

SHAPING SERVITIZATION IN SMEs RELATED RESEARCH

A systematic literature review and future research directions

ABSTRACT

This paper aims to address the current body of literature on servitization in SMEs and identify future research directions on this topic. The 4th industrial revolution that dominates manufacturers’ present innovation chances is grounded on the *servitization* concept, namely the transition in enterprise’s business model from products to product-service systems. Servitization is facilitated by digitalization, which stress customer centricity approach through data intelligence technologies (e.g., remote monitoring). However, literature has primarily concentrated efforts on large companies even though servitization occurs in all types of supply chains. In addition, the limited number of contributions are scattered among different research communities and subject areas. This makes complex transfer findings to SMEs, leaving them without theories and tools specifically developed to manage their unique needs. A systematic literature review from of the available scientific literature was organized capturing the state of the art of the area. Results recognize a still unexplored topic clustered in five main thematic areas, enouncing gaps, and possible future research directions for scholars.



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INTRODUCTION

- The 4th industrial revolution is based on the introduction of internet of things and servitization concepts into manufacturing companies (Thoben et al., 2017).
- Servitization refers to the transition in enterprise’s business model from products to product-service systems (PSS) in order to generate higher use-value, pricing is based on value, and capabilities support customer-dominant orientation (Lightfoot et al., 2013).
- Despite SMEs are the most ubiquitous form of business organization, current servitization literature...
 - didn’t investigate too much SMEs that attempt to servitize (Adrodegari et al., 2020).
 - focus on large multinational firms even though servitization occurs in all types of supply chains, including those for small and medium-sized enterprises (Kowalkowski et al., 2018).
 - about servitization in SMEs is composed mostly by technical conference papers that had not yet become well cited enough in comparison to other research papers based on large manufacturers (Clegg et al., 2017).
 - has concentrated efforts on large companies making difficult transfer findings to SMEs (Baines et al., 2017).
- Compared to large manufacturing companies, SMEs...
 - lack – or at least, are constrained in access to – internal resources and skilled personnel (Kowalkowski, 2013).
 - are more vulnerable to competition (Rapaccini et al., 2019).
 - having a simpler organizational structure, grow rapidly and undergo organizational changes over time (Valtakoski & Witell, 2018).
 - have limited access to their installed base (Gebauer, 2010) because of distributors and resellers usage.
- Due to these considerations, the following research questions will guide this literature review:
 - RQ1. What are the features of the current body of literature on servitization in SMEs?**
 - RQ2. What are the limitations within the literature on servitization in SMEs that could inspire future research directions?**

METHOD

- Review process readapted from Thomé et al. (2016), opportunely rearranged in a five steps iterative workflow (figure 1).
 - Literature research queried on Scopus database and then using the snowballing technique.
 - Data gathering and quality evaluation based on PRISMA process (Paschou et al., 2020)
 - Data analysis performed through Microsoft Power BI, grounded on six primitive tables.
 - Results presentation based on textual narrative synthesis approach, which allow to organize selected papers in homogenous subgroups based on data extracted from them (Xiao & Watson, 2017).

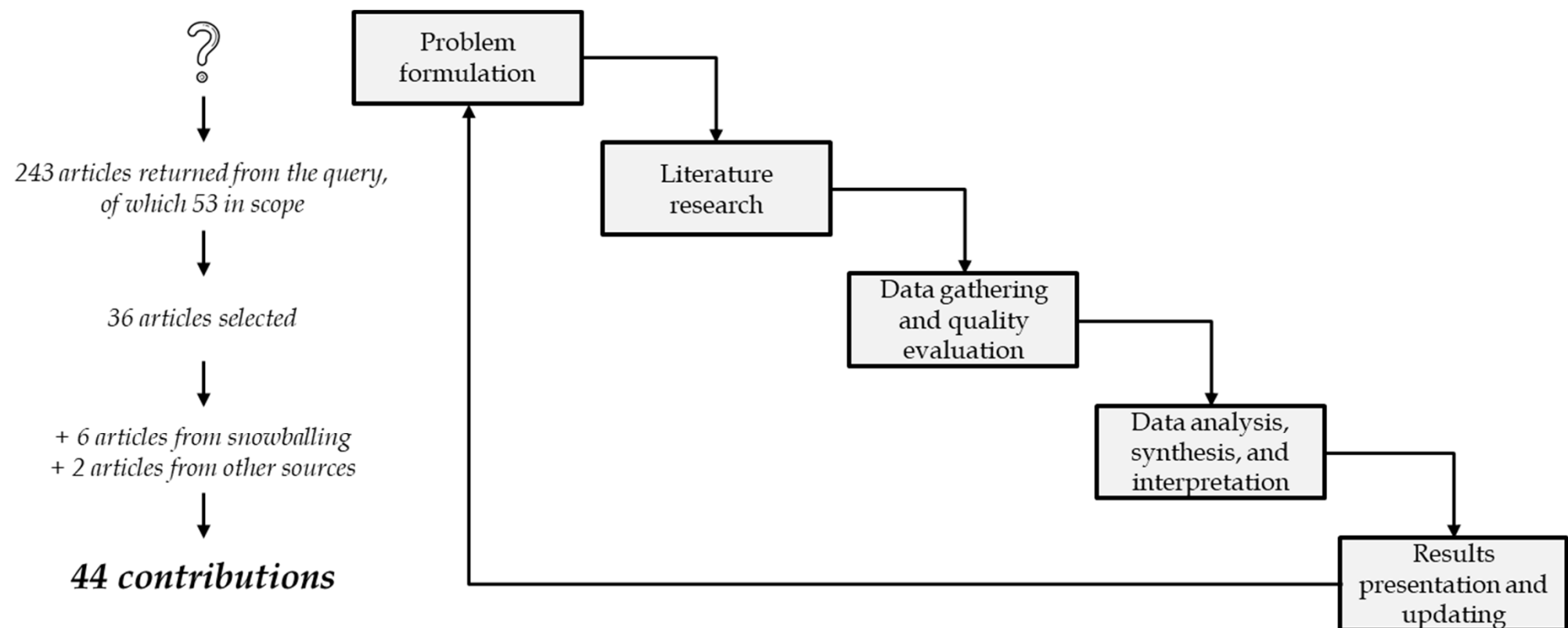


Figure 1. Literature review five steps iterative workflow.

KEY FINDINGS

- Descriptive analysis results.
 - Servitization in SMEs is a recent topic in which existing contributions – especially from European authors – are fragmented among different fields.
 - This topic is developed mainly through empirical qualitative studies from the manufacturing industry, mostly based on multiple case studies.

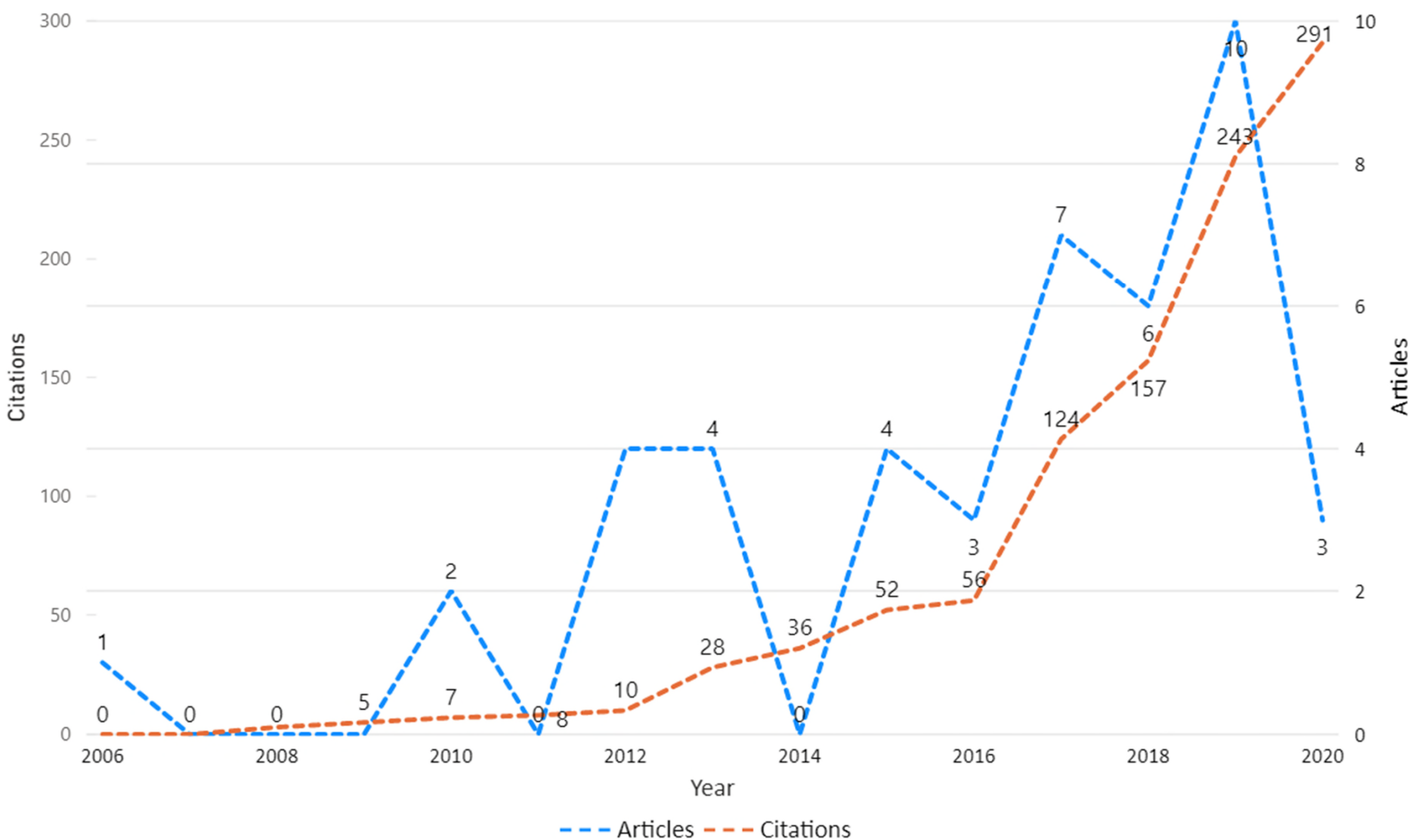


Figure 2. Publications and citations time distribution.

- Thematic analysis results.
 - Selected literature concerns six main areas:
 - PSS business model, design, and development.
 - Supply chain management.
 - Drivers and barriers to servitization progress.
 - Financial and non-financial performances.
 - Territorial servitization and policy making.
 - Other minor themes:
 - PSS decision-making systems.
 - PSS production systems.
 - Propositions stated for each thematic cluster allowed to identify gaps in the body of knowledge, which led to the definition of 45 future research directions for scholars.

Proposition	Research gap	Future research direction
# 1	1. Contributions mainly comes from Europe and are fragmented among different fields, with empirical cases from Europe and few countries in Latin America.	1.A. Address empirical cases from North America, Asia, and developing countries to stressing the role of economic, social, and political contexts, as well as practices and work environments.
# 2	2. Most of contributions are empirical qualitative case studies primarily from the manufacturing industry.	2.A. Extend empirical research to other sectors from manufacturing, both in B2B and B2C industries. 2.B. Adopt quantitative methodologies (e.g., survey) that allow to compare different companies from the same or different industries.
# 3	3.1.1. Only few qualitative studies have analysed PSS business model' implementation when just one model at a time is executed. 3.1.2. Models are based on business model canvas framework. 3.1.3. PSS business' variables significance is not statistically tested.	3.1.A. Perform explanatory surveys to test the significance of the PSS business model's variables (Adrodegari et al., 2017). 3.1.B. Investigate how PSS business model frameworks and SeMM can support the configurations of variables, especially resources and capabilities, when multiple BMs are deployed within the same company (Adrodegari et al., 2017; Adrodegari & Saccani, 2020). 3.1.C. Define archetypal configurations of servitized BMs that can describe the strategic shift from products to PSS along different service growth trajectories (Adrodegari et al., 2017). 3.1.D. Extend the SeMM focusing on variables that cross between BM components and maturity dimensions to identify critical requirements to be added (Adrodegari & Saccani, 2020). 3.1.E. Develop new PSS business models based on different frameworks respect to business model canvas (Adrodegari et al., 2017). 3.1.F. Analyse how key relationships between SME and its suppliers can create new value propositions that go beyond the existing industry logic (Gebauer et al., 2012).
	3.2.1. Cases related to sustainable PSS design are developed through cross-sectional analysis. 3.2.2. The role of digitalization and ICT tools selection for PSS design and is not sufficiently analysed.	3.2.A. Find mechanisms to determine on an individual basis when sustainable PSS development through the integration of ICTs and the design process is a suitable concept for SMEs (Hernandez-Pardo et al., 2013). 3.2.B. Provide tools to support sustainable PSS risk, cost, and profit analysis, helping SMEs to conduct organisational changes and detail the sustainable PSS offer along the life cycle (de Jesus Pacheco et al., 2019).

Figure 3. Extract from this paper's table about research gaps and suggested research directions.

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