

A New Venture Analysis Method and Its Application

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The new venture analysis is the foundation of venture development. In this paper, 14 venture prototypes are proposed based on the attributes of venture. Then, a new venture analysis method is discussed by the way of matching the new venture with the corresponding prototype. Considering the fuzziness of human subjective grading, the L-R fuzzy numbers are used to express the variables and corresponding fuzzy algorithm are applied in analysis. At the end, an application example is applied to indicate the effectiveness of the method.

Keywords: venture analysis standards, venture prototype, L-R fuzzy number.

Introduction

Global market and social evolution pursue short life cycle, short delivery time, high quality and diverse products. Fierce market competition force the firms develop new product and create new venture frequently. New technology development gives the firms many choices. So, it is indispensable to analyze the new ventures before a new venture is decided to be invested.

In this paper, 15 variables are applied to accurately describe the attributes of business. And also, 14 venture prototypes are proposed by analyzing the attributes of business. Then, a new venture analysis method is discussed by matching the new venture with the prototypes. With this method a firm can analyze the development potential of the new venture. The new venture that is worth to be invested could become the development focus of a firm.

Attributes

In the entrepreneurship literature, several outcomes of new ventures have been cited as desirable-outcomes that signal the viability of the venture. These include survival^[1], profitability^[2], employment growth^[3,4], entrepreneur-perceived growth performance^[5] (business growth; Market share, cash flow, sales; and volume growth; sales, earnings, net worth),

meeting goals or objectives^[6] (budget, staffing, deadlines, quality, product reliability, efficiency, customer, satisfaction, service), return on investment^[7,8], and market share gain^[9]. However, the measurement of performance in new ventures is a complex undertaking, with no commonly accepted lists of performance variables or methods by which new ventures are evaluated. Thus, a combination of these outcomes should be utilized if possible, to ensure that significant effects of venture attributes are detected. Later in this paper the representation of such combinations as prototypes is suggested, and is further developed.

Several authors in the business administration and economics literature^[10,11] have argued that observation of the levels of innovation, value, and persistence over time produce consistent results in the anticipation of the business viability of new business ventures. Authors in the strategy literature^[12,13] have argued that examining scarcity, non-appropriability, and flexibility as additional consistent standards can help to assess the strategic viability of a venture—its “keeping” value. Thus, as a sample set of new venture attributes, levels on the following variables are suggested to be related to venture viability. These variables include:

- (1) New combination (NC)
- (2) Product market match (PMM)
- (3) Net buyer benefit (NBB)
- (4) Margins
- (5) Volume
- (6) Repetitive purchase
- (7) Long-term need
- (8) Resources
- (9) Non-imitability
- (10) Non-substitutability
- (11) No slack
- (12) No holdup
- (13) Decrease uncertainty
- (14) Decrease ambiguity
- (15) Core competence.

All in all, our capability to identify a least fifteen sample attributes of viable ventures suggests the possibility of utilizing *venture viability templates* or *venture analysis standards* to

identify and observe necessary venture characteristics. Like the forensic evaluation of a partial strand of human DNA that supports a legal judgment, the assessment of a partial set of venture characteristics—as a sample of a venture's genetic material—can provide entrepreneurs or investors with the capability to make the business judgments that distinguish viable from less-viable ventures.

New Venture Case Prototype

Accordingly, a set of case prototypes, based upon actual ventures, is required for comparison purposes. Based on comprehensive case studies conducted over a period of years, 14 prototype firm innovation types have been proposed: (1) hobby; (2) charity; (3) research project; (4) low competence; (5) buy-a-job small business; (6) life style; (7) high potential; (8) model venture; (9) struggling proprietary; (10) competence based troubled; (11) hostage; (12) competence based success; (13) technology; (14) fad. Analysis by scoring the firm on the foregoing 15 venture attributes can suggest a correlation between the analysis scores and the base score innovation types of a firm.

(1) Charity

When a venture lacks many of the elements that make it a business, but still has "staying power" in society, we generally find a charity. A charity is uneconomic without help because, though a long-term benefit to society, there are insufficient volume and margins to make it a self-sustaining business. In this case, NBB might be medium to high, though there is insufficient volume and margins to make it a self-sustaining business evidenced prototype by low PMM. So we find as charities organizations that vary from opera and symphony companies to other community, educational, or religious groups that exist because they depend upon the "charity" of society to make up the shortfalls that come from lack of profitable delivery of their product or service. In the venture area, we find as charities projects that are not yet businesses because they don't have sufficient appeal to generate the volume and margins that come with a clear PMM. To pursue such ventures means that they must be "fed" resources, because they do not generate enough on their own.

(2) Hobby

Based on interest in an area that borders on or is "love", a hobby is a high core competence activity. Innovation levels for hobbies vary depending upon the individual and the hobby. Because of the uniqueness of each individual, imitability and appropriability are virtually non-existent and uncertainty and ambiguity are low.

But a hobby is NOT a business because there is no PMM, HBB, margin, volume, frequency, long-term need, or BUSINESS resources.

(3) Lifestyle Small Business

Some people prefer lifestyle to money, and choose the vehicle of a small business to get them there. For example, someone might want to live in a picturesque location and choose

a venture that permits them this lifestyle choice, such as owning and operating a small hotel in a hamlet near the ocean.

A lifestyle small business depends upon purchase frequency and product longevity (e.g. the need for a bed and breakfast in a scenic location) for its viability. Some sacrifices are thus required in all other areas—trading money for "lifestyle." Especially important to the lifestyle small business, however, is the opportunity to vary the level of innovation and the level of imitability.

(4) Competence-based "Troubled" Venture

Somewhat like a "charity", the competence-based venture in trouble combines HIGH COMPETENCE with low PMM, margins, and volume, for something with a long-term need, in an environment of uncertainty and ambiguity. This venture is UNLIKE a charity in that innovation is high, as is scarcity—with substantial control of appropriability. Also, a PMM is possible in this type of venture.

(5) Struggling Proprietary

The struggling proprietary type venture experiences the paradox of being so closely held (i.e. having such unique core competence or proprietary secrets, etc.) that it fails to generate sufficient "business."

Hence in this type of venture, one might observe that all the "can you keep it?" variables (scarcity, non-appropriability, and flexibility) are high, while all the "is it a business?" variables (innovation, value & persistence) are lower—more in the medium range.

Examples of the struggling proprietary type of venture include the inventor- or engineer-based business that has a protected technology, but is not utilizing the technology to produce a fully commercial product.

(6) High Potential Venture

The high potential venture would be a venture with medium to high ratings in all categories and as such should be well balanced. By definition (under the "completeness" logic) there is room for improvement in each area.

(7) Successful Competence-based Venture

In this type of venture, high competency, accompanied by PMM, NBB, margins, volume, frequency of purchase, and the availability of resources indicate long-term success potential.

Medium product longevity implies increased ambiguity and medium scarcity, with a DECAYING level of innovation.

(8) Model Venture

What a venture is built so that each of the key elements is optimal, it is a model venture. This does not mean, however, that the venture is perfect. Instead, it means that the venture is optimally situated to fully take advantage of venturer expertise and stakeholder support.

(9) Research Project

The research project is not a business, nor is it intended to be a business. Because this is research, by definition there is a lack of information, hence the answers to many of the sub questions will be "unknown." Yet an analysis of this type of project utilizing the criteria still reveals some interesting relationships. For example, ratings that show strong core

competence and level of innovation explain some of the reasons that research may be stimulated. However, no PMM (Product/market match) implies that this is NOT a business, and should not be treated, thought of, or managed as such.

(10) Low Competence Venture

The low competence venture is a trap. Because the inexperienced venturer can see a glimmer of each of the key elements of a venture, s/he often mistakenly assumes that with only a little bit of help this very weak project can be "turned around."

But sadly, this venture is "congenitally flawed." It is often the case that ventures that are formed with insufficient resources, or in environments (niches) that are tightly packed with rivals (Carroll & Hannan, 1989), PERMANENTLY bear the scars of their weak condition at founding. They are most likely to be "selected out" of the market (fail). Efforts to try and prolong their life most often tend to be futile. If life is prolonged, the venture tends to be a "grind" to operate.

(11) "Buy-a-job" Small Business

Though this business appears to be perilously close to the "low competence" venture, it is really substantially different. Whereas the low competence venture is weak in all areas, this prototype venture is strong in the "persistence" variables, of frequency and product longevity.

In a buy-a-job venture, weak core competence implies low NC, low-scarcity, high hold-up, uncertainty and ambiguity with medium slack. Low innovation and medium PMM lead to low NBB and margins.

(12) Hostage Venture

All too often in venturing the circumstance arises where "talent" meets "power," and loses. The hostage venture possesses core competence, a new combination/product-market match with high net buyer benefit, purchase frequency and product longevity. But, due to high appropriability, margins are low, resources are few, volume is restricted, and ambiguity is high. Essentially, the hostage venture "makes it off the ground," only to be consumed in trying to redress an adverse small numbers bargaining position.

In a hostage venture, supplier and buyer power is uncontained. The venture is "held-up" by sole suppliers of critical components of the product or service, or by sole purchasers (dominant customers). Hence, the size of the "slice" of the economic pie that remains for the venture is insufficient to permit the venture to achieve its full potential.

(13) Fad

A "fad" type venture is distinguished from other types of venture almost entirely by its lack of persistence over time. Quite often a fad-based venture can yield substantial profits—these profits are just limited-lived. Essentially in a fad, a strong core competence yields an improved product or service, with strong PMM, NBB, margins and volume, which in turn produce plentiful resources and low uncertainty. But, because scarcity is doubtful, and holdup almost certain given time, the longevity of the product/service is doubtful, hence ambiguity is high.

(14) Successful Technology-based Venture

The success of this type of venture comes from high levels

of core competence, PMM, NBB, margins, volume, purchase frequency, long-term need, and access to resources. Ironically, the reason that it is not higher on the "keep it" axis stems from its source of strength: technology. And, since the pace at which many technologies change is rapid, levels of scarcity and non-appropriability erode as the "newness" of an initial "new combination" fades. Thus, this type of venture most likely will have medium levels of NC and ambiguity, supported by quite low levels of uncertainty (insurable risk).

Approach to Analysis

Through the use of mathematical algorithms, the attributes and the prototypes can be connected to a matrix of base values that represent the prototypical outcomes of new business ventures. Then, professionally trained evaluators can rate any new venture opportunity, and those ratings can be compared with the base value prototype matrix, to produce correlation scores. These correlation scores indicate how "like" the new venture is to each prototype, and produce information that holds recurring elements constant (i.e. used standard attributes as rating criteria), while highlighting the exceptions (i.e. producing correlation with known prototypical positions in venture space). When this type of analysis is conducted, then mistakes can be identified and avoided, or possibly corrected, before scarce money and time is spent, thus improving the success rate of new business venture in China specifically and in global venturing in general.

1 Fuzzy state index

To attempt to achieve an adequate representation of possible prototype ventures in *venturing space*, a model of the possibilities is also necessary. Based upon the earlier literature review of venture attributes, it seems possible to distinguish prototype ventures across two dimensions: business viability, and strategic viability. Among the previously reviewed outcomes that indicate venture viability, it is reasonable to assert that business viability is shown through profitability, and that strategic viability is demonstrated through the long v. short-term nature of the venture. In short, is it a business? And, can you keep it?

Because of the fuzziness of these 15 attributes (i.e. they are hard to describe with a precise value), we use L-R fuzzy numbers as basic fuzzy state index^[14]. The hierarchy structure is divided into three levels:

- (1) the fuzzy state target level, "Business" \bar{X} ; "Keep It" \bar{Y}

$$\bar{X} = (\bar{X}_1, \bar{X}_2, \bar{X}_3)$$

$$\bar{Y} = (\bar{Y}_1, \bar{Y}_2, \bar{Y}_3)$$

- (2) the fuzzy state criteria level, \bar{X}_i ; \bar{Y}_j

$$\bar{X}_1(\text{Innovation}) = (x_{11}, x_{12});$$

$$\bar{X}_2(\text{Valuable}) = (x_{21}, x_{22}, x_{23});$$

$$\bar{X}_3(\text{Persistent}) = (x_{31}, x_{32}, x_{33});$$

$$\bar{Y}_1(\text{Scarce}) = (y_{11}, y_{12});$$

$$\bar{Y}_2(\text{Now-appropriable}) = (y_{21}, y_{22});$$

Y_2 (Flexible) = (γ_{31} , γ_{32} , γ_{33})
 (3) the fuzzy state index level,
 x_{11} (NCC), x_{12} (PMM);
 x_{21} (NBB), x_{22} (Margins), x_{23} (Volume);
 x_{31} (Repetitive), x_{32} (Long-term need), x_{33} (Resources);
 γ_{11} (Non-imitable), γ_{12} (Non-substitutable);
 γ_{21} (No slack), γ_{22} (No holdup);
 γ_{31} (Uncertainty), γ_{32} (Ambiguity), γ_{33} (Core competence)

2 Comprehensive fuzzy evaluation algorithm

Because fuzzy state index is represented by L-R fuzzy number, this evaluation algorithm can be obtained according to the basic idea of comprehensive fuzzy evaluating.

(1) Comprehensive evaluation algorithm of the fuzzy state criteria X_i and Y_p

Based on the determination of weight coefficients w_{ij} and v_{pq} , there is:

$$X_i = \sum_{j=1}^{n_j} w_{ij} x_{ij} \quad i = 1, 2, 3$$

$$Y_p = \sum_{q=1}^{m_p} v_{pq} \gamma_{pq} \quad p = 1, 2, 3$$

(2) Comprehensive evaluating algorithm of the fuzzy state target X and Y

Based on the determination of weight coefficients w_i and v_p , there is:

$$X = \sum_{i=1}^3 w_i X_i$$

$$Y = \sum_{p=1}^3 v_p Y_p$$

3 Innovation type identification based on the comprehensive fuzzy evaluation

Based on the comprehensive fuzzy evaluation of fuzzy state target X and Y , fuzzy identification of innovation type can be proceeded on above-mentioned "Business" X and "Keep It" Y definitions of 14 innovation types. The details will be discussed in another paper.

An Application Example

A cable factory was established in Yixing, Jiangsu Province, in 1992 to provide consumers with power cables. The innovation type of this small cable business can be analyzed with above-mentioned method. First, the rating scores of 15 factors are given based on the practical business situation of this cable factory as follows.

$$x_{ij} = (4, 8, 6, 9, 9, 6, 4, 8) \quad .j = 1, \dots, 8$$

$$\gamma_{pq} = (4, 9, 6, 4, 5, 5, 8) \quad q = 1, \dots, 7$$

here, x_{ij} are represented with L-R fuzzy number as, $4 = (4, 0, 0)$, $8 = (8, 0.5, 0)$, ... etc.

Let weight coefficients are,

$$\begin{bmatrix} w_{1j} \\ w_{2j} \\ w_{3j} \end{bmatrix} = \begin{bmatrix} \frac{1}{2} \\ \frac{1}{3} \\ \frac{1}{3} \end{bmatrix} \quad \begin{bmatrix} v_{1q} \\ v_{2q} \\ v_{3q} \end{bmatrix} = \begin{bmatrix} \frac{1}{2} \\ \frac{1}{2} \\ \frac{1}{3} \end{bmatrix} \quad w_i = 1/3 \quad v_p = 1/3$$

Then, we can get state criteria X_i ;

$$X_1 = \sum_{j=1}^{n_1} w_{ij} x_{ij} = \sum_{j=1}^2 w_{ij} x_{ij} = 6;$$

$$X_2 = 8;$$

$$X_3 = 6;$$

And, state criteria Y_p ;

$$Y_1 = \sum_{q=1}^{m_1} v_{pq} \gamma_{pq} = \sum_{q=1}^2 v_{pq} \gamma_{pq} = 6.5;$$

$$Y_2 = 5;$$

$$Y_3 = 6;$$

Furthermore, the state target can be obtained,

$$X = \sum_{i=1}^3 w_i X_i = 6.7;$$

$$Y = \sum_{p=1}^3 v_p Y_p = 5.8$$

Based on above calculation, the new venture analysis can be done. This cable factory is most likely a "High potential" business as the analysis results.

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