.

The three preceding papers suggest that the outcomes of territorial servitization processes are conditional on different *industry-related attributes*.

Finally, two papers analyze the performance of KIBS and manufacturing sectors from a territorial perspective. Sforzi and Boix (2019, in this issue) explore territorial servitization in Marshallian industrial districts (MIDs). By evaluating the performance of manufacturing firms (employment growth) in Italian and Spanish MIDs in 1991, 2001 and 2011 and the evolution of KIBS sectors within MIDs (ratio of KIBS divided by total number of firms in the MID) the authors find that Italian MIDs outperform Spanish MIDs. The authors suggest that the higher growth of KIBS sectors may explain the superior performance of Italian MIDs, giving support to the territorial servitization arguments by Lafuente et al. (2017). Gomes, Bustinza, Tarba, Khan and Ahammad (2019, in this issue) adopt a different perspective. Using a sample of 55 regions in Germany and Spain during 2010-2014, the authors evaluate the mutual relationship between KIBS deepening (similar to Sforzi and Boix (2019, in this issue): KIBS firms divided by total number of firms), and a novel measure of territorial servitization defined as the proportion of manufacturers that servitize (based on secondary economic activity codes). The results of the 2SLS model confirm the findings by Lafuente et al. (2017): a solid local manufacturing base leads to higher KIBS deepening which, in turn, positively affects territorial servitization.

Again, both Sforzi and Boix (2019, in this issue) and Gomes et al. (2019, in this issue) identify relevant *industry-related attributes* (consolidated manufacturing and KIBS sector) that are conducive to territorial servitization. Lastly, these two studies share a methodological contribution. These studies are the first resorting to secondary sectors obtained from ORBIS databases (Bureau Van Dijk) to quantify the percentage of manufacturers that servitize in a focal region.

----- Insert Table 1 about here -----

4. Directions for future research

Building on the proposed conceptualization of territorial servitization (Section 2 of this editorial note) and the conclusions drawn from the nine papers included in this special issue, a number of promising future research challenges emerge.

Operationalize and test the model empirically. The first challenge to be tackled by future research would be to propose and test different operationalization options for the conceptual territorial servitization model emerging from the studies presented in this special issue and proposed in this editorial note. The operationalization of territorial servitization based on secondary databases (see Sforzi and Boix (2019, in this issue) and Gomes et al. (2019, in this issue)) opens the door for identifying the depth of territorial servitization of regions, and for establishing wider cross-territorial comparisons.

Value-Destroying fit. The conceptual model for territorial servitization presented in this note assumes perpetual industrial progress in the long-term. There are, however, periods of slow-down and occasional recession. This is not well captured in our model of Value-adding Fit. To explain these phases of occasional regression, the forces of a Value-destroying fit may be at hand, where the incremental divergence between the different players of the local hybrid value chain brings businesses to adjust down, instead of up, the knowledge and skills utilization within their servitization process. This may have negative territorial servitization repercussions for the local economy. Future research should verify the existence and ramifications of this regressive territorial servitization process.

Interaction between the attributes and the territorial servitization process. Much still needs to be studied concerning the factors that contribute to the development and effective functioning of the territorial servitization process. The research included in this special issue allows us to identify various categories of attributes linked to territorial servitization: industry-related attributes, economic attributes, socio-cultural attributes, policy-related attributes, institutional, and spatial attributes. Each of these attributes, and their connections with territorial servitization in different geographical and industrial contexts, form enthralling lines of research in themselves.

Analyzing the importance of proximity. Although the territorial servitization concept relies on proximity relations and exchange across the different functions of a local hybrid value chain, it was observed by research in this issue (De Propris & Storai, 2019; Horváth and Rabetino, 2019; Wyrwich, 2019) that not all servitization relationships require the same level of geographic proximity. Depending on their function and value chain positioning, the importance of close interactions between manufacturer and service provider may vary. Similarly, not all knowledge-intensive services need to be locally available to stimulate effective servitization relationships with local manufacturers. Proximity is important for territorial servitization. But nuances exist, and further research is required to better understand how territorial servitization is affected.

Policy design. The territorial servitization process falls within the wider territorial innovation system approach that is in many ways coherent with posits of place-based, bottom-up

smart specialization (Capello & Kroll, 2016). From this perspective, the role of policy is one of facilitator rather than regulator, one that enables rather than intervenes, and one that focuses on improving attributes that strengthen desired territorial processes rather than the processes in themselves. Yet, much still needs to be observed and researched concerning the role of policy for territorial servitization.

Acknowledgements: The guest editors thank journal editor Stefano Usai for his support during the editorial process of this special issue. The guest editors are also thankful to the anonymous referees whose valuable and most constructive comments contributed to significantly improving the manuscripts included in this special issue. For their ideas and insights that helped to improve the papers the guest editors are grateful to participants at the 6th International Conference on Business Servitization (Barcelona School of Building Construction, UPC Barcelona Tech, 2017).

Disclosure statement: No potential conflict of interest was reported by the guest editors.

Funding: Esteban Lafuente acknowledges financial support from the Spanish Ministry of Economy, Industry and Competitiveness (grant number: ECO2017-86305-C4-2-R). Ferran Vendrell-Herrero received financial support from the Spanish Ministry of Science and Innovation (grant: ECO2014-58472-R) and from the European Union (Horizon 2020 Marie Skłodowska-Curie Actions Project MAKERS: Smart Manufacturing for EU Growth and Prosperity – Grant: 691192).

References

- Acs, Z.J., Autio, E., & Szerb, L. (2014). National systems of entrepreneurship: Measurement issues and policy implications. *Research Policy*, 43(3), 476-494. doi: 10.1016/j.respol.2013.08.016
- Arnold, J.M., Javorcik, B., Lipscomb, M., & Mattoo, A. (2016). Services reform and manufacturing performance: Evidence from India. *Economic Journal*, 126(590), 1-39. doi: 10.1111/eoj.12206
- Bellandi, M., & Santini, E. (2019). Territorial servitization and new local productive configurations: the case of the textile industrial district of Prato. *Regional Studies* [in this issue]. doi: 10.1080/00343404.2018.1474193
- Bellandi, M., & Sforzi, F. (2004). The Multiple Paths of Local Development. In Becattini, M., Bellandi, L., Omodei, and F. Sforzi, *From Industrial Districts to Local Development*, p. 210-226. Edward Elgar, Cheltenham.
- Bustanza, O.F., Vendrell-Herrero, F., Gomes, E., Lafuente, E., Opazo, M., Rabetino, R., & Vaillant, Y. (2018). Product-service innovation and performance: unveiling the complexities.

- International Journal of Business Environment*, 10(2), 95-111. doi: 10.1504/IJBE.2018.10016879
- Capello, R., & Kroll, H. (2016). From theory to practice in smart specialization strategy: emerging limits and possible future trajectories. *European Planning Studies*, 24(8), 1393-1406. doi: 10.1080/09654313.2016.1156058
- Crozet, M., & Milet, E. (2017). Should everybody be in services? The effect of servitization on manufacturing firm performance. *Journal of Economics & Management Strategy*, 26(4), 820-841. doi: 10.1111/jems.12211
- Cusumano, M.A., Kahl, S.J., & Suarez, F.F. (2015). Services, industry evolution, and the competitive strategies of product firms. *Strategic Management Journal*, 36(4), 559-575. doi: 10.1002/smj.2235
- De Propriis, L., & Storai, D. (2019). Servitizing industrial regions. *Regional Studies* [in this issue]. doi: 10.1080/00343404.2018.1538553.
- European Commission (2012). Knowledge-Intensive (Business) Services in Europe. Publications Office of the European Union, Luxembourg. doi: <http://dx.doi.org/10.2777/59168>
- Figueroa-Armijos, M. (2019). Does Public Entrepreneurial Financing Contribute to Territorial Servitization in Manufacturing and KIBS in the US? *Regional Studies* [in this issue]. doi: to be assigned by the journal
- Frenken, K., Van Oort, F., & Verburg, T. (2007). Related variety, unrelated variety and regional economic growth. *Regional Studies*, 41(5), 685-697. doi: 10.1080/00343400601120296
- Gebauer, H., & Binz, C. (2019). Regional benefits of servitization processes: evidence from the wind-to-energy industry. *Regional Studies* [in this issue]. doi: 10.1080/00343404.2018.1479523
- Gomes, E., Bustinza, O.F., Tarba, S., Khan, Z., & Ahammad, M. (2019). Antecedents and implications of territorial servitization. *Regional Studies* [in this issue]. doi: 10.1080/00343404.2018.1468076
- Gonçalves, P., Hines, J., & Sterman, J. (2005). The impact of endogenous demand on push-pull production systems. *System Dynamics Review*, 21(3), 187-216. doi: 10.1002/sdr.318
- Harrigan, K.R. (1984). Formulating vertical integration strategies. *Academy of Management Review*, 9(4), 638-652. doi: 10.5465/amr.1984.4277387
- Horváth, K., & Rabetino, R. (2019). Knowledge-intensive territorial servitization: regional driving forces and the role of the entrepreneurial ecosystem. *Regional Studies* [in this issue]. doi: 10.1080/00343404.2018.1469741
- Jacobs, W., Van Rietbergen, T., Atzema, O., Van Grunsven, L., & Van Dongen, F. (2016). The impact of multinational enterprises (MNEs) on knowledge-intensive business services (KIBS)

- start-ups: empirical evidence from the Dutch Randstad. *Regional Studies*, 50(4), 728-743. doi: 10.1080/00343404.2014.932905
- Lafuente, E., Szerb, L., & Acs, Z.J. (2016). Country level efficiency and national systems of entrepreneurship: a data envelopment analysis approach. *Journal of Technology Transfer*, 41(6), 1260-1283. doi: 10.1007/s10961-015-9440-9
- Lafuente, E., Vaillant, Y., & Leiva, J.C. (2018). Sustainable and Traditional Product Innovation without Scale and Experience, but only for KIBS! *Sustainability*, 10(4), 1169. doi: 10.3390/su10041169
- Lafuente, E., Vaillant, Y., & Vendrell-Herrero, F. (2017). Territorial servitization: Exploring the virtuous circle connecting knowledge-intensive services and new manufacturing businesses. *International Journal of Production Economics*, 192, 19-28. doi: 10.1016/j.ijpe.2016.12.006
- Lin, W.-J., Jiang, Z.-B., Liu, R., Wang, L. (2014). The bullwhip effect in hybrid supply chain. *International Journal of Production Research*, 52(7), 2062-2084. doi: 10.1080/00207543.2013.849013
- Liu, Y., Lattemann, C., Xing, Y., & Dorawa, D. (2019). The emergence of collaborative partnerships between knowledge intensive business service (KIBS) and product firms: the case of Bremen, Germany. *Regional Studies* [in this issue]. doi: 10.1080/00343404.2018.1510178
- Miles, R.E., & Snow, C.C. (1984). Fit, failure and the hall of fame. *California Management Review*, 26(3), 10-28. doi: 10.2307/41165078
- Rabetino, R., Harmsen, W., Kohtamäki, M., & Sihvonen, J. (2018). Structuring servitization-related research. *International Journal of Operations & Production Management*, 38(2), 350-371. doi: 10.1108/IJOPM-03-2017-0175
- Rocha, H., & Sternberg, R. (2005). Entrepreneurship: the role of clusters, theoretical perspectives and empirical evidence from Germany. *Small Business Economics*, 24(3), 267-292. doi: 10.1007/s11187-005-1993-9
- Rodríguez-Pose, A. (2013). Do institutions matter for regional development? *Regional Studies*, 47(7), 1034-1047. doi:10.1080/00343404.2012.748978
- Schumpeter, J.A. (1934). *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*. Cambridge, MA: Harvard University Press.
- Sforzi, F., & Boix, R. (2019). Territorial servitization in Marshallian industrial districts: the industrial district as a place-based form of servitization. *Regional Studies* [in this issue]. doi: 10.1080/00343404.2018.1524134

- Stonebraker, P.W., & Liao, J. (2006). Supply chain integration: exploring product and environmental contingencies. *Supply Chain Management: An International Journal*, 11(1), 34-43. doi: 10.1108/13598540610642457
- Vandermerwe, S., & Rada, J. (1988). Servitization of Business: Adding Value by Adding Services. *European Management Journal*, 6(4), 314-324. doi: 10.1016/0263-2373(88)90033-3
- Wyrwich, M. (2019). New KIBS on the bloc: the role of local manufacturing for start-up activity in knowledge-intensive business services. *Regional Studies* [in this issue]. doi: 10.1080/00343404.2018.1478076

Table 1. Methodology and geographic scope of the articles included in the special issue

	Geographic scope of the collection of papers included in the special issue		
Territorial attributes	Single region / single-country analysis	Cross-regional / multi-country analysis	Continental (European Union)
Institutional / spatial	1) Figueroa-Armijos (2019) - Unit of analysis: firm (US) (1,425,138 firms) - Method: Regression models	2) Wyrwich (2019) - Unit of analysis: region (Germany) (401 regions: East= 76, West= 325) - Method: Negative binomial regression	3) Horváth and Rabetino (2019) - Unit of analysis: region (121 regions from 24 EU countries) - Method: Spatial econometrics (Spatial Durbin model)
Socio-economic	4) Bellandi and Santini (2019) - Units of analysis: Industrial district of Prato (Italy) (textile firms / institutional actors) - Method: Mixed method		
Industry-related		5) De Propris and Storai (2019) - Unit of analysis: region (37 UK regions) - Method: Descriptive and correlations 6) Gebauer and Binz (2019) - Unit of analysis: Wind-to-Energy (W2E) industry (Denmark, Germany, and Spain) - Method: Qualitative (semi-structured interviews) 7) Gomes, Bustinza, Tarba, Khan, Ahammad (2019) - Unit of analysis: region (Germany= 38, Spain= 17) - Method: Two-stage least squares (2SLS) regression 8) Liu, Lattemann, Xing, Dorawa (2019) - Unit of analysis: KIBS (3 cases from Bremen, Germany) - Method: Qualitative (semi-structured interviews) 9) Sforzi and Boix (2019) - Unit of analysis: Industrial district (Italy and Spain) - Method: In-depth longitudinal descriptive analysis	