



Review

Productisation: A review and research agenda



Janne Harkonen*, Harri Haapasalo, Kai Hanninen

Industrial Engineering and Management, University of Oulu, Finland, P.O. Box 4610, FI-90014 University of Oulu, Finland

ARTICLE INFO

Article history:

Received 8 August 2013

Accepted 25 February 2015

Available online 6 March 2015

Keywords:

Productization

Productize

Product management

Literature review

Categorisation

Content analysis

ABSTRACT

Productisation relates to the process of analysing a need, defining and combining suitable elements, tangible and/or intangible, into a product-like defined set of deliverables that is standardised, repeatable and comprehensible. This paper clarifies the concept of productisation by surveying the extant literature and reporting the origins, characteristics, benefits and features along with aiming to support future work. The analysed literature is categorised, its content is analysed, and the need for a clear framework is highlighted. The results indicate that productisation has a specific role in addressing the challenges of being able to describe and explain complex, often abstract offerings and producing them, involving activities both to ensure adequate standards and those activities leading to selling the products. A well productised product is easier to buy, sell and market, has stronger features and may enable benefits depending on the product type. Productisation has implications through having a complementary role amongst well established functions and in strengthening the linkage of market needs and engineering-oriented development. The concept requires further development. Potential future research directions are presented.

© 2015 Elsevier B.V. All rights reserved.

Contents

1. Introduction	65
2. Methodology	66
3. Classification and review of the productisation literature	67
4. Content analysis	68
4.1. Defining productisation	69
4.2. Productisation of products	70
4.3. Productisation of services	70
4.4. Productisation of software	71
4.5. Productisation of technology	71
4.6. Characteristics of productisation summarised	71
5. Future research needs for productisation	72
6. Conclusion	74
Appendix A.	74
Appendix B.	75
References	76

1. Introduction

Producing products can be challenging for companies and their manufacturing systems. Ambiguities and difficulties arise in understanding and describing the necessary elements and

requirements, both internally in the organisation and in facing outwards towards customers. However, it is not only complex products consisting of tangible and intangible elements that involve challenges; products of an intangible nature also may present similar challenges. Hence, software, services and even technologies on the verge of becoming future products also would benefit from increased clarity, both internally within a company and externally to aid in selling the products.

* Corresponding author. Tel.: +358 40 811 1935; fax: +358 8 553 2016.

E-mail addresses: janne.harkonen@oulu.fi (J. Harkonen), harri.haapasalo@oulu.fi (H. Haapasalo), kai.hanninen@oulu.fi (K. Hanninen).

The literature has been referring to the concept of productisation for the past 20 years in conjunction with the problems involved in transforming suitable components into more product-like, defined sets of deliverables. Currently, there are an increasing number of articles that refer to productisation. The concept seems to have roots and is present mostly in North American research and that of West and North European origin. However, the content and the level of discussion vary to a great degree and can be quite unclear. Most of the existing articles fail to provide deep insights into the concept. Moreover, there have been no obvious efforts to clarify the discussion on productisation.

In this paper, we present a literature review on the concept of productisation. Our main objective is to clarify the concept and bring together previously disparate streams of work. We also provide a platform for a future framework to enable the advancement of relevant knowledge and to give some direction for related future work.

Productisation appears in the literature as the process of analysing a need, defining and combining suitable elements, tangible and intangible, into a product-like object, which is standardised, repeatable and comprehensible (e.g. [Flamholtz, 1995](#); [Pyron et al., 1998](#); [Segarra, 1999](#); [Leon and Davies, 2008](#); [Jaakkola, 2011](#); [Banhazi et al., 2012](#)). However, as none of the existing work provides adequate clarification on the concept, and the concept is not established in the literature, attention is needed. For example, our work shows there are 338 journal articles that have relevance. However, productisation has not been widely represented within the operations/production management literature, nor has the contribution been summarised.

This review is particularly focused on productisation; however, the concept relates to other well-established discussions. For example, regarding product development, [Krishnan and Ulrich \(2001\)](#) indicate how different parties focusing on marketing, engineering, organisations or operations management have different perspectives on products. [Browning et al. \(2002\)](#) point out how product development activities contribute to customer value, and [Cooper and Kleinschmidt \(1995\)](#) discuss new product success. Commercialisation, on the other hand, is focused on introducing products to the markets (e.g. [Snow et al., 2011](#)), with a clear marketing focus. The role of marketing is discussed in terms of managing various aspects between the customer and the company (e.g. [Moorman and Rust, 1999](#)). Meeting customer demands and the resulting product proliferation are also discussed (e.g. [Forza and Salvador, 2002](#); [Zhang et al., 2005](#); [Bramham et al., 2005](#)). The elements products constitute are referred to in many articles (e.g. [Bitran and Pedrosa, 1998](#); [Mitola, 1999](#); [Fricker, 2012](#)), and manufacturing industries competing and creating new value (e.g. [ElMaraghy and ElMaraghy, 2014](#); [Steenkamp, 2014](#)), as well as efficient product diversification have been covered ([Panzar and Willig, 1981](#); [Teece, 1980](#); [Schuh et al., 2013](#)). Hence, product and production competences are best considered from many viewpoints. Mass customisation focuses on the customer, with manufacturing, scale and cost perspectives (e.g. [Liao et al., 2013](#); [Partanen and Haapasalo, 2004](#)), and the product management literature reflects a product focus and bridges the gap between the engineering and commercial aspects (e.g. [Roach, 2011](#)), with an emphasis on product life-cycle considerations (e.g. [Tyagi and Sawhney, 2010](#)). The difference arises from the motivation and the focus of the discussion, whilst some similarities exist. The relationship of productisation to the established discussion is not clear.

Therefore, we aim to contribute to the discussion at the interface of engineering and management by highlighting the concept of productisation by conducting an extensive literature search on a relevant topic to find answers to two research questions:

RQ 1: How do the existing journal articles convey productisation?

RQ 2: What are the characteristics, benefits and features of productisation?

The paper is structured so that the methodology is described first, followed by defining categories for the located articles and classifying

the findings. The content of productisation discussion is analysed and key findings are compiled. The implications of the findings are discussed and an initial foundation is laid for future work.

2. Methodology

This study is founded on an extensive literature search. According to [Fink \(2004\)](#), a research literature review is a systematic, explicit and reproducible method for identifying, evaluating and synthesising the existing body of recorded work. The review is conducted using systematic, rigorous standards typical to systematic literature reviews ([Okoli and Schabram, 2010](#); [Fink, 2004](#)). A systematic literature review is a means of identifying, evaluating and interpreting all available research relevant to a particular research question, or topic area or phenomenon of interest ([Kitchenham, 2004](#)). The inclusion criteria are the selected keywords and their appearance in the articles, those found by using the chosen databases and the selected quality criteria of limiting our sources to peer-reviewed journals as they can be considered validated knowledge and are likely to have the highest impact in the field.

The approach used in this study follows content analysis, a research technique for systematic, qualitative and quantitative description of the content of literature in an analysed area ([Li and Cavusgil, 1995](#)). When carrying out a study on the state of knowledge in a field or subject, three principal basic approaches have been used ([Li and Cavusgil, 1995](#)). One of these three approaches is the Delphi method, through which experts familiar with the studied area are surveyed ([Dalkey and Helmer, 1963](#)). The second one is meta-analysis – an approach in which empirical studies on a studied subject are collected and analysed statistically. For example, [Montoya-Weiss and Calantone \(1994\)](#) used this approach for analysing the determinants of new product performance. The third approach, the one utilised in this study, is content analysis – a research method used for systematic, qualitative and quantitative description of the content of the literature in a particular field or on a particular subject.

The procedure for conducting content analysis is seen to contain two main steps: (1) defining sources and procedures for the search of articles and (2) defining categories for the classification of the collected articles ([Li and Cavusgil, 1995](#); [Seuring et al., 2005](#); [Marasco, 2008](#)). These two steps have been applied in the review of the literature referring to productisation. In this study, only journal articles are included in analysing the research surrounding productisation. Any books, business periodicals, conference proceedings and other written material have been left outside the scope of the study. The literature for inclusion contained published journal articles but was not limited to any particular journals. Keyword searches were conducted through article databases including Google Scholar, Scopus, Emerald and Science Direct. The keywords utilised in this study contain all the grammatical forms of productisation, including transatlantic spelling differences. The utilised keywords were expected to appear in the articles. Should the keywords appear only in the list of references or within biographies and not in the actual discussion, the article was not analysed further. Once articles were identified, their references were reviewed to aid in locating additional papers, resulting in some beneficial findings. Journal articles were carefully read to understand their content and analyse their contribution to the research questions and aims. As the terminology surrounding the topic of interest is not cemented, some additional keyword searches were also made to reveal the surrounding discussions. The search procedure was repeated a few times during the research to confirm that articles had not been missed and to ensure the inclusion of very recent publications. This procedure yielded a total of 338 relevant journal articles that were identified by the databases and search engines combined. In addition to the identified relevant articles, a very small number of articles were discarded as non-relevant. Also, even though

Download English Version:

<https://daneshyari.com/en/article/5079652>

Download Persian Version:

<https://daneshyari.com/article/5079652>

[Daneshyari.com](https://daneshyari.com)