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The industrial brand personality scale: Building strong business-to-business brands

Uta Herbst [a,*], Michael A. Merz [b]

[a] University of Tuebingen, Department of Marketing, Nauklerstr. 47, 72074 Tuebingen, Germany
[b] San José State University, Department of Marketing and Decision Sciences, One Washington Square, San Jose, CA 95192, USA

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ABSTRACT

To remain distinct and build strong business relationships in a competitive business-to-business (B2B) environment, an increasing number of industrial marketers attempt to exploit the potential of branding. However, brand management in the industrial sector is still at its starting point. For this reason, the authors introduce the concept of brand personality to industrial markets. Based on a series of qualitative and quantitative studies, the authors develop and validate an Industrial Brand Personality Scale. Furthermore, they examine whether brand personality perception differences exist among different types of industrial transactions and among different members in the buying center. The analysis yields a framework for theoretical discussion and provides B2B managers with a tool to build strong B2B brands in an increasingly competitive industrial market.

1. Introduction

Marlboro inevitably triggers the image of a cowboy in our minds: *adventurous*, *free,* and *cool*. Similarly, *Porsche* may well conjure up thoughts of an ambitious young man: *sporty, attractive,* and *high-income.* However, what comes to mind when we think of *SAP, General Electric,* or *Siemens*? While brand management has long been a central tenet of consumer marketing, these examples show that its systematic use is less established in industrial markets (Kim, Reid, Plank, & Dahlstrom, 1998; Kotler & Pfoertsch, 2007; Mudami, 2002; Mudami, Doyle, & Wong, 1997). Only recently has the increased competition in industrial markets – where service, reliability, and quality are now assumed minimum requirements rather than order-winning criteria – led to the fact that industrial firms pay more attention to the concept of branding (Humphreys & Williams, 1996; Zablah, Brown, & Donthu, 2010). In a highly competitive business environment, business-to-business (B2B) marketers are forced to successfully differentiate themselves by systematically steering their brands (Bendixen, Bukasa, & Abratt, 2004; Kotler, 1991).

Previous research on B2B branding has primarily focused on identifying differences between branding in consumer versus industrial contexts (e.g., Brown, Bellenger, & Johnston, 2007), applying branding strategies already successfully applied in other markets – usually consumer markets – in the industrial context (e.g., Kuhn, Alpert, & Pope, 2008), and developing new measurements of brand equity for the industrial context (e.g., Jensen & Klastrup, 2008). While this research provides valuable insights, it does not provide B2B marketers with a systematic approach to position their industrial brands away from competition. Furthermore, while previous research has noted that emotional brand benefit associations have become increasingly important in the predominantly "rational" and "problem-oriented" industrial markets as a means of differentiation (Bergstrom, Blumenthal, & Crothers, 2002; Gundlach, Achrol, & Mentzer, 1995; Lynch & de Chernatony, 2007), due to an increase in commoditization of industrial markets (Madden, Fehle, & Fournier, 2006; Schultz & Schultz, 2000), again no research exists that provides industrial marketers with a comprehensive set of relevant B2B brand value associations.

To help B2B marketers strategically develop a distinctive brand position, the concept of brand personality – defined as the "set of human characteristics associated with a brand" (Aaker, 1997, p. 347) – seems particularly fruitful. It provides a means to differentiation, offers both functional and emotional brand value associations, and encourages the customer to perceive the seller as an active, trustworthy partner (Johar, Sengupta, & Aaker, 2005; Ward, Goldstine, & Light, 1999).

Despite its value for B2B marketers, the concept of brand personality has only recently been examined in the industrial context. Campbell, Papania, Parent, and Cyr (2010) were the first to apply Aaker's (1997) well-established brand personality scale (BPS) in the industrial context to examine whether similarity in brand attributes affect the success of B2B relationships. Besides this notable exception, however, most research on brand personality has focused on consumer markets (Grohmann, 2009). Therefore, more research on brand personality is needed in the industrial context.

* Corresponding author. Tel.: +49 7071 29 74143; fax: +49 7071 29 5078.
E-mail addresses: uta.herbst@uni-tuebingen.de (U. Herbst), Michael.Merz@sjsu.edu (M.A. Merz).

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This is all the more true as Aaker's (1997) BPS scale has been developed for consumer markets. The question arises, therefore, whether it can be applied to the measurement of brand personality for B2B brands, as industrial market transactions, in general, are significantly different from consumer market transactions. For example, industrial market transactions often involve multiperson(al) decision making bodies (i.e., buying centers; Mitchell, 1995), represent specific solutions to problems (Bendixen et al., 2004), involve high risk on the part of the buyer because of their scale (Kuhn et al., 2008), and require industrial firms to use components from well-respected suppliers to gain legitimacy and acceptance for their own goods (Mudami, 2002). Given this, it is possible that Aaker's (1997) scale needs to be adjusted to take the peculiar nature of industrial markets into account. Venable, Rose, Bush, and Gilbert's (2005) findings substantiate this reasoning. The authors found that Aaker's (1997) BPS was not encompassing enough when assessing brand personality in the non-profit context. Therefore, they complemented Aaker's (1997) BPS with the results of qualitative and quantitative studies and identified brand personality associations peculiar to the non-profit context.

Against this background, the primary objective of this article is the development and validation of an Industrial Brand Personality Scale (IBPS) that helps industrial marketers to systematically steer their brands. More concretely, we aim to extent research on both brand personality and industrial brand management by addressing the following research questions (RQs): Is Aaker's Brand Personality Scale able to fully capture brand personalities in industrial markets (RQ1)? If not, what are the characteristic dimensions of IBPs (RQ2)? Moreover, we aim to examine whether different types of IBPs exist among different types of industrial transactions (RQ3) and among different members in the buying center (RQ4)?

In the following, we begin by reviewing the relevant literature on industrial branding. Next, we develop and validate a brand personality scale for the industrial market on the basis of a series of qualitative and quantitative studies among B2B marketers. In this context, we also provide answers to the stated research questions. Finally, limitations, future research directions, and managerial implications are discussed.

2. Conceptual foundation

2.1. Business-to-business branding

In increasingly competitive markets, building strong B2B brands becomes a key success factor (Kotler & Pfoertsch, 2007; Rooney, 1995). A brand is a "promise of the bundle of attributes that someone buys…" (Ambler & Styles, 1997, p.10). Therefore, a brand can be seen as a value proposition that promises to satisfy particular customer needs and wants (Merz, He, & Vargo, 2009; Vargo & Lusch, 2004, Tsai, 2005). A strong brand shifts the competitive framework in the firm's favor, giving it intangible value that is difficult to replicate. It serves as a means to both identification and differentiation thereby creating ongoing value for firms even in highly competitive and commoditized markets (Madden et al., 2006; Schultz & Schultz, 2000).

Research on B2B branding has substantiated the importance of branding and brands. The brand in this context usually refers to the corporate industrial brand, instead of the product or service level brand. As such, a buying center member's associations about an industrial brand can be viewed as a preliminary heuristic for deciding whether to become involved with the organization (Venable et al., 2005; Webb, Green, & Brashear, 2000). For example, previous research demonstrates that B2B branding enhances the success of industrial firms and makes them more competitive (Gordon, Calantone, & di Benedetto, 1993; Hutton, 1997; Michell, King, & Reast, 2001; Shipley & Howard, 1993). Furthermore, Sweeney (2002) demonstrates that B2B brands play a crucial influencing role at different stages in the industrial buyer's decision process, influencing the development of the supplier list, the shortlist of firms for negotiation, the signing of the purchase agreement, and the decision of supply and support services. Similarly, Mudami (2002) found that industrial buyers consider brand value in their purchase decisions and concluded that branding's role in B2B marketing is more important than has previously been acknowledged. Thus, branding in the B2B context is decisive (Kotler & Pfoertsch, 2007).

2.2. Nature of industrial markets and B2B brand functions

Previous research has recognized that brand management in B2B markets differs from that in consumer markets (Bendixen et al., 2004; Brown et al., 2007; Gordon et al., 1993). This discussion has usually taken place on a broader level (i.e., across industries), instead of focusing on one particular industry. The reason for this is that industrial branding experts believe that brand concepts developed for the industrial market in general should be applicable to any B2B marketer irrespective of industry (e.g., Kotler & Pfoertsch, 2007). For example, Kuhn et al. (2008) find that Keller's customer-based brand equity concept needs to be revised for B2B markets. Similarly, Jensen and Klastrup (2008) empirically demonstrate that existing brand equity models have theoretic or validative problems in B2B markets and therefore propose an alternative brand equity model for B2B markets. Most importantly perhaps, researchers have suggested that the B2B brand functions might be different from those in consumer markets due to the peculiar nature of industrial markets.

To illustrate, supply and demand in industrial markets are represented by organizations rather than individual consumers (Hakansson, 1982). This means that multiperson(al) decision making bodies (i.e., buying centers) make purchase decisions, usually within a framework of formalized, protracted procurement processes (Mitchell, 1995). The members of such buying centers are typically highly qualified professionals who tend to make decisions supported by logical reasoning (Gilliland & Johnston, 1997). In addition, goods and services in the industrial sector represent solutions to problems and are intended to fulfill a concrete need. Thus, B2B brands primarily fulfill an information function, providing functional brand associations (Bendixen et al., 2004; Brown et al., 2007; Gordon et al., 1993).

Furthermore, transactions in industrial markets often involve high risk on the part of the buyer (Kuhn et al., 2008; Swait, Erdem, Louviere, & Dubelaar, 1993). This is because industrial market transactions are often substantial in their scale (Lynch & de Chernatony, 2007). A strong industrial brand can help minimize the perceived risk related to the selection of a wrong business partner (Qualls & Puto, 1989; Schmitz, 1995). Therefore, B2B brands also fulfill a risk reduction function. To reduce the buyers' perceived risk, industrial brands need to establish trust. Previous studies reveal that sellers can develop trustworthy relationships by establishing emotional connections with their buyers (Bergstrom et al., 2002; Lynch & de Chernatony, 2007; Wuyts, Verhoef, & Prins, 2009). Emotional connections help industrial firms differentiate themselves effectively in a widely "rational" business market (Abratt, 1986; Shaw, Giglierano, & Kallis, 1989; Thompson, Knox, & Mitchell, 1997). In fact, using emotional brand benefit associations has become increasingly important due to an increase in commoditization in the B2B environment (Madden et al., 2006; Schultz & Schultz, 2000). In such an environment, it is difficult for industrial sellers to differentiate themselves by means of purely functional benefits.

Finally, industrial firms are increasingly recognizing that using components from well-respected suppliers (e.g., Intel microprocessor) helps them gain legitimacy and acceptance for their own goods. Thus, self-expressive brand associations affect potential buyers' purchase decisions. The fact that organizational buying centers comprise of many individuals with differing levels of experience, motivation, and heterogeneous brand expectations substantiates the importance

of self-expressive brand associations (Moorthi, 2004). As such, it might be important for a buying center member to be associated with a certain supplier as this connection says something about himself/herself (Mudami, 2002). In support of this view, Scheuing (1989) argues that every buying center is judged by the company it keeps. Thus, B2B brands also fulfill a prestige function.

2.3. Industrial brand personality

To the best of our knowledge, no systematic approach exists that helps business marketers position their industrial brands in their customers' minds in terms of the discussed brand functions. Similar to Venable et al.'s (2005) contention for nonprofit marketers, we contend for B2B marketers that the development of a unique brand personality can serve industrial marketers as a means to developing a brand position that is clearly distinguishable from that of competitor brands (Aaker & Fournier, 1995; Keller, 1993). In line with Aaker (1997, p. 347), we define industrial brand personality (IBP) as the set of human characteristics associated with a B2B brand. In line with previous research (Campbell et al., 2010; Venable et al., 2005), in the following we view the seller and brand as the same. Therefore, what also matters is the seller's personality.

So far, Aaker's (1997) Brand Personality Scale (BPS) constitutes the most reliable and valid scale that is not only able to measure a brand's personality but also steer it in practice by systematically manipulating individual items within five dimensions: *sincerity, excitement, competence, sophistication,* and *ruggedness* (Chun, Davies, da Silva, & Roper, 2003; Venable et al., 2005). In the B2C context, these dimensions have been identified to uniquely apply to consumers' characterization of brands (Grohmann, 2009). Previous research has shown that a strong brand personality positively affects brand preference (Kim, 2000), willingness to recommend (Hayes, Capella, & Alford, 2001; Kim, Han, & Park, 2001), and willingness to pay (Hayes et al., 2001). In addition, previous research has found that consumers prefer brands that have personality traits consistent with their own self-schema (Aaker, 1999).

Subsequent research has investigated the stability of the BPS across settings (e.g., tourist destinations [Hosany, Ekinci, & Uysal, 2006]; automobiles [Rojas-Méndez, Erenchun-Podlech, & Silva-Olave, 2004]) and cultures (e.g., Aaker, Benet-Martinez, & Garolera, 2001; Ferrandi, Valette-Florence, & Fine-Falcy, 2000). However, for most of the previous studies exploring the dimensions of brand personality using Aaker's (1997) BPS, the structure of the BPS could only be confirmed after making amendments in the form of item and dimension reductions. For example, Hosany et al. (2006) applied the BPS to tourism destinations. While their *sincerity* and *excitement* dimensions are in line with Aaker's (1997) dimensions, their *conviviality* dimension was new and specific to tourism destinations. The authors (p. 136) state that "the penta-factorial structure hypothesized by Aaker (1997) cannot, however, be fully replicated." In fact, an exact replication of the five-factor structure with all 42 items does not exist for any product market (Austin, Siguaw, & Mattila, 2003). This might have been the reason why Venable et al. (2005) developed a measure of brand personality designed specifically for the non-profit context. From the four resulting dimensions of brand personality for non-profits, only two overlap with Aaker's BPS (*sophistication, ruggedness)*. The two new dimensions complement Aaker's dimensions and are the result of qualitative and quantitative studies. They reflect society's expectations regarding non-profit organizations (*integrity, nurturance*).

Based on our discussion of brand functions in the B2B context, we expect that Aaker's (1997) scale will also need to be adjusted for industrial brands. Specifically, we expect that some of Aaker's (1997) identified personality traits/dimensions will be replicated, while at the same time new personality traits/dimensions will emerge. For example, we expect that personality characteristics will emerge that highlight the often rational, problem- and performance-oriented decision-making that can be observed in the B2B context, such as performing, competent, and leading (Bendixen et al., 2004; Brown et al., 2007). Such personality characteristics are unlikely to be fully captured with Aaker's BPS, which was developed for the consumer market. As a result, solely adopting Aaker's BPS in the industrial market might not be appropriate. Instead, it seems that a new scale particularly developed for industrial markets is needed.

3. Method

We used a multi-method study design to develop a brand personality scale for the B2B market, following Aaker's (1997) development of a BPS for consumer brands and Venable et al.'s (2005) development of a BPS for nonprofit brands. The purpose of the first two studies was to qualitatively (1) examine whether industrial brands have personalities and (2) if they do, generate potential personality traits that are relevant for industrial brands. To do so, we conducted depth interviews with industrial brand practitioners (Study 1) and content-analyzed mission statements of industrial companies (Study 2). The purpose of the following three studies was to quantitatively examine the dimensions of IBP. We first conducted a pilot study among business professionals to reduce the qualitatively generated item pool (Study 3). Next, we conducted exploratory (Study 4) and confirmatory (Study 5) factor analyses.

The studies were designed to explore the following research questions (RQs): Is Aaker's BPS able to fully capture brand personalities in industrial markets (RQ1)? If not, what are the characteristic dimensions of IBPs (RQ2)? Because industrial transactions cover a broad range of heterogeneous products and services, we were also interested in examining whether different IBPs exist based on the type of industrial transaction (RQ3). Furthermore, we were interested in examining whether the different members of a buying center assess IBPs differently (RQ4). As mentioned, multiple people with different backgrounds and expectations are typically involved in industrial purchasing. It is possible, therefore, that such buying center members value brand associations (e.g., functional and emotional) differently when making their purchase recommendations and decisions. For example, it is possible that *emotional* brand associations are more important for the head of production than the head of purchasing, both members of the buying center. The former might be more interested in purchasing a product that fascinates him/her at work (e.g., a *DeWalt* cordless drill), whereas the latter might be more interested in purchasing a product that is relatively inexpensive and cost-efficient, due to the incentive system in place (e.g., a *Black & Decker* cordless drill).

3.1. Study 1: depth interviews

We conducted 24 depth interviews with practitioners from leading German industrial firms. To assure the scope and comprehensiveness of our qualitative research, we selected industrial companies that were likely to represent a broad spectrum of personality types. Specifically, we applied Backhaus, Plinke, and Rese's (2003) typology, which constitutes a theoretically derived systematization of industrial transactions (Bensaou, 1999; Cannon & Perreault, 1999; Hutt and Speh, 2004). It is considered one of the most encompassing typologies of industrial transactions (Mühlfeld & Backhaus, 2005). It uses transaction cost economics and focuses on dependencies between buyers and sellers to derive the typology. Thus, it distinguishes between highly customized versus completely standardized products as well as between long-term relationships versus single transactions (Mühlfeld & Backhaus, 2005). Based on this classification, four different types of industrial transactions exist (see Table 1).

We identified six B2B companies per cell. A faculty panel reviewed and discussed the final selection of the companies to ensure the

Table 1
Classification of industrial transaction processes.

	Customized products	Standardized products
Relationship business	e.g., suppliers' goods and services in the automotive industry Sample firms Studies 3 & 4: Bosch Study 5: Siemens	e.g., software products, printing machines Sample firms Studies 3 & 4: T-Systems Study 5: SAP
Transaction business	e.g., specialty products such as highly specified construction machines, consulting projects Sample firms Studies 3 & 4: Mc Kinsey Study 5: Boston Consulting Group	e.g., commodity products such as gasoline, power drills Sample firms Studies 3 & 4: Bayer Study 5: BASF

proper fit of each company within this classification. For each of the 24 selected companies, we identified executives in the marketing or purchasing departments. A qualifying question ensured that these executives were familiar with branding.

All depth interviews were conducted via telephone. The interviews lasted on average 25 minutes. The 24 interviewees were between the ages of 29 and 58. 32% of the interviewees were female. Additionally, all interviews followed a general structure, ensuring a standardized interviewing process. Overall, we asked the expert participants to describe the personality characteristics of their own company and two competing brands they were familiar with. Here, we instructed the interviewees to list for each company at least three adjectives that describe this company "as if it had come to life as a person" (Aaker, 1997). The interviews were audiotaped and subsequently transcribed.

The depth interviews resulted in 71 different personality traits for industrial brands. Five of the traits were identical to those used in Aaker's BPS (*successful, leading, integrative, secure,* and *reliable*). While some of the remaining 66 traits mentioned were similar to those used to describe consumer brands (e.g., *attractive, educated*), the depth interviews also revealed personality traits that were closely related to the special nature of industrial markets. For example, participants mentioned *rational, competent,* and *trustworthy* as important descriptors of B2B brands. Overall, the results of the depth interviews suggest that B2B brands display different brand personality associations than consumer brands.

3.2. Study 2: content analysis

To derive additional personality traits of industrial companies, we content-analyzed the mission statements of all industrial companies listed on the German Stock Exchange (DAX). Given that mission statements contain the inherent values and norms of a company (Armstrong & Kotler, 2008) and can act as a powerful emotional pull for people who identify with them (Verma, 2009), this procedure seemed well suited to generate additional insights into the concept of IBP. At the time of Study 2, 18 industrial companies were listed on the DAX. The 18 B2B companies constituted a subset of the 24 B2B companies used in Study 1. All companies selected had strong B2B relationships.

To identify items relevant for the description of IBPs, two raters independently read through all 18 mission statements displayed on the respective industrial firm's website. The raters were blind to the purpose of the study. They were instructed to list all adjectives in the mission statements that describe the company "as if it had come to life as a person" (Aaker, 1997). Discrepancies between the raters were found in two of the eighteen mission statements and were resolved through discussion.

The content analysis provided 21 different IBP descriptors. Of these 21 descriptors, six were identical with Aaker's BPS (the five items already identified in the expert interviews and *honest*) and nine were overlapping with personality traits already identified in the expert interviews. The six new items (e.g., *solid, problem-oriented, achievement-oriented)* highlight the more functional nature of industrial transactions, a peculiarity highlighted previously. Therefore, the analysis of the mission statements also provided initial support that B2B brands have different brand personality associations than consumer brands.

Overall, the depth interviews and the content analysis yielded a total of 78 brand personality traits – 72 new traits and 6 that overlap with Aaker's BPS. The 72 new brand personality traits evoke associations of functional performance, emotional and trustworthy relationships, and self-expression.

3.3. Study 3: item reduction analysis

To reduce the 72 new IBP traits to a more manageable item set, we conducted an online survey. For the stimuli development, we used the same industrial company systematization introduced previously (see Table 1). For each type of industrial company, we identified one exemplar brand. For example, we selected *Bayer* and *T-Systems* as the exemplar industrial brands for standardized products, the former with a focus on transactions and the latter with a focus on relationships. Similarly, we selected *McKinsey* and *Bosch* as the exemplar industrial brands for customized products, the former with a focus on transactions and the latter with a focus on relationships. The exemplar stimuli were selected because they constituted well-known companies within the B2B context and represented service as well as manufacturing companies. A convenience sample of four academic experts validated our classification of these brands into the different cells. All experts were faculty members in a marketing department and familiar with B2B branding.

Upon identification of the exemplar brands, we reviewed the *German Federation of Employers* database and randomly selected 300 marketing and procurement practitioners. We contacted the practitioners via telephone and invited them to participate in an online survey. The practitioners were told that the online survey was about the role of branding in industrial markets. Overall, 117 practitioners from diverse industrial companies participated in the online survey, resulting in a response rate of 38% (average age was 38.7 years, 68% were male). We randomly assigned each participant to two of the stimuli and asked them to evaluate the stimuli's brand personality on a six-point scale ranging from 1 ("is not descriptive") to 6 ("is very descriptive") along the 72 items. Qualifying questions ascertained that the respondents were familiar with the randomly assigned industrial brands.

To identify the most relevant IBP traits, we calculated the means for all 72 personality traits and selected the mean score of four (4 = applies somewhat) as the cut-off value, in line with prior research (Aaker, 1997). This procedure resulted in a more manageable and relevant amount of 31 new personality traits (see Table 2). A preliminary examination of these 31 personality traits suggests that informational (e.g., *well-known, professional, experienced*) and risk-reducing (e.g., *trustworthy, serious*) personality descriptors received the highest means.

3.4. Study 4: exploratory analysis of factor structure

3.4.1. Stimuli and sample

We utilized the same industrial brand exemplars as in Study 3. Furthermore, we invited 513 alumni from two German universities to participate in an online survey. All invitees held relevant professional positions in management, procurement, production, or marketing. All invitees were contacted via email. During a period of three weeks and after one reminder email, we received 138 usable replies, resulting in a response rate of 26.9% (average age was 34.2 years, 67% were male). The vast majority of respondents (98%)

Table 2
Item relevance means (Study 3).

Relevant items	Means
International-oriented	5.10
Well-known	4.97
Professional	4.90
Experienced	4.88
Trustworthy	4.84
Elitist	4.80
Competent	4.78
Serious	4.65
Scientific	4.63
Creative	4.58
Arrogant	4.57
Exclusive	4.54
Educated	4.42
Rational	4.35
Diligent	4.33
Proactive	4.30
Problem-oriented	4.28
Analytical	4.28
Decent	4.20
Proper	4.20
Solid	4.20
Careful	4.18
Innovative	4.10
Conservative	4.05
Omnipresent	4.03
Authentic	4.03
Constant	4.03
Straightforward	4.02
Future-oriented	4.02
Achievement-oriented	4.02
Open	4.02

reported that they were involved in buying decisions in their industrial firm in the past 12 months.

3.4.2. Measures

The questionnaire contained three sections. A qualifying question first ascertained that the participants were familiar with the two (of the four) randomly assigned industrial brands. The random assignment of the industrial brands was based on an algorithm to ensure even cell distribution. The second section asked participants to evaluate the two randomly assigned industrial brand exemplars along 73 personality traits (the 31 items derived from Study 3 and Aaker's original 42 items to test RQ1) with the same scale used in Study 3. To reduce fluctuation in response behavior caused by respondent fatigue, the item order was automatically randomly changed in each questionnaire. The third section of the questionnaire assessed participants' demographics and asked questions regarding their professional activity.

Descriptive analysis showed that the sample represented all relevant functions of typical buying centers (e.g., management [19.4%], production [16.9%], purchasing [15%], human resources [14.8%], marketing [14.2%], R&D [12.8%], logistics [4.2%]; other 2.7%). Moreover, the buying center members came from diverse industries and no industry was overrepresented. Therefore, the characteristic that industrial purchasing is a multiperson(al) and multifunctional decision process is taken into account in this study. Finally, Bartlett's test of sphericity (< .05) and the Kaiswer–Meyer–Olkin (KMO) test (>.5) provided support for sample adequacy.

3.4.3. Applicability of Aaker's Brand Personality Scale in the industrial marketplace

To test whether Aaker's BPS is able to reliably describe brand personalities in the industrial sector (RQ1), we conducted an exploratory factor analysis based on only Aaker's original 42 brand personality traits. The results revealed a four-factor solution, rather than Aaker's original five-factor solution. Factor 1 contained seven items of the original *Excitement* and four items of the original *Sophistication* factors. Factor 2 contained seven items of the *Sincerity* and three items of the *Competence* factors. The remaining items were equally distributed between Factors 3 and 4 without being interpretable. Furthermore, removing items did not help improve the factor structure. Given these results, Aaker's BPS does not seem well suited to describe brand personalities in the industrial sector. Consequently, an alternative scale specifically designed for industrial brands is needed.

3.4.4. Relevant dimensions of industrial brand personalities

To determine the proper dimensions for a brand personality scale for the industrial market (RQ2), we conducted another exploratory factor analysis. This time, we included the responses to all of the 73 personality traits. The results revealed a three-factor solution with 39 of the original 73 personality characteristics (see Table 3). The 39 items retained had (1) factor loadings of at least .55 on one factor, (2) cross-loadings not higher than .4 on other factors, and (3) factor loadings on only one factor (difference between highest loading and closest lower loading greater than .25).

To make better sense of the three-factor solution, we subdivided the factors into facets, in analogy to Aaker's procedure. For this purpose, we subjected the relevant personality traits to another factor analysis with Varimax-Rotation without predefined factor values. Applying the Kaiser criterion, we obtained three facets for the first IBP dimension, two facets for the second, and one for the third. If the item with the highest loading described the remaining items in a meaningful manner, we used it as the facet name, in line with Aaker's (1997) approach. If the item with the highest loading did not describe the remaining items in a meaningful manner, we came up with a new descriptor that was more indicative of the respective item set, in line with Davies, Chun, da Silva, and Roper's (2004) approach. We used this latter approach for naming the third dimension. The final BPS for the industrial market is depicted in Table 3. We refer to it as the Industrial Brand Personality Scale (IBPS).

The first of the three generated factors consists of 19 personality traits. It only entails three items from Aaker's original scale (*hard-working, leading,* and *intelligent*). Thus, it is a new factor based on the additional traits generated from the qualitative studies. It emerged as a distinct brand personality dimension of industrial brands. We named this factor *Performance* because it highlights the functional brand associations that we argued are of particular relevance for industrial companies. Specifically, the first facet emphasizes

Table 3
Industrial Brand Personality Scale (IBPS)*.

Performance	Sensation	Credibility
Achievement-oriented	Exciting	Sincere
Professional	Young	Real
Analytical	Glamorous	Reliable
Hard working	Cool	Down-to-earth
Intelligent	Trendy	Honest
Proactive	Daring	Original
Educated	Good-looking	Trustworthy
Competent	Adventurous	
Proper	Imaginative	
Careful	Charming	
Experienced	Cheerful	
Rational	Feminine	
Problem-oriented	Tempered	
Diligent		
Leading		
Innovative		
International-oriented		
Scientific		
Creative		

* Subjects indicate on a six-point scale ranging from 1 (= is not descriptive) to 6 (is very descriptive).
How descriptive each of the personality characteristics is of the stimuli brand.

the professional and achievement-oriented part of an industrial brand. The second facet emphasizes the inherent functionality and rationality of industrial transaction processes. Finally, the third facet emphasizes that the functional promise of industrial brands has to be long-lasting. This is due to the long-term and close business relationships that are observable in the B2B context.

The second factor contains mostly items from Aaker's original *Excitement* and *Sophistication* factors, as well as *adventurous* and *tempered* which are not part of Aaker's BPS. It emphasizes the fact that self-expressive brand augmentation is also important in industrial markets. This factor contains personality traits that stimulate people's excitement about adopting brands for self-expressive reasons (e.g., *glamorous, exciting, cool, adventurous*). Therefore, we name this factor *Sensation*. It has two facets (*exciting* and *charming*).

The third factor mostly contains items from Aaker's *Sincerity* factor. It also includes *trustworthy*, an item not contained in Aaker's BPS. The items of this third factor (e.g., *sincere*, *honest, trustworthy, reliable)* highlight the importance of building trust in business relationships. Reliable and trustful B2B relationships help industrial firms form emotional relationships and minimize perceived risk. Accordingly, we call this third factor *Credibility*.

The three identified factors constitute an excellent interpretation of the factor structures. They explain 67% of the variance. They have unambiguous and high loadings and demonstrate high reliability (Churchill, 1979; Nunally, 1978). We assessed *Performance* with 19 items, resulting in an alpha coefficient of .95. Similarly, we assessed *Sensation* with 13 items and *Credibility* with 7 items, resulting in alpha coefficients of .91 and .88, respectively. In addition, all personality traits within each of the three dimensions had high item-to-total correlations (averaging .66, all exceeding .51), indicating high levels of internal reliability.

3.4.5. Industrial brand personality differentiation across industrial transaction processes

Given the high internal reliability of the developed IBPS, we investigated whether different IBPs exist based on the aforementioned categorization of the industrial transaction processes (RQ3). Consequently, we compared whether the mean scores for the four exemplar industrial brands differed across the identified three dimensions of the IBPS (see Table 4).

The results show that the exemplar industrial brands differ from each other across the dimensions of brand personality. They exhibit distinct personalities. Participants viewed *McKinsey* as more *performing* and *sensational* than the other brands, but also as less *credible. Bayer's* brand personality was also perceived as relatively high in terms of *Performance*, but relatively low in terms of *Credibility*. As a result, industrial brands that fall into the transaction business dimension (see Table 1) were perceived high in terms of *Performance* and relatively low in terms of *Credibility*. In contrast, industrial brands that fall into the relationship business dimension were perceived as *trustworthy* and *reliable partners* (i.e., *Credibility*) as well as high *performers* (i.e., *Performance*).

Regarding the second dimension of the systematization (i.e., standardized versus customized transactions), it seems that industrial brands that fall into the customized products dimension were perceived as more *sensational* (e.g., *McKinsey* and *Bosch*) than industrial brands that fall into the standardized products dimension (e.g., *T-Systems* and *Bayer*). Nevertheless, industrial marketers still do not appear to fully exploit the differentiating potential of such emotional brand personality associations, given the relatively low mean scores of the *Sensation* factor of IBP. This seems to be particularly the case for industrial firms offering standardized products. This is surprising given the increasing interchangeability of such business transactions.

3.4.6. Industrial brand personality differentiation within buying centers

To test whether the different members involved in buying centers perceive IBP differences (RQ4), we conducted a MANOVA with *Performance, Sensation,* and *Credibility* as the dependent variables (see Table 5). Specifically, we examined whether mean differences along the dependent variables exist between members of different functional areas. Since the number of responses of some of the functional areas was marginal (e.g., *logistics*), we used the two functional areas of *management* (19.4% of responses) and *production* (16.9% of responses) as examples. These two functional areas are typically represented in buying centers (Armstrong & Kotler, 2008).

The results show that executives who work in *production* perceived the industrial brands as more *sensational* than *management* (see Table 5). In contrast, *management* perceived the industrial brands as more *credible* than executives who work in *production*. Finally, members from both functional areas perceived the industrial brands similarly in terms of *performance*. *Performance* was also the factor that received the highest average mean across buying center members of both functional areas.

These results reveal that perceived IBP differences do not only exist among the different types of industrial firms, but also among the different members of the buying center within one industrial firm. Consequently, a careful steering of industrial brands is needed. Industrial brands need to be positioned so that they appeal to all members of a buying center without, however, missing a concise and memorable identity.

3.5. Study 5: confirmatory analysis of factor structure

To confirm the structure of the identified IBPS, we conducted a confirmatory factor analysis (CFA) using a new sample of subjects and brands.

3.5.1. Sample

We used the XING (the German equivalent to LinkedIn – a professional social network site) business database as the sampling frame. Seven hundred practitioners from different functional areas and B2B companies with at least 250 employees were invited via e-mail to participate in an online study about the role of branding in industrial markets. Within four weeks and with the help of a reminder e-mail,

Table 4
Mean differences in industrial brand personality perceptions across business types[a,b].

Dependent variable	df	F value	p value	Mc Kinsey (1)	Bosch (2)	Bayer (3)	T-Systems (4)	Contrast
Performance	3	15.8	<.001	4.75	4.55	4.41	3.55	1&4, 2&4, 3&4
Sensation	3	11.7	<.001	3.12	2.2	2.17	2.45	1&2, 1&3, 1&4
Credibility	3	30.4	<.001	2.64	4.34	2.90	3.12	1&2, 1&4, 2&3, 2&4

[a] All univariate F values and Bonferroni contrasts were significantly different at alpha = .05.
[b] We evaluated each dimension of the IBPS by using the mean evaluation of all items contained in that dimension, with 1 = *not at all descriptive* and 5 = *very descriptive*.

Table 5
Mean differences in industrial brand personality perceptions within buying centers[a].

Dependent variable	df	F value	p value	Management	Production
Performance	1	0.1	n.s.	4.12	4.07
Sensation	1	4.7	<.05	2.34	3.01
Credibility	1	4.6	<.05	3.73	2.91

[a] We evaluated each dimension of the IBPS by using the mean evaluation of all items contained in that dimension, with 1 = *not at all descriptive* and 5 = *very descriptive*.

248 practitioners submitted the online questionnaire. We excluded respondents who did not complete the entire survey, leaving a sample of 213 practitioners (35.4% response rate). The practitioners were mainly distributed across the functional areas of *management* (17.1%), *EDV* (16.4%), *production* (14.4%), *procurement* (13.2%), *HR* (10.6%), *R&D* (10.1%), *controlling* (6.3%), *others* (2.8%). All respondents were familiar with the concept of B2B branding. We compared early and late participants' evaluations of the IBP traits to test for late-response bias ($p>.05$; Armstrong and Overton, 1977). Participants averaged 36.5 years of age and 62% of the participants were male.

3.5.2. Stimuli and procedure

The procedure was identical to that of Study 4, except for the following two changes. First, we used a different set of exemplar industrial brands for each cell of the industrial brand classification (see Table 1 for detailed information). The selection of the exemplar industrial brands for the respective cells of Table 1 followed the selection criteria used in Study 3 and was again validated by an academic expert panel. Second, we included only the 39 (versus 73) personality traits in this study's questionnaire that remained after Study 4.

3.5.3. Construct reliability and discriminant validity

We conducted a confirmatory factor analysis using AMOS 17. An overview of the coefficient alpha reliability estimates and item loadings is depicted in Table 6. The composite reliabilities were .95 for *Performance*, .95 for *Sensation*, and .88 for *Credibility*. All standardized item estimates exceeded .50 (Hair, Anderson, Tatham, & Black, 1998). To examine discriminant validity, we compared the variance extracted within constructs with the square of the bivariate correlation between factors (Fornell & Larcker, 1981). The variance-extracted statistics for the constructs in our model were .48 for *Performance*, .59 for *Sensation*, and .46 for *Credibility*. The square of the phi estimates was as follows: .008 between *Performance* and *Sensation*, .33 between *Performance* and *Credibility*, and .09 between *Sensation* and *Credibility*. Thus, all variance-extracted estimates exceeded the square of the between-factor correlations, providing evidence of discriminant validity.

3.5.4. Overall model fit

To estimate the overall model fit, we evaluated a three-factor model with the 39 personality items that remained after Study 4. We modeled all items to load on their corresponding factor and allowed all latent variables to correlate. The fit of this model is satisfying (Chi-square = 1620.5; df = 695; Adjusted Goodness-of-Fit Index [AGFI] = .92, Goodness-of-Fit Index [GFI] = .93; Root Mean Square Error of Approximation [RMSEA] = .039). To further validate the robustness of the dimensional structure of the IBPS, we conducted further exploratory factor analyses with four subsamples (men, women, participants>40 years old, participants<40 years old), in line with Aaker (1997). The results showed the same three-factor model across the subsamples with similar proportions of total variance explained (see Table 7).[1]

4. Summary and implications

The main objective of this research was the conceptualization and measurement of brand personality in the industrial sector. The results of two qualitative and three quantitative studies indicate that brand personality constitutes a valuable instrument for industrial brand management and that IBP can be measured with a three-dimensional, 39-item scale. The dimensions highlight the importance of both functional and emotional brand associations in today's increasingly competitive industrial markets. To illustrate, the associations included in the *Performance* dimension are relevant to industrial buyers' objective and problem-oriented decision-making processes. As such, the *Performance* dimension helps B2B brands fulfill the information function.

In contrast, the associations included in the other two dimensions highlight the importance of emotional differentiation from the competition. The emergence of the *Credibility* dimension corroborates our theoretical underpinning that industrial brands have to display trust to reduce participating partners' perceived risk and form close and long-lasting B2B relationships. As such, the *Credibility* dimension helps B2B brands fulfill a risk reduction function. Moreover, the emergence of the *Sensation* dimension highlights that aspects of self-prestige are also important in positioning industrial brands. As such, the Sensation dimension helps B2B brands fulfill a prestige function.

Table 6
Confirmatory factor analysis reliability and standardized loadings (Study 5).

Factors	Items	Loadings
Performance .945	Performance-oriented	.64
	Professional	.80
	Analytical	.66
	Hard working	.61
	Intelligent	.73
	Proactive	.79
	Educated	.73
	Competent	.83
	Proper	.73
	Careful	.73
	Experienced	.77
	Rational	.56
	Problem-oriented	.69
	Diligent	.67
	Leading	.62
	Innovative	.77
	International-oriented	.51
	Scientific	.58
	Creative	.63
Sensation .946	Exciting	.63
	Young	.61
	Glamorous	.84
	Cool	.82
	Trendy	.81
	Daring	.76
	Good-looking	.75
	Adventurous	.73
	Imaginative	.77
	Charming	.87
	Cheerful	.80
	Feminine	.68
	Tempered	.80
Credibility .875	Sincere	.79
	Real	.79
	Reliable	.72
	Down-to-earth	.67
	Honest	.80
	Original	.57
	Trustworthy	.61

Table 7
Total explained variance by subsample (Study 5).

Subsample	Performance (%)	Sensation (%)	Credibility (%)
Men	24.30	20.07	11.83
Women	22.98	22.90	19.32
<40 years old	26.42	21.59	13.59
>40 years old	22.52	20.83	13.08
Total	24.93	21.22	12.55

[1] We also analyzed two additional models (one-dimensional and four-dimensional). Both models showed a significant decline in model fit when compared to the originally identified three-factor solution. This provides further support for the stability of the developed IBPS.

In a series of quantitative studies we confirmed the structure and stability of the developed Industrial Brand Personality Scale (IBPS). This suggests that Aaker's brand personality scale (BPS), which was developed against the background of consumer markets, does not constitute the most suitable measurement for the industrial sector.

The results indicate that general IBP perception differences exist within the industrial market, depending on the focus of the industrial transaction process. For example, we found that industrial brands with a focus on single transactions are perceived as more *performing* but less *credible*, whereas industrial brands with a focus on relationships are perceived similarly across these two personality characteristics. Moreover, across all types of industrial market transactions, industrial brands were perceived as relatively low in terms of the *Sensation* dimension.

Furthermore, our results suggest that different members of a buying center perceive industrial brands differently in terms of their brand personality. For example, the same B2B brands were perceived as more *credible* by *management* (versus *production* executives), but more *sensational* by *production* executives (versus *management*). This finding reflects a typical principal agency theory problem that industrial brand management faces. The problem is based upon the premise that both the principal (*management*) and the agent (*production*) try to maximize their individual self-interests. Based on the assumption of divergent goals, risk tendencies, and existing information asymmetries, the danger exists that the agent (here *procurement*) will not decide and act in the interests of the principal (here *management*; Lewin & Johnston, 1996). While our research provides important insights, it also has limitations, provides opportunities for future research, and has direct implications for industrial brand managers.

4.1. Limitations and future research

This research is the first to develop a brand personality scale for the industrial market. The IBPS helps industrial marketers manage their brands independent of the specific industry and context. However, this research has several limitations that warrant further research. For example, we only used one exemplar brand per transaction type to develop and validate our IBP scale. While we varied the exemplar brand for each transaction type in Study 5, future research should further validate our developed IBP scale by using additional exemplar brands per transaction type. Furthermore, although we selected our exemplar industrial brands based on a theoretically developed systematization of industrial transaction processes (Backhaus et al., 2003), it is possible that this systematization does not fully represent all industrial firms (Venable et al., 2005). Therefore, future research should utilize other systematizations of industrial transactions as a basis for stimuli selection.

The samples obtained and the sampling methods used are another potential limitation. For example, we used a convenience sample of academic experts to validate our selection of exemplar brands per transaction type. In addition, we used university alumni as our sampling frame for Study 4, which might have introduced some biases. For example, while we ensured that respondents represent a wide range of industries and areas of expertise, it is possible that university alumni have an opinion prevalent in their social class. Furthermore, the samples across B2B transaction types and member type of buying centers were relatively small. Consequently, future research might want to further examine and explain in greater detail such differences. Moreover, we found differences based on the business type and members of the buying center. Given that IBPS scores are affected by the members of the buying centers, it might, therefore, be useful to recruit a sample with similar characteristics.

A further limitation is that we developed the IBPS based on data collected in Germany. However, previous research on brand personality has shown that cultural adjustments might be necessary (Aaker et al., 2001; Ferrandi et al., 2000; Hieronimus, 2003; Venable et al., 2005). As a result, future research might want to confirm the factor structure and stability of the IBPS in different countries and cultures.

Finally, the IBPS provides a tool for industrial brand managers to more strategically position their brands. Against this background, we examined different exemplar industrial brands in terms of their brand personality. However, future research could use multidimensional scaling, cluster analyses, and positioning studies to more specifically identify competitive gaps. In general, future research should study how the different dimensions of IBP can be traded off against each other and which items are particularly suitable in which settings.

4.2. Managerial implications

Although prior research has pointed out the importance of branding in industrial markets (Bendixen et al., 2004; Humphreys & Williams, 1996), industrial marketing managers had little guidance regarding how to strategically position their brands relative to the competition. In addition, although brand personality has been acknowledged as a valuable positioning tool in consumer markets, it had not been applied to industrial markets. With the concept and measurement of IBP, we provide industrial marketers, for the first time, with a valuable positioning tool.

The developed IBPS helps industrial marketers strategically differentiate their brands along the three dimensions of *Performance, Sensation,* and *Credibility*. This is particularly important in many of the increasingly commoditized industrial sectors. Specifically, to create the right personality associations for their industrial brands, and thus a distinct brand position, industrial marketers need to find out – by using the IBPS – what their buyers actual and desired personality associations with regard to their sellers' brands are. By comparing the desired with the actual personality associations, industrial marketers will gain insights into which associations are not yet satisfactorily met. It is these personality associations that the industrial marketers need to highlight in their marketing communications (e.g., trait shows, professional magazines). Moreover, industrial brand managers can also use the IBPS to find an unoccupied position within one of the identified dimensions. In this context, industrial marketers should assess and track their competitors' brand personalities using the IBPS to identify a position for their industrial brand that is different from their competition. This position should be in line with the buyers' desired position.

Irrespective of the selection of specific personality associations, our research shows that most industrial firms examined were perceived as relatively high in terms of *Performance*. Therefore, in analogy to the Kano model, *Performance* seems to constitute a "must-have" brand association in the industrial sector. This suggests that industrial brand managers should, in any case, position their brands along the IBP traits and facets of *Performance*, otherwise their firms might not be in the consideration set of potential industrial customers.

Furthermore, not all types of industrial firms were perceived as high in terms of *Credibility* as they were in terms of *Performance*. *Credibility*, therefore, might constitute a "linear satisfier". That is, the more credible an industrial brand is, the more likely it will be taken into the consideration set of industrial customers, especially in industrial transactions that are characterized by long-term relationships. This suggests that marketers should strengthen the emotional load of their brands.

Moreover, industrial firms were perceived as relatively low in terms of the *Sensation* dimension. It, therefore, might constitute a "delighter" brand association that B2B customers do not expect but that can lead to tremendous benefits once an industrial firm positions itself along the *Sensation* traits. Thus, industrial brand managers might benefit from positioning their brands in terms of the *Sensation* dimension. *Sensation,* too, helps build relationships on a more emotional level, which appears particularly relevant in the increasingly

commoditized B2B markets. More concretely, our results suggest that industrial brand managers should begin to recognize that – in times of increasing competition and commoditization – technological competence and product quality are no longer sufficient. This reasoning is in line with the theoretical underpinnings.

Our research also indicates that industrial marketing managers should take the multi-person(al) structure of the buying center into consideration when developing their IBP. Different members of the buying center (e.g., *production, procurement, management*) have a variety of expectations and perceive industrial brands differently. Therefore, industrial marketing managers face the challenge of developing unique and clear brand associations that appeals to the different parties involved in the buying center. The developed IBPS constitutes a first means to help industrial brand managers develop brand associations that appeals to the tastes of the heterogeneous buying center members.

Overall, industrial brand managers should realize that Aaker's BPS, developed against the background of consumer markets, does not constitute a proper positioning tool for industrial brands. Consequently, utilizing Aaker's BPS to find a proper positioning in the industrial sector might result in unsuccessful strategy developments. Instead, brand managers in the industrial sector should use the IBPS when positioning their brands against competition, as it captures the peculiarities of the *industrial* sector.

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Uta Herbst is Assistant Professor PhD in Marketing at the University of Tuebingen, Germany. Her main research areas comprise the study of buying center analysis, buyer–seller negotiations and business-to-business branding.

Michael Merz is Assistant Professor PhD in Marketing at San José State University. His main research areas comprise the study of (business-to-business) branding, service dominant-logic (SDL) and cross-cultural marketing.