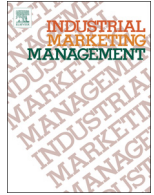




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## Industrial Marketing Management



## Product biographies in servitization and the circular economy

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## ABSTRACT

This paper questions the assumption in much of the marketing and product-service literature that products can be treated as stable platforms for the delivery of services. Instead, it uses the notion of the product biography to argue that products are chronically unstable, both physically and institutionally, and focusses on the managerial and institutional effort required to temporarily stabilise and qualify products for exchange or service value-creation. The context of the circular economy, which presents particularly acute challenges of qualification, is used to stimulate insights into how the product biography approach can inform the servitization debate. In particular, the circular economy perspective emphasises the need to see products as qualified by and constitutive of a distributed network, rather than defined once and for all by their producer, and points to entrepreneurial opportunity in the moments of transition between singularised, unique specimens and general, commodified, manageable objects – and *vice versa*. The wider and multiple product biographies occasioned by the circular economy also lead to reconfiguration of networks, as new potential valuations give rise to new entrepreneurial spaces.

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## 1. Introduction

The pursuit of service-led growth by product firms has been an increasingly important issue for practice, research and policy over the past ten to fifteen years. Early research on the shift to services, or 'servitization' was largely conceptual, arguing for servitization as such (Vandermerwe & Rada, 1988), and in manufacturing in particular (Wise & Baumgartner, 1999), as a way to differentiate and to create and/or capture extra value. Subsequently, an extensive literature has grown around the categorisation of different forms of service-led growth in product firms (Mathieu, 2001; Tukker, 2004; Matthyssens & Vandenbempt, 2010; Kindström & Kowalkowski, 2014; Kowalkowski, Windahl, Kindström, & Gebauer, 2015), often centring on whether and how service activities should be related to the associated products and, in some cases, examining alternative forms of ownership structure and their effects (Snir, 2001; Stoughton & Votta, 2003). Manufacturing firms venturing into service provision face challenges in terms of organisational structure (Galbraith, 2002; Raddats & Burton, 2011; Gebauer, Edvardsson, Gustafsson, & Witell, 2010) and in developing functional strategies, for example in marketing and operations (Matthyssens & Vandenbempt, 2008; Baines et al., 2009). An enduring question is the extent to which service should be provided from the same organisational unit as production, or delivered from a separate one (Oliva & Kallenberg, 2003; Oliva, Gebauer, & Brann, 2012). Others have examined the role of capabilities in enabling firms to put

servitization strategies into effect (Ulaga & Reinartz, 2011; Spring & Araujo, 2013), identifying how existing capabilities can be mobilised, and what additional capabilities may need to be developed or accessed from other firms in the network.

As servitization has become increasingly widely advocated and adopted, researchers have turned their attention to its financial and performance implications (Neely, 2008; Visnjic-Kastalli & Van Looy, 2013; Eggert, Högrevé, Ulaga, & Muenkhoff, 2014). The so-called 'servitization paradox' has emerged, which suggests that firms who adopt servitization may grow their revenue, but not their profit (Neely, 2008). More specifically, studies have begun to show that firms perform better when they add a large proportion of service offerings to their manufacturing product offering, rather than adding services only in a very incremental fashion (Fang, Palmatier, & Steenkamp, 2008). In some forms of servitization, the manufacturer retains ownership of the product and makes it available to the customer using some form of lease, rental or payment for access. This is also examined in the systems integration and 'solutions' literature (Prencipe, Davies, & Hobday, 2003; Nordin & Kowalkowski, 2010). As such, another strand of literature has examined the different forms these arrangements may take, using, for example, property rights theory (Lay, Schroeter, & Biege, 2009) and agency theory (Kim, Cohen, & Netessine, 2007) to understand how the change in ownership structure alters incentives in the 'servitized' relationship.

In these various ways, the embracing of services has certainly presented new challenges in practice and in theory. Product-led firms have had to develop or access new capabilities; researchers have had to think again about what services are, often without the aid of the

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conventional, externally-imposed categorisations of 'service sectors' that had defined the scope of most service research hitherto. But in this search for insight into what services are, why that matters, and, especially, how it matters to product-led firms, we suggest that the product has been neglected. As we demonstrate, products have been treated as the stable, unproblematic element in the mix, as vehicles for the delivery of service, as the part of the business that is relatively familiar and easy to manage.

We suggest, on the contrary, that the intimate entangling of products and services in many forms of servitization means that we must reflect as intensively on the nature, role and identity of products as we do on those of services. Further still, as the conventional take-make-dispose model of product supply chains is superseded by what is increasingly known as the 'circular economy', the identity and stability of products is challenged even more, as they undergo refurbishment, remanufacturing, dismantling, re-use and recycling, as well as being subject to new forms of valuation and exchange. Although it has recently been discussed in policy, consultancy and the human geography literature (*World Economic Forum*, 2014; Nguyen, Stuchtey, & Zils, 2014; Hobson, *in press*), the circular economy has not been addressed in industrial marketing, despite its potentially profound implications for business-to-business networks and relationships. Finally, the emerging phenomenon of the 'Internet of Things' potentially allows constant monitoring, adjustment and redefinition of products and their relationships to other actors and artefacts in a network. Taken together, these developments suggest that it is necessary to reconsider the product. Existing conceptualisations position it as a stable entity in a producer-centric, linear distribution chain; we suggest a more distributed conceptualisation of products, seeing them as open-ended propositions subject to constant re-definition and re-valuation as they are attached to and detached from successive contexts and networks.

To do this, we use the central idea of the product biography to examine products in relation to services, to other products, and in processes of production, re-production, valuation, exchange and use. Our aim is to use the product biography perspective to disrupt the conventional views of products in servitization, in order to reveal novel insights. The circular economy context is used to examine some of the implications of the product biography approach in settings where the scope of - and the need for - service-based innovations is particularly evident. In the next section, we review how the product has been conceptualised in the servitization and general marketing literature. Next, we introduce the central concept of the paper, the product biography, and link this to the associated need for qualification and valuation processes. In [Section 4](#), the notion of the circular economy is introduced more fully, and its implications for product qualification and network reconfiguration are examined through two illustrative case studies. [Section 5](#) then develops the argument that various forms of repair - in many ways at the heart of the circular economy - should be seen not just as occasions for restoration of products, but also as opportunities for innovation and entrepreneurial action. We then discuss the implications for servitization of the product biography view and our application of it to the circular economy context. [Section 7](#) summarises the contributions of the paper.

## 2. Servitization and the product

Any analysis of service-led growth by product firms - which we will refer to as 'servitization' for convenience - has to consider various aspects of the service activities that product firms begin to undertake. The servitization literature has done just this, and some of the service issues considered are outlined in the [Introduction](#). The conceptualisation of the product is, by comparison, much less frequently discussed. In this section, we review how the product has been treated in, first, the general marketing literature, then the servitization literature. This provides a basis for our argument that a product biography perspective can provide new insights into servitization.

### 2.1. Concepts of the product in marketing

The marketing literature has generally struggled to conceptualise products beyond commonsense notions. [Kotler \(1967: 289\)](#) defined a product as "a bundle of physical, service and symbolic particulars expected to yield satisfaction or benefits to the buyer". Similarly, for [Corey \(1975: 121\)](#) "...the product is what the product does: it is the total package of benefits the customer receives when he buys". Later, [Kotler \(1980: 352\)](#) simplified this definition to a product being "... simply the packaging of a problem-solving service". [Riddle \(1986: 4\)](#), following the Kotlerian vein, noted that: "tangible objects... have little value in and of themselves; they are important only to the extent that they serve as the equipment and supplies for the extraction or service production processes".

The services marketing literature provides brief definitions of the product, before proceeding to contrast the characteristics of products and services. [Grönroos \(1998: 352\)](#) defined a product as a "...more or less pre-produced package of resources and features that is ready to be exchanged." In their quest to move away from a product-centred logic, [Vargo and Lusch \(2004: 9\)](#) similarly claim that products are "... best viewed as distribution mechanisms for services", or "carriers of competence" ([Michel, Vargo, & Lusch, 2008](#)); this finds a parallel in [Normann's](#) notion of the offering as 'frozen knowledge' ([Normann, 2001: 116](#)).

Modular design of products ([Baldwin & Clark, 1997](#); [Sanchez & Mahoney, 1996](#); [Salvador, 2007](#)), sometimes allied with mass customisation ([Pine, 1993](#)), offers the potential to configure and re-configure products. In that sense, modularity may suggest a kind of flexibility in product specification. But modularity is predominantly a way to offer a wider variety of 'pre-produced package[s] of resources and features' which, once chosen, remain just as stable as any other product as conceived in the general marketing literature. Modular architecture allows such variety to be achieved without incurring disproportionate extra cost (this is particularly the emphasis of the mass customisation literature), but this mainly affects the economics of production, rather than fundamentally altering the nature of the product once made.

These views share a number of points in common. First, products are seen as stabilised bundles of attributes that have been packaged together through manufacturing processes. Secondly, products present themselves as sets of objective characteristics that may be differentially valued by different potential buyers. And finally, once purchased, products acquire value through use, as platforms for delivering services to users.

### 2.2. The product in servitization

The servitization literature has developed most of its key concepts on services and their management relative to particular, if often implicit, notions of the product. The provision of services to support an 'installed base' of capital products has been a prominent theme in the literature from its early days: this is explicitly or implicitly the scenario addressed by [Potts \(1988\)](#); [Wise and Baumgartner \(1999\)](#); [Oliva and Kallenberg \(2003\)](#) and [Davies \(2004\)](#), for example. In these conceptions, the product is in the field and the proposition is that there is profit to be made from providing services for the years or even decades of its use and that the manufacturer, by virtue of having made the product, should be well placed to provide such services. The challenge for the manufacturer is typically presented as a question of whether it can find the right organisational, process and cultural ingredients to deliver services as well as manufacture products. Amidst these considerations, the product is conceptualised as having a product life-cycle that is given and inevitable, moving through a succession of stages, usually defined from the manufacturer's perspective. For example, a recent review of the concept of life-cycle service offerings ([Rabetino, Kohtamäki, Lehtonen, & Kostama, 2015](#)) presents a typical life-cycle model as consisting of four phases - pre-sales, sales, post-sales and de-commissioning - and

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