

MANAGING CONFLICT IN BUSINESS-TO-BUSINESS RELATIONSHIPS THROUGH PRODUCTIZATION AND STANDARDS.

ABSTRACT

This paper explores the ways in which firms instigate productization as a way of arranging co-development within durable business relationships to instigate innovation. Service innovation has a prominent role in the creation of new markets and commercial opportunities. The paper identifies productization as a kind of service innovation, which acts materially with respect to a product and its more widespread use and socially as service in offering additional value to users by being more useable. Conflict occurs during the arranging of co-development, B2B relationships and innovation. Productization offers a focus for and a way of managing emergent conflicts in valuable business relationships. Customer participation in service innovation can have positive effects on future service quality. To endure, it is imperative that those involved in a co-development relationship attempt to define the business objectives and align the business models of each firm (Chesbrough & Schwartz, 2007). Two research questions direct our research: (1) How do firms utilise service innovation, for instance productization, to manage conflict? (2) How do firms' decision-making processes in innovation and purchasing affect business-to-business relationships? The main site for this research is a large utilities company in the UK. Its operations require a considerable and specialised asset base across a number of spatially distinct locations. The stock of assets is under continual maintenance and occasional significant upgrading among in-house engineers and specialist contractors and component suppliers, so as to improve operational efficiency and enhance the quality of service offered to end-users. This asset management programme offers the prospect of a need for productization in the maintenance of established assets and introduction of new assets. The findings suggest standards and specifications play a key role in drawing out and reformatting conflict.

KEYWORDS

Productization; service; relationships; conflict; B2B; co-development

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INTRODUCTION

This aim of this paper is to explore the ways in which firms instigate productization as a way of arranging co-development within durable business relationships to instigate innovation. Researchers have advanced the discussion of enhancing value by means of conceptualising and organising business exchanges as service, for instance through the approach of service dominant logic (Vargo & Lusch 2008; Vargo, Maglio & Akaka, 2008). Service innovation has a prominent role in the creation of new markets and commercial opportunities (Kindström, Kowalkowski & Sandberg, 2013) with Fliess and Kleinaltenkamp (2004) underlining the importance of managing the service process efficiently. Innovation addresses customer needs and producer capabilities beyond the exchange of a product, so marketing can interpret customers' overall value perceptions, and understand how they make buying decisions as to how to devise, offer and use novel products. Customer participation in service innovation can have positive effects on future service quality. Wiersema (2012) argues that business-to-business (B2B) marketers must act as curators of customer value and seek to strengthen the product innovation process. Ngo and O'Cass (2013) propose a focus on the interactions between the firm and customers.

Danson, Helinska-Hughes, Hughes and Whittam (2005) state that productization is a practice of defining products and services based on the customer's requirements – to the extent that customers can articulate these – therefore adhering to the service centred logic offered by Vargo and Lusch (2004). To endure, it is imperative that those involved in a co-development relationship attempt to define the business objectives and align the business models of each firm (Chesbrough & Schwartz, 2007). Productization is part of the value creation process (Bowman & Swart, 2007) in which additional efforts are expended in assessing and enhancing the viability of products or services ahead of commercialisation (Greco, 2007). These viability checks are often occasions in which conflict is made manifest as assessments and further refinements to enhance likely commercial prospects are made ahead of finalising and commercialising products and services.

The innovation process becomes multifaceted and complex with involvement of multiple actors (Rothwell, 1992) thus increasing the likelihood for conflict to become manifest and require organizing or managing. Conflicts are almost always present in the B2B environment, and are even more likely to develop in the functionally linked business network (Pondy, 1967; Duarte & Davies, 2003). This has the additional consequence of making the very relationships that underpin co-development under additional strain as innovations are subject to more exacting tests prior to commercialisation. Therefore, organizations should attempt to manage conflicts at their functional manifestation, inviting collaboration and open discussion of emerging concerns and ideas (Stern & Heskett, 1969; Massey & Dawes, 2007).

The paper argues that a prominent and under-researched dimension of productization is its capacity to manage conflict as it becomes manifest, notably in B2B relationships. Velamuri, Neyer and Moeslein (2011) view productization as similar to 'hybrid value creation', arguing that its key strength is in the ability to align the value creation of both products and services, which represent accordingly tangible and intangible elements. However, in the terms of service dominant logic, it is the process of this combination that is the basis of service, not an additional or foundational - intangible component of some bundled offering. Thus multiple collaborative actors can have varying interests over the productization process, and are often involved in the discussions of product requirements (Nakagawa, Nagai & Ito, 2012).

Two research questions direct our research:

1. How do firms utilise productization to manage conflict?
2. How do firms' decision-making processes in innovation and purchasing affect business-to-business relationships?

Kindström et al. (2013) state that there are few insights into the means by which product-centric firms might achieve successful service innovation. The study addresses this gap by examining the use of productization as a service process and how the practices and routines of productization act as a tool to reduce conflict. This paper contributes to advancing the theory of innovation and marketing in industrial service contexts by examining the contribution of productization as a business imperative that is necessarily implicated in conflict. The paper argues that productization acts materially with respect to a product and its more widespread use, and socially as service in offering additional value to users by being more useable, and providing a focus and a way of managing emergent conflicts in valuable business relationships.

The remainder of the paper begins with a review of service innovation and its theoretical embedding in the service-dominant literature, considering co-creation and co-development. The paper then introduces productization and discusses its role in service development and conflict resolution. Next the exploratory case study methodology is described and discussed. The paper concludes with a discussion of the implications of the study for academics and practitioners.

LITERATURE REVIEW: CO-CREATION AND CONFLICT IN BUSINESS RELATIONSHIPS

In this section, we review the recent literature on co-creation and co-development in the context of business-to-business relationships and exchanges. The purpose of this section is both to demonstrate the potential for considering productization as a B2B service, and to assess its association with conflict, understood as pervasive and latent, and occasionally eventfully as actors make this manifest within the organizational setting of durable business relationships. The paper considers productization and conflict management as important conditions, which business-to-business actors can negotiate among as they develop, exchange and use novel offerings.

CO-DEVELOPMENT IN B2B EXCHANGES AND RELATIONSHIPS

Recent literature emphasises the interactivity and connectivity of facilitating and engaging in durable value creation processes (Vargo & Lusch, 2004; Grönroos & Voima, 2013). Prahalad and Ramaswamy (2004) state that the co-creation process is more complex than just customer co-developing products and services with firms.

Saarijärvi, Kannan and Kuusela (2013, p.7) discuss the necessary shift in the focus of the academic and practitioner research towards the ‘...reinventing value in terms of the value-creating system itself where different actors – suppliers, business partners, allies, and customers – work together to co-produce value’. There is a considerable precedent in B2B research supporting such a view. The process of value co-development emerges through the sharing of resources between the actors within the value network (Vargo & Lusch, 2004; Vargo & Lusch, 2008; Grönroos & Ravald, 2011). Boyd and Spekman (2004) argue that B2B relationships between the co-developing partners in the R&D projects can involve the exchange of information, including specific market knowledge and access, which participants regard as jointly and mutually beneficial. Multiple partners exchange skills and competences and participate jointly in the production process (Grönroos, 2008; Grönroos & Ravald, 2011) with a purpose to gain a competitive advantage and provide better product or service offering (Fliess & Becker, 2006). Cova et al., (2002) state that the customers’ engagement with co-development is contingent on the awareness of risk connected to the relationship with the suppliers and actors. Day et al. (2004) argue that although the risks of co-development are shared across actors, senior managers of firms ultimately decide and facilitate the co-development process ensuring that firms capture particular benefits. Chesbrough and Schwartz (2007) stress the unique importance of co-developing business partnerships as a means of generating value from innovation.

PRODUCTIZATION

Productization is the process of offering a specific service through the systematisation of components, thus attempting to represent services by means of products (Danson et al., 2005; Araujo and Spring, 2006). Simula, Lehtimäki and Salo (2008) add that productization is aimed at explaining and justifying the value of the offering both to the producer and to customers. Importantly, productization is concerned with identifying products by taking into account customer requirements (Danson et al., 2005). Flamholtz and Randle (2000) (as cited in Flamholtz & Aksehirli, 2000, p. 489) claim that ‘productization refers to the process of analysing the needs of customers in the target market, designing the product and developing the ability to produce it’. In other words, productization can be considered as a service

undertaken jointly by producer and one or more customers in order to identify components and systems of components, allowing a more convenient procurement, deployment, installation and maintenance programme.

The key aim of productization is for the firm to create a repeatable process that can be adjusted to the potentially increasing amount of output (Simula et al., 2008). Ruohonen, Riihimaa and Makipaa (2006) align productization to standardization, discussing that productization is appropriate in the instances where it is challenging to understand customer needs, or when it is necessary to address the complex characteristics of the product. Pyron, Prado and Golab (1998) discuss that productization simply encompasses all the activities that are necessary prior to successful commercialising a product or service. Furthermore, it can be viewed as a stage in the developing a product or service (O'Mahoney, Heusinkveld & Wright, 2013). Productization permits the firm to offer a sense of tangibility of developing products or services (Muzellec, Lynn & Lambkin, 2012) and rationalise the offer made by the firm (Simula et al., 2008). Productization is part of the value creation process (Bowman and Swart, 2007) and offers a test to candidate innovations, such that viable products or services are those that may be commercialised by means of productization (Greco, 2007).

Productization is concerned with defining the products or services with regards to the specific customer requirements (Danson et al., 2005). It involves identifying, enhancing, producing and updating the offer with the aim to effectively cater to the customer needs and at the same time ensure that the firm's objectives are accomplished (Simula et al., 2008). The implication being that at least some customers seek services to be developed in standardized form, providing benefits across procurement, installation, operation and maintenance. Nakagawa et al. (2012) add that the nature of the co-development process allows for the negotiation of specific requirements, where various stakeholders may pursue their own interest during productization.

Furthermore, according to Simula et al. (2008) productization can be viewed as inbound and outbound, which respectively reflect the organizations' abilities to create and to sell. Inbound productization seeks to enhance the process of product delivery within the organization, encompassing the development of a product or service including design specifications, material assortment and procurement, testing and process quality. Outbound productization is concerned with improving the focus and value of the product or service offering to the customer through branding, marketing, logistics, training or after sales service. Seeking balance between inbound and outbound productization is crucial to the success of the firm productization offering (Simula et al., 2008). Finally, despite the clear specifications offered by the productization process it does not infringe upon innovation with Simula et al. (2008) arguing that when routine work is reduced through templates, it allows for innovative ideas to be generated which are beneficial to the organization and its customers.

PRODUCTIZATION AS A SERVICE

Overall, the aim of service productization is to enhance the customer understanding of the offer and its benefits through giving it product-like characteristics, and thereby increasing the value for the organization (Chattopadhyay, 2012). Productization can be utilized when an organization is seeking to move from a rather unclear and intangible idea of a service to generating specific outcomes (Simula et al., 2008), where the product and service are regarded as a single offering (Baines et al., 2007). Baines et al. (2007, p. 1546) discuss that productization reflects 'the evolution of the services component to include a product or a new

service component marketed as a product'. Services productization involves identifying, standardizing, and clarifying the service offering and its delivery mechanism (Kim, 2009; Jaakkola, 2012). The productization of services offers three distinct benefits: it can negate the cost of products being created from scratch each time, thereby tackling the ineffective production of services, as well as reduce the difficulties that actors have in perceiving the service offering (Valminen & Toivonen, 2012). The idea of transforming the services into something tangible and replicable – almost aligning them with products in this respect – reflects the purpose of services productization (Jaakkola, 2011; Harkonen et al., 2013), further allowing for the enhanced customer offering and business efficiency (Chattopadhyay, 2012; Valminen & Toivonen, 2012).

CONFLICT

From this section's review, it may be inferred that productization is procedural, requiring an additional allocation of resources to the service of identifying and designing products that offer users an ease of procurement, installation, operation and maintenance. However, this process also raises the prospect of conflict among and between producers and users, given that specific operational definitions or understandings of what count as productization are generally missing. This problem is common to co-development activities generally (Cova and Salle, 2008). To understand the complexity and persistence of conflict in the service of productization, it is appropriate to see it as a process rather than as a state (Pondy, 1967; Thompson, 1967). Pondy (1967) proposes that conflict comprises a sequence of episodes, which have a cumulative effect, possible in a path-dependent way. Episodes of conflict can in principle comprise of: (1) latent conflict (conditions); (2) perceived conflict (cognition); (3) affective conflict (affect); (4) manifest conflict (behaviour) and (5) conflict aftermath (conditions). These dimensions are not necessarily sequential and not every conflict passes through every stage. Productization, being a service request or expectation for a particular form of adaptation to user requirements, is a candidate for conflict. In the context of durable business relationships, this is potentially of a sequence of conflicts and for conflict to become a normal condition of a business relationship (author and others, 2013).

Accordingly, March (1999, p. 217) defined conflict as a fundamental problem of organizing business activities, emerging as: 'multiple nested actors confronting multiple nested time perspectives with references and identities that are inconsistent across individuals and across time'. In common with earlier behavioural approaches to organization (e.g., March and Simon, 1958, Cyert and March, 1963, March, 1999 and March, 2008) conflict can be understood as being among actors' interests and as a pervasive condition of organizing within and between organizations. For example, by recognizing both productization and conflict as processes, one can examine the questions of how much resource can be devoted to productization, and of how much productization can be offered or co-developed in particular relationships.

Specifically in business-to-business relationships, Ulaga (2003) acknowledges there is recognition of significant opportunities for companies to create competitive advantages and achieve superior results by enhancing the durability and intensity of their exchanges (Lyons, Krachenberg & Henke, 1990; Jap, 1999; Hewett, Money & Sharma, 2002). It is common, as with the case reported below in this paper, for a large lead company to reduce the overall number of suppliers and focus on closer and key relationships (Ulaga, 2003). Kalwani and Narayandas (1995) state that larger lead companies work out ways of organizing with their suppliers to gain privileged access to important resources and skills, in long-term

relationships. One can argue further that such resources and skills are co-developed in such relationships.

Without being decisively functional or dysfunctional, or latent or emergent, conflict can destabilize a relationship and so threaten to diminish the value of resources and skills that depend on those relationships. Hence, actors will seek to manage conflict adaptively in order to stabilize their relationships and maintain their value (March, 2010). Duarte and Davies (2003) argue that conflict is a normal condition in most business-to-business relationships especially when there is a functional interdependency between two businesses as in a marketing channel. In identifying likely empirical settings to assess these questions, Nelson and Winter's (1982) basic understanding of routine as truce is instructive:

“The truce among organization members tends to give rise to a peculiar symbolic culture shared by the parties. A renewal of overt hostilities would be costly and would involve a sharp rise in uncertainty about the future positions of the parties. Accordingly, the state of truce is ordinarily considered valuable, and a breach of its terms is not to be undertaken lightly’ (ibid., p 111).

Conflict can threaten fruitful business exchanges and relationships, being a kind of interaction that has functional and dysfunctional effects, with its events being more or less frequent (Song, Dyer, & Thieme, 2006). Conflicts are generally seen as dysfunctional, and as being resolved through the identification of goals, their divergence, reasons for or antecedent of these divergences, and instruments of alignment – common with bargaining – as incentives, supported by senior managerial involvement. The entity at stake tends to be the direct value otherwise created by cross-functional interactions and exchanges (Lam & Chin, 2005).

In summary of this review section, close and durable business relationships may be a fruitful and indeed necessary form of organizing for co-development of productization. Given the adaptive and innovative nature of devising productization, it also introduces the potential for conflict into those relationships as businesses with necessarily different histories and ambitions modify or renegotiate their relationships. By discussing co-development, specifically in the form of productization, this paper is pointing to the raising of the stakes within durable business relationships; potentially of both more to be lost or gained. An organizing solution is required to protect the resources and skills embedded in an established business relationship, and to negotiate potentially valuable innovation that is itself productized and of enhanced value to a user.

Co-development is a valued outcome, especially by users that seek to benefit from a productized solution in collaboration with one or a few suppliers. But development stages and applications and installations of innovative products across a user's multiple locations can each give rise to latent conflict becoming manifest. Hence, the necessity established across overlapping areas of research in addressing this paper's questions of: (1) How do firms utilise productization to manage conflict? (2) How do firms' decision-making processes in innovation and purchasing affect business-to-business relationships?

RESEARCH DESIGN

This aim of this paper is to explore the ways in which firms instigate productization as a way of arranging co-development within durable business relationships to instigate innovation. Assessing how it may be a site of conflict within a business relationship, and may require changes to decision processes as to the production and procurement of innovative products. According to Eisenhardt and Graebner (2007) and Yin (2003) cases selected should provide qualitative richness and variety of data with each case providing enough weight to be accepted as a unit of study. An exploratory case study is selected as the most pertinent means for gathering the necessary data to address the research questions set. The literature review and the overview of the industry provide a basis in deciding what counts as a case (Gibbert, Ruigrok, & Wicki 2008; Dubois and Gibbert, 2010). The paper captures conflict within various business-to-business relationships.

SAMPLE

The main site for this research is a large utilities company in the UK. Its operations require a considerable and specialised asset base across a number of spatially distinct locations. The stock of assets is under continual maintenance and significant upgrading among in-house engineers and specialist contractors and component suppliers, so as to improve operational efficiency and enhance the quality of service offered to end-users. It offers the prospect of a need for productization in the maintenance of established assets and introduction of new assets. In undertaking fieldwork as analysed in this paper, the researchers are guided by the principle of theoretical sampling, which is more or less assured by the heterogeneous asset stock apparent at the research site (Glaser and Strauss, 1967; Eisenhardt, 1989; Suddaby, 2006). Theoretical sampling is capable of ‘illuminating and extending relationships and logic among constructs’ (Eisenhardt & Graebner, 2007, p. 27). Glaser (1978) states that theoretical sampling permits the collection, coding and analysis of data by the researcher to create theory as it transpires from this processes.

DATA COLLECTION

The dataset is collated through a combination of research interviews, observation, attending industry seminars and collating industry and company reports and documents. Interview respondents drawn from the case firm represent three distinct areas: asset management (covering standards & specifications and procurement) operations and external actors. The conducted interviews are semi structured in nature permitting a free flow of ideas and discussion (Yin, 2003; Gibbert, Ruigrok, & Wicki, 2008). The researchers devised an aide memoire drawing from key themes in the research literature, to include the communication of knowledge across asset projects, the behavioural approaches to knowledge sharing across those same asset projects, and the roles of specialists and experts in guiding asset projects. As such, questions focussed on ways in which key actors drew upon knowledge and expertise within and across companies as they undertook co-development and to some extent productization as part of their stewardship of the company’s asset base. Internal source documents are vital to developing an understanding of co-development and productization, to include organizational charts, asset categorizations and standards and specifications guides

Table 1 (below) summarizes schedule of fieldwork, to include observation and interviews.

Table 1 - interview respondents and schedule				
Respondent	Position	Type	Date	Interviewer
Respondent 1	Records Management	Interview	07/04/2014	A
Respondent 2	Strategist	Interview	07/04/2014	B
Respondent 3	Standards & Specs	Interview	07/04/2014	A
Respondent 4	Asset Management	Interview	07/04/2014	C
Respondent 5	Planning	Interview	07/04/2014	C
Respondent 6	Administrative	Observation & Interview	22/04/2014	A, B
Respondent 7	IT	Interview	27/05/2014	A, B
Respondent 8	Asset Management	Interview	27/05/2014	A, B
Respondent 9	Procurement	Interview	27/05/2014	A, B
Respondent 10	CID	Interview	27/05/2014	C
Respondent 11	KM IT	Interview	06/06/2014	A, B
Meeting - Observation	x4 Participants Waste utility Infrastructure	Meeting - Observation	27/04/2014	A
Meeting - Observation	x6 Participants Utility Infrastructure Specifications Review	Meeting - Observation	02/05/2014	C
Seminar Observation	Utility Firm and External partners	Observation	25/02/2014	A, B, C
Workshop Observation	Development of an innovation service	Observation	November 2014	C
Observation of process	Documentation demonstration	Observation	22/04/2014	A, B

The paper analyses data by coding the interview responses based on the key themes generated from the entire data set and also extrapolated from the literature review. A preliminary assessment of the identified codes is crucial as it ensures that are embedded in the appropriate literature review that is conducted and used in the creation of the interview guide. The coding utilised is designed to thoroughly examine the dataset collected and not provide a statistical sample. The codes are represented throughout the paper in tables that present findings and in the discussion of these findings.

The researchers' audio recorded and transcribed the interviews. Analysis of the inputs from the interviews, observation, industry seminars, industry and company reports and documents identified a number of conflicts associated with cases of productization and service development. The results of that process are interpreted against the background of the literature relating to co-creation, service innovation, productization and conflict.

FINDINGS AND ANALYSIS

In this section authors introduce the case and its context while presenting the finding of the study.

CASE BACKGROUND

The case studied is a large United Kingdom based utility company that is responsible for maintaining the infrastructure of the public service and for providing the service using that infrastructure. Anonymity is granted to the firm therefore researchers will not reveal the specific industry of concern. The firm is regulated by parliament, which holds the utility firm to account and requires the company executives to report to a select committee on progress. Additionally, the utility firm is accountable to the industry regulator, which sets pricing and reports on costs and performance. The utility regulator ensures the firm is responsible for protecting a quality of service by confirming compliance with the utility quality regulations. A consumer steering group who represent the views and interests of the population also monitors the utility firm. Within the utility firm three core strategic business units are researched: asset management (which includes the firms' standards and specification and procurement teams), operations and external suppliers.

The multiple cases of conflict are summarized in Table 2 (below) the findings of the study drawing out the key areas of conflict, how the conflict emerges and how it is repackaged and reshaped. The purpose of this table is to draw out the cases identified from the research and present them together. The initial development of Table 2 involves identifying seven episodes of conflict becoming manifest, of establishing the source of the conflict and its unwinding over time. Then it is possible to draw out how the combination of productization through standards and specification formats or repackages the conflict, making it both stable and open to being managed. Hence, Table 2 presents seven 'cases within the case' as a theoretical sample of a set of emerging conflicts, seen as notable across our interviews and fieldwork and so across multiple perspectives. The first column highlights how the conflict became manifested, the second column draws out how the conflict emerged, the third column pulls the empirical data that underpinned the first two columns, and the fourth column emphasises how the firm repacked and managed that conflict.

Table 2 – Cases of conflict summary			
Sample of processes by which conflict became manifest	How the conflict emerged	Respondent Quotation Highlight	Conflict repackaged through
Locational Variances – Various sites where assets are located operate differently in terms of products and services offered and how they are maintained.	Operations and external partners servicing onsite products.	“That is when you tend in my experience you have to put up a barrier, it is a difficult one and I don't know why that is.” Respondent 1	Productization - co-developed parts with external service partners. Use standards and specifications to control this.
Process Reporting – Personnel responsible for reviewing the accuracy of performance data at assets. Guidance required on developing documents for reporting performance data, with different views from OEMs in supplying components and utility company in using a facility.	Operations and external partners servicing onsite products.	“It has become clear that as we went into this thing to develop this guidance document that there was a conflicting demand - at the one end we have public health people who are not really interested - that is maybe a bit unfair.” Respondent 2	Standards and specifications.
Innovation in the Supply Chain - incentives model of monthly ideas led to suppliers proposing frivolous ideas that had already been investigated internally. Suppliers sought to increase number of ideas rather than quality.	Key performance indicators (KPIs).	“We try to get the supply chain to drive but they weren't really coming up with anything that creative.” “They were putting down silly things in order to get the numbers up. Nothing that was really earth shattering that we didn't already know about in house.” Respondent 1	Productization clearly defined existing knowledge and capabilities.
Project Management – lack of clarity in a baseline of information to start projects from. Reverse engineer from existing products or services.	Standard and specification meetings. Lack of documentation of past meetings and projects.	“People seem to know how to run the process but every person I speak to has a different ideas of the process so slightly different project. They are all working in the same way but they don't have any shared ideas.” “The artefacts we have got here I wouldn't find the whole story. So I can	Productization forced a clear and comprehensive starting point with defined standard and specification.

		find some of the governance meetings that they have.” Respondent 4	
Quality Control at Maintenance – Different products spread over multiple sites. External engineers unsure of product specifications until they arrive on site.	Operations and external partners servicing onsite products. Unaware of what to expect until arriving on site.	“For some assets you might have five different sets of books of stuff and a lot of it was so much overlap it was ridiculous. And so we said - we have to change this. We need to have one set of documents for each site and we need to be updating that as we go along.” Respondent 2	Productization - co-developed products with external service partners. Use standards and specifications to control product variation.
Standards and Specifications, Operations and externals partners not delivering to standards and specification.	Externals not reaching KPIs set by the standards and specification. Operations and standard and specifications team meetings.	“We have major issues, developers aren't constructing these things to the right standards, although they are all written down we are not getting them adopted at the end of the day by operations because it doesn't have this type of fence round it” “I can hide behind the fact that your specification was not correct and therefore I took all reasonable care and skill in terms of delivering this project for you.” Respondent 3	Repackaged the standard and specifications documents into concise format detailing exact standards. Held externals and Operations to the new KPIs.
Procurement – long life of assets and clearly defined procurement framework could stifle innovation.	Standards and specification frameworks.	“If you just buy things through the procurement chain we have in place at the moment you could stifle innovation to the extent that we block any new developments that come along because of the length of the framework agreement.” Respondent 5	Waiver system permits standards and specifications to be challenged on commercial and technical grounds.

Table 2 shows seven processes understood by informants in the fieldwork, as expressed in interviews and at observations, by which conflicts become manifest and by which productization is implicated.

1. Locational differences, in which large-scale infrastructure has at different installations components and facilities of different vintage and design, leading in turn to local and improvised solutions especially in maintenance.
2. Process reporting, in agreeing to a format as to what counts as effective performance in maintenance and to inform procurement, despite contending with variations in local conditions
3. Innovation in the supply chain, which do not capture the difference between product innovation, and the service innovation of productization
4. Project management, as an opportunity to undertake performance measurement, but with difficulties in establishing base-line measures on a common basis
5. Quality control at maintenance is problematic as it requires the coordination of different facilities and components with different vintages, of coping with legacy in the infrastructure, including variations in the capacity to retrofit new components
6. Standards and specifications, which can be effective in assessing many of the problems indicated in the five previous points especially as a process in highlighting the extent of work required of productization. At present, a waiver system acts as a safety valve in identifying non-fitting cases, and as a performance measure in that exceptions should reduce over time.
7. Procurement process, which requires adaptation to capture productization as a co-developed and perhaps co-produced service.

The seven processes overlap and interact, but involve different actors, some internal to the utility company, some between different business units in the utility company, some with suppliers, and some regulated through competition policy in procurement. The combination of these seven processes show in one case both that productization is a business service, and that that multiple actors need to coordinate their activities in order that as a service it may be made stable and generate the expected qualities and benefits for users and for producers.

Specific to this business setting of a large utility business, the qualities of the processes are made recurrent in particular by multiple long-lived assets being maintained, reviewed, upgraded and replaced across investment periods of five years identified under a regime of utility regulation, and across a heterogeneous set of operational settings. The firm is attempting to blend together its long-established method of resolving these through relying on its own and occasionally contractors' expert and dextrous engineers, with a new approach of standardising components and subcomponents. In each of the seven processes, suppliers and contractors have an enhanced role of making offers that are potentially of greater value to the focal firm through productization, notably in connection with defining and adopting standards. In order to achieve productizing, in-house teams are required to share more details of the currently heterogeneous set of assets. The standards and specifications team became, as much by emergence as design, a prominent meeting place – not the only one – where productizing could be negotiated.

PRODUCTIZATION AS SERVICE AND AS MANIFESTING CONFLICT

As shown in Table 2, the findings of the research draw out the main themes of productization, made prominent especially in standards and specifications work. Each of the

seven processes manifests a kind of conflict in that no clear and re-usable solution is available to the actors. They have to negotiate their activities regularly and among overlapping groups of actors. The negotiations is required whether actors continue with their improvisational work, or whether they attempt to develop productization as a quality of their exchanges. Both undertaking require the diversion of resources to activities, either in coping, or in anticipating and investing. Standards and specifications meetings, process and documentation help surface and provide a forum within which actors can resolve the conflicts raised by the question of productization.

Establishing the principle of productization, making the business case, allowed the utility firm to define the requirements to customers, to articulate what qualified as productization for them. The main purpose of productization as a service was to reduce cost. As a large public utility firm the firm is under pressure from government to provide the services at the most competitive rate. Source data revealed that in its initial application, productization as a service delivered cost savings of around £1.3 million during the first half of 2014, with a target approaching £5 million for all of 2014.

The utility company operates within a regulated and risk-averse setting. It is accountable for achieving quality standards particularly in service delivery and in procurement process and is required to provide documentation that reveals that it follows best practice and guidelines. The firm can potentially face conflict with multiple actors such as government, the public, internally and with external partners. Where achieved, productization offers the prospect of reduced risk and increased compliance. Duarte and Davies (2003) argue that conflict is unavoidable when there is a functional reliance between multiple businesses. However, the research draws out that the firm views conflict as something that should be managed. The firm adopts something consistent with March's (2010) viewpoint that firms seek to manage conflict, as they are concerned with maintaining and enhancing the value of the business-to-business relationship.

DISCUSSION

The findings from this study demonstrate how a large UK utility firm articulates and seeks to procure and use productization. Productization is used in conjunction with standards and specifications to manage relationships in a business-to-business setting and it leads to a reinterpretation and renegotiation of conflicts among those actors involved. The paper will now address the research question previously set.

HOW DO FIRMS UTILISE PRODUCTIZATION TO NEGATE/MANAGE CONFLICT?

In answering this question, the researchers draw upon the mature organizational conditions of the utility sector. Conflict developed moderately slowly with the researchers noting that it had diminutive significance in terms of relationship ending conflict with actors. As discussed in the literature review a renewal of overt hostilities would be costly and would involve a sharp rise in uncertainty about the future positions of the parties.

The research data revealed that the utility firm had developed extensive standards and specification procedures. The initial requirement for such strict standards and specifications was to ensure adherence to the requirements stipulated by utility quality regulator. The firm recognized that developing a concise set of standards and specifications was the initial step in moving towards offering productization as a service. At this stage the asset management team are concerned with latent conflict manifesting and developing. To comply with EU regulation the standards and specification team cannot stipulate exact manufacturer parts by brand name only the requirements of that part (size or material for example).

The firm has a waiver system to allow external companies to challenge the specifications they have been given. The waiver system is the firm's tool to manage conflict adaptively in order to stabilize their relationships and maintain their value (March, 2010). There are two waivers systems in place: technical and commercial waivers. The technical waiver is handled by the standards and specifications team. These waivers are submitted when external firms cannot comply with part of the specification provided or if they can suggest a more effective way to construct the product. Within the asset management team, the procurement department is concerned with commercial waivers. Procurement is usually concerned with the price of the adapted specification and whether it is commercially feasible. If the waiver does not pass the technical waiver, standard and specification requirement, then it cannot proceed to the commercial waiver.

To manage the service level of the waiver system the utility firm has developed service level agreements. The utility firm must respond to all waivers within 21 days detailing the reasons for rejection or acceptance. Despite the service level agreement of 21 days the utility firm internally seeks to respond within ten days. Each department expressed benefits to the service level agreements due to productization.

Data collected through source documents highlighted that the utility firm had an 80 percent acceptance rate of waivers. Key reasons for rejection included: health and safety issues, operational requirements, compliance with specifications and financial savings not being proven. The waiver system permits the reformatting of the conflict into a tangible document. External suppliers can challenge the productization process in an official capacity ensuring latent conflict is addressed. It was found that waivers were effective at managing conflict yet contributed to the creation of conflict themselves.

The researchers observed the complexity of the productization, standards and specification, and the waiver system in terms of managing conflict and creating conflict. The utility firm co-develops at the productization stage with external partners using this co-creation of value to develop clearly defined standards and specifications documentation. The utility firm in turn provides the standards and specification templates to external partners when a new product is required, ultimately fencing the parameters of the project. This process ensures that any conflict over design, construct or cost is pushed through to the next stage of commercialization. At this stage the conflict can be observed as the external partners submit waivers on technical or commercial grounds. At this stage the utility firm has to investigate the waiver. The waiver system combined with the service level agreements either address the conflict by accepting the waiver or repackages it by rejecting the waiver and forcing the external partner to commit to the predetermined standards and specifications. At this stage any conflict that resides is reshaped and pushed through to the commercialisation stage. The accepted waiver is then fed back and added to the existing standards and specification template. Productization reduced conflict with the firm and co-development actors. As it is not possible to completely remove and forget conflict the firm developed a waiver process to combat any manifest conflict.

The data confirmed that the utility firm did not restrict innovation through productization. Productization as a service had the opposite effect. External firms utilized the productization template to evaluate what was already possible and could make recommendations based on their expertise. The productization template provided to suppliers delivers clear scale. The firm has successfully utilized the key strength of productization, which is the alignment of value creation of both products and services (Velamuri et al., 2011). It has successfully utilized inbound (seeks to enhance the process of product delivery within the organization) and outbound (improving the focus and value of the product or service) productization (Simula et al., 2008) to manage conflict.

HOW DO FIRMS' DECISION-MAKING PROCESSES IN INNOVATION AND PURCHASING AFFECT BUSINESS-TO-BUSINESS RELATIONSHIPS?

The case reveals that productization as a service affects the decision-making processes in innovation and purchasing. The adoption of productization as a service commits the utility firm to continual co-development with external suppliers both at the development stages and commercialization stage. This adds to Wiersema (2012) who argues B2B marketers must act as curators of customer value and seek to strengthen the product innovation process.

Once standards and specifications have been drawn and confirmed the utility firm commits its procurement department to a specific framework. The waiver system affects procurement's ability to always employ the initial framework developed from the co-development and productization stages. Accepted waivers force the procurement team to resource and cost materials thus impacting upon the speed of commercialization. The long life nature of the assets makes it difficult for the utility firm to foresee emergency innovation and changes in the capability of technology.

The utility firm's decision-making process enhanced its capacity to innovate. The development of standards and specification along with productization and co-development attributed to this capacity in several ways. Co-development enabled the utility firm to work closely with external partners at the initial development stage. This approach allowed the

firm to build best practice and wider knowledge base into its designs. The firm then developed a productization strategy to ensure that future products would meet their own service requirements. In conjunction with this standards and specifications were refined and adopted to clearly communicate requirements of productization to external partners. The decision to develop the waiver system – specifically the technical waiver encapsulated any innovation methods that either were not ready at the time of productization or had not been discovered.

The decision of the firm to adopt productization as a service was not found to limit or withhold innovation at the firm; in fact the decision-making process enhanced the firm's ability to assess innovation quicker and establish a baseline of existing knowledge. Productization allowed the firm to react, adopt and adapt to most circumstances raised either internally by strategic business units or externally by partners. Productization is represented as part of the value creation process (Bowman & Swart, 2007) and in the case studied productization contributed to the firms' ability to assess the viability of products or services ahead of commercialisation (Greco, 2007). Study aligns with Simula et al. (2008) who argue that when routine work is reduced through templates, it allows for innovative ideas to be generated.

Productization reduced conflict with the firm and co-development actors. As it is not possible to completely remove and forget conflict the firm developed waiver process to combat any manifest conflict. However, the award of waivers also become a performance measure as to the success of the standards and specification work, and specifically of the productization initiative.

CONCLUSIONS

In conclusion, this paper examines business exchanges as services (Vargo & Lusch, 2008) and investigates how business-to-business marketers co-create value with customers (Ngo and O'Cass, 2013) and strengthen the product innovation process (Wiersema, 2012). The unique details of the case studied in terms of large-scale, mature utility and its risk-averse nature provided an important lens.

The main conclusion of the paper focuses on the development of productization and how it can be used to manage conflict. In order to develop the productization service the utility firm had to implement several stages. The firm co-developed with external partners to work towards productization and defining clear standards and specifications. This provided the firm with a template that ensured all of its requirements such as functionality, cost and risk were adhered to. The technical and commercial waivers built into the service level agreements provided the firm the opportunity to manage conflict that was arisen from external partners. Successful waivers were then developed back into the standards and specifications.

Secondly, the case reveals that productization as a service affects the decision-making processes in innovation and purchasing. It found that the firm was continually engaged in co-development through its productized service. Procurement had to be agile and adapt from selected frameworks when waivers were successful. The utility firm's decision-making process enhanced its capacity to innovate. Standards and specifications were found to be starting and finishing point of the firms' decision-making process. As exploratory research, the paper's findings and conclusions are of course limited by being drawn from a case, albeit of a utility firm of considerable size, and one engaging in a commonly regulated market. The findings are of interest to utility settings in which assets are operated commonly, but are long-lived, heterogeneous and subject to maintenance, upgrade and replacing. In this sense, it is a case benefiting from theoretical sampling, in providing detailed insights as productization reveals the conflicts as well as the potential benefits in devising valuable service for large focal firms, contractors and suppliers. Future research should seek to examine productization as a step towards becoming specifically an innovation model in addition to as in this paper an emerging process of service innovation.

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