Industrial Marketing Management xxx (2016) xxx–xxx

Contents lists available at ScienceDirect

Industrial Marketing Management

Outcome attributability in performance-based contracting: Roles and activities of the buying organization

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ARTICLE INFO

Article history:
Received 24 May 2016
Accepted 27 May 2016
Available online xxxx

Keywords:
Performance-based contracting
Outcome attributability
Supply chain roles
Contract management activities
Multiple case study

ABSTRACT

In buyer-supplier exchanges that feature services or service elements, performance-based contracts have gained increasing popularity. One key problem in such contracts is the possible lack of attributability of performance outcomes to supplier inputs and efforts; suppliers are reluctant to be penalized for performance shortfalls that they are not responsible for. Prior literature has indeed argued that in case of low performance attributability (or: high outcome uncertainty), performance-based contracts are less effective, but has studied this uncertainty mainly in relation to external factors. Attributability of performance has not been studied in terms of the responsibilities of the supplier and the buying organization in service design and production. In addition, there has been little literature on how buyer activities during contract execution can help address some of the problems. This paper aims to fill this gap by developing a conceptual model on how outcome attributability relates to the roles of the buying organization in the service exchange, and how contract management activities can attenuate the effects of (low) outcome attributability on the level of supplier inputs and effort, which directly affects actual performance. We engage in theory elaboration to formulate a conceptual model based on two cases of performance-based contracting of cleaning services.

1. Introduction

Performance-based contracting deployed to purchase services has gained increasing attention in practice recently, but its implementation has seen mixed results (Ng & Nudurupati, 2010; Ssengooba, McPake, & Palmer, 2012). Performance-based contracts have therefore also received renewed interest in academic literature (e.g., Heinrich & Choi, 2007; Hypko, Tilebein, & Gleich, 2010; Kleemann & Essig, 2013; Selviaridis & Wynstra, 2015).

Previous research has explained performance differences between alternative contract forms primarily in relation to the characteristics of the task being contracted and the nature of the partners. Agency theory and theories on organizational control posit that performance-based contracts (outcome controls) are less effective when the supplier is risk averse, the measurability of outcome is low, and the uncertainty of the outcome is high (Eisenhardt, 1989a; Ouchi, 1979). In the case of performance-based contracting, outcomes are typically defined in terms of product (equipment) availability or reliability (Guajardo, Cohen, Kim, & Nettesine, 2012), product utilization (Hypko et al., 2010), or even customer satisfaction (Gruneberg, Hughes, & Ancell, 2007).

Outcome uncertainty – the extent to which variations in these kinds of outcomes cannot be controlled by the inputs and efforts of the supplier – is a central characteristic in defining the effectiveness of a performance-based contract (Selviaridis & Norrman, 2014). While thorough empirical evidence of the effectiveness of performance-based contracting is still scarce (Guajardo et al., 2012), it appears that successful cases of performance-based contracting in the defense sector, for instance, mainly relate to assets that are operated in relatively predictable and stable conditions such as patrol vessels (Spacewar.com, 2013) and trainer aircraft (Dorn & Ekström, 2014). When performance-based contracts draw critique from suppliers, it is often because of their inability to fully control the performance based on which they are rewarded and because, for various reasons, the suppliers are not able to obtain a sufficiently high risk-premium (Gruneberg et al., 2007; Wynstra, 2015).

Outcome uncertainty has been studied in relation to selection of effective contracts, but mainly in terms of external influences and not so much in relation to the influence that buying organizations have on supplier performance. In service production, however, one key aspect is the provision of inputs by the customer, often being the buying organization (Sampson & Froehle, 2006). When buyer inputs are substantial, variations in the quality and (timely) availability of such inputs may have a severe impact on the uncertainty of the performance outcomes of the service.

What previous research has not studied in-depth either, given its predominant focus on the selection and design of contracts, is how the actual execution or management of the performance-based contract

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http://dx.doi.org/10.1016/j.indmarman.2016.05.031
0019-8501/

can attenuate some of the negative effects that outcome uncertainty would have on the level of supplier inputs and effort and thereby performance outcomes. Anecdotal evidence, at least, suggests that how the contract is actually being managed—for instance, in terms of the way penalties are enforced—has a strong impact on the actual outcomes (Houtekamer, 2015).

To address these two gaps, this paper seeks to make two contributions. First, it investigates how the outcome uncertainty of a service production process relates to the roles of the buying organization in service design and production, particularly in terms of providing inputs for the service exchange (Sampson & Spring, 2012). We provide a synthesis of literatures on contracting on the one hand (agency theory and theories on organizational control) and service operations management on the other, to better understand those antecedents of outcome uncertainty that are internal to the buyer-supplier relationship.

The paper also identifies specific activities in managing (performance-based) contracts, and how and to what extent such activities can enhance the effectiveness of a performance-based contract, in a context (high outcome uncertainty) where traditionally such a contract (outcome control) has been argued to not be effective. By identifying the activities for managing performance-based contracts, we aim to complement the literature that has so far focused on design and selection of these contracts.

On the basis of literature, we develop theoretical predictions. In order to elaborate these theoretical predictions into a conceptual model (Ketokivi & Choi, 2014), we study contract management practices through a multiple case study. The two cases involve cleaning services contracted by a train operator and a university hospital. In the remainder of this paper, we first review prior literature to develop theoretical predictions. Subsequently, we discuss research design, the cases and case analysis. The final two sections discuss our findings and our conclusions.

2. Literature review

2.1. Uncertainty and attributability of performance outcomes

Various theoretical frameworks are relevant to the study of performance-based contracting (Selviaridis & Wynstra, 2015). Out of these, agency theory (Jensen & Meckling, 1976) and theories on organizational control (Ouchi, 1979) have specifically investigated the situational characteristics that determine the optimal form of contract or control – behavior versus outcome. Eisenhardt (1989a) developed a synthesis of these theories, and proposed that an outcome-based contract is more effective in situations of high outcome measurability, high goal incongruence, and buyer risk-averseness. A behavior-based contract is more effective when there is high task programmability, high outcome uncertainty, high information availability, supplier risk-averseness, and a long-term relationship.

Outcome uncertainty has become a central consideration in research on the effectiveness of performance-based contracts (outcome contracts), particularly because of its close association with the propensity of suppliers to accept risk (Selviaridis & Wynstra, 2015): "The issue of risk arises because outcomes are only partly a function of behaviors. […] as uncertainty increases, it becomes increasingly expensive to shift risk despite the motivational benefits of outcome-based contracts" (Eisenhardt, 1989a, p. 61). Outcome uncertainty in this context is exclusively defined in relation to external factors: "Government policies, economic climate, competitor actions, technological changes, and so on, may cause uncontrollable variations in outcomes" (Eisenhardt, 1989a, p. 61; see also Celly & Frazier, 1996).

However, also the behavior of the customer (the principal in the principal-agent relationship) may be a source of uncertainty. Particularly when the customer-supplier exchange involves a service, the customer can have a strong impact on the effectiveness of the efforts of the supplier, as the customer contributes inputs to the service production process. Any (unplanned) variations in the quality and availability of such inputs may create additional uncertainty for the supplier. Sampson and Froehle (2006) have distinguished three types of these inputs: "the customer's self, its belongings or other tangible objects, and information" (p. 332). Unified Service Theory (UST) suggests that this presence of customer inputs—and its consequences—is the unique factor distinguishing service processes from non-service processes (Sampson, 2000; Sampson & Froehle, 2006). Still, across different service production processes, the relative importance of each type of inputs (human assets, physical objects, and information), and the extent to which a service production depends on these inputs, may vary. The more important customer inputs are for a service production process, the more factors affect service outcomes, and hence the larger the outcome uncertainty.

In a recent study of logistics services, for instance, Selviaridis and Norrman (2014) find that indeed one of the main antecedents of outcome uncertainty is the service provider's control over input and behavior of customers. Selviaridis and Norrman (2014) refer to outcome uncertainty as (the inverse of) performance *attributability*. The more limited the impact of other factors, besides the efforts of the supplier, on the performance outcome of the service production process, the higher the attributability of the performance outcome. In line with the propositions from agency theory and theories on organizational control, Selviaridis and Norrman (2014) develop the proposition that low attributability of performance outcomes makes service providers less willing to accept financial risks as embedded in performance-based contracts. Low performance attributability is also argued to lead to increased emphasis on relational governance based on information sharing, collaboration and trust, which in turn make providers *more* willing to accept the risks of performance-based contracts.

We build on this literature in two ways. First, we elaborate on the impact of customer inputs and roles as antecedents of performance attributability or outcome uncertainty. Second, we explicate the impact of specific activities related to contract management in moderating the impact of customer roles on outcome uncertainty – and the impact of outcome uncertainty on the level of supplier inputs and effort, which in turn affects performance outcomes.

2.2. Roles of the customer

In the context of service production, outcome uncertainty is strongly influenced by the inputs that the customer needs to provide for service production. The amount and type of customer inputs relates to the task or role distribution between the customer and the supplier in the service development and production process. Service operations management literature has distinguished seven supply chain roles that customers assume in service supply chains, and which are directly related to the inputs customers provide for the service development and production process: *design engineer*, *production manager*, *labor*, *component supplier*, *inventory*, *product*, and *quality assurance* (Sampson & Spring, 2012).[1]

Customers acting as 'design engineer' design services and service production processes. 'Production managers' plan and oversee the conversion of inputs into outputs by directing the service delivery. The 'labor' role applies to situations in which customer and supplier engage in co-production and the customer assists, operationally, in the actual production of services (Grönroos, 2008). Customers in the role of 'component supplier' provide essential process components without which the service cannot be produced (e.g., offices as inputs for cleaning services). Customers are 'inventory' when they are waiting for themselves, their belongings or their information to be processed as part of a service exchange (Sampson & Spring, 2012).

[1] Sampson and Spring (2012) also identify a *customer* and *competitor* role, but these have no direct bearing on the type and amount of inputs provided by the customer.

Please cite this article as: Nullmeier, F.M.E., et al., Outcome attributability in performance-based contracting: Roles and activities of the buying organization, *Industrial Marketing Management* (2016), http://dx.doi.org/10.1016/j.indmarman.2016.05.031