Towards a B2B customer-based brand equity model

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Abstract Until recently branding has mainly been discussed in a consumer marketing setting. Practitioners and academia have, however, recently shown interest in B2B branding. Naturally this has led to a need for performance measuring and diagnostic tools for brand equity in a B2B setting. Our evaluation of existing structural models shows that they have either theoretic or validative problems in B2B markets. We therefore propose an alternative model and validate it into two B2B target groups.

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INTRODUCTION

The majority of research and discussions about branding are concentrated around consumer marketing. As brought forward by multiple distinguished scholars the issue, however, seems at least as important for B2B (industrial) marketers.^{1–6} From this, the discussion of brand equity and the measurement of it within B2B markets has also begun.^{5,6} Both among academics and practitioners there are unfortunately no agreement on how to measure brand equity. Franzen⁷ offers an extensive list of different metrics and measures that have been brought forward, including: brand equity as the lifetime value of each customer, a set of associations which are most strongly linked to a

brand name, the finance ‘value’ added when a product is sold branded versus unbranded, the differential effect that brand knowledge has on consumer response to marketing-activity and the incremental price premium compared to a ‘generic’ competitor. Some of these have been operationalised and commercialised, eg Young & Rubicams Brand-Asset Valuator, Total Research’s EquiTrend and Interbrand’s Top Brands.⁸ The variety in approaches of measuring brand equity have naturally made the justification of the metrics itself the main subject of discussion. What does a solid and valid brand equity measure help if you do not know how to improve it? To offer real value the model must be diagnostic and actionable, and only a causal model will offer this. In this paper, the approach is customer-based, firstly because it makes sense that brand preferences and loyalty is something that is present in the minds of the customers, and can be measured at the customer. And most importantly,

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because it gives the opportunity to work with structural causal models. Therefore, this paper seeks to add to the limited work done towards conceptualising and validating a measurement model for B2B customer-based brand equity.

An attempt to conceptualise and measure B2B brand equity has been made by van Riel *et al.*⁵ The model leans on the performance components first introduced by Mudambi *et al.*⁴ as exogenous constructs. As a result, the model is 'buyer based' and therefore excludes cases where the decision maker is not the buyer, for example, when a consulting engineer recommends a product/brand but is not the buyer. Secondly, van Riel *et al.*⁵ claim that B2B brands hardly evoke nonproduct-related associations, therefore brand associations are not included. This is in contrast to the more detailed arguments brought forward by Lynch and de Chernatony¹ who, leaning on mainly advertising processing theory,^{9,10} argue that the rationality focus within B2B branding is no more than a long-held assumption. This is further supported in more recent work discussing the dilemma in B2B marketing communication being mainly rational, whereas this does not naturally seem to apply to the receivers processing situation.¹¹ Including emotional brand association finds further support in the empirical work by Mudambi.³ This work shows that the importance of more brand-related associations (emotional) might vary, however, still leaving them with a 'branding receptive' cluster of 37 per cent in their sample. Finally, the PLS model estimated by van Riel *et al.*⁵ could have problems with discriminant validity, even though the authors do not report on discriminant validity.¹² The correlation reported between the 'product' and 'loyalty intentions' constructs seems rather high (0.804), meaning that the latent variables might not be individual constructs at all.

Another customer-based brand equity model presented at the 2004 EMAC (see Figure 1) was intended to be applicable to all possible types of brands and industries.¹³⁻¹⁶ As it is the case with other performance measuring models like the European Customer Satisfaction Index or European Employee Index, the goal was to make a simple, logical, diagnostic and actionable model

Figure 1: General customer-based brand equity model¹⁴

allowing comparability and benchmarking of the measurements across companies and industries. The model was based on both emotional and rational brand evaluations^{17,18} and the exogenous constructs was based on Franzen's⁷ general components of brand equity. The model featured high explanatory power (R^2 : 0.77, 0.76, 0.70, 0.82) validated in four different companies, two financial institutions (Den Danske Bank and Realkredit Danmark), as well as two mobile telephone manufactures (Nokia and Sony Ericsson); however, not in any B2B setting.^{13,15} In the following section, validation of the model in a B2B setting will be attempted.

METHODOLOGY AND DATA

To validate the model in a B2B setting data from the major international and industrial pump manufacturer Grundfos (www.grundfos.com) was made available. Over the past seven years Grundfos has intensified its branding efforts and directed many resources towards corporate branding. Sweden was chosen as the geographic test market, as the brand here is quite well consolidated, however without being monopolistic. Two individual target audiences were selected, namely industrial original equipment manufacturer (OEM) customers ($n=146$; group uses pumps as components in their own product) and consulting engineers

($n=156$; group primarily specifies pumps for building service projects). Data were collected through telephone interviews conducted by the Swedish market research company 'IMA Marknadsutvikling AB' during August and September 2006. The original validation study¹³ used a 50/50 split of telephone and internet interviews, and did not report any differences between or preferences to any of the two data collection methods.

As in the original approach for the B2B validation, a structural equation modelling approach was taken^{19,20} using partial least squares (PLS)²¹ for estimating the model. Fortunately, PLS estimation has minimal requirements for sample size and residual distribution.²² For the estimation of the structural equation model, SmartPLS software (<http://smartpls.de>) was used. The PLS estimation was carried out in an explorative manner including all possible relations, then removing them based on the hierarchical principle: eliminating one relation at a time, always taking the relation with the worst significance level, and then re-estimating the model. This procedure was carried out until all relations reached the 0.05 minimum level of significance. Missing values were removed on a case wise basis.

The significant models were judged based on the four criteria proposed by Hulland.¹² Item

reliability was judged on strong outer loadings, meaning at least >0.60 and ideally >0.70 .²³ Convergent validity was judged based on the composite reliability (CR) measure developed by Fornell and Larcker,²⁴ using the 0.70 threshold proposed by Nunnally.²⁵ In this case CR is superior to alpha since it does not assume tau-equivalence. Discriminant validity was judged upon the criterion that the variance shared between a construct and its measures should be greater than the variance shared between other constructs, demonstrated by the square root of the construct's average variance extracted (AVE) being significantly greater than the correlations with other constructs.

Model goodness of fit was evaluated on the R^2 of all dependent constructs, expecting at least a moderate R^2 equal to at least 0.33 as proposed by Chin.²²

RESULTS

The model was estimated as shown in Figure 2. The indexes shown inside the construct circles are the means on the individual measures weighed by their outer weights. All transformed from a seven-point Likert scale onto a 0–100 scale (1=0, 2=16.7, 3=33.3, 4=50, 5=66.7, 6=83.3, 7=100). The path coefficients are unstandardised impacts, that is, direct effects of a one-point change in an explanatory constructs index.

Figure 2: Estimation of the Original model on OEM customers and consulting engineers

Note: Asterisks denote * $p<0.05$; ** $p<0.01$; *** $p<0.001$

Table 1: Discriminant validity ORIGINAL model

OEM									
	Customer–brand relation	Rational evaluations	Emotional evaluations	Service quality	Price	Promise	Differentiation	Product quality	Trust and credibility
Customer–brand relations	0.82								
Rational evaluations	0.84	0.85							
Emotional evaluations	0.80	0.74	0.84						
Service quality	0.53	0.58	0.51	0.94					
Price	0.71	0.64	0.52	0.38	0.93				
Promise	0.71	0.76	0.65	0.73	0.57	0.78			
Differentiation	0.77	0.67	0.67	0.41	0.50	0.64	0.90		
Product quality	0.71	0.78	0.75	0.41	0.49	0.61	0.60	0.91	
Trust and credibility	0.71	0.80	0.66	0.50	0.51	0.68	0.50	0.72	0.89
Consulting engineers									
	Customer–brand relation	Rational evaluations	Emotional evaluations	Promise	Differentiation	Product quality			
Customer–brand relations	0.73								
Rational evaluations	0.79	0.81							
Emotional evaluations	0.63	0.55	0.82						
Service quality									
Price									
Promise	0.61	0.79	0.51	0.56					
Differentiation	0.50	0.47	0.61	0.43	0.31				
Product quality	0.67	0.68	0.49	0.56	0.54	0.00			
Trust and credibility	0.66	0.84	0.49	0.72	0.31	0.60	0.00		

Diagonal entries are square root of AVE. Off-diagonal entries are inter-correlations among the constructs.

In line with Grønholdt and Martensen's¹³ findings, both estimations showed high explanatory power. The OEM model explains 77 per cent of what drives customer–brand relations. The consulting engineers model explains 67 per cent. All R^2 s are far above the 0.33 moderate criterion used by Chin.²² Item reliability based on outer loadings was very satisfying; for all values of both the models were above the ideal threshold of 0.70 as proposed by Chin.²³ The convergent validity criteria were achieved with all constructs having a CR measure significantly above 0.70.²⁵

Both estimations did, however, have problems with discriminant validity as shown in Table 1. It was not possible in either estimation to discriminate between customer–brand relationship and rational evaluations, meaning that it is not viable to view these two latent variables as individual constructs. It was therefore not possible to validate the model with B2B survey data. Whether the discriminant validity problem is a more general problem with the model is unknown, since it is not reported in any previous work.^{13–16}

Multiple competing models using the same survey data were estimated. The estimations shown in Figure 3 gave the best overall results. The two intermediate constructs have been left out, primarily due to discriminant validity

problems. Further, in the original model customer–brand relationship was estimated with five indicators: loyalty, recommendation, attractiveness, engagement and attachment. Martensen and Grønholdt¹⁴ argue for adding engagement and attachment as individual indicators, however, both in terms of CR²⁴ as well as discriminant validity. Removing these two indicators improved the estimations.

The new OEM estimation achieved an R^2 of 0.76 and the new consulting engineers' estimation 0.63, both far above Chin's²² criteria. All outer loadings were above 0.80 and therefore distant above the ideal threshold.²³ Also, the convergent validity criteria were by far achieved.²⁵ Even though the estimations proved some relatively high inter-construct correlation, the AVE was so high that discriminant validity was achieved (Table 2).

CONCLUSIONS, LIMITATIONS AND IMPLICATIONS

The customer-based brand equity model presented by Martensen and Grønholdt¹⁴ was intended to be applicable to all possible industries, but could not be validated in this B2B setting. The intermediate construct 'rational evaluation' correlated strongly with 'customer–brand relationship', and the six indicators related to emotional evaluations seemed to give the

Figure 3: Estimation of the New model on OEM customers and consulting engineers

Note: Asterisk's denote * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 2: Discriminant validity, NEW model

	OEM				Consulting engineers			
	Customer-brand relation	Price	Differentiation	Product quality	Trust and credibility	Customer brand relation	Differentiation	Product quality
Customer-brand relations	0.91					0.87		
Price	0.66	0.94				0.49	0.89	
Differentiation	0.74	0.58	0.91			0.75	0.49	0.86
Product quality	0.76	0.55	0.65	0.93		0.69	0.35	0.70
Trust and credibility	0.74	0.49	0.53	0.77	0.92			0.92

Diagonal entries are square root of AVE. Off-diagonal entries are inter-correlations among the constructs.

respondent's problems. Questions like 'When thinking of Grundfos, I get a positive and warm feeling' or 'Grundfos is a lifestyle more than a product' seem to evoke restriction at the respondents that typically commented if the questions were meant as a joke. This could be taken as support for the arguments brought forward that B2B branding is primarily rational.^{2,5} Several points need to be made in this connection, however. First, substantial argument has been made that B2B brands should and do include nonrational values.^{1,3} Secondly, conceptualising a model that can be used for both B2B and B2C markets would be a great benefit with regard to benchmarking.^{14,16} Thirdly, both estimations done on a competing model in this paper include constructs (differentiation, trust and credibility) that from the theoretical basis were meant to be mainly emotional.^{14,16} Therefore, entirely removing nonrational constructs does not seem appropriate.

The competing model (Figure 3) features a highly explanatory power and simultaneously validates.¹² In the model, the intermediate constructs that gave validation problems have been left out. Furthermore, two indicators in customer-brand relationship have been removed. Moreover, the model only includes 21 indicators, making the model relatively easy to apply. In the two estimations, both 'service quality' and 'promise' have no significant impact. Promise might simply be too 'emotional' for the present test groups, whereas the missing impact from 'service quality' might be due to limited direct contact with the brand's support personnel. In addition, price did not impact consulting engineers. This may be due to the fact that this group only specify the products, but do not purchase them.

From a managerial point of view, the concrete estimation indicates that for OEM customers, 'differentiation' should be the main area for improvement. Differentiation has a relatively low performance (index 48), yet at the same time has the highest impact (0.34). The focal point should be improving and communicating the brand's uniqueness and advantages over other brands. For consulting engineers, 'product quality' should be

given focus with a high impact (0.45) and a performance that still gives possibility for improvement (index 66). Here, priority should be on communicating the product's durability, quality and position in relation to alternative products.

Further validation of the proposed new brand equity in multiple industries and markets will be necessary before judging whether the model may be useful as a general customer-based brand equity model for both B2C and B2B marketers.

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