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Article (Accepted for Publication)
(Refereed)

Original Citation:

Hienerth, Christoph and Keßler, Alexander (2006) Measuring Success in Family Businesses: The Concept of Configurational Fit. *Family Business Review*, 19 (2). pp. 115-134. ISSN 0894-4865

This version is available at: <http://epub.wu.ac.at/3112/>

Available in ePub^{WU}: May 2011

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Measuring Success in Family Businesses: The Concept of Configurational Fit

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A later version of this paper is published in the
Family Business Review (forthcoming)

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Keywords: success measurement, family businesses, fit model

Abstract

The problems associated with measuring success in small businesses are primarily caused by a lack of comparable data due to the ambiguity of success and by subjective biases. Success evaluation is dominated by the estimates of business owners, who tend to overestimate overall success and internal strengths. However, reliable success measurement instruments would be useful for small business owners/managers as well as small business policymakers.

The main purposes of this article are to compare various measures of success, to explore the differences in their outcomes, and to analyze whether a model of success measurement using configurational fit can be used to overcome subjective biases. The study is based on a recent survey of 103 small family-owned businesses in the eastern Austrian border region.

Our analysis of the data confirmed the existence of the measurement problems mentioned above. While some individual indicators show significant biases as well as effects due to company age, size and industry, the aggregated indicator based on the concept of configurational fit seems to be an appropriate means of overcoming most of these drawbacks.

1. Introduction and background

In this study, we address a common problem in the analysis of small family businesses: The evaluation of performance and success. Identifying the appropriate success criteria and evaluating success are especially important in the study of very small (family) businesses, because no official data is available and internal measurement can be challenging and time-consuming. (Wakoh & Collins, 2001, p. 32).

Furthermore, the definition of success in family businesses is ambiguous, as these firms aim to achieve a variety of financial and non-financial goals (Olson et al., 2003; Stafford et al., 1999). The ambiguity reduces the comparability of overall success evaluations by small family business owners in multiple companies. At the same time, the variety of company objectives leads to various isolated success measures which produce differing results and are therefore also hardly comparable across multiple companies.

This ambiguity and lack of comparability gives rise to an absence of adequate reference values, which itself favors the emergence of biased perceptions of success on the entrepreneurs' part. For these reasons, missing, incomparable or biased information about the performance of small companies creates shortcomings in the ensuing analysis of those companies' strengths and weaknesses. Nevertheless, small business owners/managers themselves as well as small business policymakers would benefit from reliable, comparable success measurement instruments and their output. Small business owners/managers would be able to compare their companies' performance with benchmarks from the same industry (competitive benchmarking) or for comparable companies in other industries (functional benchmarking) (Watson, 1993). For their part, small business policymakers need reliable success measures as a guide for support programs, for example in order to justify the allocation of subsidies.

With these challenges in mind, the objectives of our article are (1) to point out the problems associated with common success measures for small family businesses on an empirical basis by highlighting the incomparable results and biases of those measures, and (2) to test whether a

model measuring success on the basis of configurational fit is able to overcome the weaknesses of common success measures.

The theoretical basis of our model is the configuration approach (Miller and Friesen, 1984). In this context, we use two key concepts from this approach, the multidimensionality of variables and configurational fit (Venkatraman, 1989), in an attempt to overcome the typical problems linked to success measurement in small family businesses.

We test our configurational fit-based success measurement model using data from a recent survey of 103 small family-owned businesses in the eastern Austrian border region. In this survey, various success indicators were evaluated on the basis of in-depth personal interviews with the owners of small family businesses. These indicators comprise rather broad and general aspects of success estimates as well as detailed and precise items concerning individual imperatives (parts) of the businesses and their environment (thus enhancing multidimensionality) which were queried with regard to adequate reference values (i.e., the actual vs. desired position) in order to enable fit measurement.

Our analysis of the data confirmed the existence of the problems linked with common success measures as well as the significant contribution our configurational fit model makes toward overcoming these problems.

In order to answer our research questions systematically, we chose the following framework: In Section 2 we discuss success measurement, first by addressing common methods applied to small family businesses as well as their drawbacks, then by arguing from a theoretical standpoint why we think success measurement based on configurational fit is capable of overcoming these problems. The key ideas presented in Section 2 are aggregated into four hypotheses. After a description of our methodology in Section 3, we present the results of our hypothesis tests in Section 4. The paper concludes with a discussion of our findings and a number of conclusions on the relevance of our success measurement model (Section 5).

2. Success measurement

2.1 Drawbacks of common success measures

The literature concerning success factors in economics is vast. While there are many contributions on individual success items or aspects (Brau & Osteryoung, 2001; Brush & Vanderwerf, 1992; Kakati, 2003; Paige & Littrell, 2002; Simon et al., 2002) and on business ratios (McMahon, 2001), no standardized, comprehensive approach to including the typical aspects of small businesses in a multivariate model has been developed to date.

As Paige & Littrell (2002, p. 315) put it, small business success has been defined in the literature as a combination of tangible extrinsic outcomes and intrinsic factors. For the small family business, setting company goals and communicating them accordingly should be critical for success, although identifying those goals might mean "... sorting through a bewildering number of variables" (Tagiuri & Davis, 1992, p. 44).

In particular, two issues in success measurement for small, entrepreneur-oriented businesses seem especially challenging: (1) The ambiguous definition of success in small businesses and – as a consequence – (2) the biased perception of success for lack of adequate reference values.

2.1.1 Ambiguity of success

As mentioned in Stafford et al. (1999), "...success is an ambiguous term commonly used by both lay and professional people to describe the achievements of a firm or person." The problems raised by this ambiguity are twofold:

First, it implies that overall success measures do not seem appropriate for small family businesses, as these firms aim to achieve a variety of financial and non-financial goals (Olson et al., 2003; Stafford et al., 1999). By referring to the individual strengths of their companies rather than undertaking a comprehensive assessment of all company dimensions in order to obtain a realistic picture of their overall success, family business owners produce overall success evaluation results which are hardly comparable across multiple companies.

Second, this ambiguity also means that there is no isolated partial measure which is capable of adequately reflecting the success of small family firms across multiple companies. In other words, because of the variety of goals in small family businesses, the various partial success measures will not provide uniformly appropriate success indicators for different small family businesses. Measuring success with different isolated partial success measures will thus indicate various levels of success for one and the same business and, as a consequence, also yield inaccurate comparative results across multiple companies in the same sample. These isolated partial success measures will also be influenced by company size, company age, industry and other variables that might not indicate success alone. Moreover, success is commonly expressed in terms of growth or sustainability (Sharma, 2004). Many studies therefore use the number of employees, turnover, profit, or other indicators of growth to depict the success of a business. However, especially in small family businesses, the entrepreneur often has no intention of expanding his/her business. For these reasons, isolated partial success measures based on growth are likewise inappropriate as success indicators for multiple small family businesses.

Our arguments on the ambiguity of success measurement in small family businesses are aggregated in Hypothesis 1 below, which we will verify on the basis of empirical data in the results section.

H1: Success measured by isolated partial success measures based on growth is ambiguous, as:

- a) different isolated partial success measures will indicate different levels of success for one and the same company and (as a consequence) also at the multi-company level.
- b) isolated partial success measures will be influenced by company size, company age and industry.

2.1.2 Missing reference values – biased perception of success

Furthermore, the ambiguous definition of success raises another critical issue for success measurement in small family businesses: The absence of adequate reference values, which favors the emergence of biased perceptions of success on the entrepreneurs' part.

The first major bias (perceptual bias; e. g., Hacker, 1993) lies in the fact that the owners tend to overestimate the overall success of their small family businesses. As mentioned in the discussion of ambiguity above, owners tend to refer to the individual strengths of their companies rather than undertaking a comprehensive assessment of all dimensions. In doing so, family business owners will overestimate the overall success of their businesses. This leads us to Hypothesis 2:

H2: The overall success estimates of business owners tend to exaggerate at the individual company level and (thus also) across multiple companies. Therefore, overall success estimates by business owners will lead to high positive results which deviate significantly from an expected (neutral) reference value.

In addition, as attribution theory (Heider, 1958) suggests, this subjective assessment of success brings about a tendency among entrepreneurs to attribute the reasons behind success to their own person or business, while failure reasons are attributed to the environment. We thus propose Hypothesis 3 as a means of investigating this potential bias empirically:

H3: Family business owners associate business success with internal strengths, while external factors are regarded as challenging and hostile. Therefore,

- a) internal factors will generally be rated positively,
- b) external factors will generally be rated negatively, and
- c) there will be a significant difference in the average evaluation of internal vs. external factors.

2.2 Success measurement based on configurational fit

Based on the argumentation above, we assume that overall success measures as well as isolated partial measures without suitable reference values are inappropriate for small family businesses.

One method which appears to be able to overcome the problems which characterize common success measures for small family businesses is the configuration approach (Miller & Friesen, 1984; Doty & Glick, 1994; Ferguson & Ketchen, 1999; Wolf, 2000). In his definition of the "configuration" of an organization (e.g., an enterprise), Miller (1987, p. 686) uses the terms "pattern," "gestalt" and "archetype" to describe the systemic, interactive connections (mutual influences) among various elements. In the case of an enterprise, the elements of strategy, structure, environment, and personality (leadership) are described. One major focus of configuration research is the analysis of organizational configurations in relation to organizational success. Originally developed for large organizations, the configuration approach has also been adapted for smaller organizations and the field of entrepreneurship (e.g., Gartner, 1985, p. 696, Mugler, 1998, p. 104ff.).

Two key assumptions in the configuration approach appear very promising for the purpose of overcoming the problems related to common success measures in small family businesses: (1) multidimensionality and (2) configurational fit.

2.2.1 Multidimensionality

Using the configuration approach to develop a measure for success means including internal and external success elements across various dimensions, an aim which has been pursued by many entrepreneurship researchers in the past (e.g., Chandler & Hanks, 1994; Brüderl, Preisendörfer & Ziegler, 1996). Similarly, approaches such as the balanced score card (Kaplan & Norton, 1993) have been developed to process multiple items and to include the dynamic aspect of company development in success measurement. Mugler (1998, p. 104ff.) adapted the configuration approach for small organizations such as (many) family businesses by emphasizing the role of the business owner (i.e. the entrepreneur). Mugler's adaptation yielded the dimensions of

management (= strategy), resources (= structure), environment and the entrepreneur (= leadership).

The key advantage of multidimensionality is that small business success is not predicted using one distinct variable but by examining the interplay of various variables in the business, that is, its configuration (Miller, 1987).

2.2.3. Configurational fit

The success of a configuration is expressed in terms of configurational fit. For Zajac, Kraatz & Bresser (2000, p. 429), "fit" refers to how appropriate a strategy is for a given situation. While this aspect is typical of the contingency approach (Zajac, Kraatz & Bresser, p. 431), measuring *configurational* fit involves tuning multiple variables based on different business imperatives. Fit can be measured using relative success indicators, which compare the actual performance of the business with desired configuration values for various internal and external aspects (Naman & Slevin, 1993).

Defining success not as a given or absolute figure but in terms of proximity to a desired position with regard to various internal and external aspects delivers three major advantages for success measurement in small family businesses: First, it is based on a range of items and not on single success measures, which means that it is less susceptible to bias. Second, it can rely on interview data with entrepreneurs without the need to refer to secondary data. Finally, it can be used as a rather simple management tool for family businesses in order to make corrections and improvements in specific areas where the discrepancy between the desired and actual position is excessively large.

In light of the aforementioned arguments on the merits of measuring success as the proximity to a desired position, business owners should be far more open to a realistic evaluation of their business success. Therefore, we formulate Hypothesis 4 as follows:

H4: Applying configurational fit measurement and thereby comparing the actual position with the desired position of the company in various aspects of the business will lead to more realistic perceptions on the part of the business owners. Therefore, success as measured by configurational fit will:

- a) not be influenced by a company's size, age or industry (= cross-check for H1),
- b) not produce values which differ significantly from an expected (neutral) reference value (= cross-check for H2), and
- c) reduce positive bias in the evaluation of internal strengths. Therefore, the internal success items based on configurational fit will deviate negatively from the single internal success items (= cross-check for H3).

3. Methodology

3.1 Research design

The research design for this study consists of three basic elements. First of all, we researched the relevant literature in order to find alternative items pertaining to success – and especially success measurement – on the basis of the configuration approach. The literature in question comprised 80 articles on configurations, the configuration approach and strategic development published in international journals over the last decade. In the end, these articles provided elements for the questionnaire surveying the success of small family businesses in the in the eastern Austrian border region (Hienerth, 2001, pp. 253-277), which formed a basis for the second element of the research design. The results (items) from the screening process that were later used to measure configurational fit are presented in Table 2 in the section on measurement items. Considering the complexity of the model and the need for adaptability in a configurational fit measure, this list can not be fully comprehensive. Rather, it can be seen as a starting point to identify items at the level of imperatives. It will be used and complemented in further studies measuring configurational fit.

In parallel to the literature research, we carried out a survey of experts (two from the regional chamber of commerce, four from regional innovation centers/incubators, and two from local

authorities) as the third element in our design in order to gather supplementary information and to objectify the impressions gleaned from our interviews with business owners. In addition, the experts' support was instrumental in generating a reference value indicating the level of company success to be expected in the sample.

3.2 Data collection and description of the sample

The actual survey was carried out between March and December 2000 and involved 103 personal interviews with entrepreneurs in the border region of eastern Austria, an area dominated by small family businesses. An electronic list containing business statistics on the area surveyed was supplied by the Austrian Chamber of Commerce (3,612 businesses in one region, Gänserndorf, and 1,695 businesses in another region, Bruck/Leitha). Subjects were selected by simple random sampling (Vogt, 1999, p. 234f.) and electronic filtering. In the pre-test phase, we interviewed three entrepreneurs, whose data was also added to the final sample.

Due to the limited time slot in which we were able to visit the companies on site and the exploratory nature of the analysis, 180 companies were selected at random. A response rate of 57% was obtained by contacting the entrepreneurs in advance by fax or telephone and by visiting them on site. This procedure was suggested by a number of experts (the third element of our design). The criteria for the population were size (micro and small businesses), location (in the border region, maximum distance from the border: 50 km) and membership in one of three selected industries (commerce, trades/crafts and services).

In general, the entrepreneurs themselves were interviewed; in some cases, they were represented by executive employees on the condition that those employees had in-depth knowledge of the company's strategies and goals. The interviews lasted between 50 minutes and two hours, depending on the extent and quality of the information supplied.

Of the 103 businesses in our sample, five cases had to be excluded from further analysis due to a large number of missing values and responses. For the remainder of the sample, the mean company size (expressed as the number of employees in addition to the owner/manager) was

2.25, with a standard deviation of 0.72. Only one company in the sample had more than 50 employees. The companies' average annual turnover (measured in categories) was between €350,000 and €400,000. As regards industries, 48.5% of the businesses surveyed operated in the field of commerce, 36.1% in services and 15.5% in crafts and trades.

In order to put the importance of the family in the businesses surveyed in concrete terms, our description of the sample includes a characterization of the roles of family members within the companies. We asked our interview partners about the contribution of family members to the following tasks (see Table 1; ratings ranged from +3, *completely accurate*, to -3, *not at all accurate*):

Insert Table 1 about here

Overall, the family is of great importance to the companies in the sample, especially as a source of psychological and motivational backing and as their workforce. A lower level of influence is shown in financial support, support with resources in general, and the strategic development of the company. From our interviews with business owners, we know that the last point might not only be attributed to a lack of active support from the family, but also to a reluctance to share strategic decisions with family members. The dominance of the business owner comes as no surprise, as this has been demonstrated before in entrepreneurship literature (e.g., Pleitner, 1986, p. 7). Nevertheless, it confirmed our research approach of interviewing business owners directly when asking for qualitative success factors in small companies.

3.3 Measurement items

In order to show various measurement methods for the success of small businesses and to be able to compare their outcomes, different success items (both single and grouped variables) were integrated into the questionnaire. The items were taken partly from our literature review (e.g.,

Cragg & King, 1988; Ketchen, Thomas & Snow, 1993; Kotey & Meredith, 1997; Miller, 1993; Naman & Slevin, 1993; Sutcliffe & Huber, 1998) and partly from expert interviews in the field:

1) An *overall success estimate by the business owners* (rated on a seven-point Likert scale ranging from -3 to +3);

2) Isolated *partial success measures based on growth* (rated on a seven-point Likert scale ranging from -3 to +3: growth in investments, personnel, turnover, number of products and number of customers);

3) Measures for *internal success evaluation* (rated on a seven-point Likert scale ranging from -3 to +3: finance/capital structure, investments, personnel, customer service, management systems, experience of the entrepreneur in the industry, innovativeness, proactivity/flexibility);

4) Measures for *external success evaluation* (rated on a seven-point Likert scale ranging from -3 to +3: availability of qualified personnel, challenge of regional conditions, number of competitors, competitive rivalry, complexity of the environment, predictability of environmental development, degree of regulation/bureaucracy);

5) The *success measure based on configurational fit* (consisting of 22 pairs of items representing the four configurational dimensions, with each item rated on a seven-point Likert scale ranging from -3 to +3 for desired and actual values): (a) Management: management systems, reporting, planning, coordination, internal network; (b) Resources: investments, location, materials, personnel, culture, patents, rights; (c) Environment: external network, family backing, supplier backing, market position; (d) Entrepreneur: innovativeness, training/education, ability of environmental assessment, common sense, experience within the industry, proactivity/flexibility. Table 2 presents the items used in the success measure based on configurational fit as well as their sources.

Insert Table 2 about here

As basic features of success measurement using the configuration approach, the concepts of multidimensionality and configurational fit were implemented in Measure 5 as follows:

We implemented *multidimensionality* as defined by Dess, Newport & Rasheed (1993, p. 775) in the calculation of configurational fit (or misfit) using 22 pairs of items covering a variety of internal and external aspects, adding up the differences between the desired and actual values of the constituent items, and dividing the result by the number of items used. The items correspond to the business imperatives (entrepreneur, management, resources and environment) used by Mugler (1998, p. 104ff.).

The implementation of *configurational fit* in our success measure is largely based on a fit typology developed by Venkatraman (1989, p. 432) and represents the "fit as gestalts" concept. The chart below explains and exemplifies the measurement process by showing values for an actual business configuration in comparison to the desired position.

Insert Figure 1 about here

The number of items is shown on the horizontal axis. For each item, the business strives to reach a certain level of success (desired configuration). The values of the actual configuration will be lower or, in the optimum case (see Item 5), equal to the desired configuration (y-axis). In this study, we implement configurational fit as the difference between those two configurations. By adding up the differences and dividing the result by the number of items used, we can derive the configurational fit (or misfit) as a sum value. As the sum index is spread over a variety of items, the risk of excluding meaningful effects is lower.

Venkatraman (1989, p. 432ff.) interprets the kind of fit used here as a set of relations in a temporary state of balance. The better the fit value (i.e., the smaller the differences), the more balanced the business should be and the more success it should enjoy in its operations. The higher the difference between the actual and desired configurations, the less the business would be able to operate in a balanced way, which would make it unsuccessful and hamper development.

Still, there are two caveats to be heeded. They can be explained using the fit terminology of Zajac, Kraatz & Bresser (2000, p. 433). One problem is the handling of cases in which the value of the actual position exceeds the value of the desired position. Zajac et al. refer to such situations as excessive changes or dynamic misfits. In these cases, positive fit values might be reached due to higher values in the actual configuration of the companies. In our study, such cases will be accepted as positive but not treated as more successful. Therefore, a neutral or slightly positive value constitutes the most successful level a business can achieve in the model.

Another important aspect in calculating a sum index is that the level of success is not determined by fixed values but by differences in the two groups of items. As a consequence, a good fit can be attained using various strategies. Companies might achieve similar success levels when the distance between the expected and realized configuration is similar. Success is not measured in absolute terms in this model, but as each individual business' distance from its desired position. In the literature, this assumption is referred to as equifinality (Miller and Friesen, 1987). Different types of configurations may reach similar levels of success (Meyer, Tsui & Hinings, 1993; Doty, Glick & Huber, 1993).

3.4 Analysis

We tested our four hypotheses using t-tests on one sample, paired t-tests and one-way analysis of variance (ANOVA). In order to underscore the explorative character of this paper, we use a significance level of 0.9 in the presentation and discussion of our results.

4. Results

4.1 Common success measures

4.1.1 Isolated partial success measures based on growth (H1)

In order to test Hypothesis 1, we first performed pairwise t-tests comparing the means of several isolated partial success measures based on growth (growth in investments, personnel, turnover,

number of products and number of customers) and measured using a seven-point Likert scale ranging from -3 to +3. Table 3 shows the results of the pairwise t-tests.

Insert Table 3 about here

Table 2 reveals that the highest degree of success is in terms of growth in investments, followed by growth in the number of products and turnover. In any case, the analysis reveals that the isolated partial success measures indicate various levels of success across multiple companies in the same sample. Differences are significant in six of the ten pairwise comparisons. No significant differences arise from the comparisons of growth in investments and the number of products, growth in personnel and customers, growth in the number of products and turnover, and growth in customers and turnover.

In the next step, we checked whether these isolated partial success measures are – as hypothesized – influenced by company size, company age and industry. Columns 1 to 7 of Table 4 show the results of our analyses in this regard.

Insert Table 4 about here

The isolated single success measures based on growth show differences regarding company size, company age and industry with varying degrees of significance. Whereas company size only influences success in terms of investments, and personnel and industry only affect success in terms of turnover, company age impacts success in all of the growth measures used. More precisely, the oldest businesses (over 50 years old) show significantly lower levels of success compared to most of the reference groups (especially 6-20 years and 21-50 years) in all of the growth measures used. This may be due to the fact that these businesses tend to be in more mature phases of their life cycles and therefore have not experienced as much growth in recent years as younger businesses in higher-growth phases. Except in their number of customers, the youngest

businesses (1-5 years) show the second-lowest levels of success in terms of growth, indicating that many of these businesses have not (yet) reached phases of significant growth.

Altogether, these findings confirm our hypothesis (No. 1) that different isolated partial success measures based on growth are ambiguous, as they indicate different levels of success for the same companies and are influenced by company size, company age and industry.

4.1.2 Overall success (H2)

In order to generate an overall success measure, we asked entrepreneurs in the sample how they would rate the success of their business in general on a scale ranging from -3 (very unsuccessful) to +3 (very successful). Descriptive analysis showed a concentration of data between the values 1 and 2, with a mean of 1.42 and a standard deviation of 0.90. Extreme values ranged from +3 to -1, with only one negative value appearing. Success estimates are concentrated around the parameter values 1 and 2, thus compressing the data into two categories. The very clear but undifferentiated message at this stage of analysis is that entrepreneurs in the sample rate their businesses positively and without clear gradations of success.

According to our interviews with experts, the overall expectations of success for a typical small or medium-sized company in the region should not be too optimistic. Considering the fact that a typical distribution consists of small numbers of highly successful and highly unsuccessful small businesses as well as a large number of businesses enjoying moderate success (Mugler 1998, p. 194), the exceptionally large number of highly successful businesses (especially in a rather unfavorable environment) lead us to the conclusion that the entrepreneurs tended to overestimate the overall success of their businesses.

In order to test this finding using statistical measures, we performed a t-test which compared the mean of overall success with an estimated mean. According to the experts and the literature, the estimated mean for overall success should be neutral or (in a conservative estimate) slightly positive. We therefore use two reference values in our analysis: 0 (as a neutral value) and 1 (as a

slightly positive value). Table 5 shows the result of t-tests for one sample using these two reference values (Ref. 0 and Ref. 1).

Insert Table 5 about here

Compared to both reference values, the mean of overall success within our sample is significantly higher. In both cases, we can say that entrepreneurs in our sample rated their overall company success significantly higher than we could expect from our interviews with experts on the region and from the literature. This finding demonstrates the appearance of perceptual bias in overall success evaluation by the entrepreneurs.

Therefore, we were able to confirm Hypothesis 2 with regard to the positive bias in overall success evaluation by business owners.

4.1.3 Attribution bias (H3)

In a more detailed section of the questionnaire, we asked our interview partners to evaluate the effect of exemplary internal and external aspects on company success. An overview of these two groups of items is given in Table 6.

Insert Table 6 about here

As expected, business owners rated the effects of internal business aspects on company success far more positively than the effect of external aspects. All items on the internal side were rated with positive values. Two items, capital structure and investments, show a slightly lower mean than the other internal aspects, which may be due to the fact that those two items refer to (objectively) measurable figures. We will also see this effect in a later part of the results section.

As external items were rated negatively overall, we also tested the systematic difference between internal and external effects on company success. For this purpose, we compared the means of both groups of items using a paired t-test. As expected from the descriptive results, there is a

highly significant difference between the two groups of items. Including external success factors in our analysis meant adding an important set of independent variables concerning company success. It has been argued that external conditions can not be influenced directly by small companies (e.g., Becherer & Maurer, 1997), but proactive management by the entrepreneur is also said to improve performance within a given setting of external influences (Merz & Sauber, 1995). One interesting aspect for our research was that by adding external aspects we obtained a different view of the basic configuration of companies in the sample. In contrast to the high positive evaluation of internal factors, external factors are often interpreted as hostile and unfavorable to small companies in the literature (Keats & Hitt, 1988, Naman & Slevin, 1993, Bowman & Hurry, 1993). We were able to observe that very phenomenon by comparing the two different groups of items.

To sum up the differences between the perception of internal success factors and that of external conditions, we can confirm the three components of Hypothesis 3 by stating that a) internal factors were mostly rated as positive, b) external factors were consistently (not just mostly) rated as negative, and c) there was a significant mean difference between the values of these two groups of items.

4.2 Success measurement based on configurational fit (H4)

Having tested our hypothesis concerning the drawbacks of common success measurement, we are now ready to determine whether success measurement based on configurational fit is capable of overcoming these problems. In order to answer this question systematically, we have split up this part of the results into three subchapters which discuss the three sub-hypotheses of Hypothesis 4 and act as cross-checks for Hypotheses 1 to 3.

4.2.1 Influence of company size, company age and industry (H4 a – cross-check for H1)

As a cross-check for Hypothesis 1, success measurement based on configurational fit was also tested for influences related to company size, age and industry. The last column of Table 4 (see Section 4.1.1 above) shows the results of this test.

Our configurational fit measure is not influenced by company size and industry, but it does correlate to some extent with company age. As in the case of success measured in terms of growth, the oldest businesses (over 50 years old) show significantly lower success levels than the groups of businesses from 6 to 20 and 21 to 49 years old, and – albeit not significant – lower success levels than the youngest business group.

Once again, the explanation based on businesses' maturity seems to be appropriate for the fact that the oldest businesses show lower success values, this time expressed as the highest negative deviations from 0. If we regard configurational fit as a dynamic success measure, we assume that companies are willing and able to change, that is, to adapt to changing environments. In the oldest group of companies, the configurational fit measure might be influenced by a lack of flexibility in adapting to those changes. Those companies might be successful in terms of regular customers and traditional markets, but this success might have too little impact on an overall dynamic success measure.

In reference to Hypothesis 4 a), we conclude that success measurement based on configurational fit is not influenced by company size and industry but is subject to certain limitations concerning the configurational characteristics of mature businesses, which achieve success through tradition rather than flexibility.

4.2.2 Deviation from an expected (neutral) reference value (H4 b – cross-check for H2)

In Section 4.1.2, we confirmed the hypothesis that overall success evaluation by business owners is positively biased. Now we can test whether our overall success measure, composed of the 22 fit/misfit measures, yields a more realistic result. Figure 2 below shows a percentile function for the distribution of data.

Insert Figure 2 about here

The data line is a linear curve with a consistent gradient in the middle of the distribution and with inflexion points near the upper and lower ends. While there are small numbers of very unsuccessful and very successful businesses (at the starting and end points of the percentile function), the remaining businesses are spread evenly. The values range from -3.5 to +0.7; the mean is -1.22, the standard deviation 0.87. The data is not concentrated around certain values within the data range. In light of our expert interviews in the field and the statistical data available on the region, the distribution of success in this figure seems far more likely than the overall success estimates of business owners and represents a typical distribution of success in small businesses (Mugler 1998, p. 194).

Additionally, we will again use our reference values based on the expert interviews mentioned in Section 4.1.2 (0 as a neutral value and 1 as a slightly positive value) in order to compare them with overall success as measured by configurational fit.

Table 7 shows the results of t-tests for one sample based on the mean of overall success measured in terms of configurational fit and the two reference values (Ref. 0 and Ref. 1). For the sake of comparability, the test values from the business owners' overall success estimates are repeated in this table.

Insert Table 7 about here

The results show that the mean value for success in the configurational fit model is just in between the two reference values we use (0 and 1). While the mean of the business owners' overall success estimates deviates significantly from the reference values 0 and 1, the mean value of overall success measured by configurational fit is significantly higher than the first reference value (0) but significantly lower than the second reference value (1).

To recapitulate these findings, the shape of the distribution, the spread of data and its agreement with the reference values confirms Hypothesis 4 b): Overall success measurement using configurational fit does not produce values which differ significantly from an expected (neutral) reference value across multiple companies.

4.2.3 Reduction of positive bias in the evaluation of internal strengths (H4 c – cross-check with H3)

Our final step in testing the configurational fit model is to observe whether success measurement on the basis of configurational fit is able to overcome positive bias in the evaluation of internal strengths as stated in the literature and discussed in Section 4.1.3 with regard to success measurement without adequate reference values.

Presuming that it is possible to find a more realistic result (compared to success measurement without reference values), the mean values for the actual position of a configuration will normally be lower than the values for the desired position, and they will be lower than values for single items pertaining to internal aspects without the reference values used in Section 4.1.3.

Thus we compared the mean values of five (internal) items related to success which were included in the questionnaire (first evaluation) as single items and in the configurational fit model (values for desired and actual configurations). Incorporating those items into different parts of the questionnaire should reveal whether we can detect a significant transformation of values. Table 8 shows a comparison of the relevant values on the basis of t-tests for paired samples.

Insert Table 8 about here

Concerning the values for a desired configuration in comparison to the actual configuration (T-test 2/3), we had expected higher values for the desired configuration. Indeed, all items for a desired configuration were rated significantly higher than the items for the actual configuration.

Furthermore, we can compare the results of measurement without reference values with the values from the desired configuration and the actual configuration (T-test 1/2). The mean values of the items for a desired configuration are higher than those of measurement without reference values, three of them significantly (experience of the entrepreneur within the industry, personnel, investments) and two of them not significantly (management and innovation).

Additionally, we can compare the measures without reference values and the values for the actual configuration (T-test 1/3). Here we can see that four out of five items differ significantly and that the values for the actual configuration are far lower. One item, investments, is an exception showing no significant difference. As mentioned above, this may be due to the characteristics of the item itself. Easily quantifiable items (such as investments) might not be as subject to bias as other items, which are rated according to the vague perceptions of business owners.

At this point, we can confirm Hypothesis 4 c), the significant reduction of positive bias in the evaluation of internal strengths due to configurational fit measurement.

5. Discussion and conclusions

In this paper, we have addressed a general problem in the analysis of small family businesses: evaluating success. We used isolated partial success measures based on growth, overall success estimates by business owners, and internal as well as external success factors to illustrate the main drawbacks of common success measures (i.e., ambiguous definitions of success, biased perceptions of success) both theoretically and empirically. Moreover, we tested whether a model which measures success on the basis of configurational fit (using multidimensionality and configurational fit (or misfit) as basic concepts) is able to overcome these weaknesses in success measurement. We also derived four major hypotheses and tested them using data from a sample of 103 small family-owned businesses in the eastern Austrian border region.

The table below presents the key results of our paper as a comparison between common success measures and success measurement based on configurational fit:

Insert Table 9 about here

Altogether, these findings show that success measurement on the basis of configurational fit is definitely able to overcome some weaknesses of common success measures in small family businesses. By breaking down success into four dimensions (management, resources, environment and entrepreneur) and various sub-items systematically and using the desired configuration as reference value for the actual configuration of all these items, the model puts overall success into perspective and thereby eliminates some of the bias in common success measures. Additionally, the configurational fit model showed a distribution of success which comes very close to the typical distribution of success among small businesses as described in the literature and predicted by regional experts. Finally, and unlike common success measures, the success measure used in this article was not susceptible to size and industry effects. The only influence identified was related to company age. The results revealed that mature businesses show lower levels of success than the comparison groups. However, we believe that this result is not due to bias in measurement but caused by the inability of mature companies to establish a dynamic fit between changing environments (the external part of the configuration) and their internal configurations. In other words, they rely on regular customers and traditional markets instead of adapting to new opportunities.

As regards this model's implications for further research, we have to consider certain limitations: The model is at a very early stage of development. It has only been tested for the first time, and there is certainly room for improvement. First, a re-test of the model should be conducted in order to process more data and to compare the results of different samples. Second, the model itself should be tested in different forms and using different variables in the fit measurement process. Although we have used a wide variety of variables from the literature and expert interviews, it may well be interesting to change those variables and observe their effects on the model. The overall goal should be to develop a standard tool that includes the most reliable

and valid variables for success measurement in small family businesses. Based on that result, the next step should be to generate reference data for different industries and different types of businesses (size, age, ownership). Then one could not only measure individual success levels but also perform variance analyses in particular cases based on experience gained from additional data (i.e., further results).

What practical issues must be addressed in our model at the moment? In principle, it can be used as a management tool to identify strengths and weaknesses across the overall configuration of a business. The model offers three levels of analysis. Practitioners and business owners interested in the structure of success can (1) use the configurational fit ratio as an overall figure, (2) look at the results for the four dimensions (management, resources, environment and entrepreneur), and (3) identify critical aspects and potential at the single item level.

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Table 1 Family assistance

What is the role of family members in assisting you in various business tasks?	Mean	Std.dev.
General support (discussing business issues, helping one another)	1.9	1.7
Motivation	1.7	1.7
Financial backing	-0.1	2.7
Secretarial, office work	1.1	2.4
Initiating new business	0.1	2.4
Contact with customers	0.8	2.3
Knowledge base	1.4	2.0
Resources (car, house, office, etc.)	1.1	2.2
Vision of the company, principles	0.9	2.2
Developing strategies	0.7	2.2
Workforce (working in different parts of the business)	1.6	2.1

Figure 1 Desired vs. actual configuration

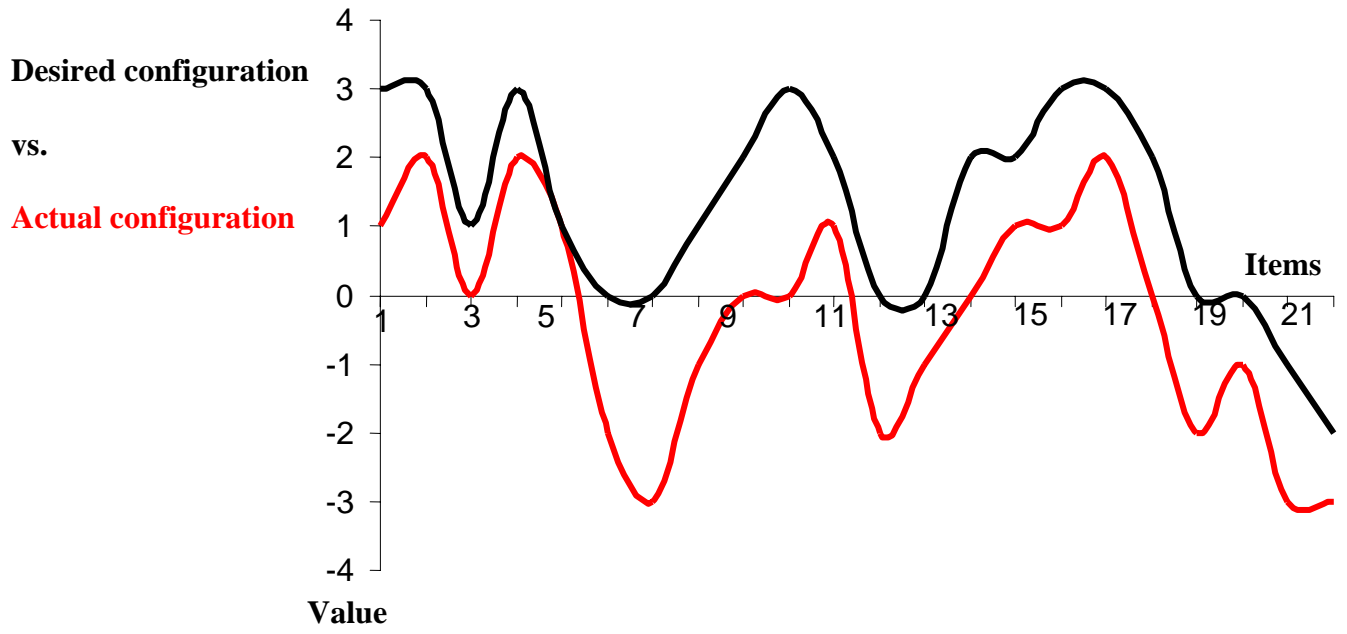


Table 2 Items of the success measure based on configurational fit

Imperative	Items	Source
<i>Management</i>	Management systems	Keats and Hitt, 1988, Bowman and Dileep, 1993; Naman and Slevin, 1993; Kotey and Meredith, 1997
	Reporting	Miller and Cardinal, 1994; Merz and Sauber, 1995; Papadakis, Lioukas, and Chambers, 1998
	Planning	Bowman and Dileep, 1993; Miller and Cardinal, 1994; Merz and Sauber, 1995; Papadakis, Lioukas, and Chambers, 1998
	Coordination	Olson, 1987; Ropo and Hunt, 1995
	Internal network	Low and MacMillan, 1988; Bughin and Jacques, 1994; Ropo and Hunt, 1995
<i>Resources</i>	Investments	Bowman and Dileep, 1993; Naman and Slevin, 1993; Papadakis, Lioukas, and Chambers, 1998
	Location	Hrebiniak and Joyce, 1985; Barringer and Greening, 1988; Tait, 1990; Roper 1998; Forte et al., 2000
	Materials	Koberg, 1987; Tait, 1990; Harrison, Hall, and Nargundkar, 1993, Borch, Huse and Senneseth, 1999
	Personnel	Olson, 1987; Merz and Sauber, 1995; Ropo and Hunt, 1995; Kotey and Meredith, 1997
	Culture	Kets de Vries and Miller, 1986; Ropo and Hunt, 1995; Hendry, 1999; Brown, Davidsson, and Wiklund, 2001
	Patents	Jacobsson, Oskarsson, and Philipson, 1996; Shane, 2001
	Rights	Jacobsson, Oskarsson, and Philipson, 1996; Shane, 2001
<i>Environment</i>	External network	Cooper, Woo, and Dunkelberg, 1988; Katz and Gartner, 1988; Low and MacMillan, 1988; Wright, Robbie, and Ennew, 1997
	Family backing	Kets De Vries, 1977; Carroll and Mosakowski, 1987; Kuratko, Hornsby, and Naffziger, 1997; Hunt and Handler, 1999
	Supplier backing	Gartner, 1985; Cross 1997
	Market position	Keats and Hitt, 1988; Kirzner, 1997; Roper 1998
<i>Entrepreneur</i>	Innovativeness	Carland et al., 1984; Miller and Friesen, 1984; Baumol, 1993; Naman and Slevin, 1993; Merz and Sauber, 1995
	Training/education	Gartner, 1985; Cooper, Woo, and Dunkelberg, 1988; Tait, 1990; Brüderl, Preisendörfer and Ziegler, 1992; Shane, 1996; Papadakis, Lioukas, and Chambers, 1998
	Ability of environmental assessment	Roper, 1998; Brüderl, Preisendörfer and Ziegler, 1992
	Common sense	Low and MacMillan, 1988; Shaver and Scott, 1991; Palich and Bagby, 1995; Steiner, 1995; Jenkins and Johnson, 1997; Busenitz, 1999
	Experience within the industry	Gartner, 1985; Cooper, Woo, and Dunkelberg, 1988; Tait, 1990; Roper, 1998; Papadakis, Lioukas, and Chambers, 1998
	Proactivity/flexibility	Miller and Friesen, 1984; Merz and Sauber, 1995; Crant, 1996; Kotey and Meredith, 1997

Table 3 Isolated partial success measures based on growth

		Investments	Personnel	Turnover	Number of products	Number of customers
Investments Mean: 1.04	T p N					
Personnel Mean: 0.35	T p N	4.176*** 0.000 97				
Turnover Mean: 0.70	T p N	2.346** 0.021 97	-2.743** 0.007 97			
Number of products Mean: 0.88	T p N	0.929 0.355 97	-3.020** 0.003 97	-1.214 0.228 97		
Number of customers Mean: 0.58	T p N	2.619** 0.010 97	-1.466 0.146 97	0.936 0.351 97	2.489** 0.015 97	

***... $p < 0.001$, **... $p < 0.05$, *... $p < 0.1$

Table 4 Influence of company size, company age and industry on isolated partial success measures based on growth and the success measure based on configurational fit

		Means, significance					
Company size, age, industry	N	Isolated partial success measures based on growth					Success measure based on config. fit
		Investment s	Personnel	Turnover	Number of products	Number of customers	
Company size (employees)							
1. 0 employees	12	0.17*vs.2.	-0.08*vs.3.	0.33	0.58	0.17	-1.21
2. 1-9 employees	51	1.20*vs.1.	0.24	0.67	0.86	0.43	-1.17
3. 10-49 employees	34	1.12	0.68*vs.1.	0.88	1.00	0.94	-1.29
Company age							
1. 1-5 years	15	1.00	0.40	0.73	0.80	0.93*vs. 4.	-1.10
2. 6-20 years	19	1.79**vs.4.	0.74*vs. 4.	1.16**vs. 4.	1.21* vs. 4.	0.84*vs. 4.	-1.05*vs. 4.
3. 21-50 years	27	1.33**vs.4.	0.70*vs. 4.	1.00*vs. 4.	1.04	0.78*vs. 4.	-1.04*vs. 4.
4. Over 50 years	36	0.44**vs.2./3.	-0.14* vs.2./3.	0.22**vs. 2. ;*vs. 3	0.61*vs. 2.	0.14*vs. 1./2./3.	-1.48*vs. 2./3.
Industry							
1. Commerce	47	0.98	0.15	0.49*vs. 2.	0.64	0.40	-1.34
2. Services	35	1.31	0.77	1.14*vs. 1./3.	1.06	0.89	-1.02
3. Crafts and trades	15	0.60	0.00	0.33*vs. 2.	1.20	0.40	-1.30

Company size, age, industry	N	Success measures based on growth: means, significance					Config. Fit Success Measure
		Investment s	Personnel	Turnover	Number of products	Number of customers	
Company size (employees)							
1. 0 employees	12	0.17*vs.2.	-0.08*vs.3.	0.33	0.58	0.17	-1.21
2. 1-9 employees	51	1.20*vs.1.	0.24	0.67	0.86	0.43	-1.17
3. 10-49 employees	34	1.12	0.68*vs.1.	0.88	1.00	0.94	-1.29
Company age							
1. 1-5 years	15	1.00	0.40	0.73	0.80	0.93*vs. 4.	-1.10
2. 6-20 years	19	1.79**vs.4.	0.74*vs. 4.	1.16**vs. 4.	1.21* vs. 4.	0.84*vs. 4.	-1.05*vs. 4.
3. 21-50 years	27	1.33**vs.4.	0.70*vs. 4.	1.00*vs. 4.	1.04	0.78*vs. 4.	-1.04*vs. 4.
4. Over 50 years	36	0.44**vs.2./3.	-0.14* vs.2./3.	0.22**vs. 2. ;*vs. 3	0.61*vs. 2.	0.14*vs. 1./2./3.	-1.48*vs. 2./3.
Industry							
1. Commerce	47	0.98	0.15	0.49*vs. 2.	0.64	0.40	-1.34
2. Services	35	1.31	0.77	1.14*vs. 1./3.	1.06	0.89	-1.02
3. Crafts and trades	15	0.60	0.00	0.33*vs. 2.	1.20	0.40	-1.30

***...p<0.001, **...p<0.05, *...p<0.1

Table 5 Overall success estimates by business owners

	Mean	SD	T-test (Ref. 0) T	T-test (Ref. 1) T
Overall success	1.42	0.90	15.578***	4.628***

***...p<0.001

Table 6 Individual and grouped internal and external aspects of success

Individual internal aspects	Mean (SD)	Individual external aspects	Mean (SD)	
Capital structure	0.58 (1.50)	Availability of qualified personnel	-0.56 (2.32)	
Investments	0.76 (1.41)	Regional conditions	-1.02 (1.79)	
Personnel	1.22 (1.40)	Competition (number of competitors)	-1.68 (1.77)	
Quality of customer service	2.20 (0.94)	Competitive rivalry	-1.62 (1.89)	
Management	1.23 (1.57)	Complexity of the environment	-1.04 (1.88)	
Experience of the entrepreneur	2.20 (0.87)	Predictability of environmental development	-1.18 (1.77)	
Innovation	1.39 (1.27)	Regulations	-1.01 (1.99)	
Proactivity	1.64 (1.38)			
				T-test
Internal aspects (grouped)	1.41(0.71)	External items (grouped)	-1.00 (0.84)	21.275***

*** ...p<0.001

Figure 2 Percentile function of overall success measured using configurational fit

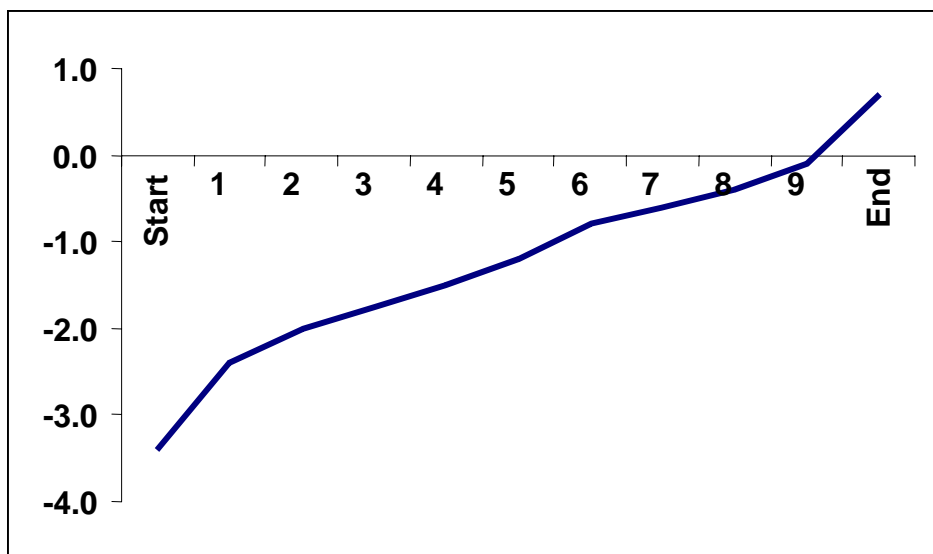


Table 7 Overall success estimates by business owners vs. overall success measured by configurational fit

	Mean	SD	T-test (Ref. 0)	T-test (Ref. 1)
Overall success estimates of business owners	1.42	0.90	15.578***	4.628***
Overall success measured using configurational fit	0.68	0.84	7.958***	-3.718***

***...p<0.001

Table 8 Evaluation of internal strengths based on various measures

<i>Item</i>	(1) Measurement without reference values		(2) Desired configuration		(3) Actual configuration		T-test 1/2	T-test 1/3	T-test 2/3
	Mean	SD	Mean	SD	Mean	SD	T	T	T
Management systems	1.23	1.57	1.52	1.95	0.23	1.86	-1.206	5.086***	7.930***
Experience of the entrepreneur (within the industry)	2.20	0.87	2.43	0.87	1.61	1.25	-2.093**	4.490***	7.146***
Personnel	1.22	1.4	1.98	1.55	0.23	1.89	-4.950***	4.677***	9.420***
Investments	0.76	1.41	2.14	1.22	0.88	1.50	-7.096***	-0.599	7.460***
Innovativeness	1.39	1.27	1.67	1.77	0.37	1.70	-1.341	5.558***	6.603***

...p<0.05 *...p<0.001

gggTable 8 Evaluation of internal strengths based on various measures

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Table 9 Key Findings

Common success measures	Success measurement based on configurational fit
<p><i>H1 (confirmed):</i> Isolated partial success measures based on growth are ambiguous and influenced by company size, company age and industry.</p>	<p><i>H4a/Cross-check for H1 (partially confirmed):</i> The configurational fit model is not influenced by company size and industry, but shows some limitations concerning the configurational characteristics of mature businesses, which do not achieve their success by reacting (flexibly) to changing environments but rather by (steadily) addressing regular customers and traditional markets.</p>
<p><i>H2 (confirmed):</i> There is a positive (perceptual) bias in overall success estimation (without reference values) by business owners.</p>	<p><i>H4b/Cross-check for H2 (confirmed):</i> Overall success measurement by configurational fit (with reference values) does not produce a positive (perceptual) bias.</p>
<p><i>H3 (confirmed):</i> Isolated partial success evaluation by business owners produces an attribution bias, as they rate internal success factors mostly as positive; while they rate external success factors as negative.</p>	<p><i>H4c/Cross-check for H3 (confirmed):</i> Employing success measurement based on configurational fit reduces this attribution bias significantly.</p>