Empirically Investigating Service-Dominant Logic: Developing and Validating a Service-Dominant Orientation Measure

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Abstract

The management of service capabilities allows businesses to better co-create value with their customers. Service-Dominant (S-D) logic provides an underlying theoretical framework for co-creation of value but empirical support is not yet well developed, particularly at a strategic level. Against this background, we develop and validate a service-dominant orientation (SDO) measure based on Karpen and Bove's (2008) conceptualisation that is consistent with S-D logic. As part of a six-stage, multi-method process, our analyses suggest that companies in the automotive retail context can gain significant market performance benefits beyond those of market orientation when levering their SDO capability.

Keywords: S-D Logic, Service-Dominant Orientation, Service Capabilities, Value Co-Creation, Strategic Orientation, Customer Experience

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Introduction

The current business environment forces companies to think beyond purely firm-driven value creation and its distribution to customers. In pursuit of competitive advantage, the co-creation of value with customers moves to the forefront of strategic initiatives supported by interactive technologies (Prahalad and Ramaswamy 2004). For example, BMW UK uses its capability of co-constructing valuable experiences with customers at a pre-purchase level through its web-based car configurator and simulator. Similarly, Mercedes-Benz has established international 'experience centres' to better engage with customers as well as support interaction and value-in-use on a continuous basis (Payne et al. 2008).

Superior capabilities in facilitating and enhancing the co-construction of experiences become increasingly central for competitive success. The service-dominant (S-D) logic (Vargo and Lusch 2004, 2008) provides a theoretical framework helping managers to understand value co-creation and mutually beneficial service thinking. Karpen and Bove (2008) have translated this thinking into a service-dominant orientation (hereafter SDO) manifested as co-creation practices with customers. This concept addresses a firm's service capability that is consistent with S-D logic, building the foundation for an empirical exploration of its consequences for both the customer and the firm.

Against this background, the purpose of this paper is to present the development of a psychometrically sound measure of a SDO, while considering outcome relationships within its nomological network. As such this research makes a number of contributions to the marketing literature. We first enrich a conceptual understanding of the SDO construct through a careful measurement model debate and choice. Second, we operationalise the SDO construct through a customer-based, hierarchical index. In doing so, we use a multi-stage process and a multi-method strategy to construct and validate our higher-order measure. Third, we discriminate the SDO empirically from customer-perceived market orientation (hereafter MO) (see Baker et al. 1999). Finally, we provide managerially relevant insights into the benefits of implementing a SDO beyond those of MO by examining its impact on market performance metrics.

To this end, we begin by clarifying the conceptual and operational background of SDO. Subsequently, we outline the six stages of measure development and validation. We end with a brief discussion on the strategic impact of a SDO, in view of co-creating value with customers and achieving competitive advantage.

Literature Review and Conceptual Foundations

The existing literature across disciplines provides multiple references to service orientation or related conceptualisations and constructs (e.g., Homburg et al. 2002, Gwinner et al. 2005, Bowen et al. 1989, Borucki and Burke 1999, Cran 1994, Hogan et al. 1984, Lytle et al. 1998). To the best of our knowledge, none of these constructs fulfil the following criteria simultaneously: (1) being entirely consistent with S-D logic (Vargo and Lusch 2004, 2008) and its strategic implications; (2) conceptualising the service orientation as organisational capability facilitating and enhancing value co-creation; and (3) operationalising the SDO from

customers' perspective, legitimised through their role as essential co-creators of value. Hence, empirical evidence and managerial guidance regarding the implementation and benefits of a comprehensive SDO are to date limited.

Addressing the above opportunity we have developed a customer-based measure capturing a higher-order SDO capability. We define SDO as *the service beneficiary's perception of the focal service benefactor's organisational practices concerned with the facilitation and enhancement of co-creating value through relational, ethical, individuated, developmental, empowered, and concerted interaction* (Karpen and Bove 2008). As actualised value generally emerges from the customer's experience (Prahalad and Ramaswamy, 2004), value co-creation here relates to supporting and assisting customers to co-construct valuable interactions. The SDO accordingly represents customers' perceptions of a firm's skill portfolio regarding six underlying service-based interaction capabilities that help it to co-create better experiences with customers (Karpen and Bove 2008). Overall, the SDO capability is enacted through organisational behaviours and activities manifested in each of the six components. In turn, these six lower-order competencies themselves contribute to customers' higher-order SDO perceptions. A discussion on the definition, justification and content of the six components and their link with S-D logic can be found in Karpen and Bove (2008).

Operational Foundations and Measure Development Process

The above conceptual understanding has specific implications for the measurement model. Based on Jarvis et al. (2003) we argue that the six components should be modelled formatively towards the hierarchical SDO construct. In this composite or aggregate view (Law et al. 1998) the six components define the meaning of and constitute the abstract multifaceted index. As the degree of the overall SDO competency results from customers' judgement of the six lower-order components, causality is seen to flow from the subconstructs to the higher-order SDO. Further, each of the subconstructs addresses distinct yet related content, so the dimensions are not interchangeable. The deletion of a component would in fact critically alter the domain of the overall SDO. We also believe that the six constructs do not always have the same antecedents or outcomes. Theoretically, developmental interaction for instance, may not have a significant impact on trust perceptions compared to ethical interaction. Finally, even though the dimensions might covary in the same direction simultaneously, this is not necessarily the case in every context. In contrast, we propose that the opposite argumentation applies to the six lower-order subconstructs, which we thus suggest modelling reflectively. According to Jarvis et al.(2003), we propose a Type II construct, consisting of reflective first-order and formative second-order indicators. While the literature provides guidelines for developing either purely reflective (e.g., Churchill Jr. 1979, Gerbing and Anderson 1988), or purely formative constructs (e.g., Diamantopoulos and Winklhofer 2001, Rossiter 2002), we hereby consider both views matching the combined SDO measurement model requirements. Additionally, we apply the recently proposed guidelines for specifying formative hierarchical construct models using PLS path modelling (see Wetzels et al. 2009). Six stages were carried out for SDO measure development as summarised below.

Stage 1: Expert Study 1

The development of formative as well as reflective measures requires domain specification that defines the content of the new concept. Clear construct definitions have been specified

delimiting the scope of the overall SDO index and of each of the six components respectively (see Karpen and Bove 2008). Based on an in-depth literature review, we developed a comprehensive pool of items addressing the content of these six subconstructs. We then conducted ten face-to-face reviews with (S-D logic) experts in the USA, New Zealand and Australia. The main purpose of these discussions was to ensure face and content validity of the items as well as consistency with S-D logic.

Stage 2: Expert Study 2

The resulting statements were then submitted to another set of 11 experts who rated the representativeness of the items to the constructs' definition (see Zaichkowsky 1985). Further, the experts evaluated the perceived importance of each component towards defining the overall SDO construct (compare Dagger et al. 2007). Conceptual relevance and a 70% average score (see Lytle et al. 1998) on the five point rating scales were key item deletion/retention criteria. Additionally, the experts were prompted to provide feedback and make suggestions to improve the quality and scope of the instrument.

Stage 3: Expert Study 3

In a final expert evaluation study 20 marketing faculty were asked to sort the remaining and adjusted items according to the most appropriate dimension. Items were retained if they were grouped into the same category in at least 60% of the cases (Allison 1978), while considering modified alternatives for poorer performing indicators. Items with redundant information or strong cross-loadings were considered for exclusion. Overall, these expert screening stages were critical to enhance definition and indicator clarity, simplicity, and unidimensionality of each subconstruct. Seven items per dimension were finally retained for empirical consumer testing.

Stage 4: Consumer Study 1

After pre-testing, 274 usable responses of Australian car dealership customers were collected through an online questionnaire. This context was chosen inter alia for its traditional goods-dominant focus yet high co-creation potential. The data was gathered in cooperation with an online panel provider. Participants generally qualified for the following studies if they purchased their new or used vehicle at an authorised dealership, where they also had it serviced at least once within the past 12 months. We performed an exploratory factor analysis (EFA) for preliminary evaluations of the potential dimensionality. Six factors emerged with eigenvalues >1 that mirrored the a priori specified subconstructs. Key decision criteria for item evaluation were the number and nature of cross loadings, within-dimension (item-to-total) correlations, Cronbach's alpha and unique conceptual indicator contribution.

Stage 5: Consumer Study 2

In order to carry out a confirmatory factor analysis (CFA) on the adjusted item battery and test the model fit, we collected a fresh set of 303 usable responses of Australian car dealership customers through a similar online survey method as before. In pursuit of a parsimonious instrument, we reduced the item battery based on an iterative CFA item deletion process using AMOS 16 (Arbuckle 2009) so that four to five items per dimension remained (see, e.g., Steenkamp and van Trijp 1991) . We tested competing and theoretically plausible models but the six factor model was always superior in achieving model fit indices thresholds.

Stage 6 A: Consumer Study 3

The final validation process involved the collection of two more consumer data sets (n=412, n=317). Having optimised each component to four indicators based on n=412 (see, e.g., Voss et al. 2003), Table 1 highlights the model fit indices of alternative measure considerations. Again, the final six factor model with four items per dimension significantly outperformed competing constellations ranging from the null through to the six factor model.

Table 1 AMOS-based Illustrative Model Fit Comparisons

n=412	CMIN/DF	CFI	RMSEA	SRMR
6 Factor Model	2.871	.960	.067	.0336
5 Factor Model	4.745	.918	.095	.0422
4 Factor Model	7.155	.863	.122	.0518
1 Factor Model	15.021	.681	.185	.0877

Table 2 demonstrates the discriminant and convergent validity of the components. In each case, the average variance extracted (AVE, diagonal) exceeds the squared multiple correlation (below diagonal) between components (see Fornell and Larcker 1981). In combination with model fit, these results indicate adequate unidimensionality (Gerbing and Anderson 1988) and the high construct reliabilities point to satisfying convergent validity for each component.

Table 2 AMOS-based Discriminant and Convergent Validity Indicators

n=412	II	CI	EI	EMI	RI	DI	CR
II	**.850**						**0.958**
CI	.588	**.766**					**0.929**
EI	.438	.401	**.769**				**0.930**
EMI	.590	.524	.276	**.751**			**0.923**
RI	.566	.471	.343	.402	**.804**		**0.942**
DI	.643	.615	.350	.626	.444	**.826**	**0.950**

II=Individuated, CI=Concerted, EI=Ethical, EMI=Empowered, RI=Relational, DI=Developmental Interaction; CR=Composite Reliability

In line with index construction guidelines (Diamantopoulos and Winklhofer 2001), Table 3 shows that multicollinearity among the six facets does not seem to pose a problem as the variance inflation factors (VIF) are well below the common cut-off threshold of 10 (Kleinbaum et al. 1988). Regarding external validity, we further correlated each component with an overall reflective SDO construct that has been developed for this study (see Diamantopoulos and Winklhofer 2001). Table 3 shows that each component had a significant correlation with the overall SDO measure.

Table 3 SPSS-based Correlations and Variance Inflation Factors (VIF)

(n=412)	SDO	II	CI	EI	EMI	RI	VIF
II	**.773****						**3.769**
CI	**.742****	.726**					**2.828**
EI	**.586****	.643**	.601**				**1.862**
EMI	**.781****	.718**	.671**	.487**			**2.609**
RI	**.643****	.713**	.638**	.553**	.583**		**2.221**
DI	**.782****	.768**	.740**	.569**	.742**	.626**	**3.366**

SDO=Here: Overall Reflective SDO; **. Pearson Correlation is significant at the 0.01 level (2-tailed)

While all analyses so far were carried out using AMOS/SPSS 16 (Arbuckle 2009), we then specified the higher-order SDO construct in SmartPLS (Ringle et al. 2005) using the recently proposed indicator replication approach (Wetzels et al. 2009). That is, all lower-order manifest variables were repeatedly used as indicators for the SDO index. Having assessed and ensured the quality of the measurement model, the structural model was then specified to

check for predictive validity. As such, the impact of the SDO index on established market performance measures regarding customer satisfaction, word-of-mouth and trust was investigated. Table 4 highlights the significant, positive impact of the SDO index (n=412) as indicated by the relatively large R^2, the path coefficients and t-values thereof. The latter were calculated through a standard bootstrapping procedure with 500 replications (see Wetzels et al. 2009). In each case the components contributed significantly to the hierarchical SDO construct, which itself functioned as an important driver of the market performance metrics.

Stage 6 B: Consumer Study 4

The fourth data set (n=317) included a customer-perceived market orientation measure (e.g., Baker et al. 1999) to further evaluate external discriminant validity and superiority of the SDO index. We first assessed internal discriminant and convergent validity, model fit, and reliability of each (sub)construct using AMOS (Arbuckle 2009). While this data set confirmed the previously established SDO measure, two poor performing indicators of the MO construct were removed. We then specified the hierarchical SDO index and a structural model including MO and a similar set of outcome variables with satisfying psychometric properties in SmartPLS (Ringle et al. 2005). As conceptually argued (see Karpen and Bove 2008), we could empirically show discriminant validity between the SDO and MO by comparing the AVE and the squared correlations of the constructs (Fornell and Larcker 1981). Finally, as Table 4 indicates, the SDO is always superior in predicting the market performance outcomes. We reached this conclusion through examining each construct individually (n=412, n=317) and then combining them for a direct comparison in a single structural model based on the final data set (n=317). The same PLS procedure as in stage 6 A was applied. Overall, the Goodness-of-Fit (GoF) values of the complete PLS models in each case well exceed 0.36 indicating excellent model fit (see Wetzels et al. 2009).

Table 4 SmartPLS-based Impact Analyses of SDO and MO on Outcome Variables

	n=412, GoF=.672 SDO			n=317, GoF=.605 MO			n=317, GoF=.678 Combined SDO and MO Model				
Outcome Variables	**R^2**	**PC**	**t-value**	**R^2**	**PC**	**t-value**	**Total R^2**	**PC SDO**	**PC MO**	**t-value SDO**	**t-value MO**
Sat	.62	.79***	39.54	.46	.68***	22.06	.58	.54***	.25***	7.63	3.78
WOM	.40	.63***	19.26	.37	.61***	17.16	.44	.41***	.29***	5.74	3.88
Trust	.61	.78***	38.22	.50	.71***	25.21	.65	.61***	.23***	9.85	3.91

Sat=Satisfaction, WOM=Word-of-mouth, PC=Path Coefficient; ***= significant at the 0.001 level (2-tailed)

Discussion and Conclusion

As suggested by Grönroos (2008, p. 307): "[…] regardless of whether a firm is traditionally considered a service firm or a goods-manufacturing firm, if it attempts to assist its customers' practices and support their value creation, it has to think, plan and act as a service business". In light of the firm's strategic role as a facilitator and supporter of customers' own value creation (Grönroos 2008; Vargo and Lusch 2008), we developed a valid customer-based measure capturing such a SDO. Our analyses suggest that companies in the automotive retail context can gain significant market performance benefits if they manage to lever co-creation capabilities into customers' perceptions of respective interaction practices. In fact, the impact of SDO on customer satisfaction, word-of-mouth and trust exceeds that of market orientation. While the BMW and Mercedes-Benz cases provide examples of SDO and thereby experience-driven interaction with automotive customers, we believe that companies in the future will generally have to better manage their service capabilities for competitive advantage.

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