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Ervin L. Black  
*Brigham Young University*

F. Greg Burton  
*Brigham Young University*

Peter M. Johnson  
*Brigham Young University*

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## **Qualitative Factors as Determinants of Continued Success: An Examination of eBusiness Entrepreneurial Firms Using the New Venture Template™**

**Ervin L. Black, F. Greg Burton and Peter M. Johnson\***

In this study, we analyze eBusiness entrepreneurs nominated by the Ernst & Young Entrepreneur of the Year® Award program to ascertain whether qualitative factors are correlated with success. We find qualitative factors are incrementally informative above and beyond the information provided by quantitative factors. More specifically, firms that are able to maintain their innovative strategies by improving upon the product (or service) they offer and are able to meet the long-term needs of the customer are more likely to experience increased sales growth and have greater access to capital which results in a successful harvest strategy.

### **Introduction**

In the year 2008, approximately 43,546 United States businesses filed bankruptcy, up 54% from 2007 (SBA (2009)). A high percentage of these business failures involved entrepreneurs. Entrepreneurs are associated with most small companies in the U.S. and, according to the Small Business Administration (SBA), these small firms represent 99% of all employers and are responsible for about two-thirds of new jobs (SBA (2003) and (2009)). Thus, it is easy to see that small business failures have a significant impact on the labor force and the economy. In addition, in light of the recent economic downturn, research into the success of new business ventures is very timely.

Researchers have long recognized the importance of small business survivability and many studies have identified attributes of successful startup firms (Allen and Hall, (2008); Brown, (2005); Robb, (2002)). These studies examined both venture and entrepreneurial characteristics and have found that access to capital, the degree of novelty, location, and stability with key stakeholders have contributed to the success and initial survivability of small businesses. However, as firms progress and transition through the business life cycle other factors beyond those that help a new venture become viable are needed to achieve continued success, growth, and survival. While many studies have looked at reasons for venture failures, few have examined the factors that are associated with long-term success.

Successful venture managers consistently analyze various types of data including qualitative and quantitative information. Quantitative data are *objective* and consist of demographic and financial information related to the profitability of the firm and various types of ratio analysis such as return on assets, return on sales, leverage, profit margins, etc. As long as this information is timely and captured accurately, making decisions based on quantitative information is useful and routine. Qualitative data, on the other hand, are *subjective* and more difficult to measure. They relate to things such as management expertise, business location,

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\* Brigham Young University, Marriott School of Management, Provo, Utah 84602 USA  
Corresponding author: Peter M. Johnson, Brigham Young University, Marriott School of Management, 519 TNRB, Provo, Utah 84602 USA,  
(801) 422-3877, [peter\\_johnson@byu.edu](mailto:peter_johnson@byu.edu)

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product innovation, product development, etc. Because qualitative data are difficult to assess, several models and templates have been developed to assist business leaders in knowing what information should be captured and how it should be evaluated. However, due to its subjective nature, it is often unclear how or what type of qualitative information is related to success. Furthermore, there is limited empirical research evaluating whether qualitative measures are correlated with key success factors. Thus, an important and yet unanswered question is whether qualitative information, when properly measured and analyzed, can be used to measure a firm's success. A second but related question is which qualitative information should be measured.

The purpose of this paper is to empirically explore whether qualitative information is correlated with success and can be used to identify key success factors in conjunction with, and in addition to, quantitative factors. We also explore whether qualitative information is a more useful predictor of success as compared to quantitative information.

To measure qualitative factors, we used the New Venture Template™ (NVT), developed by Dr. Ronald K. Mitchell. The NVT has won numerous awards for its ability to assess business operations and to provide specific recommendations for improved business practices. Currently, the NVT methodology is used by the Wayne Brown Institute and iAccess Capital to score and rank new ventures and to identify key factors of success for start-up firms that are transitioning through the business life cycle.

Identifying key success factors of established firms is essential so that early stage ventures will have some idea of the attributes associated with success and make obtaining these attributes part of their strategic plans. For this reason, early-stage firms can use models such as the NVT to assist them in measuring and evaluating qualitative information so that they can focus on implementing key factors of success into their business strategies. The implementation of key success factors helps to minimize the social cost of business failure by assisting entrepreneurs in creating and maintaining successful businesses.

To identify key factors associated with successful firms and to ascertain whether qualitative factors are correlated with success, we analyze eBusiness entrepreneurs who were nominated as part of the Ernst & Young Entrepreneur of the Year® Award program during 1997-1999. We choose this period because it was a time of growth and stability for eBusiness firms and preceded the dot.com crash and the economic ups and downs of the 2000s. Since the goal of this paper is to identify qualitative success factors, it is necessary to have a "level" playing field where firm characteristics are not confounded by unusual extraneous influences outside of management control. The eBusiness entrepreneurial firms we examine, hereafter EY firms, are not new startup ventures but have transitioned through initial success and have emerged and maintain a successful business operation given the normal fluctuations of the economy.

To empirically explore and identify key success factors associated with the EY firms, we examine both qualitative and quantitative characteristics. The quantitative factors we consider consist of demographic (firm type, number of employees, etc.) and financial (profitability, leverage, sales growth, etc) information. We use content analysis to identify and score qualitative factors based on the NVT model. As stated, the NVT is designed to assist entrepreneurs in building and sustaining successful ventures by identifying key success factors of business operations. We combine success factors identified in prior research with the qualitative factors identified by the NVT and explore the correlation and likelihood of success along several dimensions: 1) innovation, 2) value, 3) persistence, 4) preserving economic scarcity, 5) preventing the appropriation of created value, and 6) flexibility.

The results of the study suggest that qualitative factors are highly correlated with measures of success. More specifically, innovation, value, and persistence are positive and significantly correlated with firm growth as measured by sales and the number of employees.

Firms that maintain their innovative strategies, continue to produce margins above industry averages, and are able to meet the long-term needs of the marketplace have a higher probability of continued success. In addition, qualitative factors as measured by the NVT model seem to have greater explanatory power as indicators of success than quantitative information, such as financial and demographic factors, for some measures of success. The evidence provided in this study gives insight into how business owners and investors can use qualitative information in evaluating business operations and the likelihood of continued success for the new venture. Additionally, as a firm begins to transition from a new start-up to an established firm, models such as the NVT may be helpful in identifying specific strategies needed to achieve continued success.

The remainder of the paper is organized as follows: Section II reviews prior research on success factors and explains how our study extends prior research through its focus on qualitative measures and their correlation with success factors of eBusiness firms that have transitioned from start-up to a successful, established firm. Section III discusses our sample selection and presents descriptive statistics while Section IV discusses the research design and provides analysis and regression results. Section V concludes and provides recommendations for further research and analysis.

## **II. Prior Research on Success Factors**

A host of informative studies have identified factors that lead to venture success and failure (See for example, Allen and Hall (2008); Brown (2005); Bull and Willard (1993); Choi and Stack (2005); Colombatto and Melnik (2007); Covin and Slevin (1990); Duchesneau and Gartner (1990); Gadenne (1998); Gartner, Starr, and Bhat (1998); Lechler (2001); Lumpkin and Dess (2001); Roure and Keeley (1990); Shepherd, Douglas, and Shanley, (2000); Timmons (1994); Vesper (1990)). These studies have taken several different approaches and focused on multiple measures of success with the goal of identifying key factors that lead to success. While these studies have been useful in identifying key factors among different dimensions, they have been narrow in their focus. For example, the majority of the work related to venture and entrepreneurial firms and their success factors can be classified into three main categories: Success factors associated with 1) start-ups, 2) early stage ventures, and 3) established ventures.

The work of Allen and Hall (2008), Lechler (2001), Shepherd et al. (2000) and McGee, Dowling, and Megginson (1995) identified success factors or attributes associated with start-ups and new ventures. The factors discussed attribute success to provision of effort, utilization of pre-existing resources, social interactions, and mortality risk. Mortality risk seems to increase with the degree, as well as the number, of novel dimensions. Other success factors mentioned are well-developed strategies and location of start-up firms. While these success factors are informative for new start-ups, these studies do not explore what other factors should be considered as a firm transitions from a new start-up to an established firm or whether qualitative measures are key to success.

The work of Lumpkin and Dess (2001) and Gartner et al. (1998) targets firms that are in the early stage of development and attempts to determine what success factors are associated with these types of firms. Early stage firms are not new start-ups and are not considered to be established firms. They find success factors associated with early stage firms require businesses to devote more time dealing with vendors and analyzing potential entrants into markets and less time determining the identity of the business. Gadenne (1998) focuses on the industry specific success factors of these early stage firms and concludes that success factors tend to vary depending on the industry. For example, in the retail industry, success, as

measured by profitability, is positively related to low-priced products and high sales and negatively related to debt and other financing sources. While the study of early stage ventures and their success is informative, the work done in this area examines only quantitative factors and is context specific. The success factors discussed may not affect a similar firm in the same stage of development with different qualitative factors.

A third area of research examines success factors associated with established firms. Duchesneau and Gartner (1990) use surveys and self-reported information and find that established ventures seek opportunities to reduce risk, spend more time on planning, and encourage collaborative decision making at the strategic and operational levels. However, the characteristics identified by Duchesneau and Gartner (1990) are more descriptive in nature and not related to any financial measures of success or other quantitative measures of performance. A study conducted by Brown (2005) compares the long-term success of venture backed firms to non-venture backed firms following an IPO. The author observes that venture-backed firms survive longer, grow faster, and have superior operating performance than non-venture backed firms. However, this study does not highlight any qualitative factors that attribute to the venture-backed firm's long-term success and is in contrast to the findings of Brau, Brown, and Osteryoung (2004) who find no significant difference in success factors for venture-backed and non-venture backed firms.

Our study extends prior research by providing a comprehensive analysis of success factors across several dimensions. First, we combine three approaches to measure success: A demographic measure, a financial measure, and an outcome measure. Second, we identify qualitative success factors using the NVT model that start-ups and emerging ventures can focus on as part of their strategic plans as they transition from new start-ups to established firms. And lastly, we determine the types of available information that are useful in explaining success. Our goal is to provide a detailed analysis of eBusiness ventures that have transitioned beyond the normal problems associated with becoming established, successful firms and determine whether qualitative measures can be used to identify success factors that exist for these firms.

### **III. Sample Selection and Descriptive Data**

#### **A. Sample**

We provide a comprehensive analysis to ascertain the correlation of qualitative measures with success factors by selecting eBusiness firms nominated for the Ernst & Young Entrepreneur of the Year® award between 1997 and 1999.<sup>1</sup> We specifically identified eBusiness firms in the technology industry with the following 3-digit SIC codes: 357 (Computer and Office Equipment), 367 (Electronic Components and Accessories), 369 (Miscellaneous Electronic Equipment and Supplies), 504 (Computers and Software – Wholesale), 737 (Computer Programming and Data Processing), and 738 (Miscellaneous eBusiness Services). Each of the firms selected was required to have demographic and financial data as well as a descriptive narrative sufficient to be able to score the companies using the NVT methodology.

Given these requirements, we obtained a sample of 118 eBusiness entrepreneurial firms. Table 1 provides the frequency distributions of companies by industry and shows that

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<sup>1</sup> Nominations can be submitted by anyone who knows a successful entrepreneur. To be eligible for nomination, a nominee must be an owner or manager who is involved in top management and primarily responsible for the recent performance of a successful company. The Ewing Marion Kauffman Foundation provided the sample data used in this study.

69.49% of the firms in the sample are from the Computer Programming and Data Processing industry followed by Computers and Software Wholesale at 10.17%.

**Table 1**  
**Sample Frequency by Industry of 118 firms from 1997-1999**

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Industry	3-digit SIC	Sample Frequency	Percentage of Sample
Computer and office Equipment	357	4	3.39 %
Electronic Components and Accessories	367	8	6.78 %
Miscellaneous Electronic Equipment and Supplies	369	2	1.69 %
Computers and Software - Wholesale	504	12	10.17 %
Computer Programming and Data Processing	737	82	69.49 %
Miscellaneous eBusiness Services	738	<u>10</u>	<u>8.48 %</u>
	Total	<u>118</u>	<u>100.00 %</u>

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## B. *The New Venture Template™* Model

The NVT methodology is a systematic process applied to companies during their evaluation and development phase that identifies trouble areas and ascertains a company's ability to succeed. The NVT approach identifies factors that can lead to venture failure and provides informational resources that can help ventures achieve success. The systematic process used to evaluate ventures consists of two major areas: Business optimization and sustainability. Each of these broad areas is divided into six functional applications that researchers, business professionals, as well as potential investors can use to evaluate the potential success of an organization. The six functional areas or qualitative factors are as follows:

1. Innovation (*INNOV*) – Is the business venture a new idea or an improvement of an existing product or service?
2. Value (*VALUE*) – Is there substantial demand for the product and can the business organization meet demand and maintain profit margins?
3. Persistence Over Time (*PERSIST*) – Is there a continual need for the product or service and does the business organization have sufficient resources to meet long-term growth?
4. Preserving Economic Scarcity (*SCARCE*) – Will innovation created by the organization be maintained?
5. Preventing the Appropriation of Created Value (*PREVENT*) – Are there inefficiencies in product delivery with suppliers and customers?
6. Maintaining Flexibility (*FLEX*) – Is there a structure in place within the organization to deal with uncertainties from a risk management perspective and to develop and maintain the core competencies of key personnel?

Each functional area contains a list of questions, 15 in total, that are used to evaluate and rank companies as to their success potential.<sup>2</sup> We used these 15 questions with detailed content analysis of the nomination application for the E&Y award to score each of the 118 firms in our sample.<sup>3</sup>

For example, in the innovation criteria there are two questions. Question one reads, “Is the business venture a New Combination?” This question relates to the initial business venture or discovery and whether this new business venture can be exploited in the market place. Extensive content analysis is performed using the eBusiness nomination form and other publicly available information. Based on this analysis, we rate the business on each NVT question and assign a score of one for low, two for medium, and three for high. For example, with the innovation criteria for question one, the company receives a score of one if the product (or service) discovery is new for the company but already exists in the market place. A score of two is received if the product is a definite improvement over existing products and a score of three is received if the discovery is a real breakthrough. The innovation functional

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<sup>2</sup> The 15 questions used are summarized in the Appendix. More information on the questions can be found at <http://www.ivey.uwo.ca/NewVenture/Template/Evaluation/questions.asp>.

<sup>3</sup> The detailed content analysis was performed by two of the authors who are Certified Venture Evaluators (CVE).

area has another question that deals with product-market match and whether there is a demand for the product. As with question one, question two receives a rating based on the information provided in the eBusiness nomination form and obtained from other public sources. The scores received from each question related to the functional area are totaled and divided by the number of questions in the functional area. For instance, the innovation criteria have two questions. The scores for each question are totaled and then divided by two and thus become the average score given for two questions concerning innovation to the firms in our sample. All of the other functional areas (i.e., VALUE, PERSIST, etc.) are evaluated in the same manner to create measures that can be used as independent variables in the regression analysis.

In addition to using the NVT variables, other demographic and financial data were gathered. Demographic data consist of information related to age of the firm, number of employees, employee growth, and firm structure (i.e., partnership, corporation, or sole proprietorship). Financial data consist of various profitability ratios such as the return on assets, return on sales, leverage, and sales growth. Data were also collected on whether the companies in our sample subsequently went public, were liquidated and /or filed for bankruptcy. The demographic and the financial measures selected have been identified in prior research as key components of success (Brau et al., (2004), Duchesneau et al., (1990) and Roure and Keeley, (1990)). Table 2 provides descriptive statistics for these variables.

**Table 2**  
**Descriptive Statistics of 118 Firms from 1997-1999**

Variable	Mean	Standard Deviation	Median	Minimum	Maximum
EMPGR %	105.48	163.38	50.00	-52.09	979.000
SALESGR %	144.10	179.11	99.50	-54.00	905.00
HARVEST	0.29	0.46	1.00	0.00	1.00
ROSALE %	3.92	9.88	3.24	-37.41	41.80
ROA %	9.44	18.59	5.93	-57.43	90.31
LEVERAGE	0.58	0.39	0.54	0.00	2.79
AGE	11.79	9.09	10.00	1.00	65.00
FIRMTYPE	0.53	0.50	1.00	0.00	1.00
EMPLOYEES	672.81	1553	171.50	8.00	12,000
INNOV	1.89	0.48	2.00	1.00	3.00
VALUE	1.92	0.41	2.00	1.00	3.00
PERSIST	2.35	0.31	2.33	1.67	3.00
SCARCE	1.97	0.43	2.00	1.00	3.00
PREVENT	2.31	0.37	2.50	1.50	3.00
FLEX	2.34	0.42	2.50	1.50	3.00

**Variables defined**



EMPGR	– Employee growth percentage measured over a 3-year period
SALEGR	– Sale growth percentage measured over a 3-year period
HARVEST	– indicator variable equal to 1 for companies that went public, were merged, or acquired; zero otherwise
ROSALE	– return on sales, which is net income divided by sales
ROA	– return on assets, which is net income divided by total assets
LEVERAGE	– total debt to total assets ratio
AGE	– the age of the firm (observation year – the founding year)
FIRMTYPE	– indicator variable equal to 1 if the firm is a partnership; zero otherwise
EMPLOYEES	– average number of employees per firm

The next six variables are the qualitative factors measured by the NVT model. See Appendix on how these variables were scored and calculated.

INNOV	– measures a firms product or service as a new idea or an improvement of an existing product
VALUE	– measures the value of the firms in terms of the firms' ability to meet or exceed margins of the industry as well as measure the demand for the product in the market place
PERSIST	– measures whether there is a continual need for the product and whether the business organization has enough resources to meet the long-term demand
SCARCE	– measures whether the economic scarcity of the product or service can be maintained
PREVENT	– measures the efficiency of the organization in delivering the product or service to the market place
FLEX	– measures whether the organization has a structure in place to deal with uncertainties from a risk management perspective.

Table 2 shows that the average three-year employee growth (EMPGR) is 105% while the average three-year sales growth (SALEGR) is 144%. Also, 29% of the firms in our sample went public, were merged, or acquired. Average return on sales is 3.9% while return on assets is 9.4%. Our firms, on average, have \$197 million in sales, 673 employees, and are around 12 years old. Thus, our firms are not new startup companies, but are entrepreneurial eBusiness firms that have existed for some time and are eligible to be nominated for the Ernst & Young Entrepreneur of the Year® Award. A little over half of the firms are partnerships and the average leverage ratio is 58%. By construction, the NVT qualitative factors are all within the range 1-3, with sufficient standard deviation to signify that there are differences between firms on these dimensions.

#### **IV. Regression Analysis and Results**

##### **A. Initial Analysis**

Using success factors identified from prior research (e.g. Duchesneau et al., (1990), and Gadenne, (1998)) as the dependent measures, we regressed various components identified by the NVT model to determine whether these components are correlated with success. Prior research suggests that employee growth rate (EMPGR), sale growth (SALEGR), and whether a company goes public, was merged, or acquired (HARVEST) are key factors of success (Brau et al., (2004), Duchesneau et al., (1990) and Roure and Keeley, (1990)). For this study, employee and sales growth are measured over a three year time period and reported as a percentage change. HARVEST is an indicator variable equal to one if the eBusiness firm went public, was acquired, or merged with another firm and zero otherwise.

With each of these dependent measures (EMPGR, SALEGR, and HARVEST), a series of three different regression models are used where

$$SUCCESS_i = \beta_1 + \beta_2 \text{Control factors} + \beta_3 \text{Qualitative factors} + \varepsilon_i \quad (1)$$

SUCCESS represents one of the three dependent variables (EMPGR, SALEGR, and HARVEST). The control factors consist of the quantitative information (demographic and financial) that have been shown in prior research to be correlated with success (e.g. Roure and Keeley, (1990)). The qualitative factors, as discussed, are measured using the NVT model and represent the key variables of interest in this study. With each dependent variable (EMPGR, SALESGR, and HARVEST), seven regression models are evaluated. The first regression model contains all six qualitative factors as independent measures with demographic (AGE and FIRMTYPE) and financial variables (LEVERAGE and ROA) used as control variables. The remaining regression models analyze each of the qualitative factors one by one to ascertain whether they are correlated with success and provide incremental information above and beyond that provided by the quantitative measures. In addition, by examining each of the qualitative factors separately we minimize the effects of multicollinearity. Multicollinearity is present due to the high degree of correlation that exists among each of the six qualitative factors. For example, Table 3 shows that INNOV is significantly correlated with VALUE, SCARCE, PREVENT, and FLEX. The other qualitative factors are correlated in a similar manner. Given the high degree of correlation with most of the qualitative factors, we analyze each of the qualitative factors one by one. Table 4 reports the results of each regression model.

**Table 3**  
**Correlation of Dependent Variables and Qualitative Factor Variables**  
**of 118 Firms from 1997-1999**

	S A L E S G R R	E M P G R	I N N O V	V A L U E	P E R S I S T	S C A R C E	P R E V E N T	F L E X
HARVEST	.26*	.22*	.14	.38*	.32*	.19*	.17	-.08
SALEGR		.45*	.31*	.12	.18*	.06	.10	.02
EMPGR			.31*	.16*	.26*	.05	.16	-.01
INNOV				.24*	.03	.22*	.30*	.24*
VALUE					.24*	.12	.22*	-.02
PERSIST						.24*	.24*	.04
SCARCE							.13	.19*
PREVENT								.23*

\*indicates significance at <0.05 level.

**Variables defined**

- EMPGR – Employee growth percentage measured over a 3-year period
- SALEGR – Sale growth percentage measured over a 3-year period
- HARVEST – Indicator variable equal to 1 for companies that went public, were merged, or acquired; zero otherwise

The next six variables are the qualitative factors measured by the NVT model. See Appendix on how these variables were scored and calculated.

- INNOV – measures a firms product or service as a new idea or an improvement of an existing product
- VALUE – measures the value of the firms in terms of the firms' ability to meet or exceed margins of the industry as well as measure the demand for the product in the market place
- PERSIST – measures whether there is a continual need for the product and whether the business organization has enough resources to meet the long-term demand
- SCARCE – measures whether the economic scarcity of the product or service can be maintained
- PREVENT – measures the efficiency of the organization in delivering the product or service to the market place
- FLEX – measures whether the organization has a structure in place to deal with uncertainties from a risk management perspective

**Table 4**  
**Regression Analysis of New Venture Template™ Success Factors and Control Variables**  
**on Dependent Variables 118 Firms from 1997-1999**

**Panel A: EMPGR as the dependent measure (OLS regression)**

Independent Variables	Coefficient Estimates						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	-37.57**	3.97	7.39	-18.19	15.12***	2.54	19.72**
FIRMTYPE	0.78	0.63	0.25	-0.50	-0.72	0.47	-0.22
AGE	-0.54*	-0.42*	-0.54*	-0.63*	-0.56*	-0.58*	-0.53*
LEVERAGE	-0.48	-4.96	-4.59	-2.13	-5.85	-5.32	-6.35
ROA	0.09	0.12	0.16***	0.12	0.14	0.12	0.15***
INNOV	6.85**	8.05*					
VALUE	2.56		7.06**				
PERSIST	14.85*			16.47*			
SCARCE	-0.71				3.59		
PREVENT	2.91					8.14**	
FLEX	-1.38						0.99
ADJUSTED R <sup>2</sup>	18.3 %	12.7 %	10.4 %	16.1 %	8.1 %	10.6 %	7.4 %

\*indicates significance at < 0.01 level

\*\*indicates significance at < 0.05 level

\*\*\* indicates significance at < 0.10 level

**Table 4 (continued)**  
**Regression Analysis of New Venture Template™ Success Factors and Control Variables**  
**on Dependent Variables for 118 Firms from 1997-1999**

**Panel B: SALEGR as the dependent measure (OLS regression)**

Independent Variables	Coefficient Estimates						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	-18.59	2.42	13.98	-3.89	<b>17.77**</b>	9.94	<b>24.24**</b>
FIRMTYPE	2.12	1.92	1.24	0.71	0.42	1.42	0.93
AGE	<b>-0.34***</b>	<b>-0.30***</b>	<b>-0.44**</b>	<b>-0.49*</b>	<b>-0.45**</b>	<b>-0.47**</b>	<b>-0.42**</b>
LEVERAGE	-3.19	-5.92	-6.39	-4.68	-7.15	-6.87	<b>-7.69***</b>
ROA	-0.04	-0.07	-0.11	-0.08	0.09	0.08	0.11
INNOV	<b>10.25*</b>	<b>9.80*</b>					
VALUE	0.34		5.02				
PERSIST	<b>10.70**</b>			<b>11.58**</b>			
SCARCE	-0.86				3.46		
PREVENT	0.88					<b>6.04***</b>	
FLEX	-3.18						0.51
ADJUSTED R <sup>2</sup>	9.1 %	9.3%	3.9 %	6.3 %	3.3 %	4.2 %	2.7 %

\*indicates significance at < 0.01 level  
 \*\*indicates significance at < 0.05 level  
 \*\*\* indicates significance at < 0.10 level

**Table 4 (continued)**  
**Regression Analysis of New Venture Template™ Success Factors and Control Variables**  
**on Dependent Variables for 118 Firms from 1997-1999**

**Panel C: HARVEST as the dependent measure (Logistic regression)**

Independent Variables	Coefficient Estimates						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	<b>-9.16*</b>	<b>-2.42***</b>	<b>-5.41*</b>	<b>-5.15**</b>	-1.22	-2.51	1.44
FIRMTYPE	<b>-1.38**</b>	<b>1.07**</b>	<b>1.23**</b>	<b>0.88***</b>	<b>0.83***</b>	<b>0.99**</b>	<b>0.96**</b>
AGE	0.02	0.03	0.01	0.001	0.01	0.01	0.02
LEVERAGE	0.66	<b>-2.07**</b>	-1.38	-1.45	<b>-1.99**</b>	<b>1.95**</b>	<b>-2.16**</b>
ROA	-0.01	-0.01	-0.02	-0.01	-0.01	0.01	-0.02
INNOV	0.72	<b>0.95**</b>					
VALUE	<b>1.88*</b>		<b>-2.29*</b>				
PERSIST	<b>1.74***</b>			<b>1.92**</b>			
SCARCE	0.18				0.47		
PREVENT	0.19					<b>0.91***</b>	
FLEX	1.06						-0.75
LIKELIHOOD RATIO	<b>35.20*</b>	<b>17.54*</b>	<b>28.14*</b>	<b>19.44*</b>	<b>14.74**</b>	<b>16.07*</b>	<b>15.80*</b>

\*indicates significance at < 0.01 level

\*\*indicates significance at < 0.05 level

\*\*\* indicates significance at < 0.10 level

Table 4, Panels A and B reports results using growth variables, EMPGR and SALESGR as the dependent measures. In both Panels A and B, INNOV, VALUE, and PREVENT are positive and significant, which suggests that the more innovative the firm and its ability to meet demand with substantial profit margins, the greater the growth in terms of employees and sales. EBusiness firms that are innovative and maintain profit margin will experience significant growth and will hire additional employees to meet the increased demand for their product or service. Furthermore, the more efficient the firm with regards to product deliveries and in maintaining relationships with suppliers and customer, the greater the growth

as measured by sales and employees. PERSIST measures a firm's ability to meet customer demands and whether there will be a continued need for the firm's product or service. Table 4, Panel A suggests that companies that are able to meet demand will experience growth as measured by the number of employees. However, from Table 4, Panel B, it is not clear that by meeting the demands of its customers a company will experience increased sales growth.

The other qualitative factors areas such as SCARCE and FLEX, while positive in both Panels A and B, are insignificant. This may suggest that while firms are able to maintain a competitive edge (SCARCE) and have a structure in place to manage uncertainties from a risk management perspective (FLEX), it is not clear whether these attributes provide incremental information beyond that provided by the quantitative factors. In examining the quantitative demographic and financial measures, it is interesting to note that the age of the firm (AGE) is negative and significant as it relates to growth, meaning that the younger the firm, the greater the potential for growth. This result seems reasonable. For example, if all things are equal, a firm that has three employees one year and then adds three additional employees the next will experience 100% growth in the number of employees whereas a much more established firm that has 100 employees in one year and then adds three employees will only experience a 3% increase in growth.

Table 4, Panel C reports the results of the logistic regression where the dependent variable, HARVEST, takes the value one if the firm went public, was acquired, or merged and zero otherwise within three years from its nomination as an EY firm. HARVEST provides information on a successful harvest strategy for the firm. Twenty-nine percent of the sample had a successful harvest strategy by either going public, being acquired, or merged. A positive (negative) sign on a coefficient indicates that an increase in the corresponding independent variable increases (decreases) the probability of the firm harvesting. Table 4, Panel C, shows that INNOV, VALUE, and PREVENT are positive and significant and suggest that firms that are innovative, maintain profit margin, and are efficient with product delivery have a higher probability of harvesting than firms that do not possess these attributes. A company that has a successful harvest may have more access to capital and other resources and it is usually through harvesting (i.e., going public or being acquired) that venture capitalists earn a return on their investment.

The other qualitative factors (PERSIST, SCARCE, and FLEX) have no significant effect on the likelihood of a company harvesting. However, in looking at the control variables, Table 4, Panel C suggests that certain firms (FIRMTYPE) are more likely to harvest than other firms. FIRMTYPE is an indicator variable equal to one if the firm is a partnership and zero otherwise. Panel C suggests that partnerships are more likely to go public than any other type of firm structure. The financial rewards for partnerships may be greater as they take a company public or merge with another firm.

### C. Additional Analysis

We performed additional analysis to determine which key measures are better indicators of success. Given the amount of data that business executives, owners, and investors use to evaluate the likelihood of a successful venture it would be informative to know what type of information is most useful. The data gathered was categorized into quantitative (demographic and financial) and qualitative factors to determine which of these types of data have the most efficacy in explaining success. As with the regression and logistic models, success is measured in terms of growth and the likelihood of a harvest. Table 5, Panels A, B, and C, presents the results.

**Table 5**  
**Explanatory Power of the Major Components of Success**  
**in Explaining Variation in the Dependent Variables of 118 firms from 1997-1999**

**Panel A: EMPGR as the dependent measure (OLS regression)**

Independent Variables	Financial Measures Coefficient Estimates (t-statistic)	Demographic Measures Coefficient Estimates (t-statistic)	The NVT Measures Coefficient Estimates (t-statistic)
Intercept	17.99* (3.92)	15.37* (6.00)	-33.57** (-2.18)
ROA	0.05 (0.22)		
ROSALE	-0.57** (-1.93)		
LEVERAGE	-10.86 (-1.46)		
EMPLOYEES		0.04* (4.99)	
AGE		-0.67* (-4.47)	
FIRMTYPE		0.17 (0.06)	
INNOV			11.05* (3.23)
VALUE			0.08 (0.02)
PERSIST			12.62* (2.46)
SCARCE			-0.29 (-0.08)
PREVENT			1.93 (0.45)
FLEX			-4.55 (-1.26)
ADJUSTED R <sup>2</sup>	2.7 %	23.5 %	12.7 %

\*indicates significance at < 0.01 level

\*\*indicates significance at < 0.05 level

\*\*\* indicates significance at < 0.10 level



**Table 5 (continued)**  
**Explanatory Power of the Major Components of Success**  
**in Explaining Variation in the Dependent Variables of 118 firms from 1997-1999**

**Panel B: SALEGR as the dependent measure (OLS regression)**

Independent Variables	Financial Measures Coefficient Estimates (t-statistic)	Demographic Measures Coefficient Estimates (t-statistic)	The NVT Measures Coefficient Estimates (t-statistic)
Intercept	21.58* (4.19)	17.64* (5.84)	-19.81 (-1.14)
ROA	-0.12 (-0.50)		
ROSALE	-0.45 (-1.34)		
LEVERAGE	-10.57 (-1.27)		
EMPLOYEES		0.03* (3.23)	
AGE		-0.53* (-2.97)	
FIRMTYPE		1.39 (0.44)	
INNOV			13.48* (3.49)
VALUE			-2.43 (-0.52)
PERSIST			10.67** (1.87)
SCARCE			-0.65 (-0.16)
PREVENT			0.34 (0.07)
FLEX			-4.64 (1.13)
ADJUSTED R <sup>2</sup>	0.4 %	9.1 %	9.4 %

\*indicates significance at < 0.01 level  
 \*\*indicates significance at < 0.05 level  
 \*\*\* indicates significance at < 0.10 level

**Explanatory Power of the Major Components of Success  
in Explaining Variation in the Dependent Variables of 118 firms from 1997-1999**

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**Panel C: HARVEST as the dependent measure (Logistic regression)**

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Independent Variables	Financial Measures Coefficient Estimates (t-statistic)	Demographic Measures Coefficient Estimates (t-statistic)	The NVT Measures Coefficient Estimates (t-statistic)
Intercept	1.47* (15.99)	2.25* (13.80)	-10.45* (12.53)
ROA	0.10** (-5.69)		
ROSALE	0.20* (9.02)		
LEVERAGE	-1.71*** (2.86)		
EMPLOYEES		-0.06*** (3.44)	
AGE		-0.01 (0.15)	
FIRMTYPE		-1.11** (4.99)	
INNOV			0.17 (0.09)
VALUE			1.86* (8.10)
PERSIST			2.08** (5.32)
SCARCE			0.65 (1.17)
PREVENT			0.39 (0.32)
FLEX			-0.74 (1.42)
LIKELIHOOD RATIO	25.00*	22.71*	27.39*

\*indicates significance at < 0.01 level

\*\*indicates significance at < 0.05 level

\*\*\* indicates significance at < 0.10 level

In using employee growth (EMPGR) as the measure of a firm success, Table 5, Panel A suggests that demographic information explains more of the variation in the dependent measure. In other words, if the key component of success is employee growth, then

demographic information such as the age of the firm, its firm type, and the number of employees are the key indicators of whether the firm will succeed as compared to the financial and qualitative information. Table 5, Panel B suggests that if sales growth (SALEGR) is one's measure of the success then the qualitative factors are a more useful indicator of success. Qualitative factors examine a firm's innovation, its value in terms of margins, and other information that reflects the firm's planning and strategy in building a successful venture. As owners and investors use qualitative information they will have a better indication of a firm's ability to grow in the area of sales than by examining financial or demographic information exclusively.

Furthermore, Table 5, Panel C suggests that qualitative factors have a greater likelihood of predicting whether a firm will be acquired or go public (HARVEST) than looking at just financial or demographic information. As mentioned, a key signal for many entrepreneurs is a successful harvest.

## V. Conclusion

The objective of this study is to determine whether qualitative factors are correlated with success. This is one of the first studies that seeks to empirically evaluate the effectiveness of qualitative information in predicting success. We examine three dimensions of success: Employee Growth, Sales Growth, and Harvesting (i.e., companies going public, being acquired or merged). We use eBusiness firms nominated for the Ernst & Young Entrepreneur of the Year® Award. Businesses nominated for this award are not new ventures but firms that have transitioned from an early stage start-up to a successful, established firm. Given that our sample firms are successful, we measure qualitative factors using the New Venture Template™ (NVT) model to test whether qualitative factors are correlated with continued success. In addition, we examine whether qualitative factors are a more useful indicator of success than quantitative information (demographic and financial).

Overall, our results suggest that qualitative factors are incrementally informative above and beyond the information provided by quantitative factors. For some measures of success such as employee and sales growth and harvesting, qualitative factors appear to have a greater explanatory power as indicators of success than demographic or financial information. One reason why qualitative factors seem to be a better measure is that the evaluative nature of qualitative factors combines, to some extent, the financial aspects of the company, such as profit margins, in determining the characteristics of successful eBusiness entrepreneurial firms. More specifically, firms that are able to maintain their innovative strategies by improving upon the product (or service) they offer and that are able to meet the long-term needs of customers are more likely to experience increased sales growth and have greater access to capital which results in a successful exit strategy. Given the correlation of qualitative factors with success, newer-stage firms can use the techniques suggested by the NVT model to improve performance and make these factors part of their strategic plans. The NVT method could improve the likelihood that these firms will become successful, established ventures. Furthermore, the research design employed in this study can be used as a template to test other models like the NVT that are used by business professionals to understand the qualitative aspects of the organization while determining the probability of continued success for new ventures.

As with all research, there are limitations. In this study we only examine eBusiness firms which were nominated from 1997-1999 through the Ernst & Young Entrepreneur of the Year Award process. Thus, our results may not be generalizable to all entrepreneurial firms. Future research could look at an expanded sample of firms in other industries over a longer time period. We also used the NVT model to measure qualitative factors. Further research is

needed on other qualitative measures to determine whether they are correlated with measures of success.

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## Appendix I

The New Venture Template measures six functional areas through a series of 15 questions. Each functional area is scored based on the questions contain in the area discussed. Business leaders use these functional areas has a way to evaluate qualitative information and to identify areas for improvement within the organization.

Potential investors also use the information to determine the likelihood of success for the new venture. Currently, the NVT methodology is used by the Wayne Brown Institute and iAccess Capital to score and rank new ventures and to identify key factors of success for start-up firms that have transitioned through the business life cycle and experienced continued success and survival.

Two of the authors are Certified Venture Evaluators that used the NVT model to score the qualitative factors of the eBusiness firms used in this study. Each of the firms were ranked and assigned a score of one for low, two for medium, and three for high.

The information below is taken directly from the New Venture Template. Additional information can be found at <http://www.ivey.uwo.ca/NewVenture/Template/index.asp>

### *INNOVATION (INNOV)*

Question #1: Is it a New Combination?

This question hinges on the degree to which new entrepreneurial discovery has taken place in order to take advantage of excess supply or excess demand. Entrepreneurial discovery occurs when an imperfection in the market can be identified and exploited. There are four ways in which a new combination can be discovered. These discoveries come in at least five categories or types. In new venture technology, the ultimate measure of the degree or strength of a new combination is as follows:

Low	If the discovery is new for us, but not for other companies
Medium	If the discovery provides a definite improvement over existing supply for present demand, or demand for present supply
High	If the discovery is a real breakthrough

Question #2: Is there a Product-Market Match?

In the world of venturing (as opposed to the world of invention) a new combination does not in itself determine that a product is innovative. For true innovation to occur, someone has to be willing to buy the product created in the new combination. Therefore, this question seeks to identify the degree to which customers, or potential customers, will commit to purchase the product.

The question of product-market match is a key in the world of venturing and the allocation of investment funds. The higher the capital requirement for market entry, the more scrutiny this question must be given. In new venture technology, the ultimate measure of the degree or strength of a product-market match is as follows:

Low	If there are no purchase orders
Medium	Offers added features to the market (e.g. convenience) such that some orders or sales exist
High	Matches a market want or need so well that sales backlogs or large quantity purchase orders exist

### *VALUE (VALUE)*

#### Question #3: Is there a Net Buyer Benefit?

This question of net buyer benefit centers on the drivers of customer demand for the product, and the relative relationship of perceived price and perceived product differentiation (i.e. is the product "worth the money" or "a rip-off"?) Does the product add value to the customer such that they would rather have the product, than money in their pocket? In new venture technology, the strength of net buyer benefit is measured as follows:

Low	If there is price discount pressure
Medium	If there is price stability
High	If there are "stock-outs" and price premiums

#### Question #4: Are there Margins?

As net buyer benefit defines value to the customer, margins define value to the venture. For the purpose of new venture technology, the question of margins focuses on what level of margin-per-unit can be expected on a fully-absorbed cost basis. The key comparisons should be based on realistic industry performance and expectations. In new venture technology, the ultimate measure of the degree or strength of margins is as follows:

Low	If the expected margins for the venture are far below (typically less than 15%) documented industry averages and/or expectations
Medium	If the expected margins for the venture are in a similar range (typically between 16% and 30%) to documented industry averages and/or expectations
High	If the industry margins for the venture far exceed (typically over 30%) the documented industry averages and/or expectations

#### Question #5: Is Volume sufficient?

Just as product-market match is to innovation, volume is a critical test in the discussion of value. This question looks at the degree to which anticipated volume of the new venture achieves its expectations and goals. A comparison of venture objectives to absolute margin is often useful in this analysis. In new venture technology, the ultimate measure of the degree or strength of sufficient volume is as follows:



Low	If the expected volume is not sufficient to achieve venture objectives
Medium	If the expected volume should be sufficient to achieve venture objectives
High	If the expected volume far exceeds venture objectives

***PERSISTENCE OVER TIME (PERSIST)***

**Question #6: Is it Repetitive?**

This question hinges on the degree to which the product will be needed regularly (or on an ongoing basis) or that other strategic practices that drive repetitive product sales are prevalent and acceptable in the industry and are part of the express strategy of the venture for this product. The evaluation of a product's placement on the need/alternative use model is often useful in determining the repetitiveness of an entrepreneurial discovery. In new venture technology, the ultimate measure of the degree or strength of repetitiveness is as follows:

Low	A "once-only" purchase, or extremely sporadic and unpredictable
Medium	Purchases are occasional
High	Purchases are frequent and reasonably predictable

**Question #7: Is there a Long-Term Need?**

The question of long-term need evaluates the extent to which the benefits of repetitiveness can be expected over time. This question hinges largely on an understanding of where the product (as a new combination) falls in the product lifecycle, and the relative speed of the lifecycle. This is often understood only through study of the lifecycle of similar innovations. Additionally, the ability to apply new venturing strategies to establish a clear two-way relationship with the customers is critical to long-term need. In new venture technology, the ultimate measure of the degree or strength of long-term need is as follows:

Low	If the new discovery (product/service) is a fad with limited future
Medium	If the product/service need extends only over the short term
High	If the there is a foreseeable long-term need for the product/service

**Question #8: Are Resources Sufficient?**

This question really looks at resources in financial, management, knowledge, and time sufficient to get the product to market. This view goes beyond short-term "start-up", to an evaluation of resource availability in the face of growth and other indicators of success unique to new venture formation and growth. The "Rule of 4" (it takes four times as long and costs four times as much as planned) plays into the evaluation of resources. In new venture technology, the general measure of the degree or strength of resource sufficiency is as follows:

Low	If resources are effectively non-existent or limited
Medium	If resources are few, or at risk if growth exceeds plans

High	If resources are plentiful and anticipated to be readily available in the future
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The next six questions drive competitive strategy and ultimately answer the question, "Can You Keep It?"

***PRESERVING ECONOMIC SCARCITY (SCARCE)***

Question #9: Is it Non-Imitable?

Once a venture has achieved a level of innovation, the question arises as to whether or not the innovation can be maintained. This question relates to whether the new entrepreneurial discovery can be imitated by competitors. Imitators (as opposed to substitutes) would do essentially the same thing as the venture, and in the same way. Scarcity can be preserved by incorporating one or more of various types of isolating mechanisms into the venture, a key strategic skill employed by successful entrepreneurs. Non-imitability focuses on preventing new entrants from introducing additional supply to fill existing demand. In new venture technology, the ultimate measure of non-imitability of a new combination is as follows:

Low	Easily imitated, no isolating mechanisms in place
Medium	Partially protected by isolating mechanisms (this is NOT a numerical count of the mechanisms, but rather is an assessment of the STRENGTH of whatever mechanisms are present-- of course, the more the better)
High	Isolating mechanisms are sufficiently strong so as to permit little or no imitation

Question #10: Is it Non-Substitutable?

This question explores the degree to which substitutes exist (or can be created by competitors) for a new entrepreneurial discovery. Substitutes reduce demand for a product by doing something in a clearly distinct and different way. The remedies to block substitutes are not the same as those that act as barriers to entry to imitators. In new venture technology, the ultimate measure of non-substitutability of a new combination is as follows:

Low	There are substitutes that directly reduce product demand
Medium	There are substitutes that indirectly reduce product demand
High	There are no substitutes

***FAILURE TO PREVENT THE APPROPRIATION OF CREATED VALUE (PREVENT)***

Question #11: Is there No Slack?

The second way that value is appropriated is through slack. Slack is really inefficiency and waste in the product delivery process from the beginning to the end of the vertical supplier-customer chain. More generally, slack occurs whenever economic actors shrink the size of a venture's "pie" without ever discussing it with the venture.

The key to reducing slack is appropriate structuring of incentives, a key skill of successful entrepreneurs. In new venture technology, the ultimate measure of the degree or strength of slack is as follows:

Low	There is a lot of waste and inefficiency
Medium	There is some waste and inefficiency
High	There is little or no waste and inefficiency

Question #12: Is There No Holdup?

Appropriation of value occurs in two different instances. The first is when economic players use one of the many types of available power to force a venture to give them part of its financial gains. This is called holdup and is best viewed as thieves or bandits taking advantage of the fact that the venture has been built with few or no economic bargaining options, called small numbers bargaining. In new venture technology, the ultimate measure of the degree or strength of the potential for holdup is as follows:

Low	There is a lot of small numbers bargaining power in suppliers or buyers
Medium	There is some small numbers bargaining power in suppliers and buyers
High	Suppliers or buyers have little or no economic power over the venture through small numbers bargaining

***FAILURE TO MAINTAIN FLEXIBILITY (FLEX)***

Question #13: Is Uncertainty minimized?

This question hinges on the preparation of the organization for things that we know will happen in the future to affect the venture; but we don't know when, or the magnitude of the event(s). Minimizing uncertainty in a venture revolves around forward planning and risk management processes. In new venture technology, uncertainty is evaluated as follows:

Low	There is no insurance on the key people or the business, no tax planning, current tax savings accounts, forward planning etc.
Medium	Some level of indirect risk management is present that will affect the venture
High	Risks are low because of planning, insurance, statistical control processes etc.

Question #14: Is Ambiguity reduced?

Ambiguity results when future events are unknown, meaning that the venture knows neither the nature, timing, nor magnitude of the event. In new ventures, the one certainty is that there will be a great deal of ambiguity. Because the market weeds out unfit ventures, understanding inertia, creating decision structures, and organizing to manage ambiguity are critical. In new venture technology, ambiguity is evaluated as follows:

Low	There is an absence of long-term planning and adaptation processes conducted in a heterogeneous group setting
Medium	Some planning and adaptability-preparedness is undertaken
High	A rich "mastermind alliance" (Napoleon Hill, Think and Grow Rich) is in operation directly relating to the venture

Question #15: What is your level of Core Competence?

Core competence obviously revolves around a venturing team's experience and specialization in the venture, as well as in venturing. These are two distinct sets of skills and abilities. Competence comes in the form of the ability to perform the key task required for the venture's success in whatever functional area that may be. In new venture technology, the measure of the degree or strength of core competence is as follows:

Low	If members of the venturing team possess little or no experience and specialization in the business
Medium	If the venturing team has some experience and unique knowledge in the business
High	If the venturing team is familiar with the industry and has worked for at least five years therein and can perform specialized tasks critical to the venture's success

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