the SIGNIFICANCE of weak TIES

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This paper examines the usefulness of experiential network knowledge in the internationalization process of the firm. Based on learning and network theory, the paper develops hypotheses on the usefulness of knowledge gained from weak ties, which we then analyze with the help of LISREL analysis.

In marketing and international business literature the importance of knowledge is well documented. It has been observed that, in the process of foreign market entry, the decisions made by firms are driven by the firms' experiential knowledge (Johanson and Vahlne 1977, Cavusgil 1980, Kogut and Zander 1993, Makino and Delios 1996, Eriksson, Johanson, Majkgård and Sharma 1997, Madhok 1997). Of lesser importance in the internationalization process is the objective knowledge of firms. The experiential knowledge may concern knowledge on local business and local institutional frameworks (Eriksson et al. 1997). Evident in this description, is a firm's use of knowledge to detect errors and take corrective action, and the fact that not all knowledge is equally used or perceived to be useful in this process. As argued by Cavusgil (1984) firms typically face information overload. The real issue is, consequently which knowledge is perceived to be useful in international market expansion decision making? Are there systematic differences in the usefulness of experiential knowledge as perceived by managers in internationalizing firms?

Research in marketing shows that firms are engaged in a network of ties or relationships (Burt, 1982, Håkansson & Snehota, 1995, Kraatz, 1998). Networks are a source of information to its members. Networks both restrict as well as broaden information available to their members. Firms engaged in a network accumulate knowledge on their counterparts through passive, active, or interactive processes (Lane and Lubatkin, 1998). Some network ties are strong, such as customers and suppliers, and others are weak, such as customers' customers, suppliers' suppliers, and competitors.

Research shows that strong network ties between firms lead to similarities in their knowledge base, behavior and mental models. Strong ties between firms imply a frequent interaction between firms. In addition strong ties have been existing over time and have an extended history. The information base of the two interacting firms is rather identical and the absorptive capacity of the firms developed from this interaction (Cohen and Levinthal 1990). Strong ties consequently supply firms with knowledge that lies in the vicinity of the current knowledge of the firm containing less uncertainty. The information is often not novel (Kraatz, 1998). Weak ties, on the other hand, imply a larger set of ties, but the frequency of interaction between the firms is limited. The larger size of the network make may reduce the frequency of interaction between the members of the network. A large and heterogeneous set of network ties is valuable as they bring decision-makers information that is different, foreign, and new. Firms have not evolved routines and structures to share, transfer, and interpret knowledge from the counterpart. Weak ties imply that firms are dissimilarities in their mental models and behavior (Granovetter, 1992).

Strong ties between firms supply firms with information that is not novel. Thus, strong ties are a suitable source of information when the environment is stable and known. These are also suitable for routine and programmed decisions (Simon, 1961). Programmed decisions are structured, and use standard operating procedures. Weak ties, on the other hand, leads to dissimilarities in values and behavior between the interacting firms (Granovetter, 1992). Firms engaged in weak ties are therefore different and weak ties are a source of new and different types of information. Consequently, knowledge supplied by weak ties is more suitable for novel, non-programmed and uncertain tasks. These tasks might include problem solving within a firm's strong ties, which cannot be solved with the help of knowledge supplied by the strong ties. Weak ties are therefore useful to firms that need more knowledge of their strong ties, which is our first hypothesis.

H1: The greater the need for knowledge on strong ties, the greater the usefulness of clients' client and supplier's supplier (weak ties).

Firms that have more experience of varied country markets develop capabilities for the handling of novel business problems (Barkema and Vermeulen, 1998, Eriksson, Johanson, Majkgård and Sharma, 2000). These capabilities are the firms' ability to absorb their past experiences, and apply them to solve new business problems (Cohen and Levinthal, 1990). It can therefore be expected that firms with more experience of varied country markets experience less novel situations, and therefore find weak ties less useful. Thus, we hypothesize that firms with greater experience from varied country markets find weak ties less useful.

H2: The greater the firm's experience of varied country markets, the less the usefulness of weak ties.

Based on the above we expect that the perceived usefulness of knowledge will be different depending on the newness of the current business being developed. Business development may concern new customers or expanded business with existing customers. To capture this variety in business relationship development, we introduce the concept of business assignment i.e. a particular business relationship. A more new business assignment is a more novel decision situation, which requires a non-routine decision that can be supported by the

usage of weak ties. The task of carrying out new assignments is perceived as more novel, difficult and uncertain. Thus,

H3: The shorter the duration in the foreign assignment, the greater the perceived usefulness of knowledge from (1) clients client, (2) supplier's supplier (weak ties).

DATA AND METHOD

The hypotheses are tested on a sample of 547 CEO's in small and medium sized firms in Scandinavia, New Zealand, Denmark and Korea. Data was gathered by means of a questionnaire. The questionnaire was designed to capture an ongoing business assignment. The respondents were therefore presented with the following introduction:

We would like you to select a business assignment where your company (If you work in a firm that is divisionalised or in other ways divided into units, answer for your business unit) is expanding internationally. Preferably, this assignment should be well underway so that you would have already started doing business with the counterparts. If this is not suitable for you, then we would appreciate it if you could choose a recently finished assignment. Examples of this assignment could be:

- A contract with a new distributor or agent in a new country.
- A considerable expansion of business with an existing customer.
- Doing business with one or more new customers within an existing market.
- Entering new country markets with your existing customers.
- Doing business with new customers within a new market.

Choose a business assignment that is important to your firm. Business assignments can be long term and hard to separate from ongoing business activities, but this investigation wants to capture a larger change in ongoing business with a customer or distributor.

Please answer the following questions with respect to the assignment that you have selected. (If you have selected a distributor, answer as if the word customer means distributor.)

The questionnaire was then divided in three sections, where the first asks of the need for knowledge, the second of the usefulness of knowledge, and the third concerns firm experience.

Data was computed by means of a structural equation modeling technique named LISREL was used in computations. LISREL uses correlations and the co-variances of error terms as two independent sources of information, giving a more accurate picture of data variation than other methods (Lord and Novick, 1967). For further information on LISREL, see Bollen, 1989, Hayduk, 1987, and Jöreskog and Sörbom, 1993.

The validity of LISREL models is assessed in a two-step procedure that corresponds to the main components of the model. The first step is the creation of latent variables, which are variables at the construct level, an intermediate level between theory and data. These variables will hereafter be referred to as 'constructs', and the constituent observed variables will be labelled 'indicators'. Construct validation is done by studying whether the constructs are separate from each other (discriminant validity), and whether they are homogenous within the construct (convergent validity). Discriminant validity is assessed by studying if constructs load only on their designated indicators, and also by forming an approximate confidence interval with the standard error of the correlation between constructs (Jöreskog and Sörbom 1993: 19; Anderson and Gerbing 1988: 416). The loading of indicators is assessed by factor loadings, t-values, and R2-values, which are measures of the linearity of the relationship and

should preferably exceed 0.20 (Jöreskog and Sörbom 1993: 5,9,121). Convergent validity is assessed solely from the loading of constructs on indicators.

The second step in validation of LISREL models concerns the entire model. A model is usually quite a complex web of causal relationships between constructs. It takes account of both direct and indirect causal relations, which means one causal relation may be reinforced or counteracted by another. It is important to note that the validation of the model refers to one particular web of interrelated causalities. A construct may be valid in one model, but not in another. The validity of the model is assessed by chi-square and degrees of freedom, which measure the difference between data and model, and a probability estimate, which is a test of a non-significant distance between data and model (Jöreskog and Sörbom 1993: 120-128). There is an ongoing debate on what measures to choose for assessment of nomological validity (Bollen and Long 1993), but as Jöreskog and Sörbom (1993, pp. 121, 122) point out, the other measures proposed are all functions of the chi-square.

Since the validity of constructs may differ with the context of a structural model, it is recommended that the validity of constructs is tested not only in the structural model, but also in a measurement model without causal relations between constructs (Anderson and Gerbing 1988, Jöreskog and Sörbom 1993).

Construct Validity

The usefulness of weak ties is designed to capture three kinds of weak ties, that together represent the vast variety of weak ties that a firm can use. First, customer's customers are extensions forward along the value chain. Second, the customer's supplementary suppliers are parallel, and potential cooperative partners to the firm. Third, competing suppliers, which are negative influences on the firm's attempts to strengthen the network. Together, the usefulness of these three types of business relationships are captured by the construct 'Usefulness of weak ties'. The construct represents the vast variety of weakly tied relationships that firms use as they solve problems in their ongoing business. The key statistics show that the constructs captures the three kinds earlier discussed, but the nature of a construct means that we can broaden the range of weak ties captured by it.

Table 1. The Constructs and their Indicators.

Indicator	Abbreviation in Figure 2	Factor Loading	t-value	R2 value
Usefulness of weak ties				
In developing this assignment we can use experiences from previous relationships with customer's customers	USECC	0.61	7.21	0.37
In developing this assignment we can use experiences from previous relationships with customer's supplementary suppliers	USECS	0.84	8.55	0.70
In developing this assignment we can use experiences from previous relationships with competing suppliers	USECOMP	0.57	6.70	0.32
Need for knowledge in strong ties				
Need for knowledge about our customer's product is an obstacle when developing this assignment	C	0.80	8.18	0.64
Need for knowledge about our supplier's product is an obstacle when developing this assignment	S	0.70	7.47	0.48
Firm variation				
Approximately how many countries do you operate? (Logarithmic transformation)	VARIAT	1		1
Duration in assignment				
For how long have you been doing business in this assignment (Logarithmic transformation)	DURAT	1		1

The need for knowledge about the firm's strong ties focuses customers and suppliers. Those are extensions along the value chain, and are typically integrated through sales, just-in-time management, or other adaptations. The key statistics show that the construct 'need for knowledge in strong ties' captures both the needs for customer and supplier knowledge very well. The construct can be said to represent a variety of strong ties that exist.

Firm experience from many different country markets captures the firm's variation. This is measured as a single item question that asks of the number of countries that the firm operates in. The variable is logarithmically transformed.

Asking respondents how long they have been developing this assignment captures the duration in the assignment. Responses range from 0 to 40 years, and the variable was therefore logarithmically transformed and there was a control for outliers on the very long durations.

Results
The results are presented in Figure 1. The model shows that the usefulness of weak ties results from a need for strong ties. Apparently, firms wanting to integrate their close relationships find it useful to apply practices, which they observe among their weakly tied

business relationships. This may concern practices used by competitors, supplementary suppliers, customer's customers, or any other weakly tied relationship.

NOTE: MODEL CHI-SQUARE IS 10.5 AT 10 DEGREES OF FREEDOM, AND AT A
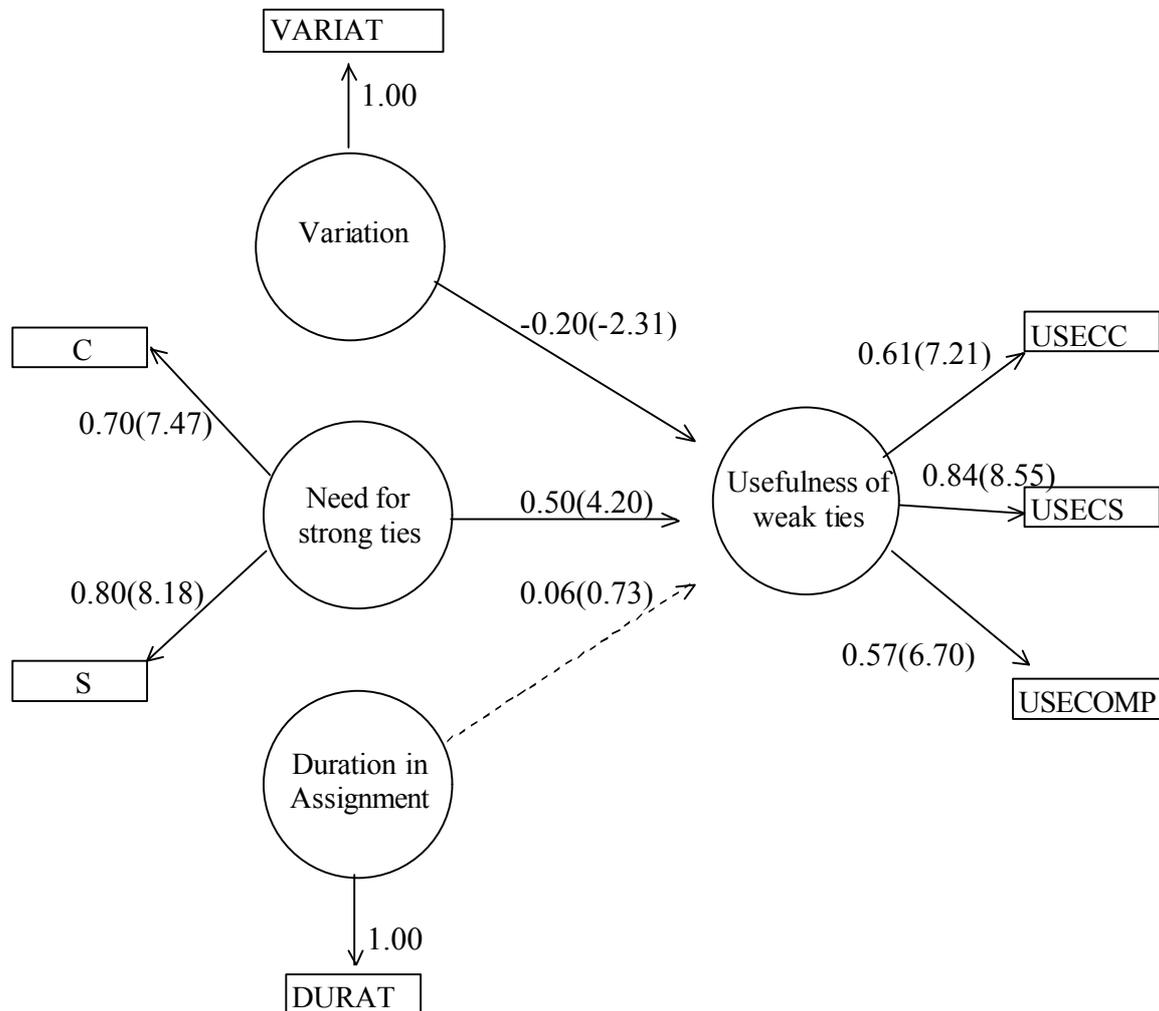
PROBABILITY OF 0.40. RMSEA=0.017. GFI=0.98.

The firm's experience of different country markets reduces a firm's use of weak ties. The reason for this may be that more experienced firms have more readily developed routines for developing assignments. Consequently, they need not use weak ties as much as a source of knowledge for how to develop their business assignment.

The firm's duration of involvement in the ongoing assignment has no significant effect on the usefulness of weak ties. The reason for this may be that firms uncover new business problems as they develop their business assignment, and consequently find new uses for weak ties. So, even though the nature of the usage changes, reflecting a deeper involvement in an assignment, the usefulness of weak ties remain the same, albeit in a different way.

The model in Figure 1 contains a subset of the total sample. This is because the total sample displayed some unexpectedly bad statistics, namely a low R2-value of the causal relations going to the 'usefulness of weak ties' variable. This result suggests that the explained variance of the 'usefulness of weak ties' is low, which may be due to non-linear relationships, or a lack of causal effect. However, the results in Figure 1 is based on a sample of firms with more than 3 years experience of the ongoing assignment display a strong R2-value. The results show that firms with experience of the assignment can be analyzed in terms of linear causal relations as above. This finding is consistent with theories of a U-shaped learning curve for internationalizing firms. Even though some research had suggested that 3 years was a suitable limit (Eriksson et al. 1997), several explorations of alternative limits and subdivisions of the sample verified that this is indeed a suitable division. Firms with less than three years of experience showed extremely low R2 values, suggesting poor explanatory value of the models causal relations.

CONCLUSIONS

This paper finds that the usefulness of weak ties increases with the need for knowledge in the ongoing work with strongly tied business relationships. This finding substantiates the main theme of this paper, that weak ties supply more novel knowledge that can be used in non-routine decision situations. Weak ties are thus important sources of knowledge for firms when they face change, or need to innovate.

The paper has also found that firms with more experience from many country markets use their weak ties less. Apparently, firms can assimilate the knowledge generated from weak ties, so that they can develop capabilities to solve business problems themselves. This finding suggests that firms can learn higher-order procedural knowledge about how to solve specific ongoing business problems.

Finally, the paper finds that the duration in the assignment does not have an effect on the use of weak ties. The reason for this is, as stated earlier, that firms uncover new business problems as they develop their business assignment, and consequently find new uses for weak ties. So, even though the nature of the usage changes, reflecting a deeper involvement in an assignment, the usefulness of weak ties remain the same, albeit in a different way. A firm gradually improves its perception of their markets, calling for new ways of using weak ties. The new ways of using weak ties solves business problems associated with a firm's deeper embeddedness in the business assignment's surrounding network. The reasoning above leads to the conclusion that the firm's duration in the assignment does not lead to more use of weak ties. Instead, it leads to similar level of usefulness, but in a different way. We can therefore explain the result that the duration in the assignment does not have an effect on the use of weak ties.

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