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A tool for measuring SMEs' reputation, engagement and goodwill

A New Zealand exploratory study

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Abstract

Purpose – The purpose of this paper is to develop a rating and scoring tool for measuring small and medium enterprises' (SMEs) reputation, engagement and goodwill (REG), including internet presence and following on social media, by an exploratory study undertaken in New Zealand.

Design/methodology/approach – A discrete choice experiment (DCE) applying the PAPRIKA method via an online survey was conducted to determine weights representing the relative importance of six indicators related to SMEs' REG. Usable responses were received from 159 people involved with SMEs. Cluster analysis to identify participants with similar patterns of weights was performed.

Findings – The six indicators, in decreasing order of importance (mean weights in parentheses), are: "captured" customer opinions about the business (0.28); contact with customer database (0.19); website traffic (0.16); Google Search ranking (0.15); size of customer database, (0.11); and following on social media (0.11). These indicators and weights can be used to rate and score individual SMEs. The cluster analysis indicates that participants' age has some influence on their weights.

Research limitations/implications – Only 159 usable responses for the DCE.

Practical implications – The indicators and their weights provide a practical and inexpensive tool for measuring SMEs' REG.

Originality/value – This is the first study to use a DCE to determine weights representing the relative importance of indicators included in a tool for measuring SMEs' REG. The tool is innovative because it includes readily available indicators of firms' internet presence and following on social media.

Keywords Social media, Internet, Engagement, Small to medium sized enterprises, Goodwill, Business reputation

Paper type Research paper

1. Introduction

Major structural changes have occurred in developed economies in the last few decades. One of the most significant changes has been the increasing importance of knowledge-based factors of production underpinned by information communications technology and the internet. Intellectual capital (IC) rather than physical capital is now seen as the main driver of competitive advantage and hence of economic growth (e.g. Clarke *et al.*, 2011). IC is increasingly dominating firms' capital values, investments and sources of profit (Granstrand, 2000). It is therefore important for firms to be able to measure their IC and to manage it appropriately.

Firms' IC is often categorised into three main types (Sveiby, 1997): structural capital, such as patents, databases, trade secrets, trademarks, corporate culture, management policies; human



capital, which includes employee-based competencies, knowledge and skill (Gerpott *et al.*, 2008); and, regarded by many commentators as being the most important type of IC (Martínez García de Leaniz and Rodríguez del Bosque, 2013), relational capital, comprising external relationships with customers, suppliers, partners, shareholders and more widely with government agencies and community groups, plus brand names, reputation and goodwill (Guthrie and Petty, 2000; Martín de Castro *et al.*, 2004). The focus of this paper is on the measurement of relational capital – specifically, firms' reputation, engagement and goodwill (REG).

Many attempts to measure both IC and reputation (both internally in the firm and externally by rating agencies) have been made, as described in the next section. Lev (2003, p. 2) notes that firm's own reporting tools are generally “not adequate for resource allocations or investment decisions” and that “both managers and investors are at a very early stage of grappling with the management, valuation and reporting of intangibles”[1]. The inadequacy of firms' own reporting tools is particularly so for small and medium enterprises (SMEs)[2] which have relatively few resources available to invest in measuring reputation.

However other data that could be utilised by SMEs have now become readily available as social media and online rating tools have burgeoned in the last decade (Jeacle and Carter, 2011; Verhoef *et al.*, 2014). Rating agencies, such as TripAdvisor and Google Ranking, utilise customers' comments and their “likes” and “hits” to rank businesses and publicise customer reviews. The social media phenomenon can now “significantly impact a firm's reputation, sales and even survival” (Kietzmann *et al.*, 2011, p. 241).

This paper reports on an exploratory study undertaken in New Zealand to develop a rating and scoring tool for measuring SME's REG, which includes ratings on SMEs' internet presence and following on social media. The paper contributes to the literature on measuring REG by conducting a discrete choice experiment (DCE) (McFadden, 1974) to determine “part-worth utilities” (weights) representing the relative importance of a set of indicators related to REG, including indicators of firms' internet presence and following on social media. These indicators and their weights are available as a practical and inexpensive rating and scoring tool, intended for use by SMEs and associated parties (e.g. business consultants). A major strength of the DCE method used is that a set of weights is generated for each individual participant, in contrast to most other DCE methods which produce aggregated data only. These individual-level data permit a cluster analysis (Spath, 1980) to be performed, enabling any “clusters” of participants with similar patterns of weights to be identified.

In the next section, the literature about measuring REG, the significance of the internet and social media and stakeholders' perceptions of REG is reviewed, and the implications of this literature for the current study are discussed. In Section 3, the DCE survey and cluster analysis methodology are explained, followed by their results in the subsequent section. The paper closes with a discussion of the study's main findings and conclusions, including the tool for measuring REG and the study's limitations and potential areas for improvement if it were to be repeated.

2. Literature review

2.1 Measurement of REG

Although Guthrie and Petty (2000) define reputation and goodwill as separate elements of relational capital, this delineation is not always observed in practice and in the literature (Shenkar and Yuchtman-Yaar, 1997). For example, Steenkamp and Kashyap (2010) found in their survey of New Zealand SMEs that the term “goodwill” is often used to refer to IC in general. As a technical term, “reputation” originates from the economics literature but is also variously referred to as: image (in marketing), prestige (sociology), goodwill (accountancy and law), identity, esteem and standing (Shenkar and Yuchtman-Yaar, 1997; Wartick, 2002).

The resource-based view of the firm proposes that stakeholders' collective opinion of the firm – i.e. its reputation – is a strategic resource that leads to sustainable competitive

advantage (Boyd *et al.*, 2010; Deephouse, 2000; Martín de Castro *et al.*, 2004) and the capacity to command higher prices (Fombrun, 1995). A firm's reputation has also been identified as leading to more bargaining power with suppliers (Fombrun, 1995), higher firm value (Fombrun and Shanley, 1990), enhanced consumer perceptions of product quality and easier access to cheaper capital (Brammer and Millington, 2005).

Accountants have struggled with the interpretation of goodwill (Bloom, 2008), conceptually seeing it as either a leftover unidentifiable component of a larger asset (e.g. an investment) made up of identifiable and unidentifiable parts, or the sum of unrecognised, but potentially identified and advantageous (value-generating), intangible assets (Giuliani and Brännström, 2011; Johnson and Petrone, 1998). Despite this definitional ambiguity, accountants have developed systems for measuring goodwill. The only goodwill included in the financial statements is purchased goodwill – measured as the difference between the price paid for an enterprise as a going concern and the sum of its assets minus the sum of its liabilities, where each item is separately identified and valued. Goodwill developed by a firm throughout its operating life does not appear in its own accounts, only becoming observable in the purchaser's accounts at the time of acquisition, and is assessed by the purchasing firm for impairment annually thereafter (IAS 36). This is in contrast to the concept of "reputation" which can be assessed periodically by a firm before its sale (Shenkar and Yuchtman-Yaar, 1997). In addition, a single measurement at the time of sale is, of course, unhelpful for firms not for sale.

Notwithstanding the above discussion, accountants are highly cognisant that self-developed goodwill is valuable; however, valuations are regarded as unreliable if not based on arm's-length transactions (Cravens *et al.*, 2003). Voluntary disclosures about IC to external stakeholders in annual reports and on websites is encouraged and occurs, but on an unsystematic basis and of questionable objectivity (Vandemaele *et al.*, 2005). The costs of gathering and analysing data, revealing strategic information to shareholders (Ax and Marton, 2008), and potential exposure of firms and auditors to legal claims and misunderstandings, appear to outweigh the benefits of disclosure. These benefits include mitigation of the information asymmetry problem, lower cost of capital (Orens *et al.*, 2009) and positive impacts on firm reputation and stakeholder trust and confidence (Vergauwen *et al.*, 2007).

Knowing the value of a firm's goodwill would enhance financial projections and resource decision-making. Publicly listed firms can glean an indication of their IC's value from their share price (Goebel, 2015). Over time, there has been an increasing divergence between firms' market value of equity (number of share multiplied by share price) and book value (Lev, 2003) and it is argued that this "hidden value" is a reflection of the increasing importance of IC (Whiting and Miller, 2008). Unlisted firms, however, do not have access to share price information. Nonetheless, tools have been developed to assist firms to measure and value the intangible drivers of growth.

For example, in 1992 the balanced scorecard (Kaplan and Norton, 1992) was developed, which concentrates on the customer and client focus of relationship capital. Other tools include the Value Chain Scoreboard (Lev, 2001), the Intangible Asset Monitor (Sveiby, 1997) and the Skandia Navigator (Zambon, 2004). The Skandia Navigator emphasises four areas of focus for IC – customer focus, process focus, human focus and renewal and development (Edvinsson, 1997) – and established a management process for developing and predicting the future value of Skandia's IC. However, these tools tend to require a large investment, so they are not feasible for most SMEs (Grimaldi *et al.*, 2016).

The management literature provides some avenues for SMEs to periodically gauge business reputation, definable as "stakeholders' perceptions about an organization's ability to create value relative to competitors" (Rindova *et al.*, 2005, p. 1033) or, alternatively, as "a perceptual representation of a company's past actions and future prospects that describes the firm's overall appeal to all of its key constituents when compared with other leading rivals" (Fombrun, 1995, p. 72). Reputation is produced by the firm's interactions with its

stakeholders and also influences its relational processes with its stakeholders (Fombrun, 1995; Martínez García de Leaniz and Rodríguez del Bosque, 2013).

Rindova *et al.* (2005) argue that reputation has two main dimensions. The first dimension, originating from economics, is perceived quality (i.e. observers' expectations about an organisation's ability to produce quality products). The second dimension is perceived prominence, which hails from institutional theory and is described as the collective impression of the firm as a result of information exchanges and social influence of actors or third parties. Both perceived quality and perceived prominence can lead to payment of a price premium for a firm (purchased goodwill). Table I presents the variety of indicators of perceived quality and perceived prominence as derived from highly cited works and prominent writers in the literature.

Wartick (2002) argues that reputation depends on both identity and image. A firm's image is best elicited from customers and other external stakeholders, whereas its identity is best gauged from internal stakeholders such as employees and managers. Within these two groups of stakeholders, there may also be differences in how they conceive of a firm's image and identity. For example, in business-to-business (B2B) relationships, purchasers have a more favourable image of the supplier if they have a long-term collaborative relationship in which they obtain high quality, technical and complex information; in business-to-consumer (B2C) relationships, favourable images for consumers are more dependent on the emotive appeal of individual product offerings (Brown *et al.*, 2010; Swani *et al.*, 2014).

Perceived quality	Perceived prominence
Quality of outputs (Rindova <i>et al.</i> , 2005)	Media visibility (Ali <i>et al.</i> , 2015)
Quality of inputs (Rindova <i>et al.</i> , 2005)	Media rankings (Rindova <i>et al.</i> , 2005)
Quality of productivity assets (Rindova <i>et al.</i> , 2005)	Certifications of achievement or quality ratings (e.g. ISO 9000) (Cravens <i>et al.</i> , 2003; Rindova <i>et al.</i> , 2005)
Consumer reports (Rindova <i>et al.</i> , 2005)	Endorsement by person of significance (Helm and Salminen, 2010; Rindova <i>et al.</i> , 2005)
Customer perception of quality and satisfaction (Cravens <i>et al.</i> , 2003; Rindova <i>et al.</i> , 2005)	Perceived as innovative (Cravens <i>et al.</i> , 2003; Gaines-Ross, 1998)
Customer patronisation and loyalty/retention (Cravens <i>et al.</i> , 2003; Rindova <i>et al.</i> , 2005)	Perceived as having long-term prosperity (Gaines-Ross, 1998)
Calibre of management (Cravens <i>et al.</i> , 2003)	Exemplary corporate behaviour (Gaines-Ross, 1998)
Trust in firm (Berens and Van Riel, 2004; Gaines-Ross, 1998)	Emotional appeal (Fombrun and Gardberg, 2000)
Conducts business in human and caring way (Gaines-Ross, 1998)	Demonstration of social responsibility (e.g. charitable contributions) (Ali <i>et al.</i> , 2015; Fombrun and Gardberg, 2000; Fombrun and Rindova, 1994)
Adds value to customer transactions (Gaines-Ross, 1998)	Advertising (Fombrun and Rindova, 1994)
Financial performance (Ali <i>et al.</i> , 2015; Fombrun and Gardberg, 2000; Fombrun and Rindova, 1994)	Reputable alliance partners (Cravens <i>et al.</i> , 2003; Rindova <i>et al.</i> , 2005)
Workplace environment (Fombrun and Gardberg, 2000)	Absence of negative reviews (Cravens <i>et al.</i> , 2003)
Applicants for jobs (Cravens <i>et al.</i> , 2003)	
Company size (Ali <i>et al.</i> , 2015; Fombrun and Rindova, 1994)	
Absence of customer complaints/warranty payouts (Cravens <i>et al.</i> , 2003)	
Market share (Shapiro, 1982)	

Note: The shaded cells are ones that are used to help inform the selection of indicators for the study's DCE

Table I.
Indicators of business
reputation

Surveying these stakeholders has underpinned many attempts to measure corporate reputation (Ponzi *et al.*, 2011; Wartick, 2002). Measures and indices have been developed by business consultants and media outlets, almost exclusively for rating the largest publicly listed companies; an example is the frequently cited *Fortune's* Most Admired Corporations (300 or more US companies). Other comparable indices have been developed for specific countries, such as New Zealand's Rep Z, the Colmar Brunton Reputation Index (Colmar Brunton New Zealand, 2015). Wartick (2002), Ali *et al.* (2015) and others criticise many of these indices for being unreliable, having survey defects, inter-rater differences and for providing aggregated rather than disaggregated information.

Management academics have also been busy creating measures (Ali *et al.*, 2015); for example the Reputation Quotient (Fombrun and Gardberg, 2000) and Cravens *et al.* (2003)'s Reputation Index. These measures typically are derived from questionnaires with many questions about dimensions of reputation (Table I). Wartick (2002) criticises these measures' accessibility and practicality. Dissatisfaction with long questionnaires and the belief that intangibles are "reflective indicators" (Bergh *et al.*, 2010) inspired Ponzi *et al.* (2011) to develop their RepTrak™ pulse measure, which is administered by telephone or online and focusses on overall impressions rather than elements of reputation. Given recent developments in social media and information availability, this approach can be criticised as outdated and relatively cost-ineffective for SMEs.

2.2 Significance of the internet and social media

Historically, firms dominated the release of information about themselves; they used annual reports, marketing campaigns, press releases and public relations managers to send information uni-directionally to stakeholders and the public (Kaplan and Haenlein, 2010). Nowadays, consumers expect firms to have a social media presence (Levy, 2013; Nair, 2011). Social media utilises mobile and web-based technologies to virtually connect and engage customers, creating interactive platforms in the digital sphere where participants can create, share, discuss and modify user-generated content (Kaplan and Haenlein, 2010; Miller and Skinner, 2015).

Social media participants are both producers and consumers of information (Kaplan and Haenlein, 2010) – as they click, blog, tweet, Facebook, like, post videos on YouTube, provide feedback or rate services (e.g. TripAdvisor, eBay, TradeMe) (Hearn, 2010). Individuals are empowered to make comments and rate organisations, which helps build an organisation's digital reputation or perceived prominence (Helm and Salminen, 2010; Rindova *et al.*, 2005) and "which functions, in turn, as a new form of currency and, more generally, value" (Hearn, 2010, p. 422). A firm's rating on social media is an important part of the commercial aspect of business operations (Hanna *et al.*, 2011).

Consequently, many firms now engage in online reputation management and use social media communities to "create viral marketing or electronic word-of-mouth (e-WOM) in order to promote the diffusion of their products and brands" (Dwyer, 2007; Perrigot *et al.*, 2012, p. 543). Online endorsements by "high-profile" customers help to convince new customers of the firm's credibility and build a favourable reputation (Helm and Salminen, 2010). Many studies have highlighted the advantages for firms that utilise virtual communities and social media networks to perform marketing and brand-building activities with B2C clients and collaborative engagement with B2B clients (Eccleston and Griseri, 2008; Hanna *et al.*, 2011; Swani *et al.*, 2014). For example, Dell claims that its use of Twitter led to US\$1 million in additional revenue due to sales alerts (Kaplan and Haenlein, 2010). Ye *et al.* (2009) observed a significant relationship between online consumer reviews and business performance in the hotel industry; and Luo *et al.* (2013) showed that social media-based metrics (web blogs and consumer ratings) are significant leading indicators of firm equity values.

2.3 Stakeholders' perceptions of REG

Because of the variation in their relationships with the firm, different stakeholder groups are likely to have different perceptions of what constitutes or indicates business reputation (Ali *et al.*, 2015; Martín de Castro *et al.*, 2004; Swani *et al.*, 2014). Overall reputation is formed as an aggregation of these potentially diverse perceptions (Wartick, 2002). Unsurprisingly, therefore, the creators of the various reputation measures mentioned earlier tend to include a variety of stakeholders when developing their measures. Senior executives, outside directors and financial analysts are surveyed for *Fortune's* Most Admired Corporations measure; Cravens *et al.* (2003) recommend surveying customers, employees, suppliers, partners in alliances or partnerships and competitors; and Wartick (2002) suggests owners, employees, customers, suppliers and the community.

The relative importance that stakeholders place on particular indicators might be expected to vary systematically with their background and socio-demographic characteristics. For example, Perrigot *et al.* (2012) found that franchisors with more outlets and those in the service industry (compared to the retailing industry) used Facebook more. Stakeholders' age may also influence the relative weighting they place on internet-based reviews and rankings, as younger people appear to be more engaged with modern technology (Morris and Venkatesh, 2000; Nair, 2011), including social media (Hanna *et al.*, 2011). However, differences between groups may be declining; for example, Lenhart *et al.* (2010) found that for US adults there are no differences in internet and social media use related to gender, ethnicity, income and education.

2.4 Implications for the current study

From the literature review, it is clear that researchers and business consultants – and business owners themselves – are very interested in measuring business reputation, but that currently available measures typically involve lengthy questionnaire-based instruments of questionable reliability and validity. Such measures and indices are also often expensive to create and maintain, not easily accessed and often inapplicable to SMEs. They also fail to incorporate the new ranking and review information emanating from the internet and social media. In addition, the interchangeability of terms used for describing business reputation suggests that a variety of commonly used terms could be usefully incorporated into a measure to enhance stakeholder understanding. Accordingly, this study explores the development of a practical and inexpensive rating and scoring tool for measuring SMEs' REG – that includes readily available indicators of firms' internet presence and following on social media.

According to Ali *et al.* (2015, p. 1106), because different countries have different “rules, regulations, practices, and responsibilities that govern their different stakeholders”, economies, politics, connectedness and geography which all influence corporate behaviour, therefore “practitioners need to exercise considerable caution when developing and managing the reputation of their organizations through the use of research evidence from various countries”. It was therefore deemed prudent to limit this exploratory study to a single country, New Zealand, with which the authors are very familiar because they live and work there.

SME owners in New Zealand are surveyed in this study. As well as being involved in their own B2C transactions, they constitute potential customers and suppliers of other SMEs (B2B) and are also competitors and potential buyers and sellers of SMEs. Despite the fact these perspectives make it difficult to disentangle any dominant influences behind SME owners' decision-making, it is likely that SME owners have a good appreciation of business reputation (Ali *et al.*, 2015). As Steenkamp and Kashyap (2010, p. 368) found in their survey of 25 New Zealand SMEs, most participants “perceive intangible asset components to be [...] very important [...] to the success of their business”. Enterprises in New Zealand are mostly small; 97 per cent of New Zealand's enterprises have fewer than 20 employees[3] and 69 per cent

have none. Significantly, 42 per cent of self-employed people in New Zealand are aged 50 years or over (Ministry of Business Innovation and Enterprise and Statistics New Zealand, 2014). Many of these SME owners will be looking to sell their businesses in the near future and so will have a keen interest in optimising their firm's REG and hence saleable value[4].

3. Method

3.1 The DCE

The first stage in designing the DCE is to determine which indicators to include and their levels of performance. The indicators and levels should be expressed in language appropriate for the invited survey participants. As the responder burden with respect to the number of questions that participants are asked to answer in the DCE (Section 3.2) increases exponentially with the number of indicators, it was decided to include a maximum of six indicators, with three levels each.

Table I shows the potential REG indicators identified from the literature, and the shaded cells denote the indicators selected for the DCE. The final choice of indicators was influenced by practical considerations; in order to be included in an inexpensive and practical tool, they needed to be easily accessible by SMEs and include indicators available on the internet and social media. In close consultation with an expert in the area, Business Consultant Roy Hawker and Owner of New Zealand consultancy firm Amplifier, and with whom the DCE was pilot-tested, these six indicators were specified: "captured" customer opinions about the business – e.g. online reviews, testimonials; contact with customer database; website traffic – number of visitors and time spent; where the business ranks in Google Search results; size of database of contactable customers; and following on social media – e.g. Facebook, Twitter, etc. These six indicators and their levels appear on the left-hand side of Table II in Section 4.

The DCE applied the PAPRIKA method (Hansen and Ombler, 2008) – a partial acronym for "Potentially All Pairwise RanKings of all possible Alternatives" – as implemented by 1000Minds software, which was co-invented by the second author[5]. Previous business-related applications of the PAPRIKA method and software include studying energy consumption (Ford *et al.*, 2014), charities marketing (Hansen *et al.*, 2014), corporate strategic management (Ruhland, 2006) and internet search (Aggarwal and Oostendorp, 2011).

The PAPRIKA method is based on each participant in the DCE survey answering a series of simple pairwise-ranking questions. In this study, these questions involve pairwise-ranking hypothetical SMEs defined on two indicators at-a-time and involving a trade-off. An example of a pairwise-ranking question appears in Figure 1. Participants were asked to answer the questions with respect to "the industry you're closest to", which was expected to correspond to the industry in which they operate mostly.

Pairwise ranking (i.e. choosing one alternative from two) has the methodological advantage of being a natural type of decision activity that everyone has experience of in their daily lives. Furthermore, differentiating the two hypothetical SMEs in each question in terms of just two indicators – in contrast to other "full-profile" methods (Green *et al.*, 2001), which would involve all six indicators together at once – has the advantage of ensuring the pairwise-ranking exercise, and associated cognitive burden for the participant, is as simple as possible.

Each participant is repeatedly presented with pairs of SMEs in random order and asked which SME is better in terms of reputation and engagement (e.g. see Figure 1). Each time the participant ranks a pair of SMEs, all other hypothetical SMEs that can be pairwise ranked via the logical property of transitivity are identified and eliminated from the survey. For example, suppose a participant ranks firm A over firm B and then ranks B over firm C – then logically (by transitivity), A is ranked over C (and so a question pertaining to this third pair of firms would not be asked). Thus, PAPRIKA adapts each time the participant answers a question: based on that answer, and all preceding answers, PAPRIKA chooses another question to ask; based on the participant's answer to that question and all preceding

Characteristic	% (number)
<i>Gender</i>	
Male	47 (35)
Female	53 (40)
<i>Age (years)</i>	
18-24	3 (2)
25-34	12 (9)
35-44	21 (16)
45-54	29 (22)
55-64	25 (19)
65+	9 (7)
<i>Industry sector</i>	
Agriculture, forestry, fishing	1.3 (1)
Manufacturing	1.3 (1)
Electricity, gas, water, waste services	1.3 (1)
Construction	8 (6)
Wholesale trade	1.3 (1)
Retail trade	7 (5)
Accommodation and food services	3 (2)
Transport, postal and warehousing	1.3 (1)
Information media and telecommunications	9 (7)
Financial and insurance services	4 (3)
Rental, hiring and real estate services	4 (3)
Professional, scientific and technical services	12 (9)
Administrative and support services	11 (8)
Public administration and safety	1.3 (1)
Education and training	7 (5)
Health care and social assistance	5 (4)
Arts and recreation services	4 (3)
Other services	19 (14)
<i>Business size: (staff numbers)</i>	
0 (i.e. owner-operator)	24 (18)
1-5	40 (30)
6-9	13 (10)
10-19	19 (14)
20-49	1.3 (1)
50-99	1.3 (1)
100+	1.3 (1)
<i>Position/job title</i>	
Owner	25 (19)
Manager/CEO	25 (19)
Director	25 (19)
Administrator/accountant	9 (7)
Professional/trade	16 (11)
Note: $n = 75$	

Table II.
Demographic and
background
characteristics

ones, another question is presented; and so on. This adaptivity characteristic means that PAPRIKA can be regarded as a type of adaptive conjoint analysis (Green *et al.*, 2001).

This procedure for eliminating potential pairwise-ranking questions ensures that the number of questions a participant is asked is minimised: 27 questions on average in the present DCE. And yet in the process of answering a relatively small number of questions the participant ends up having pairwise ranked all hypothetical SMEs differentiated on two

Figure 1.
An example of a
pairwise-ranking
question

Thinking about the industry you're closest to ... which of these 2 imaginary businesses is better in terms of reputation and engagement?
(given they're identical in all other respects)

Database of contactable customers	Following on social media – eg. Facebook, Twitter, etc
Small	Large
Large	Small (or nil)

this one OR this one

this combination is impossible this combination is impossible

« undo last decision » they are equal skip this question for now »

indicators at-a-time, either explicitly or implicitly (by transitivity). In addition, three questions were repeated at the end of the DCE for the purpose of testing the consistency (reliability) of participants' answers, as a check of their "quality". From each participant's rankings, the weights, representing the relative importance of the indicators, are derived by PAPRIKA using mathematical methods based on linear programming (for technical details, see Hansen and Omblér, 2008). As well as weights for each individual participant, the weights are averaged across the group of participants.

In addition to the DCE, participants were asked to indicate how easy or hard they found the survey, and (if entering the lottery) to report their age and gender, the industry they are in or most closely associate with (according to the ANZSIC06 New Zealand Standard Industrial Output Categories), their position or job title and the number of staff in their business.

3.2 Survey implementation

The survey was implemented using the 1000Minds software referred to above. Participants were accessed through MYOB's customer list of small business owners. MYOB, which supplies accounting software, is an ASX-listed company with market capitalisation of A\$2 billion (Power, 2016). In March 2015, MYOB e-mailed its monthly e-newsletter to customers in New Zealand, which included information about the research project and an invitation to people interested in SMEs to participate in the survey. A second invitation was included in MYOB's e-newsletter in mid-May. Responses were anonymous, and participation was incentivised by offering the opportunity (through a separate e-mail address) to enter a lottery to win a \$1000 cash prize. Ethics approval for the survey was obtained from the Department of Accountancy and Finance of the authors' university.

Unfortunately, it is not possible to report how many people received invitations to participate in the survey – and to calculate a response rate – as MYOB would not disclose the size of its customer database due to commercial sensitivity. The response rate was expected to be relatively low given the survey was advertised via a newsletter rather than to particular identified individuals and was internet-based (e.g. instead of postal) (Cook *et al.*, 2000). It is also acknowledged that surveying customers of MYOB (a supplier of accounting software) could potentially introduce a sample-selection bias towards people who are familiar with using computers and involved with relatively large SMEs. The Ministry of Business Innovation and Enterprise (2015) reports that New Zealand's larger SMEs make greater use of the internet for collecting customer information and are more likely to have websites than smaller SMEs. Nonetheless, all SMEs (regardless of size) use the internet for banking, payments and other finance activities, and so it appears that most SMEs have some degree of computer and online literacy.

3.3 Cluster analysis

As explained in the Introduction, an advantage of the PAPRIKA method, relative to other DCE methods, is that a set of weights is generated for each individual participant, permitting a cluster analysis to identify any “clusters” of participants with similar patterns of weights to be performed. Using MATLAB statistical software, the K -means clustering routine was employed, where the K stands for the number of clusters, as chosen by the researcher. The routine starts by randomly choosing K participants from the sample and using each of their K sets of weights as the “centre” or “centroid” of a cluster. Each of the remaining $n-K$ participants are then assigned to the cluster with the centroid closest in Euclidean distance to their own set of weight. The routine then iterates: when all participants are assigned to a cluster, the mean weights in the cluster becomes the new centroid and each participant is again allocated to the centroid closest in Euclidean distance to their own weights. The routine continues iterating until there are no further movements of participants between clusters. The end result is K clusters of participants, with each participant allocated to the cluster whose mean weights are closer to their own weights than any other cluster's mean weights.

Of fundamental importance is the number of clusters, K , chosen by the researcher. No canonical method exists for choosing K ; so rather than employing trial and error, the data were plotted in a dendrogram, a visual representation of “hierarchical clustering” (Leskovec *et al.*, 2014, pp. 252-258). The process of hierarchical clustering begins by aggregating the data sample into pairs of points using the Jaccard index, which measures the “degree of dissimilarity” between two points. The DCE yields a vector of rankings of the six indicators for each participant. The data sample consists of all such vectors, and the Jaccard index is used to measure the pairwise dissimilarity between them. The first level of clustering aggregates the data into pairs of “least dissimilar” points forming the base level of clusters; the algorithm then iterates by considering each of these clusters to be the new data points to obtain the next level of clusters in the hierarchy.

Repeating the iterations results in a binary tree of clusters, whose diagrammatic representation is a dendrogram. The vertical distance between successive levels of a dendrogram represents the degree of dissimilarity between clusters at the lower level and can be used to inform a judicious choice about the number of clusters (K); for technical details, see Leskovec *et al.* (2014, pp. 252-258).

4. Results

4.1 Demographic and background characteristics

The DCE was completed by 179 people, each of whom was required to answer on average 30 pairwise-ranking questions (including three repeated ones), taking 10-15 minutes in total. In total, 20 participants were excluded from further analysis because of concerns about the quality of their data as revealed by them inconsistently – i.e. contradictorily – answering at least two of the three questions repeated at the end of the DCE. Of the remaining 159 participants, only 75 provided their demographic and background data[6]. Accordingly, the average (mean) results for the DCE presented in Section 4.2 are based on the full sample of 159 and the cluster analysis results (Section 4.3) are based on the sub-sample of 75.

The characteristics of the sub-sample are summarised in Table II. More females (53 per cent) than males participated, in contrast to the New Zealand labour force in which 53 per cent are males (Statistics New Zealand, 2016). Three-quarter of participants are in the 35-64 age range, consistent with the labour force. In total 64 per cent work in businesses with five or fewer employees, which is less than the 90 per cent national average (Ministry of Business Innovation and Enterprise and Statistics New Zealand, 2014). The four most common industries are professional, scientific and technical services, administrative and support services, information media and telecommunications, and

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construction, consistent with national patterns (Ministry of Business Innovation and Enterprise and Statistics New Zealand, 2014). Most of the sub-sample of 75 participants (79 per cent) indicated that they found the DCE survey “very easy”, “easy” or “neither easy or hard” to understand.

180

4.2 DCE results

The mean weights from the full sample ($n = 159$) are reported in Table III, where the indicators are listed in decreasing order of relative importance (see the bolded values). Their ratios, representing the relative importance of the indicators, or their marginal rates of substitution, are reported in Table IV.

“Captured” customer opinions about the business – e.g. online reviews, testimonials

Negative	0
Neutral	0.155
Positive	0.276

Contact with customer database

Not much	0
Some	0.096
Lots	0.190

Website traffic – number of visitors and time spent

Not much (or nil)	0
Some	0.088
Lots	0.162

Where the business ranks in Google Search results

Low – not on 1st page	0
Medium – not in top 3 results but on 1st page	0.097
High – in top 3 results	0.153

Database of contactable customers

Small	0
Medium	0.070
Large	0.112

Following on social media – e.g. Facebook, Twitter, etc.

Small (or nil)	0
Medium	0.063
Large	0.107

Table III.

Indicators included in the DCE and their mean weights

Notes: $n = 159$. The italic values represent the relative weights of the indicators overall (i.e. italic values sum to one)

	Contact with database	Website traffic	Google rank	Customer database	Social media
Captured opinions	1.45	1.71	1.81	2.46	2.59
Contact with database		1.18	1.25	1.69	1.78
Website traffic			1.06	1.44	1.51
Google rank				1.36	1.43
Customer database					1.05

Table IV.

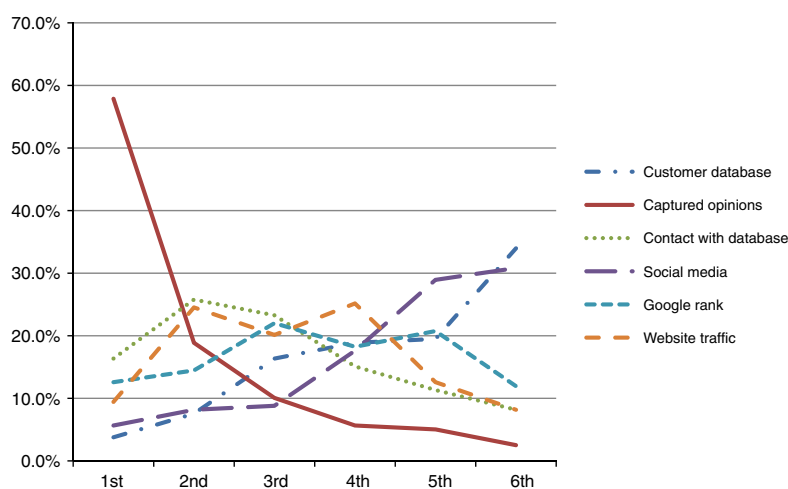
Relative importance of each indicator (means)

Notes: Each number is calculated by dividing the mean weight corresponding to the highest level of the corresponding row indicator by that of the corresponding column indicator from Table III. For example, the upper-left entry $1.45 = 0.276/0.190$

Another way of analysing the DCE results is to focus on the percentage of participants for whom each indicator was the most important, second most important, etc. Figure 2 reports the distribution of rank orderings. For 57.9 per cent of participants, captured opinions is the most important indicator, followed – far behind – by contact with database (16.4 per cent), Google rank (12.6 per cent), website traffic (9.4 per cent), social media (5.7 per cent) and customer database (3.8 per cent).

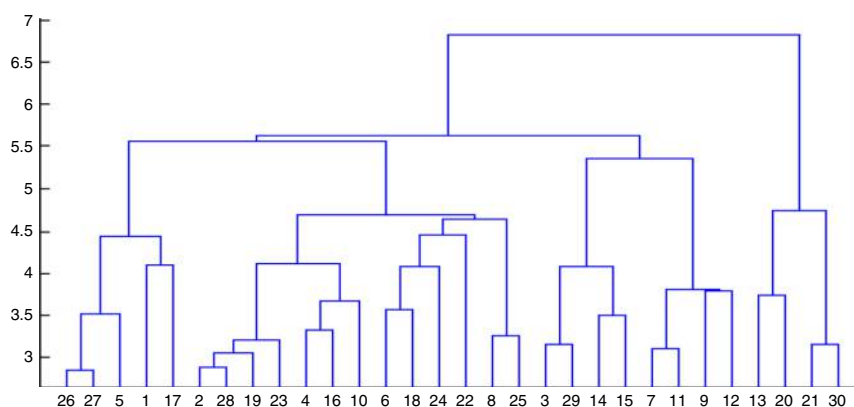
4.3 Cluster analysis results

The dendrogram of weights from the 159 participants appears in Figure 3. Based on the vertical distance between the topmost and next highest level of the dendrogram, two clusters ($K = 2$) are appropriate for a K -means cluster analysis. As a robustness check, the K -means clustering algorithm was also run for two, three and six clusters. Silhouette plots were also generated, which involves calculating for each point in a cluster the ratio of its distance to all points within the cluster and distance to all points outside the cluster using a



Note: $n = 159$

Figure 2.
Distributions of
participants by
their ranking of
each indicator



Note: $n = 159$

Figure 3.
Dendrogram of
individual part-worth
utilities

suitable distance metric, where these ratios are plotted as a “silhouette”. The silhouette plots confirmed that two clusters is the most appropriate with minimal overlap of clusters.

The mean weights for each cluster, and student t-tests comparing the difference in mean weights for each of the six indicators, are reported in Table V. The mean difference between clusters is statistically significant for four of the six indicators, which strongly suggests that the two clusters are well-defined. Members of cluster 1 place greater relative importance on customer database and contact with database (as indicated by a lower average mean rank), whereas members of cluster 2 have a higher preference for Google rank and website traffic.

As explained earlier, demographic and background data are available for only 75 of the 159 participants. Of these 75, 32 belong to cluster 1 and 43 to cluster 2. Females comprise 47 per cent of cluster 1 and 58 per cent of cluster 2; however, a test for population-proportion difference finds that the difference is not statistically significant ($p = 0.33$). Also, a significantly higher proportion of people in cluster 2 belong to the second-oldest age cohort (55-64 years, $p = 0.05$). Although the results need to be treated with caution due to small sample size, these results are interesting as Table V indicates that cluster 2 participants place less weight on customer database and contact with database and more weight on Google ranking and website traffic than cluster 1. However, both clusters value captured opinions (the highest-ranked indicator of REG overall) and social media (the second-lowest ranked indicator) equally (Table VI).

5. Discussion and conclusions

Being able to measure and manage their business reputation and other IC is very important for the success of all firms, including SMEs (Steenkamp and Kashyap, 2010). This study's review of the literature revealed a variety of terms used by different disciplines to describe the concepts of business reputation and goodwill (Shenkar and Yuchtman-Yaar, 1997), and that different stakeholders have different perceptions of their constituents and indicators (Ali *et al.*, 2015). The review also revealed the dearth of practical and inexpensive tools for measuring SMEs' REG. Accordingly, this paper reports on an exploratory study undertaken in New Zealand to develop a rating and scoring tool for measuring SMEs' REG, including internet presence and following on social media.

Table V.
Mean ranks of
indicators by
cluster

Indicator	Cluster 1 ($n = 57$)		Cluster 2 ($n = 102$)		p -value
	Mean rank	Rank order	Mean rank	Rank order	
Customer database	2.73	3rd	5.42	6th	0.00
Captured opinions	2.22	1st	1.85	1st	0.25
Contact with database	2.61	2nd	3.62	4th	0.00
Social media	4.72	5th	4.31	5th	0.23
Google rank	4.84	6th	2.85	2nd	0.00
Website traffic	3.88	4th	2.95	3rd	0.01

Note: $n = 159$

Table VI.
Age group
proportions by
cluster

Age group	Cluster 1 ($n = 32$)	Cluster 2 ($n = 43$)	Test statistic	p -value
18-24	0.00	0.05	-1.24	0.11
25-34	0.09	0.14	-0.60	0.27
35-44	0.28	0.16	1.24	0.11
45-54	0.34	0.26	0.83	0.20
55-64	0.16	0.33	-1.67	0.05
65+	0.13	0.07	0.81	0.21

Note: $n = 75$

To the best of the authors' knowledge, this is the first study to have used a DCE to determine weights representing the relative importance of indicators specifically for measuring REG. This choice-modelling approach is little used in the accounting and management field, but is highly relevant to decision-making situations involving trade-offs. It is therefore useful for decisions associated with the relative perceived value of different indicators relating to a REG.

The mean weights generated by the DCE (Table III) reveal that, on average, New Zealand SME owners and employees (the surveyed stakeholders) perceive the most important indicator of REG to be "captured" customer opinions about the business, such as online reviews and testimonials (Hearn, 2010; Rindova *et al.*, 2005). This finding sends a clear message to SME owners and managers: that capturing positive reviews – online or published elsewhere – about their business is a priority if they wish to enhance their business's reputation. Enhanced business reputation (all other things being equal) should also be reflected in higher goodwill payments when a business is sold. The second most important REG indicator that SMEs can focus on is contact with customer database.

It is interesting that of the six indicators surveyed the least important one is the firm's following on social media. This finding is at odds with the international literature reviewed in Section 2.2, which indicates that a firm's following on social media is an important determinant of its reputation. Many of the firms studied in this literature are relatively large and not from New Zealand. Is following on social media truly less important for New Zealand SMEs than for their larger counterparts in other countries? Are the perceptions of the participants in the present study accurate? For example, did they put so little importance on social media following because of the ease with which followings can now be generated (including being bought!)? Or, notwithstanding this ease, might participants' perceptions be ill-informed? These questions could form the basis for potentially fruitful lines of future research.

The cluster analysis of the DCE participants' weights indicates that participants do not value the REG indicators the same way. Although males and females appear to be homogeneous in their preferences, age seems to have an influence on how indicators are valued. Contrary to conventional stereotyping, it appears that older SME owners and employees (cluster 2) value online measures of REG more highly whereas their younger counterparts (cluster 1) seem to believe that REG originates more from direct relationships with their customers. This may be of practical significance as older baby-boomer SME owners prepare to sell their businesses to the younger generation (Courtenay, 2015).

Arguably, the most useful outcome from this study for SMEs is the development of a rating and scoring tool for calculating a firm's REG score according to the six indicators and mean weights reported in Table III. As an illustration of how these criteria and weights can be used to calculate a score – which can range from 0 (lowest possible performance on all indicators) to 1 (highest performance) – suppose a particular SME is rated on the six indicators: captured opinions = "neutral", contact with database = "not much", website traffic = "lots", Google rank = "medium", customer database = "medium" and social media = "medium". Summing the six weights corresponding to these ratings from Table III produces a REG score for the SME of $= 0.155 + 0 + 0.088 + 0.097 + 0.070 + 0.063 = 0.473$.

Thus, for example, if the SME wanted to improve its REG performance by just one level on one indicator at-a-time it should focus first on captured opinions (i.e. rising from "neutral" to "positive" contributes $0.276 - 0.155 = 0.121$ points; see Table III), followed by contact with database ("not much" to "some" contributes 0.096 points), and so on. In contrast, improving the SME's performance with respect to social media – the least important indicator – represents a relatively small improvement (rising from "medium" to "large" contributes just $0.107 - 0.063 = 0.044$ points). The REG score provides clear direction for SMEs as to where

resources might be best used in order to improve the reputation and ultimately the goodwill on sale of the firm (Lev, 2003).

Finally, it is worthwhile acknowledging the study's limitations and potential areas for improvement if it were to be repeated. The main limitation is the relatively small number of participants in the DCE, despite invitations to participate having been advertised in two of MYOB's monthly e-newsletters with an opportunity to win a \$1000 prize. Also, targeting MYOB customers could indicate a potential sample-selection bias towards people who are familiar with using computers and involved with relatively large SMEs. If other researchers were to implement the approach piloted here, they could employ potentially better recruitment methods. For example, an alternative (but more expensive) approach would be to engage a research administration company to recruit participants. Were this study to be implemented in other countries, then the choice of indicators may need to be revised as it is possible that REG dimensions vary internationally (Berry *et al.*, 2011; Fombrun *et al.*, 2000; Gabbioneta *et al.*, 2007). And as technology is changing rapidly, the REG indicators are likely to change over time as new ways to evaluate and rate SMEs become available.

Notes

1. The terms "intangibles" and "intellectual capital" are often used interchangeably.
2. SMEs are defined variously around the world. The New Zealand definition of fewer than 101 full-time equivalent employees is used in this study.
3. Fewer than 20 employees accords with the widely accepted small firm classification by the New Zealand academic community (Massey, 2011).
4. According to Australian BizExchange Director David Bird: "Baby boomers are simply not ready or even properly equipped to deal with exiting their businesses. Few have an exit strategy" (Courtenay, 2015, p. 44). The article also laments that sellers have no idea about how to sell as they ignore the shift to the cloud and social media, and "they [baby boomers] look like dinosaurs to generations X and Y" (Courtenay, 2015, p. 44).
5. 1000Minds is available for unfunded research for free from the second author or via www.1000minds.com
6. Comparing early and late responses as a proxy for non-response bias showed no significant difference by age but a difference by gender ($p < 0.05$) as a greater proportion of women were early responders.

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