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The Business Platform: Developing an Instrument to Gauge and to Assist the Development of Young Firms

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The research presented here addresses the following problems we perceive in research on the development of young firms. First, we feel there is a lack of holistic yet quantifiable and generalizable ways in which to assess the state of newly started firms. Quantitative research typically relies on additive models that are unable to explain more than half of the outcome variance at the most. Holistic approaches tend to be qualitative and therefore have unknown generalizability. Second, we feel there is a lack of action-oriented assessment models that are firmly anchored in research. Research models typically take a passive prediction position and often build on relationships that give little hands-on advice to managers. Numerous practical tools for assessing and developing firms during their early development can be found in how-to literature, but these typically are not anchored in systematic research and therefore have unknown validity. Hence, what we set out to do in the research presented in this article is to develop a quantifiable, holistic, and research-based instrument for assessing and assisting the development of young firms.

Assessing the state of newly started firms in order to predict their fate or in order to initiate appropriate action for increasing their probability of survival and growth is no easy task (Hall 1995). Such firms are in a turbulent phase of development where business activities are carried out in a short-term perspective and where it can be difficult to perceive more fundamental shortcomings that are overshadowed by everyday problems (Adizes 1988). Much research has been devoted to establishing associations between various kinds of presumed causal factors on the one hand and the ability of a company to attain stability and growth on the other (for example, Cooper 1981; van de Ven, Hudson, and Schroeder 1984; Kazanjian 1988; Cooper, Gimeno-Gascon, and Woo,

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1994; Davidsson 1991; Jones-Evans and Klofsten 1997; Gimeno et al. 1997; Morris 1998; Littunen, Storhammar, and Nenonen 1998; Dahlquist, Davidsson, and Wiklund 2000). A general conclusion from this research is that a range of factors on the individual, firm, and environmental levels of analysis shape the firm's development. At the same time, the results suggest that there is no individual factor that universally and by itself has a strong determining influence. Further, explanatory models based on additive effects of comprehensive lists of presumed causes provide far from full explanations of the outcome variance, supporting the notion that holistic and to some extent idiosyncratic configurations of factors jointly determine the success probabilities of young firms.

Models for assessing and assisting the development of firms are a key interest for research, teaching, and business practice. Numerous manuals have been written that more concretely treat different aspects of new business development and that provide considerable amounts of practical advice on how a firm can increase its chances for survival and success. In this type of literature, comprehensive problems in the firm are discussed, but no serious attempts are made to anchor the advice in systematic empirical research or to develop testable theories. The suggestions are based more on experience and on what for the moment is considered to be good management practice (Hall 1995). Although research in the last 10-year period has grown in scope and although our knowledge of early-growth and development processes in firms is considerably greater than before, it is still fairly unusual for researchers to try to generate practical tools in this field.

In the present research we attempt to develop a quantifiable and research-based instrument for assessing and assisting the development of young firms. The implication of successfully developing and validating such an instrument is that it would provide managers and business consultants with a better tool with which to assess and assist young businesses. In short, the tools that are available today tend to fall into one of the following three categories: (1) based on research, generalizable but not action oriented (quantitative, prediction-oriented models); (2) based on research but with unknown generalizability and varying degree of action orientation (qualitative or understanding- or action-oriented research); or (3) not research based but action oriented (for example, how-to literature). We attempt to get closer to a situation where the assessment and assisting of the development of young firms can be guided by a tool that is research based and generalizable and action oriented. Although we will not reach all the way to a fully developed and validated tool within the frame of this research, we feel that steps in this direction are needed urgently. The instrument we try to develop is based on Klofsten's Business Platform Model, which builds on previous research and has been used extensively in qualitative research and business consulting.

The Business Platform Model

It has been shown that firms that have succeeded in surviving two to three years and that have gone through a number of crucial phases attain a stable foundation from which they can continue to develop (Mayer and Goldstein 1961; Freeman, Carrol, and Hannan, 1983; Hall 1995). Gibb and Scott (1986) introduced the concept "base for potential development" as an expression of this stabilizing condition. According to the authors, a development base has been attained when the newly started firm is developed sufficiently concerning resources (capacity), experiences, control, leadership, and idea. With this basis, the firm then has

the possibility to develop and to manage future environmental changes and thereby can be considered to have achieved stability.

Pursuing a similar idea, Klofsten (1992) conducted a comprehensive literature review and defined eight firm-level cornerstones that determine a firm's early development process. These eight cornerstones are the business idea, the product, the market, the organization, core group expertise, core group drive/motivation, customer relations, and other relations, all of which make up the business platform model. The cornerstones are further explained in Table 1, which also displays the previous research on which each cornerstone builds or with which each cornerstone accords. The purpose of the cornerstones is to describe the early development process in a holistic manner on the microlevel. It comprises the development process itself (idea, product, market, and organization); key actors such as the founders, chief executive officer (CEO), and board members (expertise and drive/motivation), and the flow of external resources (customer relations and other firm relations).

The fundamental thesis of this model is that firms are vulnerable in their early life and continually run the risk of disappearing from the market. Success in the firm is determined by how well this vulnerability is overcome, and the early development process is one of the most important periods in the life of the firm. The thoughts and the driving forces in the firm and the actions being taken at this time can be decisive for the continued growth and development of the firm (cf. Kimberly and Miles 1980). However, the model is not a passive prediction model. Its purpose is to assess so as to find remedy, if need be.

As long as there is no very dramatic changes in the firm's environment—changes that the firm cannot prevent, such as the loss of a key person or a rapid decline in market potential—the theory is that success will be determined by how well the firm builds and maintains its business platform. A firm attains a platform by satisfying two criteria: securing an input of resources and developing an ability to manage and utilize such resources (cf. Barney 1997, ch. 5). After the platform has been achieved, a firm has a good deal of leeway in generating and managing its resources.

Early development in a firm is defined by the business platform cornerstones' progress and can take as little or as much time as is needed, with some firms never actually getting beyond this stage. Taking steps to realize a business concept by initiating activities intended to lead to the creation of a firm is the beginning of early development. It ends when the firm has established a business platform. At the risk of being categorical, it could be argued that firms aspiring to grow and to become significant actors in the market must sooner or later attain a business platform.

The reasoning, then, is that the cornerstones that make up a business platform must reach certain minimum levels if a business platform is to be attained (see Table 1). For example, an idea must be communicable both within and outside the firm (Kazanjian 1988; Timmons 1994). A hobby firm will not exhibit the same levels of activity and progressiveness as a firm with strong driving forces to grow and develop (Shaver and Scott 1991; Naffziger, Hornsby, and Kuratko 1994). Client contacts are not enough; there actually must be customers who are buying continuously (Zeithaml and Bitner 1996; Prenkert 1998). Thus, the model is not a simple additive and compensatory model. Reaching high levels on several dimensions is not assumed necessarily to make up for severe shortcomings on another dimension, and sometimes achieving average levels across all

Table 1
Cornerstones of the Business Platform

Cornerstone	Previous Research	Minimum Levels to Attain
Formulation and Clarification of the Business Idea	Kazanjian (1988) Bjerke (1989) Hills (1994) Timmons (1994) Cooper, Fotta, and Woo (1995) Kohen and Kohli (1998)	The idea must be clarified so that the special know-how that makes up the commercial springboard is understandable and can be communicated internally and externally.
Development to Finished Product	Adizes (1988) Kazanjian (1988) Roberts (1991) Rothwell (1992) Autio (1997) Dyer and Gupta (1999)	Once the product is available, it must gain acceptance by one or more reference customers—the firm has then proven that it is capable of satisfying markets' needs and wants.
Definition of Market	Miller and Friesen (1984) Hisrich (1992) Westhead and Birley (1993) Hall and Adams (1994) Weinstein (1994) O'Gorman (1997)	The firm must define a market that is large enough and profitable enough to ensure survival.
Development of an Operational Organization	Mintzberg (1973) Greiner (1972) Kazanjian (1988) Kazanjian and Drazin (1990) Chandler and Hanks (1994) Barney (1997) Shepherd and Shanley (1998)	The running of business operations requires the existence of an organizational structure that facilitates functional coordination—this structure should take advantage of the firm's inherent flexibility and innovative ability and should be fairly effective at internal coordination and at maintaining and developing external relations.

Table 1
Continued

Cornerstone	Previous Research	Minimum Levels to Attain
Core Group Competence	Susbauer (1967) Cooper and Bruno (1977) Brockhaus (1980) Chandler and Hanks (1994) Bird (1995) Walsh and Kirchhoff (1998)	A business firm must have technological and commercial competence to develop its products and market—it is crucial to have access to expertise for solving the firm's real problems.
Commitment of the Core Group and the Prime Motivation of Each Actor	McClelland (1961) Smith (1967) Birley and Norburn (1985) Gartner (1985) Shaver and Scott (1991) Naffziger, Hornsby and Kuratko (1994)	A basic requirement for development is that at least one person is highly motivated and that the other key actors are committed to the business idea.
Customer Relations	Roberts and Wainer (1968) Utterback and Reitberger (1982) Aijo (1996) Zeithaml and Bitner (1996) Prenkert (1998) Krieger (1998)	A customer base must be qualitatively and quantitatively strong enough to generate operating revenue.
Other Relations	Bollinger, Hope and Utterback (1981) Knight (1986) Bruno and Tyebjee (1984) Olofsson and Wahlbin (1984) Autio (1995) Heydebreck (1997)	The firm may sometimes need additional capital, management know-how, or other oil in its machinery—these relations complement the customer relationships.

cornerstones does not suffice either. Conversely, it sometimes is necessary to stand out—to have a real edge—on at least some dimension. This is consistent with the resource-based view of the firms (Penrose 1959; Barney 1991, 1997).

Based on three comprehensive and longitudinal case studies, Klofsten (1992) showed that it was possible to analyze the state of the eight cornerstones at different points in time and to determine whether a business platform has been attained. He also found reason to argue that if a business platform it is not attained, the firm will sooner or later go under and will disappear from the market—at least as independent actor. The model originally was applied to technology-based firms but also has proven to be applicable to other types of firms (Klofsten 1998).

What distinguishes the business platform model from other business models is the fact that in a clear and simple way, it specifies the cornerstones that define the early development process of the firm and what is demanded of every cornerstone in order for the firm to overcome its initial vulnerability. Business models created by Gibb and Scott (1986), for example, and even those more practically oriented how-to models (business plan models) conduct an almost exclusive discussion on variable or factor level. These models fail to indicate what is demanded of them in order to make the firm overcome certain barriers and in order to take the next step in its evolution.

The business platform model has been disseminated (predominantly in Europe) in research, education, and trade and industry (Klofsten 1992, 1994, 1997, 1998). The experience to date is that the platform model is a useful tool for gauging and assisting the development of young firms. An obvious limitation is that its validity has not been proven yet in broadly based research. A necessary first step toward such validation is to develop a standardized operationalization of firms' standing on the cornerstones of the platform model. Developing an instrument that could be used for that purpose is what we set out to do in the present study. It is our hope that the development of such an instrument will facilitate the adoption and sound application of the business platform model by business consultants.

Our aspiration for the present paper is to develop an instrument that can quantify firms' state on each cornerstone dimension. It should be clear from the previous discussion that simple summation of scores from such a quantification will not suffice for determining whether a firm has attained a business platform or not. The appropriate minimum level for each dimension, the possible need for excellent scores on some dimensions, and the variation by industry or type of firm all require further research.

The Sample

The data that are presented in this study derive from technology- and knowledge-based firms located at Swedish technopoles[1] (Heydebreck, Klofsten, and Maier 2000). Addresses to the firms were obtained from organizations at each technopole that work with different forms of business support, such as science parks and innovation centers at universities. We were of the opinion that by help of these technopole organizations, we should in an effective way get

[1]Technopoles are regions that exhibit strong technology- and knowledge-based new business development. They are a fertile combination of a university with a technical profile, a research institute, and science parks as well as a number of large and small firms. In Sweden, Göteborg, Linköping, Lund, Stockholm, and Uppsala are the main regions classified as technopoles.

access to companies for our study. As the aim of the paper was to study growth and development in young firms, firms more than 10 years old were excluded. We thought those companies older than 10 years would have difficulties in recalling details from their early development process. At the same time, it was considered an advantage if the firms had some history and if a lower age limit of two years was set. This left 313 firms, all of which were sent a questionnaire (addressed to the CEO or other decision-making executive) either in electronic form (260 firms) or with traditional mail (53 firms). After a telephone reminder, a total of 114 firms returned the questionnaire, giving a response frequency of 36 percent. While these response rates are a disappointment compared to what has been obtained in some Swedish studies (cf. Davidsson 1989a; Wiklund 1998), they are high compared to most published mail survey research internationally. Importantly, in the present context we are not trying to obtain population estimates, such as norm values, for a well-defined population. What we need is a large enough sample from a relevant population—that is, one whose members are likely subjects for real application of the business platform model—in order to assess the technical properties of the instrument we are trying to develop. Therefore, the levels of nonresponse are not severe for our purposes. Internal nonresponse to individual parts or items is a worse problem, because it may indicate some type of inadequacy of the instrument. This is an issue to which we will have reason to return.

The average and median ages of the firms were 6.7 and 7.0 years, respectively. During 1998, the average turnover was Swedish crones (SEK) 9.6 million (US$ 1.1 million) and the median SEK 9.0 million (US$ 1.0 million) with a range of SEK 0–71 million (US$ 0–7.9 million). An average of 4.6 persons (median 3.0) was employed in the firms (range 0–100). A majority of 66 firms (58 percent) were oriented toward providing services while 40 firms (35 percent) primarily produced products. Six firms (5 percent) reported other forms of business but did not specify what kind. Slightly more than a quarter of the firms, 30 (26 percent), reported at this time that they had changed the focus of their business since startup. Most of the firms (55 firms or 48 percent) stated that they have a background from some university—for example that the founders had been researchers or students immediately prior to startup. Those who reported otherwise (34 firms or 30 percent) came from firms or research institutes.

The Instrument

A team of four people, led by the authors of this paper, developed the operationalizations. Klofsten developed the business platform model (Klofsten 1992, 1994, 1997, 1998) and has substantial consulting experience from its use, and Davidsson has considerable expertise in survey research and development of measuring instruments (see Bellu, Davidsson, and Goldfarb 1990; Brown, Davidsson, and Wiklund forthcoming; Davidsson 1989a, 1989b, 1989c, 1991, 1995a, 1995b; Davidsson and Wiklund 1997; Wiklund et al. 1997).

In developing the instrument, we adopted the standard procedure of generating multiple-item batteries of questions for each intended dimension. In order to arrive at a manageable instrument, we aimed at approximately five items for each dimension. We first generated a pool of about five to 10 raw items for each dimension. Each suggested item was discussed among the team from substantive as well as from technical standpoints. Through this process of selecting, revising, and deleting items, we arrived at the final version that was mailed out, which includes a total of 36 items, or between three and six for each dimension.

Following the recommendations of Converse and Presser (1986) we chose a forced-choice format. The respondents were asked to indicate their relative degree of agreement on a five-point scale between the two statements that were contrasted. All items in the sent-out version are listed in Table 1. Importantly, for each item the respondent was asked to give separate responses for the firm's current situation and for its status two years earlier. In that way we could make two—albeit not two independent—evaluations of the technical properties of the instrument.

The package of questions aimed at capturing the various dimensions of the business platform constituted the lion's share of the mail/email questionnaire. The remainder of the questionnaire concerned background facts about the firm and its founders as well as a question concerning the relative ease or difficulty of answering the business platform items.

Analysis Method

If our operationalization is successful, the items aimed at assessing the same cornerstone dimension (that is, Idea, Product, Market, Organization, and so forth) should have high intercorrelations, thus allowing summing the items to an index and thereby reducing the influence of random measurement error. In order to assess our measures' suitability for index construction we ran the Statistical Packe for Social Science (SPSS) reliability analysis routine. In the interpretation of this analysis we applied Nunnally's rule of thumb that a chronbach alpha above 0.70 indicates satisfactory measurement quality from a technical standpoint (Nunnally 1967; Nunnally and Bernstein 1994). We checked interitem correlations, item-to-total index correlations, and the effect on alpha of dropping one item at a time. Items were dropped from the respective index. It turned out that the item would lower rather than increase the Alpha value for the index.

In order to be useful, the resulting measures should not only be reliable but also should be distinct from one another. There should be proof that packages of items intended to measure different dimensions really do so—that is, the resulting indices should have discriminant validity. In order to assess whether the dimensions proposed by the business platform model are empirically distinct, we ran SPSS factor analysis with principal component extraction and varimax (orthogonal) rotation. The logic behind this is that if items within a dimension have higher intercorrelations than their cross-correlations with items of other dimensions, then the different item packages should have a tendency to form separate factors in factor analysis. However, we did not assume *a priori* that the different dimensions (or cornerstones) of the business platform model would be uncorrelated (orthogonal). For instance, they should all be a function of time to some extent. Therefore, a crystal-clear factor pattern was not expected, so we also evaluated the question of discriminant validity via correlation analysis. Another reason for this is that summated indices are not identical to factors in a factor analysis, and the summated indices are what we propose be used eventually.

The operationalization should not only be technically adequate but also should reflect the empirical reality that the conceptualization aims to capture. A true test of this would require the existence of another known-to-be-valid method for assessing the business platform model cornerstones. Obviously, such a yardstick does not exist, but as the items were developed by a collective of four people, all of whom had experience with the platform model, we feel confident that the items reflect the intended conceptual meaning of each cornerstone. In order to allow the reader to make his or her own assessment, we offer the translated instrument verbatim

(translated from the Swedish original) in Table 2. The table also specifies (in parentheses) which items were excluded as a result of decreasing rather than improving the reliability of the respective scale.

Results

Table 3 displays Cronbach's alpha values and other statistics for the resulting indices, both concerning the current situation and the firm's status two years earlier. We will comment the results for each cornerstone.

Regarding the business idea, three out of the four original items could be retained—that is, for one item it turned out that its inclusion would lower rather than increase the reliability of the index and consequently was dropped (see also Table 2). The resulting three-item scale has high to very high reliability according to the Cronbach's alpha criterion; the assessment of the business idea thus appears to be successful. This is also indicated by the very low internal nonresponse (one and seven cases, respectively). However, some further improvement of the measurement of this dimension would be valuable. The distribution is skewed positively with an across-item average score of 4.25 out of five, and a full 26 percent of the sample has the maximum score (15) on the Now version of the scale. This suggests that some minor rephrasing of the current items and the additions of one or two new items would help capture the full range of variation better than the current version does. For a first try, however, the current version performs very well.

Only three items were developed for the second scale, product, and all three could be retained. The Cronbach's alpha values here are extremely high for both versions of the scale, indicating very high reliability. The measurement of this cornerstone is not entirely unproblematic, though. First, internal nonresponse is nonnegligible. For some reason some respondents appeared to think that the questions were not suitable to describe their firm. Second, the distributions of responses are bimodal, with overrepresentation at both extremes. This suggests that the respondents tended to view this dimension as dichotomous: either they had a developed product ready for sale or they did not. Again, then, some further improvement seems possible although this first attempt must be judged as relatively successful.

For the third cornerstone, market, satisfactory to high Cronbach's alpha values were obtained after deletion of one of the original items. High reliability thus is attributed to the resulting four-item scale. The distributions also look good despite some positive skewing. The problem here is instead the high internal nonresponse. About 20 percent of the sample chose to skip one or several items. In order to check whether there was any difference between manufacturing and service firms' relative propensity to give valid responses, we computed valid/missing dummies for the product and market indices and cross-tabulated them against service versus manufacturing firm. There were no significant differences and were not even a tendency toward any industry differences (Chi^2 = 0.31, p = 0.58, and Chi^2 = 0.46, p = 0.50, respectively; $d.f.$ = 1 and N = 106 in both cases). The reasons for the internal nonresponse require further investigation. For those who answered, the scale performs well.

The next cornerstone, organization, is the one for which measurement has been most successful. The Cronbach's alpha values are high, the distribution is very close to normal, and internal nonresponse is modest. From a reliability point of view, this dimension works almost perfectly as it is and needs no further development. After elimination of one item, the five-item competence scale also has very satisfactory properties, with low internal nonresponse, high Cronbach's

Table 2
Forced Choice Items for Each Cornerstone of the Business Platform Model

Low (1)		High (5)
Business Idea		
The idea about what the firm's operations should be is not particularly specified.	*vs.*	There exists a very clearly specified idea for what the firm's operations should be.
Within the firm there is some lack of clarity as to what ideas should be pursued.	*vs.*	Everybody in the firm is completely clear about what ideas to prioritize
It is relatively unclear what type of need of what type of customer the firm's idea might satisfy.	*vs.*	It is completely clear what need for what type to customer the firm's idea can satisfy.
(It is rather difficult to say what is special or unique about the firm's idea.)	*vs.*	(It is completely identified what is special and unique about the firm's idea.)
Product		
There is no developed product.	*vs.*	There is at least one well developed product that is entirely ready for sale.
No user has tested the product.	*vs.*	The product has been tested by a number of potential users.
No reference customer can verify the usefulness of the product.	*vs.*	A number of reference customers exist, who can verify the usefulness of the product.

Table 2
Continued

Low (1)		High (5)
Market		
The firm has no limitations as to what customers it turns to.	*vs.*	The firm turns itself to a very specific customer category.
It is not possible to say what characterizes the firm's customers.	*vs.*	There exist a number of criteria, which precisely define the potential customers that have the highest probability to buy.
(What value the firm's product can offer the customers is built on assumptions within the firm.)	*vs.*	(Customer value for the firm's product is completely specified based on contacts with customers)
The market is worked up mainly through random contacts.	*vs.*	The firm follows a structured strategy for working up the market.
The firm sees a large number of customer categories all of which are deemed equally important to cultivate.	*vs.*	The firm gives clear priority to certain customer categories over others.
Organization		
All staff do most types of work.	*vs.*	All staff have clearly delimited tasks.
There are no specified organizational units.	*vs.*	It is possible to clearly describe the firm in an organizational chart.
Members of the organization are recruited on the basis of the founders' personal network.	*vs.*	Members of the organizations are there because of conscious recruitment of specific competencies.
The firms operations are adapted to the situation and governed by events that come up.	*vs.*	A disciplined and goal oriented effort towards developing the firm is being implemented.
Everybody in the firm have responsibility and authority within most areas.	*vs.*	There is a strict division of authority and responsibilities within the firm.

Table 2
Continued

Low (1)		High (5)
Competence		
To some extent the firm lacks knowledge about the market for its products.	*vs.*	The firm is very well equipped with knowledge about the market for its products.
To some extent the firm lacks competence in marketing and selling.	*vs.*	The firm is very well equipped with competence in marketing and selling.
To some extent the firm lacks expert knowledge within its domain.	*vs.*	The firm is very well equipped with expert knowledge within its domain.
To some extent the firm lacks experience and competence in the area of leadership.	*vs.*	The firm is very well equipped with experience and competence in the area of leadership.
The competence the firm has will not cover its needs for the future.	*vs.*	The competence the firm has will completely cover its needs for the future.
(Every member of the organization is responsible for the enhancement of his/her own competence.)	*vs.*	(A systematic plan for enhancement of competence is implemented for every member of the organization.)
Drive/Motivation		
The founder's primary goal with the firm is to provide employment for him/herself and perhaps some friends.	*vs.*	The founder's primary goal with the firm is to "amaze the world"; build a growth company.
The founder regards the firm as one of several possible ways of earning his/her living.	*vs.*	The founder is completely geared towards a future as business owner-manager.
Work must not intrude on the leisure of the people involved.	*vs.*	All time is invested in the firm.
For all parties concerned their involvement with the firm can be characterized as modest.	*vs.*	All parties concerned have a very large involvement with the firm.

Table 2
Continued

Low (1)		High (5)
Customer Relations		
The firm has as yet not sold any product to a customer.	*vs.*	The firm has a large number of customers who have bought its products.
It is not likely that any customer will repeat purchase the product.	*vs.*	It is very common that the firm's customer make repeat purchases.
It is difficult to create sales to new customers.	*vs.*	The firm constantly gets loads of new customers.
The customers are sometimes dissatisfied.	*vs.*	The customers are always very satisfied.
(One person keeps all customer contacts.)	*vs.*	(Customer contacts are dispersed among all members of the organization).
Other Relations		
There exist no relationships with banks or investors.	*vs.*	There exist very good and stable relationships with banks and investors.
The firm has a shortage of financial capital.	*vs.*	Access to financial capital for the firms operations is no problem whatsoever.
There exist no contacts that can provide credibility for the firm in the eyes of the market.	*vs.*	The firm has well developed contacts with other actors who give the firm the complementary resource credibility.
There exist no contacts that can provide the firm with additional management competence.	*vs.*	The firm has well developed contacts with other actors which provides the firm the with additional management competence.

Table 3
Scale Construction Results for Each Cornerstone in the Business Platform Model

	Number of Items	Number of Cases	Mean	S.D.	Cronbach's Alpha
Business Idea					
Scale Now	3	113	12.74	2.12	0.79
Scale Two Years Ago	3	107	10.77	3.41	0.90
Product					
Scale Now	3	101	12.30	3.85	0.94
Scale Two Years Ago	3	95	10.07	4.83	0.96
Market					
Scale Now	4	91	15.96	2.80	0.70
Scale Two Years Ago	4	88	12.81	3.97	0.84
Organization					
Scale Now	5	108	16.63	5.28	0.83
Scale Two Years Ago	5	104	13.35	5.22	0.84
Competence					
Scale Now	5	111	18.28	3.75	0.79
Scale Two Years Ago	5	105	15.26	4.42	0.81
Drive/Motivation					
Scale Now	4	109	15.29	3.38	0.71
Scale Two Years Ago	4	105	13.52	3.68	0.72
Customer Relations					
Scale Now	4	107	15.15	2.77	0.60
Scale Two Years Ago	4	104	13.30	3.65	0.73
Other Relations					
Scale Now	4	112	15.23	3.10	0.63
Scale Two Years Ago	4	106	12.91	4.01	0.80

alpha values, and only a mild positive skewing. Similarly, the results for drive/motivation are also satisfactory, although the alpha values are only slightly above 0.70, and the positive skewing is somewhat more pronounced.

The results for the final two dimensions, customer relations and other relations, are very similar. Both are based on four items in the final analysis, and both are somewhat positively skewed with across-item averages of 3.79 and

3.81 (out of five), respectively. Neither has any severe problems with internal nonresponse, but for both dimensions the Now version of the scale comes out with a less than satisfactory alpha. Adding one more appropriate item each to the assessment of these two cornerstones is recommendable.

Taken together, this initial attempt to create a formal operationalization of the business platform model must be judged as very successful from a reliability point of view. The instrument seems to work reasonably well as is, although improvement would be desirable for some of the cornerstones. Encouraging for the instrument's validity is also that the means are uniformly higher and that the standard deviations are uniformly lower for the Now version of the scales relative to the two years ago versions. This is the development that should be expected over time from a surviving sample of young firms. The only more serious problem detected so far is, arguably, the rather substantial internal nonresponse for the market and product dimensions. A closer look at this problem may suggest limitations for what types of firm these dimensions of the model are applicable. Alternatively, it may suggest a more positive solution to the problem. It is conceivable that with face-to-face or telephone interviewing the uncertainty behind the internal nonresponse could be sorted out. As to mail surveys, improved instructions to the respondent might help.

The results for the control question that were asked after the platform items suggest that few respondents found the questions difficult to answer. In the Now version, two-thirds of the sample agreed completely or partly that it was easy to determine what the answers should be. For natural reasons relatively fewer respondents—49 percent—found it easy to give responses for the firm's situation two years earlier. The proportions that refuted that the questions were easy stayed at eight and 12 percent, respectively.

Having established reliability, we now turn to the issue of discriminant validity. For this purpose we ran an exploratory factor analysis with the default criterion that eigenvalues for extracted factors should be higher than unity. We used the Now version of each item and included only those 32 items that were retained after the reliability analysis reported. No further items were dropped in the various factor analyses we performed. As the number of cases is important for the stability of factor analysis solutions, we chose the pairwise alternative, thus using all available correlational information in the data. The initial analysis yielded nine factors, which accounted for 68 percent of the total variation. As the ninth factor had an eigenvalue just over one and in order to better assess the fit between the eight-cornerstone conceptualization and the factor analysis results, we performed a second run with the extraction of eight factors as a forced choice, which account for 65 percent of the variance. The varimax-rotated version of this analysis is displayed in Table 4. Note also that for ease of interpretation the factors have been renumbered, and loadings below |0.30| have been suppressed.

All items intended to measure the same dimension loaded on the same factor, and only in two cases out of 32 does an item have a higher loading on another factor than its own. The number of side-loadings above |0.30| is low overall (seven). Recall that we did not assume *a priori* that the different cornerstones of the business platform model would be uncorrelated, as they are all partly a function of time. In spite of the fact that the factor analysis extracts orthogonal (uncorrelated) factors, the cornerstones emerged as distinct in this analysis. This clearly suggests that the different item packages measure different dimensions. That is, discriminant validity appears to be high.

Table 4
Factor (Principal Components) Analysis Loadings for Cornerstone Items
(Now Data; Pairwise Deletion of Missing Values; *n* = 92–114)

Factor (expl. var) / Items	F1: Idea (7.2 percent)	F2: Product (8.9 percent)	F3: Market (6.8 percent)	F4: Organization (12.0 percent)	F5: Competence (9.6 percent)	F6: Drive/ Motivation (7.5 percent)	F7: Customer Relations (5.9 percent)	F8: Other Relations (6.7 percent)
Idea 1	.84							
Idea 2	.86							
Idea 3	.75							
Product 1		.83		.38				
Product 2		.86						
Product 3		.92						
Market 1			.81					
Market 2			.61					
Market 4			.34	.63				.31
Market 5			.74					
Org. 1				.81				
Org. 2				.70				
Org. 3				.70				
Org. 4				.68				
Org. 5				.81				

Table 4
Continued

Factor (expl. var) Items	F1: Idea (7.2 percent)	F2: Product (8.9 percent)	F3: Market (6.8 percent)	F4: Organization (12.0 percent)	F5: Competence (9.6 percent)	F6: Drive/ Motivation (7.5 percent)	F7: Customer Relations (5.9 percent)	F8: Other Relations (6.7 percent)
Comp. 1					.77			
Comp. 2					.57	.31		
Comp. 3					.66			
Comp. 4					.72			
Comp. 5					.72			
Drive 1						.77		
Drive 2						.69		
Drive 3						.67		
Drive 4					.59	.42		
Cust. 1							.69	
Cust. 2							.71	
Cust. 3			−.30				.53	
Cust. 4							.57	
Other 1						.36		.58
Other 2								.58
Other 3								.75
Other 4								.78

Note: Loadings less than ±.30 have been suppressed. Total explained variance = 65 percent. Displayed variance explained per factor is after rotation. The displayed solution is a forced eight-factor solution, as nine factors with eigenvalue >1 can be extracted from these data (var expl. = 68 percent). The screeplot shows a curve that falls asymptotically with no clear breaks or bends.

When the analysis was reran for the two years ago versions of the items, the results were very similar. In some ways they were better and in other ways were worse than those displayed in Table 4. The analysis yields eight factors by the default criterion (better), and these eight factors account for 70 percent of the variance (better). The factor pattern is similar to that displayed in Table 4 and thus is very clear all dimensions.

However, the number of side-loadings is higher (9 to 7; worse), and for two items the highest loading is on the wrong factor (same). The results are displayed in Appendix 1.

The factors in the factor analysis can be regarded as weighed indices of all items included in the analysis, with greater weight given to items with high loadings. Summated indices based on the reliability analysis, on the other hand, are influenced solely by those items that were intended to assess that particular dimension, and these items are given equal weight in the summation. Therefore, a summated index is not identical to its corresponding factor. While the factors are constructed to be uncorrelated, the indices may overlap. We therefore supplement the factor analysis with a correlation analysis to give more direct evidence on the relative distinctiveness of the cornerstone indices. This analysis is displayed in Table 5.

The results show that the correlations are positive for the most part. This was expected, since all dimensions have in common that they are in part a function of time. Only one correlation is negative, and that correlation is not statistically significant. Interestingly, two of the dimensions one might have suspected were related—market and customer relations—are not correlated at all in this sample. Most correlations are modest. The fact that the organization dimension has a couple of correlations in the .40s does not prove it not to be distinct enough. A correlation on 0.44 reflects that the two factors have less than 20 percent of the variance in common. This is very far from being identical, and our conclusion that discriminant validity is satisfactory remains valid.

Discussion

In all, we would hold that our attempt to create a formal operationalization of the business platform model has been successful. We have established moderate to very high reliability and have established high discriminant validity for the different cornerstone indices. This is an important step toward making the business platform model a quantifiable, holistic, and action-oriented instrument for assessing and for assisting the development of young firms and hence toward increased and more well-founded use of the model.

Much remains to be done before a fully satisfactory tool has been developed. As noted above, some revision of the instrument may be needed in order to improve its technical properties. These technical properties need to be tested also for a translated version, so that the applicability of the instrument can be generalized to other countries. We have tested the instrument on technology-based firms, a category for which the platform model originally was developed. Subsequent research has indicated broader applicability (Klofsten 1998). However, it cannot be ruled out that the type of firm or the average higher education of the CEOs investigated made the instrument perform better than it would have in a more diverse sample of firms. Further research on large and broad samples should use the technically improved version of the instrument to assess the state of firms at various points in time during their early development and should relate these assessments to outcomes. This is needed in order to establish predictive validity of the model as operationalized with our instrument.

Table 5
Pearson Correlations between the Cornerstone Summated Indices (based on Now data; *n* = 87–110)

	Idea	Product	Market	Organization	Competence	Drive/Motivation	Customer Relations	Other Relations
Idea	1.00							
Product	–.07	1.00						
Market	.05	.36**	1.00					
Org.	.13	.44**	.44**	1.00				
Comp.	.13	.22*	.13	.31**	1.00			
Drive	.19*	.07	.15	.23*	.42**	1.00		
Cust.	.04	.22*	.00	.17	.29**	.19	1.00**	
Other	.11	.13	.16	.07	.19*	.10	.25**	1.00

*$p < 0.05$; **$p < 0.01$.

Other issues include establishing minimum levels for each cornerstone and investigating the possible need of outstanding levels on some dimensions, as well as checking for differences in these regards by industry or type of firm.

The fact that the model is based on an extensive literature review and qualitative research should ascertain some external validity. However, further in-depth work is needed in order to determine whether assessments based on the standardized instrument accord with clinical judgment. Experiments would be the ideal for evaluating the model's and the instrument's suitability not only for prediction but also as a basis for corrective action. Such experiments would be difficult to set up in practice, and if possible, conducting them would be ethically questionable, as it would involve refraining from giving advice the model predicts is essential for the firm's survival. However, quasi-experiments should be possible. That is, all cases in the study would get proper advice according to the model. The experimental manipulation would be provided by the firms themselves—that is, the extent to which they choose to implement the actions suggested by the advice. Evidence that those who followed the advice fared better than those that did not would be very strong support for the validity of the model and its operationalizations. Ultimately, that is the type of evidence we need in order to apply this tool with great confidence.

Finally, when it comes to the analysis of the firm's development processes (earlier as well as later) one will never escape from the difficulties to make relevant judgments in real time, a situation very different from analysis of already written cases (for teaching purposes) where one knows in advance the results of decisions and actions in the firm. In order to show the difficulties, one can exemplify with some of the cornerstones of the business platform: How does the entrepreneur know when the market is defined? How does the entrepreneur know when there are enough driving forces for growth? How does the entrepreneur know when there is quality in the customer relations? Of course there is no perfect method for handling such philosophical issues, although a most relevant procedure is to ask relevant qualitative questions concerning the eight cornerstones continuously within the firm's management team and then to try to achieve consensus concerning at what level the firm is at present. Relevant questions on the market development could include the following: Describe the firm's method of developing its market—does the firm develop its market in a structured manner, for example by its own personnel, representatives, or built-in customers? What criteria are there for the choice of market, segment, or niche? Concerning prime mover and commitment, one can ask the following: Why was the firm started? Who is the motor in the firm? What are the differences in opinion that exists over how the firm's activities should be run? Hopefully, these questions can answer how far the firm has progressed in its development of the business platform. With knowledge of the contributing factors, or cornerstones, which are necessary to build up a business platform, it is possible to determine if one has succeeded in attaining one, and if not, how far there is left to go.

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Appendix
Factor (Principal Components) Analysis Loadings for Cornerstone Items (Two Years Ago Data; Pairwise Deletion of Missing Values; *n* = 88–109)

Factor (expl. var) Items	F1: Idea (8.3 percent)	F2: Product (9.09 percent)	F3: Market (68.3 percent)	F4: Organization (11.6 percent)	F5: Competence (9.4 percent)	F6: Drive/ Motivation (7.5 percent)	F7: Customer Relations (7.19 percent)	F8: Other Relations (8.8 percent)
Idea 1	.90							
Idea 2	.92							
Idea 3	.86							
Product 1		.81						
Product 2		.88						
Product 3		.85						
Market 1			.84					
Market 2		.31	.69					
Market 4			.37	.56				
Market 5			.75					
Org. 1				.82				
Org. 2			.38	.60				
Org. 3				.74				
Org. 4				.68				
Org. 5				.79				

Appendix
Continued

Factor (expl. var) Items	F1: Idea (8.3 percent)	F2: Product (9.09 percent)	F3: Market (68.3 percent)	F4: Organization (11.6 percent)	F5: Competence (9.4 percent)	F6: Drive/ Motivation (7.5 percent)	F7: Customer Relations (7.19 percent)	F8: Other Relations (8.8 percent)
Comp. 1				.32	.75			
Comp. 2				.36	.56			
Comp. 3					.61			
Comp. 4					.78			
Comp. 5					.66			
Drive 1						.70		
Drive 2						.67	.32	
Drive 3						.84		
Drive 4						.63		.31
Cust. 1							.69	
Cust. 2							.71	
Cust. 3							.62	
Cust. 4			.37		.44		.35	
Other 1								.73
Other 2								.75
Other 3								.80
Other 4								.66

Note: Loadings less than ±.30 have been suppressed. Total explained variance is 70 percent. Displayed variance explained per factor is after rotation. The displayed solution is the default solution, as only eight factors with eigenvalue >1 can be extracted from these data. The screeplot shows a curve with clear bends at two and eight factors.