Optimizing employee engagement with internal communication: A social exchange perspective

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Abstract: Employee engagement is linked to higher productivity, lower attrition, and improved organizational reputations resulting in increased focus and resourcing by managers to foster an engaged workforce. While drivers of employee engagement have been identified as perceived support, job characteristics, and value congruence, internal communication is theoretically suggested to be a key influence in both the process and maintenance of employee engagement efforts. However, understanding the mechanisms by which internal communication influences employee engagement has emerged as a key question in the literature. The purpose of this research is to investigate whether social factors, namely perceived support and identification, play a mediating role in the relationship between internal communication and engagement. To test the theoretical model, data are collected from 200 non-executive employees using an online self-administered survey. The study applies linear and mediated regression to the model and finds that organizations and supervisors should focus internal communication efforts toward building greater perceptions of support and stronger identification among employees in order to foster optimal levels of engagement.

Keywords: Employee engagement · Internal communication · Identification · Perceived support · Social exchange theory · Social identity theory · Workplace relationships

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Introduction

Employee engagement is the extent to which employees display discretionary effort in their roles at work (Frank, Finnegan, and Taylor 2004). Engagement as a concept has gained substantial interest across academic and practitioner literatures (Shuck and Wollard 2011), due to its links to increased financial returns and improved organizational reputations (Saks 2006). Benefits of an engaged workforce contribute to these organizational outcomes through increased productivity, higher job satisfaction, and decreased turnover (Saks 2006). While these benefits have resulted in an increased priority, focus, and resourcing by managers worldwide to foster an engaged workforce (Shuck and Wollard 2011), recent industry studies suggest these efforts may not be working (see e.g., Gullup 2010; Towers Perrin 2008). Iyer and Israel (2012) identified internal communication as a key driver of employee engagement. However, this association has not been empirically confirmed. More specifically, understanding the mechanisms by which internal communication influences employee engagement remains unaddressed in the literature.

Internal communication is an internal organizational process that provides and shares information to create a sense of community and trust among employees (Rothenberg 2003; Ryynanen, Pekkarinen, and Salminen 2012). Developing a sense of community and trust through internal communication involves establishing and maintaining relationships between an organization, supervisors, and employees (Hume and Leonard 2013). While employees experience many relationships within their workplace, two essential relationships dominate an employee’s professional life: a relationship with their organization (i.e., executive and senior management) and with their direct supervisor; commonly referred to as social exchange relationships (Masterson, Lewis, Goldman, and Taylor 2000; Sluss, Klimchak, and Holmes 2008). Favorable social exchange relationships are essential for achieving organizational and individual goals and objectives as each individual and/or group is interdependent on the other (Hume and Leonard 2013). Social exchange theory is a prominent theoretical paradigm for understanding workplace relationships (Cropanzano and Mitchell 2005) and employee attitudes (DeConinck 2010) and offers a lens to explore social exchange relationships within the organizational environment (Gersick, Dutton, and Bartunek 2000). Sluss et al. (2008) argue that further understanding of the mechanisms that underpin social exchange relationships is required to provide greater insight into the relationship between internal communication and employee engagement. The present study addresses this need.

The main purpose of this research is to propose and test a new theoretical model, based on the principals of social exchange and social identity, to explain the association between internal communication and employee engagement at both the organizational and supervisory level. While there is good reason to believe that social exchange (i.e., perceived support) will mediate the relationship between internal communication and employee engagement, research has not explored social identity (i.e., identification) and its potential mediating role in the association between internal communication and engagement (Sluss et al. 2008). The remainder of this paper is structured as follows. First, we review the theoretical background and concepts that are central to this study.
and develop a conceptual model. Next, the research methodology is detailed followed by the data analysis and the discussion of the findings. Finally, the limitations of the study as well as suggestions for future research are discussed.

Theoretical background

Social exchange relationships

One of the most important aspects of an employee’s professional life is the relationships they experience within the boundaries of their organization (Gersick et al. 2000; Masterson et al. 2000). Relationships play a critical role in shaping work environments (Bartunek and Dutton 2000). Work environments can have either a positive or negative effect on the amount of value, support, and identification an employee derives from their professional life (Gersick et al. 2000). Social exchange theory is a dominant theoretical paradigm used to explain workplace relationships (Blau 1964; Cropanzano and Mitchell 2005). Social exchange theory is a foundational theory for other theories including leader-member exchange theory (Abu Bakar, Dilbeck, and McCroskey 2010; Gerstner and Day 1977), organizational support theory (Baran, Shanock, and Miller 2012; Rhoades and Eisenberger 2002), transformational leadership (Judge, Piccolo, and Ilies 2004), trust (Dirks and Ferrin 2002), and service-dominant logic (Vargo and Lusch 2004). Social exchange theory consists of similar perspectives to service-dominant logic; a cognitive framework used to underpin the exchange of value co-creation between organizations and their customers (Karpen, Bove, and Lukas 2011; Vargo 2011). Vargo and Lusch (2008) extend service-dominant logic to include all parties (e.g., employees) that exchange resources of value to develop favorable cognitions, emotions, and behaviors to achieve mutual benefit for individuals, customers, organizations, and societies.

The most explored and applied facet of social exchange theory is workplace relationships (Cropanzano and Mitchell 2005). Various mutually dependent associations exist within workplaces; these are referred to as social exchange relationships (Cropanzano, Byrne, Bobocel, and Rupp 2001). Social exchanges involve a sequence of interactions between two parties that produce personal obligations, appreciation, and trust (Blau 1964; Emerson 1976). While numerous characteristics of social exchange exist, the most significant is reciprocity, whereby positive and fair exchanges between two parties (individuals or groups) result in favorable behaviors and attitudes (Cropanzano and Mitchell 2005). Employees experience social exchange relationships with their colleagues, customers, suppliers, direct supervisor, and their organization (Masterson et al. 2000). Each of these relationships have cognitive, emotional, and behavioral implications whereby employees reciprocate the socioemotional benefits they receive (Blau 1964; Cropanzano and Mitchell 2005). The two social exchange relationships which dominate an employee’s professional life are the relationships with their organization and with their direct supervisor (Masterson et al. 2000; Sluss et al. 2008). An employee’s desire to reciprocate favors toward their organization and their direct supervisor are the result of these relationships (Cropanzano and Mitchell 2005).
Calls have been made for more complex, empirical research on workplace relationships (see e.g., Cropanzano and Mitchell 2005; Van Knippenberg, Van Dick, and Tavares 2007; Masterson et al. 2000; Sluss et al. 2008). In particular, the need for research focusing on exchanges between an employee and their organization and between an employee and their direct supervisor has been highlighted as an important area (Masterson et al. 2000; Sluss et al. 2008). Therefore, this study examines the impact of internal communication on employee engagement at the organization-employee and supervisor-employee level.

**Resources of exchange**

Social exchange theory provides an explanation of how individuals offer and obtain resources within social exchange relationships (Sluss et al. 2008). A social resource is defined as “any item, concrete or symbolic, which can become the object of exchange among people” (Foá and Foá 1980, p. 78). Foá and Foá (1980) explore the nature of interpersonal resource interactions (i.e., transactions within an organizational context) and cluster resources into six social categories: love, status, information, money, goods, and services. Foá and Foá’s (1980) six social classifications are grouped into two additional categories: concreteness and particularism.

The resource of interest within this study is information, which includes “advice, opinions, instructions, or enlightenment” (Foá 1971, p. 346) and is conceptualized as internal communication. Information is considered moderately particularistic and highly symbolic, implying it goes beyond object worth and its source has an impact on its value (Cropanzano and Mitchell 2005). Furthermore, Rhoades and Eisenberger (2002) posit that social exchange theorists (see e.g., Blau 1964; Cotterell, Eisenberger, and Speicher 1992) believe employees will value resources (i.e., rewards and desirable job conditions) more highly if their organization provides resources on a voluntary basis, rather than as a requirement from an external party such as a union or the government.

According to Smidts, Pruyn and Van Reil (2001) internal communication facilitates interactions between organizations and employees which create social relationships based on meaning and worth. In turn, this is believed to increase productivity and drive positive employee attitudes (Cropanzano and Mitchell 2005). The conceptualization of information as a resource of exchange is consistent with social exchange theory, whereby individuals use their cognitive filters to translate resources (i.e., information) into positive or negative actions. Therefore, this study equates the resource of information as the exchange of communication between an organization, a supervisor, and their employees. Furthermore, this study positions employee engagement as a favorable, pro-social attitude and behavior which employees are likely to reciprocate. The concept of internal communication and employee engagement are discussed in the following sections.

**Internal communication**

To retain a satisfied and motivated workforce, senior leaders and managers must continually find ways to meet individual employee needs and stimulate their creativity,
while persuading them to act in ways aligning with organizational objectives (Kitchen and Daly 2002). One approach used by organizations to foster satisfied and motivated employees is internal communication (Ryynanen et al. 2012; van Vuuren, de Jong, and Seydel 2007). Internal communication plays an integral role in the management function due to its ability to provide value to an organization’s internal and external customers (Ryynanen et al. 2012; Zahay and Peltier 2008). Furthermore, it is necessary for senior leaders and managers within service driven organizations to communicate frequently with employees concerning service delivery and quality to establish trust and develop performance goals (Smith 2011). An increasing amount of research has been published on internal communication within the human relations, organizational psychology, management, and internal marketing literature (Lings and Greenley 2005; Ryynanen et al. 2012; Smith 2011). Internal communication is considered an important, challenging process which strengthens the connection between an organization and its stakeholders, particularly employees (Gray and Robertson 2005; Mazzei 2010).

The existing literature offers several definitions to describe internal communication (see e.g., Bovee and Thill 2000; Carrierre and Bourque 2009; Kalla 2005; Mazzei 2010; Welch and Jackson 2007). The four main themes derived from the various definitions are 1) transactional in nature, 2) exchange of information, 3) management process, and 4) communication flow. While the definitions by Bovee and Thill (2000), Carrierre and Bourque (2009), Kalla (2005), Mazzei (2010) and Welch and Jackson (2007) provide insight into what constitutes internal communication, there is no one definition that fully encapsulates the concept in its entirety. Therefore, this study incorporates the definitions by Bovee and Thill (2000), Carrierre and Bourque (2009), Kalla (2005), Mazzei (2010) and Welch and Jackson (2007) and defines internal communication as: The process responsible for the internal exchange of information between stakeholders at all levels within the boundaries of an organization.

Internal communication is operationalized in this study at two levels, organization-employee and supervisor-employee, and will be referred to as internal organizational communication and internal supervisor communication. Internal organizational communication occurs between an organization’s executive team (i.e., chief executive officer, senior management) and employees, while internal supervisor communication occurs between supervisors and their employees. The importance of considering internal organizational communication and internal supervisor communication stems from Bennis and Nanus’ (1985) belief that both levels of communication are essential within all organizations. Furthermore, Bennis and Nanus (1985) suggest organizations and supervisors must communicate with their employees about company goals, visions, and values, as well as specific role-related tasks, in ways which elicit and encourage employees to respond with feedback. Therefore, it is important to understand how internal communication enhances organizational effectiveness and whether internal communication is linked to employee engagement. Some authors (see e.g., Johlke and Duhan 2000; Smidts et al. 2001) conceptualize internal communication as a multidimensional construct, while others (see e.g., Carrierre and Bourque 2009; Zahay and Peltier 2008) position internal communication as a unidimensional construct consisting of various items that reflect the entire conceptual domain of internal
communication. As there are differences in views and no widely accepted scale used to measure internal communication, this study utilizes a less contentious approach and describes the concept as a unidimensional construct. The conceptual domain of internal communication is drawn from the services marketing and management literature (Johlke and Duhan 2000; Maltz 2000).

**Employee engagement**

Employee engagement is associated with favorable employee outcomes such as organizational effectiveness and positive financial returns (Saks 2006). Employee engagement has been the focus of both industry and academic studies (Shuck and Wollard 2011). Despite the increase in attention, there is a shortage of empirical research on employee engagement (Saks 2006). Furthermore, much of what has been written about employee engagement comes from consulting firms where it has its basis in practice rather than theory (Saks 2006). Despite growing interest in engagement-related research, consultancy studies reveal a decline in the number of engaged employees (Saks 2006). A global workforce study conducted by Towers Perrin (2008) found only 21 per cent of employees to be engaged with their work, and 38 per cent of employees were moderately to fully disengaged with their work. More recently, Gallup Consulting (2010) found 11 per cent of employees worldwide are engaged in their job, 62 per cent are not engaged, and 27 per cent are actively disengaged. Employee engagement has therefore become a high priority for organizations worldwide.

This research aligns with Schaufeli, Salanova, González-Romá, and Bakker’s (2002 p. 74) definition of engagement as “a positive, fulfilling, work-related state of mind characterized by vigor, dedication, and absorption”. Vigor, also known as an employee’s behavior, is defined as “high levels of energy and mental resilience while working, the willingness to invest effort in one’s work, and persistence even in the face of difficulties” (Schaufeli, Bakker, and Salanova 2006, p. 702). Dedication, also described as an employee’s emotion, is defined by Schaufeli et al. (2006 p. 702) as “being strongly involved in one’s work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge”. Finally, absorption, or cognition, is defined as “being fully concentrated and happily engrossed in one’s work, whereby time passes quickly and one has difficulties with detaching oneself from work (Schaufeli et al. 2006 p. 702).

**Internal communication and employee engagement**

Internal communication is suggested as one of the key determinants of employee engagement (Iyer and Israel 2012). Despite the importance accredited to internal communication and employee engagement within the practitioner literature, there is little empirical academic research testing and supporting an association between the constructs.

Three different levels of engagement are recognized by Truss, Soane, and Edwards (2006) and include emotional (being very involved in work related tasks), cognitive (focusing very hard on work related tasks), and physical (being willing to put in extra effort) (Truss et al. 2006). Although the source of the engagement components is not
acknowledged by Truss et al. (2006) these components directly align with Kahn’s (1990) belief that when engaged, people employ and express themselves physically, cognitively, and emotionally during role performance. Truss et al. (2006) found three main drivers of employee engagement: 1) opportunities for employees to feed their views and ideas upwards, 2) employees feeling well-informed about what is happening within their organization, and 3) employees sensing their manager is committed to the organization. An important conclusion, Truss et al. (2006) argues, is that keeping employees well informed about organizational issues is a major driver of employee engagement.

While there are no specific studies investigating the influence of internal communication on employee engagement, organization communication satisfaction is suggested to have a positive impact on employee engagement (Iyer and Israel 2012). One aspect of organization communication is inter-organizational communication (Downs and Hazen 1977) which parallels the current conceptualization of internal communication. Building on this, the present study aims to discover the mechanisms that play a mediating role in the relationship between internal communication and employee engagement.

Organizations and supervisors who communicate with their employees on a daily basis facilitate social exchange, commonly described as the sequence of interactions that produce personal obligations, appreciation, and trust (Blau 1964; Emerson 1976; Ruck and Welch 2012). The theorized relationship between internal communication and employee engagement is believed to operate through social exchange, whereby employees feel obligated to return the favorable benefits they receive (Saks 2006). Favorable exchanges based on obligation are characterized by the act of reciprocity (Cropanzano and Mitchell 2005). Duck (1994) supports this view and adds that internal communication is in fact a fundamental element of all exchange relationships. Furthermore Rich, Lepine, and Crawford (2010) posit that if communication within an organization is truthful, respectful, polite, and dignified, it is likely to play an important role in developing optimal employee engagement. On these grounds, the following hypotheses have been developed.

**Hypothesis 1:** Internal organizational communication has a direct positive effect on employee engagement.

**Hypothesis 2:** Internal supervisor communication has a direct positive effect on employee engagement.

**Mediators of the internal communication and employee engagement exchange relationship**

This study focuses on both the direct and indirect relationships between internal communication and employee engagement at the organization and supervisor level (Jaccard and Jacoby 2010). Alternative explanations for the association between internal communication and employee engagement may be understood through the role
of mediating variables. Several factors have been proven to mediate the relationship between internal communication and favorable organizational outcomes, including motivation (Bambacas and Patrickson 2008), communication satisfaction (Carriere and Bourque 2009), commitment, and brand identification (Punjaïsri, Evanschitzky, and Wilson 2007). However, there are numerous unexplored variables that may have a mediating effect on the association between internal communication and favorable outcomes within the work environment (Welch and Jackson 2007). Social exchange, as suggested above, offers an explanation for exchange-based transactions between organizations, supervisors, and employees. Insights regarding social exchange relationships are frequently represented by perceived support; a concept commonly described as the extent to which an employee feels as though their organization and supervisor genuinely values their efforts and cares about their well-being (Eder and Eisenberger 2008). However, research on workplace relationships has not considered another important aspect of an employee’s professional life, specifically their sense of identity and belonging (Sluss et al. 2008). Calls have been made for further research investigating the role of identification within the context of social exchange relationships (Sluss et al. 2008). Identification is commonly referred to as an employee’s perception of oneness and group membership and has the potential to influence social exchange relationships (Ashforth and Mael 1989). Therefore, both perceived support and identification, referred to as social factors within this study, will be investigated as potential mediators. As this research examines the social exchange relationships between organizations and employees as well as supervisors and employees, perceived support and identification will be considered at both levels. The first social factor to be addressed is perceived support.

**Perceived organizational support** is defined as an employee’s belief that their organization values their efforts and cares about their well-being (Eder and Eisenberger 2008). Employees consider their relationship with the organization to be representative of a relationship between themselves and another more influential individual (Sluss et al. 2008). Social exchange theory implies that an organization’s willingness to reward increased work effort, and to meet socio-emotional needs, is determined by an employees’ ability to develop strong beliefs concerning the extent to which the organization values their contributions and shows a genuine interest in their welfare (Hutchison et al. 1986). Perceived organizational support, as suggested by (Rhoades and Eisenberger 2002), manifests when an employee believes the organization will provide the necessary, and even additional, resources when they are required to successfully perform their role efficiently and effectively. On these grounds, the following hypothesis has been developed.

**Hypothesis 3:** Perceived organizational support has a mediating effect on the relationship between internal organizational communication and employee engagement.

**Perceived supervisor support** has also been shown to have a significant influence on favorable organization-level and individual-level outcomes (DeConinck and Johnson 2009; Eisenberger, Stinghamber, Vandenbergh, Sucharski, and Rhoades 2002).
Although perceived organizational support and perceived supervisor support are highly interrelated (Rhoades and Eisenberger 2002), research indicates they are distinct constructs (DeConinck and Johnson 2009). Perceived supervisor support is underpinned by social exchange theory and commonly defined as “the extent to which the supervisor values the employee’s contributions” (DeConinck and Johnson 2009, p. 334). According to Shanock and Eisenberger (2006) employees consider the support they receive from their supervisor as an indication of the organization’s positive or negative orientation toward them. On these grounds, the following hypothesis has been developed.

**Hypothesis 4:** Perceived supervisor support has a mediating effect on the relationship between internal supervisor communication and employee engagement.

The second social factor to be investigated is identification. The benefits of organizational identification and supervisor identification are best understood through social identity theory and principals of group membership. This study contributes to existing literature by adding social identity to the theoretical model and examining identification as a potential mediator of the relationship between internal communication and employee engagement.

**Organizational identification** occurs when employees feel as though they belong to an organization, whereby they identify themselves in terms of their social and group membership (Tajfel 1978). Employees who identify themselves with the organization view the success or failure of the organization as their own (Ashforth and Mael 1989). When employees take pride in their group membership, they are likely to generate favorable individual-level and organization-level outcomes including, organizational citizenship behavior, employee satisfaction, decreased turnover, performance, and commitment (Riketta 2005). In addition, organizational identification has a cognitive and affective component which influences an employee’s sense of pride and belonging to an organization (Smidts et al. 2001; Tajfel and Turner 1985). According to Tajfel and Turner (1985) the affective component of organizational identification plays the more important role in achieving positive social identity. On these grounds, the following hypothesis has been developed.

**Hypothesis 5:** Organizational identification has a mediating effect on the relationship between internal organizational communication and employee engagement.

**Supervisor identification** facilitates interpersonal relationships among supervisors and their team members, namely employees (Becker, Billings, Eveleth, and Gilbert 1996). As Ashforth and Mael (1989) posit, employees who confidently identify with their organization exhibit a supportive attitude and are more likely to align with the organization’s overall goals and objectives. To date, research on identification has rather neglected an employee’s ability to identify with their direct supervisor, and the implications this may have for the supervisor-employee relationship, and of course employee engagement. Becker et al. (1996) consider supervisor-related identification
and organization-related identification within their research on employee commitment. Their research found that employees from different organizations will distinguish between their identification with their organization and with their direct supervisor. Therefore, supervisor identification will be considered as a key determinant of the relationship between internal supervisor communication and employee engagement. On these grounds, the following hypothesis has been developed.

**Hypothesis 6:** Supervisor identification has a mediating effect on the relationship between internal supervisor communication and employee engagement.

In sum, social exchange and social identity have the potential to influence an employee's professional life and the ability to effect an employee's perceptions of the quality and value of their workplace relationships (Sluss et al. 2008). Therefore, both perceived support and identification will be considered within this research as the mechanisms (i.e., mediating variables) that influence the relationship between internal communication and employee engagement. Relationships among the constructs were empirically tested as follows (see Figure 1).

![Fig. 1: The proposed research model](image)

H1 – H2 Hypothesized direct relationships, H3 – H6 Hypothesized indirect (mediation) relationships

**Methodology**

This study employed a quantitative approach (Cavana, Delahaye, and Skaran 2001). An online survey comprising of five sections was used (see Appendix for list of final scale items) (Becker 1992; Johlke and Dunhan 2000; Maltz 2000; Miller, Allen, Casey, and, Johnson 2000; Schaufeli et al. 2002; Shanock and Eisenberger 2006). All items were measured using a 7-point Likert-scale, ranging from '1 = strongly disagree' to '7 = strongly agree'. Two stages of pre-testing were implemented to resolve any fundamental problems in the survey and to test for content validity (Malhotra, Hall, Shaw, and
Oppenheim 2006). Stage one, 12 participants gained through a convenience sampling technique completed the survey and provided feedback regarding overall design and the clarity of wording and instructions. Subsequently, some design modifications were made to the survey before the second stage of pre-testing occurred. Stage two, a larger pilot study of 54 responses gathered using a snowball sample was conducted to achieve an acceptable level of reliability and validity (Zikmund 2011).

After pre-testing the survey and making slight amendments, the main survey was administered, via email, to a sample of 2,000 Australian males and females aged 18 – 65+ currently employed on either a full-time or part-time basis with an organization employing over 50 staff. It was required that hierarchical management levels existed within the participants’ organization. This was important to the research enquiry which was aimed to understand the influence of internal communication, from both the organization and supervisor, on employee engagement. Participants holding an executive management (i.e., owner, partner, chief executive officer) or senior management (i.e., executive, general manager) position within their organization were excluded from the target population as they are generally the source of communication, rather than the receivers.

All respondents received an email containing the link to the online survey. A response rate of 18.25% was achieved (365 completed surveys, 200 usable due to the financial restrictions associated with the study). Respondents were almost equally split between male (49.5%) and female (50.5%) employees aged between 15 and 65 plus, with the largest age segment being those aged 55 to 64 (28%). The majority of respondents had worked for their current organization for one to five years (29%), attained a diploma/certificate as their highest level of education (34%), and worked within interpersonal type roles i.e. education and training sector (16.5%), government/public and health sector (14.5%), and the retail sector (13.5%). To minimize the risk of self-selection and non-responses bias, a third party was used to administer the online survey.

**Scale validation and dimensionality of constructs**

The reliability and validity of the scales were addressed to minimize measurement error and to ensure the results were a true representation of the observed event (Hair, Black, Babin, Anderson, and Tatham 2010). Scale items were adapted from the services marketing (Johlke and Dunhan 2000; Maltz 2000), psychology (Schaufeli et al. 2002) and organizational behavior (Becker 1992; Miller et al. 2000; Shanock and Eisenberger 2006) literature and thus, the scales used were not specific to the context of this research. Furthermore, the items used to measure internal communication (organizational and supervisor) were significantly adapted to better suit this research. Therefore, it was essential to test the suitability of these items given that they were used in a different context (Nunnally and Bernstein 1994). Reliability was assessed by examining the Cronbach’s (1951) alpha coefficients and item-to-total correlations. Individual items with alpha scores below .70 and item-to-total correlation scores less than .30 were deleted (Hair et al. 2010; Nunnally and Bernstein 1994).
Following the reliability tests, an exploratory factor analysis (EFA) was undertaken to determine the factor structure of each construct (Hair et al. 2010). Exploratory factor analysis using principal axis factoring and oblique rotation methods was performed (Allen and Bennett 2012). Following the recommendations of Field (2005), Hair et al. (2010), and Tabachnick and Fidell (2007), items were deleted if they had unique factor loadings less than .50 and/or if they cross loaded onto more than one factor. Factors with eigenvalues less than one were also deleted and the scree plot was inspected for a prominent elbow to provide further insight into the number of factors to be extracted from the data. All constructs were shown to be unidimensional. Internal organizational communication is measured by seven items and internal supervisor communication by 13 items which adequately represent the complete conceptual domain of internal communication.

Analysis and results

This study tests two competing models which provide an explanation for the relationship between internal communication (organizational and supervisor) and employee engagement. The six hypotheses identified within the literature review were tested by performing a series of regression analyses. First, the standard direct effect models testing H1 and H2 were examined using linear regression. In the first regression involving internal organizational communication and employee engagement, a significant and positive association between the two variables was found ($\beta=.48$, $p<.001$). Furthermore, internal organizational communication accounted for 23% of the variance in employee engagement, thus supporting H1. In the second regression involving internal supervisor communication and employee engagement, a significant and positive association between the two variables was found ($\beta=.57$, $p<.001$). Internal supervisor communication accounted for 32% of the variance in employee engagement, thus supporting H2.

Second, the four indirect effect models testing H3-H6 were examined using multiple regression; a technique used to assess mediation (Hair et al. 2010). Baron and Kenny’s (1986) four conditions of mediation were used to test for mediation: 1) the independent variable (IV) has a significant and unique effect on the mediator (M); 2) when the M is removed, the IV has a significant and unique effect on the dependent variable (DV); 3) the M has a significant and unique effect on the DV when controlling for the IV and; 4) the significant relationship between the IV and the DV will be reduced (partial mediation) or will no longer be significant (full mediation) when controlling for the M. Consequently, four regression analyses were conducted to test for mediation (see Table 1 and Table 2).
The results of the multiple regression analyses for each model indicated a significant and positive relationship between the independent variables (internal organizational communication and internal supervisor communication) and the mediators (perceived organizational support, organizational identification, perceived supervisor support, and supervisor identification), thus confirming the first condition of mediation for each model. The second condition required to support a mediation hypothesis was met for each model as described in the previous section. The third regression assessed the effect of the mediators (perceived organizational support, organizational identification, perceived supervisor support, and supervisor identification) on the dependent variable (employee engagement) when controlling for the independent variables (internal organizational communication and internal supervisor communication). The results of each regression revealed a significant and positive relationship between the mediator and dependent variable for each model, thus confirming the third condition. The final regression indicated that the relationship between internal organizational communication and employee engagement, and internal supervisor communication and employee engagement, decreased when perceived organizational support and perceived supervisor support was included (see Table 1 and Table 2). Both relationships also became non-significant at the p < .05 significance level, thus confirming the fourth condition of mediation for each model.
condition and supporting H3 and H4. Furthermore, the relationship between internal organizational communication and employee engagement, and internal supervisor communication and employee engagement, decreased when organizational identification and supervisor identification were included. However, the relationships remained significant at the p < .05 significance level, thus confirming the fourth condition and partially supporting H5 and H6. To further confirm whether full mediation had occurred, the Sobel’s (1982) test was conducted and indicated that the indirect effect was significant at p < .001 for each relationship within all models (MacDonald and Jessica 2006).

The final stage of analysis evaluated the adequacy or fit of each model using the R2 of the criterion variable (employee engagement) to determine which model within each level (organization-employee and supervisor-employee) explains the highest proportion of variance in employee engagement. Organizational identification explained the highest proportion of variance in employee engagement scores, R2 = .54, F(1, 197) = 129.79, p < .001 within the organization-employee model and perceived supervisor support, R2 = .37, F(1, 197) = 13.86, p < .001 within the supervisor-employee model. Following the recommendations of Chin (1998) both models represent moderate model fit and give the highest predictive ability for employee engagement.

Discussion

Theoretical implications

The overall purpose of this study was to test two competing models which provide an explanation for the relationship between internal communication (organizational and supervisor) and employee engagement. The study proposed that social factors, namely perceived support and identification, would have a mediating effect on the relationship between internal communication (organizational and supervisor) and employee engagement. This proposition was supported as the indirect effect models suggested that internal communication (organizational and supervisor) as a resource is having little to no impact on employee engagement in the presence of perceived supervisor support and organizational identification. The key theoretical findings are now discussed.

This research highlights the role of internal communication in influencing employee engagement. The relationship between internal communication (organizational and supervisor) and employee engagement received significant and positive support in the direct effect models testing H1 and H2. This finding supports the notion that internal communication has a significant role to play in optimizing employee engagement. Specifically, these results support the expectation that social resources, when viewed favorably by employees, will influence an employee’s experience in the workplace (Sluss et al. 2008). This research provides empirical evidence for the association between internal communication (organizational and supervisor) and employee engagement. However, the indirect or mediating effects of the relationship between internal communication and employee engagement were theorized to provide a better
optimizing employee engagement with internal communication: a social exchange perspective

Hypothesis 3, 4, 5, and 6 posit that identification and perceived support have a mediating effect on the relationship between internal communication (organizational and supervisor) and employee engagement. The findings for the organization-employee model are consistent with established studies (see e.g., Ashforth and Mael 1989; He and Brown 2013; Lings and Greenley 2005; Riketta 2005; Smidts et al. 2001), and indicate that organizational identification partially mediates the relationship between internal organizational communication and employee engagement, thus supporting H4. In other words, internal organizational communication influences employees’ ability to identify with their organization which then has an expositive impact on employee engagement. Organizational identification also represented the highest proportion of variance in employee engagement over perceived organizational support. These findings suggest that identification is an important component of an employee’s professional life and influences their ability to engage with their work. The findings also favor social identity theory which has been used to gain an informed perspective on the perceived oneness between the individual and the organization (Ashforth and Mael 1989; Dutton, Dukerich, and Harquail 1994).

The findings for the supervisor-employee model are consistent with established studies (see e.g., DeConinck 2010; Hutchison et al. 1986; Panaccio and Vandenberghhe 2009; Rhoades and Eisenberger 2002; Saks 2006; Shanock and Eisenberger 2006; Sluss et al. 2008), and indicate that perceived supervisor support fully mediates the relationship between internal supervisor communication and employee engagement, thus supporting H5. In other words, internal supervisor communication influences perceptions of perceived support which then has an expositive impact on employee engagement. Perceived supervisor support also represented the highest proportion of variance in employee engagement over supervisor identification. However, the proportion of variance in employee engagement represented by perceived supervisor support and supervisor identification differed by only 2%. This implies that both social factors play a role in influencing employee engagement. Overall, these findings support social exchange theory, which emphasizes the role of reciprocity in social exchange relationships between supervisors and their employees (Cropanzano and Mitchell 2005; Rhoades and Eisenberger 2002). This result is similar to the theoretical assertion that when supervisors provide resources (internal communication) in a way that is perceived to be beneficial, employees will consider the relationship favorably and will reciprocate with engagement (Cropanzano and Mitchell 2005).

While no direct comparisons between the organization-employee model and supervisor-employee model have been statically drawn, soft conclusions regarding their interdependence can be made. It appears that resources (social and economic) are usually allocated and exchanged by an organization's team of supervisors as they are in contact with employees more frequently than the chief executive officer and senior management team (Sluss et al. 2008). While the organization-employee and supervisor-employee models operate through different mechanisms one may assume that the
supervisor-employee relationship is responsible for the development of the organization-employee relationship. In sum, principals of social exchange and social identity influence an employee’s professional life and their willingness to reciprocate engagement.

**Practical implications**

This research also offers practical implications for supervisors and organizational leaders. The results provide organizational leaders and supervisors with some of the internal drivers and tools which influence employee engagement. Organizational leaders should take advantage of identification, namely perceptions of value and pride, in influencing employee engagement through internal communication. That is, in order for employees to become engaged, they must develop knowledge of their group membership to which they attach value and emotional significance (Tajfel 1978). Organizations can achieve this through internal communication which builds employees’ knowledge of group membership and strengthens identification with their organization. For instance, communication should be focused on increasing employees’ sense of pride and belonging (Tajfel 1985). Furthermore, internal communication should facilitate an employee’s ability to link their values and goals to those of the organization (Miller et al. 2000). Supervisors should take advantage of perceived support, namely perceptions of the quality of the exchange relationship, in influencing employee engagement through internal communication. That is, in order for employees to become engaged, they must develop a strong belief that their supervisor values their efforts and cares about their well-being (Shanock and Eisenberger 2006). Supervisors can achieve this through internal communication which builds employees’ perceptions of support. Furthermore, supervisors should involve employees in discussions about their individual role and team objectives frequently (Johlke, Dunhan, Howell, and Wilkes 2000).

In summary, from a practice perspective, organizational leaders and supervisors should focus internal communication toward strengthening identification with the organization and perceived support from the supervisor, rather than using internal communication to drive employee engagement directly.

**Limitations and future research**

Although this research contributes to academic and practitioner knowledge, each research design contains inherent limitations. However, these limitations can be addressed by future research. Four main limitations were identified within this study. First, cross-sectional and self-report data were used which implies issues of causality and common method bias (Robson 2011; Zikmund 2011). Therefore, while the findings are consistent with social exchange and social identity theory and literature (Cropanzano and Mitchell 2005; Masterson et al. 2000) the results do not confirm causality. Future research with longitudinal and experimental designs are required to provide more specific conclusions about the causal effects of internal communication (organizational and supervisor) on employee engagement, and the extent to which this association is mediated by principals of social exchange and social identity. Second,
some of the variables were highly inter-correlated, commonly referred to as multicollinearity. Tolerance and its inverse, the Variance Inflation Factor (VIF) (Allen and Bennett 2012) were used to test for multicollinearity. While the results of both tests confirmed that multicollinearity did not pose a major threat to the study, some of the tolerance values did not meet the more rigorous requirements of Menard (2002). Hence, future research incorporating other predictors (i.e., trust and fairness) of perceived quality and value of the exchange of resources between organizations, supervisors, and employees may overcome this potential issue. Third, the non-probability sampling technique used within this study limited the generalizability of the results. Fourth, the most important social exchange relationships experienced by employees were investigated within this research: an employee’s relationship with their organization and with their supervisor. While each model was tested individually, the findings did not make direct comparisons between the models because of construct equivalence. Future research could investigate both models and then make comparisons between the organization-employee and supervisor-employee relationship by utilizing analysis methods to test for construct equivalence, such as CETSCALE (Malhotra et al. 2006). This would ensure that construct measures are consistent across both models, thus increasing the ability to make hard conclusions about the significance of the findings.

Another avenue of future research stems from the findings of previous studies suggesting that proficient management and delivery of customer-related communication is a driver of successful customer relationships (de Chernatony and Segal-Horn 2003; Ryynanen et al. 2012). While the present study focuses on an organization’s internal customers, namely employees, it would be beneficial to apply the current theoretical model to an organization’s external customers. Such an investigation could help researchers gain insight into the social factors which drive customer engagement.

References


Optimizing employee engagement with internal communication: A social exchange perspective


Optimizing employee engagement with internal communication: A social exchange perspective


### Appendix: Scale Items

#### Internal Organizational Communication

<table>
<thead>
<tr>
<th>Items</th>
<th>Communalities</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>At work, communication flows two-way (e.g. from the executive team to me, and from me to the executive team)</td>
<td>.85</td>
<td>.92</td>
</tr>
<tr>
<td>At work, I exchange ideas and information with the executive team freely and easily</td>
<td>.81</td>
<td>.90</td>
</tr>
<tr>
<td>At work, open lines of communication between me and the executive team are encouraged</td>
<td>.75</td>
<td>.87</td>
</tr>
<tr>
<td>Discussions with the executive team go beyond mere direction about how to do my job</td>
<td>.72</td>
<td>.85</td>
</tr>
<tr>
<td>I often discuss work-related matters with the executive team</td>
<td>.65</td>
<td>.81</td>
</tr>
<tr>
<td>The executive team regularly discusses organizational issues with me</td>
<td>.61</td>
<td>.78</td>
</tr>
<tr>
<td>The executive team communicates with me frequently</td>
<td>.56</td>
<td>.75</td>
</tr>
</tbody>
</table>

**Cronbach’s Alpha** .94

#### Internal Supervisor Communication

<table>
<thead>
<tr>
<th>Items</th>
<th>Communalities</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>At work, I exchange ideas and information with my direct supervisor freely and easily</td>
<td>.84</td>
<td>.92</td>
</tr>
<tr>
<td>Communication from my direct supervisor is accurate</td>
<td>.81</td>
<td>.90</td>
</tr>
<tr>
<td>At work, communication flows two-way (e.g. from my direct supervisor to me, and from me to my direct supervisor)</td>
<td>.78</td>
<td>.89</td>
</tr>
<tr>
<td>Communication from my direct supervisor is adequate</td>
<td>.80</td>
<td>.89</td>
</tr>
<tr>
<td>Discussions with my direct supervisor go beyond mere direction about how to do my job</td>
<td>.76</td>
<td>.87</td>
</tr>
<tr>
<td>Communication from my direct supervisor is timely</td>
<td>.76</td>
<td>.87</td>
</tr>
<tr>
<td>At work, an open line of communication between me and my direct supervisor is encouraged</td>
<td>.76</td>
<td>.87</td>
</tr>
<tr>
<td>My direct supervisor and I discuss the best actions for me to take in my role</td>
<td>.76</td>
<td>.87</td>
</tr>
<tr>
<td>I often discuss role-related matters with my direct supervisor</td>
<td>.73</td>
<td>.85</td>
</tr>
<tr>
<td>My direct supervisor tells me how my job tasks fit into the overall aim of the organization</td>
<td>.72</td>
<td>.85</td>
</tr>
<tr>
<td>My direct supervisor communicates with me frequently</td>
<td>.71</td>
<td>.84</td>
</tr>
<tr>
<td>Communication from my direct supervisor is complete</td>
<td>.68</td>
<td>.83</td>
</tr>
<tr>
<td>My direct supervisor and I regularly discuss my day-to-day activities and goals</td>
<td>.65</td>
<td>.80</td>
</tr>
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</table>

**Cronbach’s Alpha** .98
### Perceived Organizational Support

<table>
<thead>
<tr>
<th>Items</th>
<th>Communalities</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>My organization really cares about my well-being</td>
<td>.85</td>
<td>.92</td>
</tr>
<tr>
<td>My organization strongly considers my goals and values</td>
<td>.85</td>
<td>.92</td>
</tr>
<tr>
<td>My organization cares about my opinions</td>
<td>.84</td>
<td>.91</td>
</tr>
<tr>
<td>My organization shows a great deal of concern for me</td>
<td>.80</td>
<td>.89</td>
</tr>
<tr>
<td>My organization is willing to help me when I need a special favor</td>
<td>.70</td>
<td>.84</td>
</tr>
<tr>
<td>Help is available from my organization when I have a problem</td>
<td>.63</td>
<td>.79</td>
</tr>
<tr>
<td>My organization would forgive an honest mistake on my part</td>
<td>.62</td>
<td>.79</td>
</tr>
<tr>
<td>My organization would not take advantage of me</td>
<td>.59</td>
<td>.77</td>
</tr>
</tbody>
</table>

**Cronbach’s Alpha**

.96

### Perceived Supervisor Support

<table>
<thead>
<tr>
<th>Items</th>
<th>Communalities</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>My direct supervisor really cares about my well-being</td>
<td>.86</td>
<td>.93</td>
</tr>
<tr>
<td>My direct supervisor cares about my opinions</td>
<td>.85</td>
<td>.92</td>
</tr>
<tr>
<td>Help is available from my direct supervisor when I have a problem</td>
<td>.82</td>
<td>.91</td>
</tr>
<tr>
<td>My direct supervisor shows a great deal of concern for me</td>
<td>.82</td>
<td>.91</td>
</tr>
<tr>
<td>My direct supervisor strongly considers my goals and values</td>
<td>.78</td>
<td>.89</td>
</tr>
<tr>
<td>My direct supervisor is willing to help me when I need a special favor</td>
<td>.77</td>
<td>.88</td>
</tr>
<tr>
<td>My direct supervisor would forgive an honest mistake on my part</td>
<td>.74</td>
<td>.86</td>
</tr>
<tr>
<td>My direct supervisor would not take advantage of me</td>
<td>.62</td>
<td>.78</td>
</tr>
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</table>

**Cronbach’s Alpha**

.97

### Organizational Identification

<table>
<thead>
<tr>
<th>Items</th>
<th>Communalities</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am proud to be an employee of my organization</td>
<td>.84</td>
<td>.92</td>
</tr>
<tr>
<td>I am glad I chose to work for my organization rather than another company</td>
<td>.82</td>
<td>.91</td>
</tr>
<tr>
<td>I talk up my organization to my friends as a great company to work for</td>
<td>.74</td>
<td>.86</td>
</tr>
<tr>
<td>I find it easy to identify with my organization</td>
<td>.73</td>
<td>.85</td>
</tr>
<tr>
<td>I feel that my organization cares about me</td>
<td>.52</td>
<td>.84</td>
</tr>
<tr>
<td>I would describe my organization as a large “family” in which most members feel a sense of belonging</td>
<td>.70</td>
<td>.83</td>
</tr>
</tbody>
</table>
I find my values and the values of my organization are very similar  .69  .83
I have warm feelings toward my organization as a place to work  .68  .82
My organization’s image in the community represents me well  .66  .81
The track record of my organization is an example of what dedicated people can achieve  .61  .80
I would be willing to spend the rest of my career with my current organization  .60  .77
I really care about the fate of my organization  .52  .72

Cronbach’s Alpha  .96

### Supervisor Identification

<table>
<thead>
<tr>
<th>Items</th>
<th>Communalities</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Since starting this job, my personal values and those of my direct supervisor have become more similar</td>
<td>.75</td>
<td>.87</td>
</tr>
<tr>
<td>When someone praises my direct supervisor, it feels like a personal compliment</td>
<td>.72</td>
<td>.85</td>
</tr>
<tr>
<td>My direct supervisor’s successes are my successes</td>
<td>.72</td>
<td>.85</td>
</tr>
<tr>
<td>The reason I prefer my direct supervisor to others is because of what he or she stands for</td>
<td>.71</td>
<td>.84</td>
</tr>
<tr>
<td>My attachment to my direct supervisor is primarily based on the similarity of my values</td>
<td>.71</td>
<td>.84</td>
</tr>
<tr>
<td>When I talk about my direct supervisor, I usually say ‘we’ rather than ‘they’</td>
<td>.71</td>
<td>.84</td>
</tr>
<tr>
<td>I feel a sense of ‘ownership’ for my direct supervisor</td>
<td>.64</td>
<td>.80</td>
</tr>
</tbody>
</table>

Cronbach’s Alpha  .94

### Employee Engagement

<table>
<thead>
<tr>
<th>Items</th>
<th>Communalities</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am enthusiastic about my job</td>
<td>.82</td>
<td>.91</td>
</tr>
<tr>
<td>At my work, I feel I have lots energy</td>
<td>.72</td>
<td>.86</td>
</tr>
<tr>
<td>At my job, I feel strong and vigorous</td>
<td>.71</td>
<td>.84</td>
</tr>
<tr>
<td>My job inspires me</td>
<td>.68</td>
<td>.83</td>
</tr>
<tr>
<td>I am immersed in my work during work hours</td>
<td>.66</td>
<td>.80</td>
</tr>
<tr>
<td>When I get up in the morning, I feel like going to work</td>
<td>.61</td>
<td>.78</td>
</tr>
<tr>
<td>I feel happy when I am working intensely</td>
<td>.60</td>
<td>.76</td>
</tr>
<tr>
<td>I am proud of the work that I do at my organization</td>
<td>.57</td>
<td>.76</td>
</tr>
</tbody>
</table>

Cronbach’s Alpha  .94
Brand creation via design and modularization – SMEs in international B2B markets

Olavi Uusitalo

Abstract: Brand theory has its origins in the consumer product market and is normally considered in relation to big business. An established brand enables customers to save time by guaranteeing the level of quality, reducing purchasing risk and simplifying customer choices. Little research, however, has been carried out to investigate the relevance of brands in industrial markets, especially within small and medium enterprises (SMEs). Loyalty to a product brand can tie the customer to a supplier. In this paper, I argue that the creation of product brands via industrial design and product modularity is important for SMEs in the international business-to-business (B2B) market. To demonstrate this, I examine brand creation in three Finnish SMEs: KPatents, Modulight and Genelec. These companies have incorporated product brand creation in new product development by using industrial design and modular products. This paper contributes to research in product brand creation among SMEs in the B2B market.

Keywords: Brand · Industrial design · Modularity · SMEs · B2B Marketing
Introduction

Brand is usually considered to be the province of big business operating in consumer markets (Merrilees, 2007; Mudambi, 2002; Webster & Keller, 2004). Brand management focuses on how companies can build strong consumer brands that differentiate one seller from another (e.g., Aaker, 1996; Kapferer, 1997). Traditionally, brands are a market signal targeted at the end consumer: saving consumers time by guaranteeing a certain level of quality; simplifying their choices by making it easy to identify products and attributes; and answering specific customer needs – hedonistic, ethical, or individual (Kapferer, 1997). However, brands can also reduce purchasing risk for the buyer in the business-to-business (B2B) market (Brown et al., 2011; Kotler & Pfoertsch, 2006).

Research interest in industrial and B2B brands has seen a recent increase (Aspara & Tikkanen, 2008; Lynch & De Chernatony, 2007; Michell et al., 2001; Mudambi, 2002; van Riel et al., 2005; Taylor et al., 2004). There has also been increased interest in company/corporate brands in the B2B context (e.g. Lynch & De Chernatony, 2004; Bendixen et al., 2004; Mudambi, 2002; van Riel et al., 2005) as well as in the B2B context within small and medium enterprises (SMEs) (Juntunen, 2012).

According to Ahonen (2008), the use of brands in SMEs has received little attention from academics (she found only 14 related studies). Ahonen argues that empirical studies have focused more often on services companies than on manufacturing companies. Studies on corporate branding dedicated to SMEs are almost non-existent (Ahonen, 2008; Inskip, 2004). The role played by brands in B2B markets has received even less attention (Saraniemi et al., 2010). In the intersection of manufacturing SMEs and the international B2B market, we find hardly any research at all relating to brands. A number of authors have commented on a possible lack of resources (time, money, number of personnel) required for brand creation in SMEs (Ahonen, 2008; Keller, 2008; Saraniemi et al., 2010). Webster & Keller (2004), however, state that the fundamentals of brand strategy (market segmentation, targeting and positioning) apply to both consumer and B2B markets. It is clear, however, that brand research focused on consumer markets cannot be fully generalized to describe or explain the role played by brands in B2B markets (Ojasalo et al., 2008).

The value of industrial design as a core marketing element is emphasized in managerial marketing textbooks (Kotler, 2003). Product design and aesthetics are regarded as strategic tools for firms to create competitive advantage (Berkowitz, 1987; Borja de Mozota, 2002, Hertenstein et al., 2005; Simonsen & Schmitt, 1997). According to Montana et al. (2007), little research has focused on the way design can enrich the brand building process. Modularity has been a popular research topic in management and engineering literature for over forty years (Salvador, 2007). Modularity in product design provides flexibility in the mixing and matching of modular components to create customer-oriented products (Sanchez and Mahoney, 1996; Shilling, 2000). This paper examines modularity in the context of product and brand design within SMEs.

This study aims to fill the current research gap by examining the role of product brands within manufacturing SMEs in the B2B market. The paper tries to create a model
for brand creation of manufacturing SMEs. The model emphasizes industrial design and modular products as enhancing capabilities for product brand creation. The main research questions are:

- What is the relevance of a brand for SMEs?
- How can industrial design and modularization be utilized brand creation?

This paper examines product brands and their physical appearance (via industrial design and modularization) within SMEs. Corporate brands are excluded, although they are important for B2B sector and within SMEs. The paper concentrates on product brands with respect to the customer interface of B2B companies; in other words, it explores the way in which the customers of a business or organization perceive the product brand.

I apply Swan et al.’s (2005) robust design model in my analysis. Industrial design does not only define the appearance of a product; in most cases, it also increases usability. Modularity creates economies of scale (through standardization) and economies of scope (through tailoring). It also improves the options for outsourcing modules. Moreover, these brand tools (industrial design and modularity) may provide SMEs with additional resource (via higher sales revenue) and reduced costs (via more efficient production). To illustrate the argument, I make use of three case studies (K-Patents, Modulight and Genelec) to show the role played by brands within manufacturing SMEs in the international B2B market, including the creation of brands via the use of industrial design and modular products. Since the case companies come from a small economy, Finland, they have to operate the small industrial segments worldwide. This gives the international context in this paper.

This research is limited to SMEs. According to the European Commission’s definition of SMEs (2005) companies are considered to be SMEs where they employ fewer than 250 persons, and have an annual turnover below €50 million. In 2013, 99.8 percent of all Finnish enterprises were SMEs. They employed 64 percent of all personnel and accounted for 53 percent of total turnover. (Statistics Finland, 2013).

The remaining part of this paper has four sections. In Section 2, I describe theoretical elements and present the product brand creation model. Section 3 presents the research methodology. In Section 4, the three SME cases (K-Patents, Modulight and Genelec) are described. Section 5 includes an analysis and comparison of these three cases, using key characteristics derived from the research literature as a basis for the comparison. Finally in Section 6, I draw conclusions and discuss implications for the future.

Central Concepts and theoretical inputs

This section examines the role of brands within SMEs in the B2B market. It then looks at industrial design and modularity. The section then introduces the product brand creation model.
Brands and SMEs in the B2B Market

Most research literature concentrates on brands in consumer markets (Merrilees, 2007; Mudambi, 2002; Webster & Keller, 2004; Brown et al., 2012). Strong consumer brands are built to differentiate one seller from another (Aaker, 1996; Kapferer, 1997). According to Kapferer (1997), brand is more than just giving a brand name to a product or products: “brands are a direct consequence of the strategy of market segmentation and product differentiation”. Thus the role of brands and brand management is primarily to create differentiation and preference in the minds of customers. The development of product brands has been built around the core role of maintaining differentiation in a particular market (Knox & Bickerton, 2003).

Some research has been carried out on brands in B2B markets. According to Mudambi (2002), there are three main differences between consumer and B2B brand management. Firstly, industrial brand management relies more on branding at the corporate level with only some experiments at the product level. Secondly, when compared with consumer markets, brand management in industrial markets emphasizes risk-reduction rather than the self-expressive benefits of consumer brands. The third difference relates to the number of brands within a company. In industrial markets, an increase in the number of brands is mainly due to acquisitions. In the consumer market, on the other hand, Mudambi (2002) identifies a tendency to reduce the number of brands within a company.

Corporate brand development builds on product brands, seeking to create differentiation and preference. However, corporate brand development is conducted at the level of the firm instead of at the product or service level. Moreover, corporate brand development targets not only customers but stakeholders including employees, customers, investors, suppliers, partners, media, authorities, etc. (Hatch and Schultz, 2001).

According to brand management theory, brand information: 1) identifies products, services and businesses; 2) communicates their benefits and value; and 3) reduces the risk and complexity of the buying decision (Kotler & Pfoertsch, 2006). Buying centers are more brand sensitive, regardless of whether risk is relatively low or high (Brown et al., 2011). Brands both minimize risk and offer cues to simplify consumer choice in low-risk situations where an extensive search process may be omitted (Kotler & Pfoertsch, 2006). Brown et al. (2012) found that both purchase importance and purchase complexity have a curvilinear influence on brand sensitivity. The former has an inverse U-shaped relationship, which means that the usefulness of a brand increases when purchase importance grows from unimportant to moderate. The usefulness of a brand decreases, however, when purchase importance goes from moderate to highly important. The relationship between purchase complexity and brand sensitivity depends on the size of the organization, the nature of the product (tangible or intangible), and the nature (contract versus no contract) of the relationship between seller and buyer (Zablah et al., 2010). For small purchasing firms, brand sensitivity increases with product complexity. For tangible products, brand sensitivity increases with moderate purchase complexity.
Little research has been carried out on the role played by brands in SMEs (Abimbola, 2001; Abimbola et al., 2007; Berthon et al., 2008; Merrilees et al., 2011). Offerings in the B2B market include five elements that can be used in brands: product, service, logistics, advice, and tailoring (Beverland et al., 2007). According to Webster and Keller (2004), market segmentation, targeting and positioning apply to B2B markets. These are also the fundamentals of brand strategy. The role played by brands in manufacturing SMEs operating in industrial markets has also attracted little research attention (Ahonen, 2008, Inskip, 2004; Saraniemi et al., 2010). Some researchers argue that lack of resources (time, money, number of personnel) prevents SMEs from creating brands (Ahonen, 2008; Saraniemi et al., 2010).

Differentiation from competitors is one of the major benefits of branding (Kotler & Keller, 2009). In brand management, companies can choose which brand elements to incorporate in their brands. Kotler and Keller (2009) define two sets of criteria for choosing brand elements: building the brand and defending the brand from competitors. The criteria for building the brand include: memorability (how easily the brand is remembered), meaning (the product qualities suggested by the brand), and likeability (how it appeals to the customer). Criteria for defending the brand include transferability (how easily the brand can expand e.g. to new markets), adaptability (how easily it can be updated) and protectability (e.g. is it legally protected from competitors).

Industrial design

Industrial design, as a part of marketing (Kotler, 2003), contributes to NPD by enhancing the customer’s interface with the product, including ease of use, capabilities, and appearance (Hertenstein et al., 2005). Industrial design is critical to NPD, together with research and development (R&D), marketing, manufacturing, and purchasing. NPD should be integrated with other organizational functions (Beverland, 2005). Dahl et al. (1999) and Srinivasan et al. (1997) emphasize the importance of industrial designers for product success. According to Hertenstein et al. (1997, 2005) and Walsh (1995), effective industrial design improves corporate performance.

Candi (2006) defines design “as the part of the innovation process, which enhances and communicates the value inherent in products or services (Hertenstein et al., 2005; Yamamoto & Lambert, 1994) and as such encompasses both functionality and aesthetics”. Innovations also make connections and constantly challenge existing systems and the status quo (Drucker, 1985, von Stamm, 2004, Le Masson et al., 2010). Dahl et al. (1999) and Srinivasan et al. (1997) emphasize the importance of industrial designers for successful products. SMEs in Europe have turned to designers for better product differentiation, to launch new brands, to achieve design leadership, and to introduce new technology (Borja de Mozota, 2002). The use of industrial designers has become increasingly important in terms of the different areas of expertise called on by SMEs to launch new products (Borja de Mozota, 2002).
Modularity

Modularity enables the mixing and matching of modules in such a way that the final product fits the needs of the buyer (Baldwin & Clark, 1997). In addition, it enhances flexibility by increasing the number of possible configurations (Schilling, 2000).

Modularity can also be seen as a way to organize complex products and processes efficiently. Tasks and product parts can be managed independently when they are deconstructed into basic parts. These deconstructed parts are called modules. Modules are designed separately and then put together to function as a whole. (Baldwin & Clark, 1997) Sanchez (1995) argues that one can take out or add modules to a modular product without having to change the overall product design or other modules within the product. Schilling’s (2000) general model of modularity defines modularity as the degree to which the components of the system can be separated and put together to create a customer-oriented product. After any changes, the product should function as well as it did before the changes; only a small amount of functionality loss is permitted. In a well-functioning modular product, the interfaces between modules are standardized (Sanchez & Mahoney, 1996). These interfaces represent how the modules interact with each other. Another matter closely related to modularity concerns architecture. Architecture determines which modules are part of the system as well as the individual function of each module (Baldwin & Clark, 1997).

Modularity can be illustrated with the idea of a puzzle. Each piece in a puzzle represents a module. The pieces are put together to create the finished puzzle, which represents the whole product. The picture or the surface material of the pieces can be changed, provided the borders stay the same. The picture and surface materials are the characteristics of a module, whereas the borders represent the standard interfaces between the modules (Lamminen & Uusitalo, 2011).

Modularity generates advantages for both producers and their customers. Where the components have standard interfaces, mixing and matching is possible. This in turn creates the possibility for mass customization (Voss & Hsuan, 2009). When mass customization is utilized, a wide range of products can be made available for customers (Salvador, 2007). Such products meet the specific needs of individual customers; however, costs are nearly as low as with mass production (de Blok et al., 2010). In addition, modularity creates enormous flexibility (Sanchez & Mahoney, 1996; Baldwin & Clark, 1997). It enables parts of the product to be recombined quickly in a way that fits the needs of individual customers (Schilling, 2000).

According to Schilling and Steensma (2001), there are three ways to create modularity in organizations: 1) contract manufacturing; 2) alternative work arrangements; and 3) alliances. Contract manufacturing allows companies to meet market demand without increasing the workforce or committing capital to long-term investment. It also enables a focus on the company’s core competence. In a sense, contract manufacturing increases flexibility and economies of scale. The downside is that companies have to be careful with the information they share with contractors. In
addition, transaction costs have to be analyzed as well as missed learning opportunities (Schilling & Steensma, 2001). Baldwin and Clark (1997) report similar findings.

Modular product design enables a large number of variations (Shirley, 1990; Sanchez & Mahoney, 1996), increased product variety, economies of scale in R&D (Huang & Kusak, 1998), flexible and agile manufacturing (Marshall et al., 1998), a learning curve effect, and lower prices for materials and parts (Ishii et. al. 1995 in Gershenson et al., 2003). Modular design is flexible; product variations can be leveraged by substituting different modular components into the product architecture (Sanchez, 1995).

**The product brand creation model in NPD**

Swan et al. (2005) created a robust NPD model used in the creation of products for varying markets worldwide. The model is built on research literature, executive interviews, and anecdotal evidence. The model has four capabilities: 1) functional; 2) aesthetic (including industrial design); 3) technological; and 4) quality. According to the authors, the model has an impact on a company’s performance in uncertain environments. In this paper, analysis of the model is limited to market performance and excludes uncertain environments. Also, since industrial design has an aesthetic dimension, this study modifies the model by switching aesthetic by industrial design and by adding modularity as a fifth capability. According to Homburg et al. (2010) on the B2B market brand awareness correlates to company’s market performance. Based on this I have added product brand via which all five capabilities affect the company’s market performance in my model. This product brand creation model also includes reduced purchasing risk for the buyer. The additions to the model designed by Swan et al. (2005) are shown in italics (see Figure 1). The focus is on the industrial design and modularity capabilities (emphasized by bold text). In order to evaluate their impact on brand creation, I have listed their advantages and disadvantages (see Table 1).

**Fig. 1:** The model for SME product brand creation (adapted from Swan et al., 2005)
Research Methodology

As research into brand creation is a new area, with regard to manufacturing SMEs in the industrial market, and because this paper aims at model-building rather than theory-testing, I employ a case study methodology (Yin, 2009). According to Bonoma (1985), case studies are appropriate when the goal is description, classification and theory development, that is, the understanding of an important marketing problem or phenomenon. The case study approach is also in accord with earlier brand studies in SMEs (Krake, 2005; Rode & Vallaster, 2005; Wong & Merrilees, 2005; Bresciani & Eppler, 2010; Juntunen, 2012). According to Siggelkow (2007), case studies may be used as illustrations when making a conceptual contribution and to sharpen existing theory by identifying gaps and starting to fill them.

An abductive (with induction and deduction) research process assumes that theoretical insights gained during the research can modify the data and the theoretical framework; in addition, matters arising from the data can lead to new questions and theoretical views (Peirce 1955; Eisenhardt, 1989; Dubois & Gadde, 2002). Triangulation (Jick, 1979; Pettigrew, 1990) was applied to various data sources including interviews, histories of the company, datasheets, promotion material, articles in magazines, trade journals and newspapers, and Internet pages.

This study focuses specifically on brand creation factors, such as industrial design and modularity, unique to manufacturing SMEs in global industrial markets. In 2012, K-
Brand creation via design and modularization – SMEs in international B2B markets

Patents, Modulight and Genelec, were picked as examples of innovative Finnish SMEs operating on the international/global market (Saarnio and Hamilo, 2013). For the purposes of this study (brand creation via design and modularization), the case selection was random. These companies have been followed for research purposes for 23, 12 and two years, respectively. The focus of the studies has been such as innovation (Uusitalo, 1999), entrepreneurship (Uusitalo, 1999), internationalization (Uusitalo, 1999; Uusitalo et. al., 2009), networking (Uusitalo, 1999; Uusitalo & Voipio, 2013), customer value creation (Uusitalo, 2013a, 2013b; Uusitalo & Voipio, 2013) and positioning (Uusitalo, 2008). This has involved abductive research process with data triangulation. The case study of K-Patents has been used in management training and master level degree courses for 20 years. In 2012-2013, a case study with analyses of all three companies was written (see Uusitalo, 2013a, 2013b; Uusitalo & Voipio, 2013). Findings have been presented at conferences (Uusitalo, 1999, 2008, 2013c; Uusitalo et al., 2009). The case studies are based on long term follow-up, in-depth interviews with both closed and open-ended questions, work in management training, a thesis for a master’s degree, and visiting lecturers from all companies (see Appendix 1).

The SME Cases

In this section, I explore three Finnish SMEs with global industrial markets. K-Patents, Modulight and Genelec represent the process industry, the laser industry, and the professional audio monitoring industry, respectively.

K-Patents: The process industry case

K-Patents (founded in 1978) delivers process refractometers to processing industries such as the sugar, pulp and paper, chemical, food and semiconductor industries. All these industries are looking for better process control. Environmental aspects have played a crucial role in generating the need for better process measurement. Refractometers (see Figure 2) measure the concentration of the main component (sugar) in a process medium (coffee). In 2012, K-Patents had 40 employees and a turnover of €8 million. K-Patents exports 95% of its production to 75 countries. Its largest markets are in Europe, the US and Asia. K-Patents has delivered approximately 11,000 refractometers in 35 years. Approximately 800 new devices are sold each year. Devices from K-Patents can be seen in use in both a Chinese chemical plant and a Californian semiconductor plant. K-Patents has exported more than 90 percent of its production for 25 years. It has subsidiaries in the US and China. The company has a dealer network for other regions (Uusitalo & Voipio, 2013).

K-Patents applies the refraction of light to measure the concentration of components. The company’s refractometer combines a linear charged coupled device (CCD) camera where hundreds of light cells are assembled in one row within a single integrated circuit (see Figure 3). To give an example of its precision, the length of a row with 256 light cells covers only three millimeters. The device uses a digital measurement technique; each light cell is on the light or in shadow. The advantage of using digital measurement technology rather than analogue technology is the complete reliability of the
measurements (i.e. no drift) and its compatibility with digital process control. The refractometer is a highly accurate measuring device that can be used in several applications. It is also easy to assemble within the process pipe of a plant. The manufacturing costs of a product with better quality (more accurate) are higher. The buyer expects a better product to be more expensive. The price of the K-Patents refractometer is about 40 percent higher than competitor prices (in 2012, the average factory price was approximately €10,000). K-Patents products are at the high end. In addition to the digital measurement principle, the measuring head of the K-Patents refractometer has been designed so that the same size fits both a large and small pipe (Figure 4).

A microprocessor handles the linearization of the signal and the control of the measurement. The cover of the measuring head is painted red and designed so that the K-Patents device is recognized immediately when it is seen at the plant; this is called the “Coca Cola bottle effect” (Figure 4) (Kåhre & Kamrat, 1990). The products have several modules, but the cover always has the same shape and color (Hämäläinen, 1992). In the early years, the company participated in a number of annual trade fairs. In the early 1990s, K-Patents display stands were consistent with the appearance of the product brand (see Figure 5). After 25 years in the business, the company was able to change the color of the cover when new applications required the introduction of stainless steel covers (see Figure 6). Recently, a number of industries have been working to reduce wastage of raw materials and chemicals as well as to lower energy consumption. All these improvements have increased the technical requirements of K-Patents’ products and services.
K-Patents has applied “openness” in competition. K-Patents datasheets reveal the technology used. Nobody can steal their ideas and present them as their own. In the same manner, the company publishes the reference list (Kähre and Kamrat, 1990). K-Patents has a light organizational structure. From the beginning, the company outsourced as much as possible. The K-Patents device was designed in a modular way in order to decentralize manufacturing. Only the final assembly and calibration is carried out at the company’s own facilities. It has been easy to take on new technology, such as new connections in the circuit boards, because the company does not have its hands tied by the limitations of its own production plants and machinery (Hämäläinen, 1992).

Modulight: The laser industry case

In 2013, the size of the global laser market was €6.34 billion. Segments include communications and optical storage and materials processing and lithography, which were the largest segments (covering about 76 percent), followed by medical and aesthetic, R&D and military, instruments, and displays and printing. The laser industry is highly concentrated. The turnover of four German and US companies (Trumpf and Rofin-Sinar, and IPG Photonics and Coherent, respectively) make up more than 60 percent of the market (Overton et al., 2014).

Modulight (founded in 2000) manufactures vertically-integrated laser diodes. The company has design and manufacturing capabilities that range from chips via tailored-laser solutions to optical subsystems and turnkey deliveries. The company is a spin-off from the Tampere University of Technology. In the last five years, Modulight has cooperated successfully with PerkinElmer in the medical sector. The company’s customers are in the medical, defense and security, industrial and optical communications markets. Modulight’s turnover in 2011 was €2 million and it had 17 employees. The company has a semiconductor plant in Finland and suppliers in Asia. Modulight markets laser solutions via two sales companies and a worldwide agent network to five continents and over 20 countries. Modulight works with customers, suppliers and partners on a long-
term basis. It frequently introduces new products and offers strong technical support and flexible customer service. It is an ISO-certified supplier of lasers. Modulight's robust products work even in the harshest environments.

In 2010, its main markets were:
- entertainment, display and projection (3D cinemas, TV and laser shows), 7%;
- defense and safety (perimeter security, range finding, target designation), 11%;
- communication 16%;
- medical, 35%;
- industrial and environment, 23%;
- R&D, 21%; and
- others, 16%.

In 2008, Modulight introduced SparkLight (see Figure 7), a new turnkey laser platform. Designed to support both research and industrial activities, the turnkey laser platform offers versatility and ease-of-use to the expert and novice alike. The system embeds everything required to operate Modulight's acclaimed broad-area lasers, from the laser driver to cooling and monitoring, all in a compact package. A microprocessor-controlled supervisory circuit ensures the safe and smooth operation of the system. The laser platform operates in continuous-wave mode, with optional low-bandwidth modulation capabilities. The SparkLight turnkey laser platform can be adapted to power any of Modulight's high-power laser arrays, offering a broad wavelength coverage. The system output is fiber-coupled by design; however, alternative configurations can be supplied on request. All the features of the module are modifiable to suit the needs of the end customer. The control circuit can range from a simple analog interface to a computer-controlled digital assembly, whereas cooling can be air-based or water-based, depending on power levels and user requirements. The SparkLight turnkey platform is available for three applications: 1) OEM systems; 2) rack-mounted for industrial applications; and 3) a desktop case with an easy-to-use touchscreen interface for research and industrial application development.

Fig. 7: The SparkLight laser platform

Genelec: The professional audio monitoring industry case

Genelec was found in 1978 to manufacture 340 units of the speaker, the S30, for YLE, the Finnish broadcasting company. Genelec introduced then active speakers in the professional audio monitoring industry. The company made also sound reinforcement contracting which made once upon time half of the turnover. The
company installed many drama theatres in several prestigious places in Finland and abroad. This business was quitted in 1989. Genelec is the industry leader in active monitors. The company’s products offer reliability and neutral sound reproduction, regardless of size and fit for the listening conditions. Industrial design has been on its agenda for more than 25 years. In 2011, the company’s turnover was €17.5 million with 100 employees. Genelec exports most of its products to over 60 countries. Genelec has three main markets comprising: 1) professional audio monitoring systems for broadcasting companies; 2) equipment for recording studios; and 3) audio systems for home theatres (Uusitalo, 2013a).

People usually think that a good speaker enclosure must be made from wood-based materials. In 1985, Genelec introduced a new speaker shape, made of glass fiber, for the 1022A (Figure 8a). The aim was to eliminate diffraction by the use of a rounded shape and to control directivity. The result was breathtaking in acoustic terms. The controlled directivity made the off-axis response flat, which meant a wider listening area (Genelec, 2008:51). In 1987 Genelec’s British distributor told that “the sound of your products is excellent but is difficult to believe that they come from the same factory so different they look.” This comment was well taken by Genelec and it directed their design and brand creation more than a decade (Martikainen, April 22 2014). In 1996, the company introduced the first die-cast aluminum model (1029A, Figure 8b). Its introduction was triggered by the company’s foreign distributors who saw the need for a smaller product. Die-cast aluminum offered, among stiffness and other benefits, large internal volume in relation to the external enclosure size. Co-operation with Harri Koskinen, one of the most highly-acclaimed industrial designers in Finland, led first to the development of the 6040A (2002) and then to the launch of the 8000 Series (2004). With their optimized, curved, die-cast aluminum structure, their high performance reflex port design, their novel, low-distortion drivers with sophisticated filtering techniques, and their versatile mounting features, these products set a new standard in two-way monitors.

When a prototype of the Genelec Laminar Spiral Enclosure™ (LSE™, Figure 8c) subwoofer was shown to distributors in 2001, the first reaction was astonishment: “This can turn out to be a total flop or a great success. Basically a subwoofer cannot look like this. On the other hand, if somebody is to redefine the subwoofer, it should be Genelec” (The Genelec Story). Introduced in 2002, this subwoofer has proved a great success. The spiral-shaped design yields an extremely rigid enclosure exterior, which also forms the subwoofer's integral port. With optimal construction, the subwoofer is an extraordinarily accurate and responsive low-frequency system with very low distortion, matching the quality of the main speakers. Genelec’s bass management system gives a seamless link from the subwoofer to the main speakers. The idea for the shape of the 5040A (Figure 8d) emerged when one of Genelec’s acousticians visited a pressure die-cast manufacturer. The acoustician had a kettle with him and used it to design a new subwoofer. The final design was created in co-operation with designer Harri Koskinen. Genelec’s products have won several domestic and international awards. The Laminar Spiral Enclosure™ (LSE™) and 5040A subwoofers are two examples representing
Genelec’s unique industrial design. These products are so different from existing products in the market that professionals immediately link them to Genelec.

Fig. 8: Genelec products: a) 1022A (1985), b) aluminum case 1029A (1996), c) LSE™ (2002) and d) 5040A (2008)

Analysis of findings

This section intends to answer the research questions

- What is the relevance of a brand for SMEs?
- How can industrial design and modularization be utilized brand creation?

by analyzing the findings of individual cases. The relevance of brand on SMEs is evaluated by significant events in the company development. The impact of industrial design and modularization on brand creation is evaluated by the model for SME brand creation (Figure 1) and Advantages and disadvantages of industrial design and modularity (Table 1). K-Patents and Genelec have used industrial design and modularization in product brand creation from the beginning.

In the early 1980s K-Patents offered a better solution for measuring concentration in the international Finnish process industries such pulp and paper industries (Uusitalo, 1999). The excellent functional capability (elimination of drift) together with industrial design and the bright color ("the Coca Cola bottle effect") enhanced and communicated product value and made the product easily recognizable and memorable. The brand recognition reduced the purchasing risk for potential customers. This gave relevance for the brand. K-Patents also uses modularity in its products and exploits economies of scale in manufacturing (modules are produced in series of 20 to 50 units, see Appendix 2) and economies of scope in matching (by standardizing) customer demand. Modularization and outsourcing have also brought the company flexibility; K-Patents can demand the latest manufacturing technologies from its suppliers.

Since Genelec offered audio monitoring systems for national broadcasting companies its business was from early on international. The first foreign customer was RAI in Italy in 1978 (Genelec, 2008). In 1987 the British distributor’s comment on design and brand was very crucial. The comment not only told the company that brand (appearance via design) was important but also made the company to focus on its main business (active speakers) and to drop the sound reinforcement contracting. Thus,
brand creation had relevance on a SME. Genelec has used both industrial design and modularity to improve both the functional and technical capabilities of its products and to increase the aesthetics of its products. It is crucial that designers and engineers respect the work of each other. Flexibility is needed on both sides (Neva, 2010). The design of products has been selected based on their good acoustic characteristics and on environmental benefits (products are long-lasting and can be recycled). For instance, in 1985, Genelec eliminated a significant amount of diffraction (increased functional capability) by using rounded speaker cabinets. Industrial design has also challenged status quo by introducing new material (glass fiber and aluminum) and unique shapes for products (LSE™ and 5040A). In 1985 the company started to use modular units in electronics of its products.

Since Modulight was a spin off from an international research team at Tampere University of Technology its business has been international since the beginning. It received start financing from a French investor (Uusitalo, 2013b). The trigger for Modulight’s use of industrial design and brand creation came from its first customers in the medical sector. Laboratory workers enjoy aesthetically-pleasing instruments. Industrial design brought modular product platform which also enhances brand creation.

This study contributes to the research literature by identifying the unique characteristics of brand creation in SMEs in the international B2B market. Functional and technical capabilities are crucial for brand creation in international industrial market. However, industrial design and modularity capabilities can enhance the product brand creation abilities of SMEs. Industrial design brings ease of use, better functionality, and improved appearance (Hertenstein et al., 2005). Modularity also provides other advantages: economies of scale (a 40 unit production is of great help); economies of scope (flexibility); (Sanchez, 1995; Sanchez and Mahoney, 1996); and compatibility. Moreover, it allows companies to create organizational modularity by outsourcing. Only the assembly functions crucial for the quality are retained within the SMEs. Based on this research industrial design and modularity seem to be quite general in international industrial market which make them good capabilities for brand creation in the global market.

Table 2 illustrates the impact of the five key attributes (functional, industrial design, technological, quality and modularity) on product brand development in each case.
Tab. 2: Case comparison

<table>
<thead>
<tr>
<th>Capability</th>
<th>K-Patents</th>
<th>Modulight</th>
<th>Genelec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional</td>
<td>eliminates drift (need) positioning (leader)</td>
<td>tailored solutions compatible differentiation</td>
<td>active principle (need)</td>
</tr>
<tr>
<td></td>
<td>differentiation</td>
<td></td>
<td>industrial design is of help positioning</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(leader) segmentation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>differentiation</td>
</tr>
<tr>
<td>Industrial</td>
<td>red, appearance “the Coca Cola bottle effect”</td>
<td>industrial designer appearance</td>
<td>Aesthetics, appearance combines art and</td>
</tr>
<tr>
<td>design</td>
<td>positioning (leader)</td>
<td></td>
<td>technology positioning (leader)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>challenging status quo</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>international awards</td>
</tr>
<tr>
<td>Technological</td>
<td>optics &amp; electronics positioning (leader)</td>
<td>university spin off photonics &amp; mechanics</td>
<td>active principle material, electronics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>robust solution</td>
<td>international awards</td>
</tr>
<tr>
<td>Quality</td>
<td>inhouse assembly/testing</td>
<td>ISO certified</td>
<td>inhouse assembly/testing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>inhouse electronics</td>
</tr>
<tr>
<td>Modularity</td>
<td>fit customer needs standardized interfaces</td>
<td>standardized interference</td>
<td>economies of scale in product families</td>
</tr>
<tr>
<td></td>
<td>makes things simpler flexibility</td>
<td>economy of scale &amp; scope outsourcing</td>
<td>outsourcing</td>
</tr>
<tr>
<td></td>
<td>economy of scale &amp; scope outsourcing</td>
<td></td>
<td>modular electronics</td>
</tr>
<tr>
<td>Product brand</td>
<td>Industrial design and modularity enhanced</td>
<td>Industrial design and modularity enhanced</td>
<td>Industrial design and modularity enhanced</td>
</tr>
</tbody>
</table>

Conclusion

The brand has been important for the case SMEs on international market as the following significant events show. The brand helped K-Patents in its internationalization within international process industries. The brand creation changed the focus of Genelec only on its internationally enlarging audio monitoring business. The brand helped Modulight in its entry into the international medical sector. Industrial design and modularity were found out to be excellent capabilities enhancing the brand built only first on customer focused functional and technological capabilities. Thus, the model for product brand creation in SMEs (Figure 1) gives a comprehensive view (with emphasizing industrial design and modularity) of the options for SMEs to create product brands while operating in international markets.

Modularity can be seen as way to organize complex products and processes both effectively (externally that is creating products to suit customer needs) and efficiently (internally that is to reduce manufacturing costs) but not only efficiently as Baldwin & Clark (1997) say. According to Schilling and Steensman (2001), contract manufacturing and alliances help create modularity in organizations. Contract manufacturing allows
companies to match their offering with market demand without increasing the workforce or committing scarce capital to long-term investment. It also enables a focus on the company’s core competence (K-Patents keeps final assembly and calibration inhouse). By subcontracting design, the SME can use the latest technology for its products. Contract manufacturing increases flexibility and economies of scale.

The use by K-Patents of the “Coca Cola bottle effect” refers to Morgan’s (1999) notion that “Unconventional communications can get people talking”. Genelec’s continuous innovation and product branding (showing new technical features in new physical shapes) relates to Morgan’s (1999) “idea centered” rather than “consumer centered” approach. Product brand creation can be based not only on the physical similarity of a company’s products but also on the dissimilarity of physical products. Genelec uses both strategies. Products in the loudspeaker series are similar and use a modular construction, whereas the subwoofers (see Figure 8 c and d) have totally different shapes.

In the large and highly competitive laser market, Modulight has created a competitive advantage by using a recognizable product brand. The company has used an industrial designer to design the appearance of the SparkLight laser platform, making it instantly recognizable as a Modulight product (Figure 9).

Fig. 9: A sample showing the consistent world of Modulight. Photos: Daddy Finland Oy

Research literature highlights many benefits from product modularity (see extensive studies by Gershebson et al., 2003 and 2004). However, this paper identifies a new benefit that is specific to SMEs. This is the notion of product brand creation via modularity. Any particular module should be easily recognizable. The combination of modularization, brand creation and unique customer value delivery (especially in the international process industries) provides a good platform for the SME. This is particularly the case with the K-Patents refractometer. First, the product design combined optics and electronics to solve the problem of drift. The company dared to create a unique modular design, which was instantly recognizable on the factory floor. K-Patents successfully exploited the “Coca Cola bottle effect”.
The message for managers is clear: using both modularity and industrial design in brand creation may free up existing resources or bring in new resources for the SME. This counters the argument that SMEs lack sufficient resources for brand creation (Ahonen, 2008; Keller, 2008; Saraniemi et al., 2010). This study also shows that brands are particularly important for SMEs operating in international markets.

Limitations

This research has several limitations. The number of the companies was only three, which means that more SMEs should be studied to more thoroughly validate the product brand creation model (Figure 1). From the brand point of view, the case companies were selected randomly. However, when looking at innovative, international SMEs, product brand creation may be embedded in them from the start. Another limitation is that all case companies come from Finland. The results may be different for companies selected from other countries. In Finland, as in Italy, there exist a number of highly-acclaimed industrial designers such as Harri Koskinen who worked with Genelec. This research was limited to product brand creation within SMEs. In this context, the research should be enlarged to include corporate brands.

Further Research

As mentioned earlier, this paper focuses on the creation of product brands and the physical appearance of the product by industrial design and modularization. Aspara and Tikkanen (2008), Mudambi (2002), van Riel et al. (2005), and Taylor et al. (2004) argue that brands are particularly important for corporates in the B2B context. Juntunen (2012) found corporate brands important for SMEs in the software business. In startups, image, awareness, trust and credibility are considered as external elements of the corporate brand, whereas delivery times, product quality, communications and staff behavior are internal elements of the corporate brand (Inskip, 2004). This is in line with current research on corporate brand creation (see, for example, Urde, 2003; Balmer & Gray, 2003; Hatch & Schultz, 1997, 2001). The K-Patents display stand design supported not only their product brand creation but also their corporate brand building. Similarly, the consistent world of Modulight (see Figure 9) reflects corporate brand creation. All the issues mentioned above suggest the need for further research from the corporate brand perspective on these three cases as well as on other SMEs operating in the international B2B market.

Wong and Merrilees (2005) distinguish three different branding strategies (minimalist, embryonic, and integrated) in the SME context. A minimalist strategy applies to a company with a low interest in marketing. An embryonic strategy applies to company with a stronger emphasis on marketing, but which views branding as optional and unimportant. An integrated strategy applies to a company that places a strong emphasis on marketing and branding. In integrated strategy, branding is an essential part of business. It would also be interesting to look at brand creation in SMEs using this framework.
Acknowledgements

I would like to thank two anonymous reviewers for their excellent comments and suggestions.

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Appendix 1: Primary Data in the Study

<table>
<thead>
<tr>
<th>Data gathering method</th>
<th>Person(s)</th>
<th>Date</th>
<th>Duration/ role of the author</th>
</tr>
</thead>
<tbody>
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<td>Management training Visiting lecture/analysis</td>
<td>CTO (A)</td>
<td>14 Feb. 1992&lt;br&gt;6 Mar. 2002</td>
<td>1 hour 30 min&lt;br&gt;1 hour 30 min</td>
</tr>
<tr>
<td>Management training Visiting lecture/analysis</td>
<td>CEO (A)</td>
<td>5 Nov. 2003&lt;br&gt;24 Nov. 2009&lt;br&gt;6 Mar. 2009&lt;br&gt;6 Sep. 2010</td>
<td>1 hour 30 min&lt;br&gt;1 hour 30 min&lt;br&gt;1 hour 30 min&lt;br&gt;1 hour 30 min</td>
</tr>
<tr>
<td>Management training Visiting lecture/analysis</td>
<td>Marketing Man. (B)</td>
<td>2004</td>
<td>Supervisor</td>
</tr>
<tr>
<td>Management book launch Visiting lecture</td>
<td>Chairman (C)</td>
<td>5 Mar. 2013</td>
<td>25 min</td>
</tr>
<tr>
<td>Studies Master thesis (K-Patents as a benchmark target) Master thesis/Modulight</td>
<td>Marketing assist. (A)&lt;br&gt;An outsider&lt;br&gt;Marketing Man (B)</td>
<td>1992-1993&lt;br&gt;2000&lt;br&gt;2004</td>
<td>Evaluator&lt;br&gt;Supervisor&lt;br&gt;Supervisor</td>
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<td>Management training As a participant Strategy assignment</td>
<td>CEO (B)&lt;br&gt;CEO (B)</td>
<td>2001-2002&lt;br&gt;12 May 2002</td>
<td>Program director&lt;br&gt;Supervisor</td>
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<td>Interviews</td>
<td>CEO (A)&lt;br&gt;CEO (A)&lt;br&gt;CEO (A)&lt;br&gt;CEO (A)&lt;br&gt;CTO (A)&lt;br&gt;CEO and Marketing Man. (B)&lt;br&gt;Chairman (C)&lt;br&gt;CEO (C)&lt;br&gt;CEO (C)&lt;br&gt;CTO (C)</td>
<td>10 May 1996&lt;br&gt;22 Feb. 2002&lt;br&gt;5 Nov. 2007&lt;br&gt;14 Aug. 2012&lt;br&gt;14 Aug. 2012&lt;br&gt;18 Jun. 2012&lt;br&gt;20 Jun. 2012&lt;br&gt;20 Jun. 2012&lt;br&gt;25 Mar. 2014&lt;br&gt;25 Mar. 2014&lt;br&gt;25 Mar. 2014</td>
<td>1 hour&lt;br&gt;1 hour&lt;br&gt;2 hours&lt;br&gt;3 hours&lt;br&gt;2 hours&lt;br&gt;2 hours&lt;br&gt;2 hours&lt;br&gt;3 hours&lt;br&gt;3 hours&lt;br&gt;2 hours</td>
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<td>Writing a book chapter</td>
<td>CEO (A)</td>
<td>Autumn 2013</td>
<td>Co-author</td>
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Appendix 2: Creation of a Production Network

Presentation by Chief Technology Officer, Arto Hämäläinen, 14 February 1992

Principles in Production

- Production is based on customer orders
- Part assemblies or modules are made in small lots of 10, 20, 50 or approximately 100 pieces
- Partners make as much as possible and are as ready as possible for the job. For example, assembly, testing and ageing of electronics
- K-Patents is responsible for the final assembly and calibration of the product according to the customer specification
- K-Patents takes care of all After Sales deliveries

In the Future

- The size of production lots of modules will increase
- Partners will be even more responsible for material handling
- High quality production will be emphasized (ISO)
- Long term co-operation will be continued, provided that a partner's machinery, technology and ability to respond to more demanding products continues to fit with K-Patents' new product generations