

Evaluation of Linkage Between the Corporate Economic Value-Added Analysis and Information Technology Using Big Data

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Abstract: Businesses depend on the information technology and big data analytics to provide high-quality information, which can assist them in making better decisions and, ultimately, increase their performance. As a result, in order for businesses to reap the benefits of intelligent data, they are dramatically increasing the amount of money they invest in a wide variety of technologies and integrating them into their operational procedures. A lot of attention has been paid to the concept of agility as a strategic capability in today hypercompetitive corporate contexts. This is because it is predicted that information that is enabled by information technology will play a big role in the development of organizational capacities. In this paper, we develop an evaluation of linkage between the corporate economic value-added analysis (CEVA) and information technology using big data. The study carries out an analysis on corporate risk management by studying the corporate economic value-added analysis using both information technology chosen as model 1 and big data analytics as model 2. Three different corporate firms are used in the study and its economic relative to the model 1 and model 2 are studied. The study also measures the influence of solvency, profitability and liquidity on the Economic Value and Market Value in relation with information technology in corporate industry.

Keywords: Solvency, Profitability and Liquidity, Economic Value Information Technology

1. Introduction

In today's unpredictable and economic environment, organizations need to be nimble, courageous, and prepared to experiment with new things in order to prosper. They are putting a lot of effort into determining what is preventing them from improving their business operations in order to be better able to respond to the increasing amount of pressure that is being applied by their competitors [1]. This is because their competitors are getting more and more aggressive. The research that has been done thus far suggests that businesses should prioritize the training of their employees in organizational agility in order for those employees to be able to quickly and effectively adjust to the numerous changes that occur in the environment in which businesses operate [2]. The research advises that companies should make educating their staff in organizational agility a top priority within their organizations. A corporation agility can be defined as its capacity to explore and capitalize on new opportunities in an effective and efficient manner, which eventually leads to enhanced corporate performance.

Agility can also be defined as the ability of an individual to explore and capitalize on new opportunities. This goal can be achieved by integrating strategic orchestration into the day-to-day operations of a corporation [3].

It has been underlined for a very long time in the literature on the business value of information technology that information systems (IS) have the power to both improve company performance and inform decision-making [4]. This is something that has been emphasized for a very long time. Information systems help managers make decisions more quickly, gain insights that boost their competitive advantage, foster an environment that is conducive to innovation, and deal with the uncertainty that comes with the environment, according to studies on the performance of companies. In addition, these information systems help foster an environment that is conducive to innovation [5].

This is as a result of the anticipation that information technology will play a significant part in the expansion of organizational capabilities. One facet of organizational agility that has received a lot of attention in the research that has been done on the topic is the capability of businesses to rapidly and easily modify their processes in response to shifts in the market [6]. This facet of organizational agility is one of the reasons why the topic has received so much attention. In the context of the modern business environment, business analytics are

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highlighted as the crucial foundation for innovative issue resolution and flexibility [7].

Big data analytics (BDA) and its sister area, business intelligence and analytics (BI&A), have risen to prominence in recent years, gaining attention from both the academic and business worlds. BDA and BI&A are both subfields of the same larger field known as BI&A [8]. The umbrella term business intelligence and analytics encompasses each of these subfields in equal measure. In addition, organizations are consistently working toward the goal of gaining insights from the ever-increasing amount [9]. The goal of these initiatives is to improve decision-making and make better use of the data, which is what motivates these efforts. Companies are not only making new findings about patterns that were previously unknown, but they are also searching for fresh solutions to problems that have already been proven to be effective [10]. Business data analysis, also known as BDA, is a term that is used to describe the various strategies to analyze a wide range of critical business data in order to assist a company in gaining a more in-depth understanding of its operations, its market, and its customers, as well as in making more informed and timely business decisions. Business data analysis, also known as BDA, is a term that is used to describe the various strategies, technologies, systems [11].

The data that is being generated by the internet, mobile devices, and sensors at an unprecedented scale enables the acquisition of novel insights from the extremely comprehensive contents to any enterprise or organization. This is made possible by the advent of artificial intelligence (AI) and machine learning (ML). Companies that do much better than their competitors are five times more likely to embrace analytics, as indicated by the findings of a survey that interviewed more than 3,000 worldwide company leaders, managers, and analysts [12] [13].

In the operations management, two areas in which BDA has proven to be particularly effective are aiding strategic decision-making. Both of these applications are supported by BDA. Both of these are instances of domains in which the use of BDA has proven to be especially beneficial. To get the most out of performance improvements, however, experts argue that it is more important to have the ability to effectively apply new knowledge to improve organizational agility than it is to have access to cutting-edge technology. This is because experts believe that having the ability to effectively apply new knowledge is more likely to result in improved organizational agility. Experts are of the opinion that performance improvements are more likely to result in a competitive advantage for a company that is more agile. This is one of the reasons why this is the case. BDA insights can be put to use in a variety

of contexts, including, but not limited to, the enhancement of quality management and effectiveness, and the advancement of product or service delivery.

2. Related Works

At this point in the company lifespan, the primary focus of the business should be on expanding the value that the company creates for its owners. Calculating the economic value added for shareholders, also known as EVA equity [14], is one method that can be used to measure this. The appreciation of the owner investment as a function of the overall amount of risk is what the EVA equity metric measures [15].

The economic value added to equity is calculated by multiplying the difference between the return on equity and the alternative expenses incurred by equity with the product of this difference (EVA equity). This value is determined by looking at the business from the point of view of the company owners. The ultimate goal and the production components that have the potential to create value are referred to as value-based drivers, yet there is a lack of transparency between the two. The value-based drivers was first used in scholarly works that were published in the country that is now known as the United States of America. It was brought up in regard to the idea of shareholder value during the conversation [16].

A group of business-centric economic indicators that, when taken as a whole, indicate the worth of a company. This group of indicators may be found in the company-centric economic indicators. On the subject of VBD, a substantial number of studies have been conducted, and more research is being conducted all the time [17]. In addition, more studies are being conducted all the time. The process of classifying firms into several sectors and subsectors allowed for the identification of the elements that contribute to the formation of company value. The research that was extremely analogous to the present study, in which they evaluated the impact that a number of different financial indicators [18].

Maximizing a company value, the primary business sectors that should receive the majority of one attention in order to be successful [19]. An investigation into the impact that business actions have on value from the perspective of risk management [20]. Evaluation of the results of VBD is obligatory for all businesses, including smaller and medium-sized companies in addition to larger ones.

The formation of these kinds of enterprises is essential to the operation of a populist economic system that can contribute to the eradication of poverty, as indicated by the conclusions of a study that was carried out [21]. They are able to achieve this objective by making a contribution

to the rise in value added that is the outcome of assisting in the expansion of the economic base in a particular nation or region. In other words, they are able to accomplish this goal by contributing to the rise in value added. In addition to having an equal amount of significance, they play a vital part in the process of stimulating the expansion of the labor market in areas that are more rural. Local governments now have the ability to increase their capacity to promote environmentally friendly and economically sound rural and regional development as a direct result of the significant financial contributions made by small rural businesses [22].

These contributions come in the form of tax payments. Businesses that are located in rural areas have the ability to carry out extensive investment programs in fields such as the creation of new infrastructure, the promotion of ecotourism, and the protection of the environment if they combine their limited private funds with public resources and spread the risk. Not only does the proliferation of small and medium-sized businesses, also known as SMEs, in rural areas increase the potential of these areas, but it also makes these areas more resistant to fluctuations in production, market conditions, and the overall economic cycle [23].

It is crucial to keep in mind the challenges that rural businesses must conquer in order to thrive, particularly in light of the significant role those rural businesses play in the communities that surround them and the good impact that they have on those communities. A lack of readily available resources and an inability to cultivate an atmosphere that is favorable to achievement are two of the challenges that are exceptionally challenging to overcome. In addition, the rise in employment has had a positive impact on regional development [24].

Small and medium-sized firms, also known as SMEs, play a significant role in the development of rural areas because of the competitive advantage they enjoy as a direct result of their level of specialization. This advantage is also

known as the know-how advantage. These businesses have a significant need for assistance in rural areas that have high unemployment rates because that is where they are able to hire people to do simple chores for low wages, and as a result, they are able to create a large number of jobs. As a result, these businesses have a significant need for assistance in rural areas. There is a direct correlation between the growth of microbusinesses in rural areas and the emergence of fresh employment opportunities in those areas [25].

This strategy will have a positive impact on the local economy and employment landscape as a result of a decrease in the unemployment rate as well as the creation of a new group of people who are capable of running their own small businesses as a direct consequence of implementing this strategy. The ability of microbusinesses to establish and maintain employment in rural areas is directly proportional to their capacity to ease social tensions and reduce the high social costs of transition. This relationship holds true whether the microbusinesses are located in urban or rural settings.

The factors that make micro-companies tick, specifically the factors that contribute to the success of these businesses. They reach the conclusion that rural-based micro-companies are essential for achieving sustainable rural development and reshaping local economies. This is due to the fact that rural-based microbusinesses result in the generation of new revenue, an increase in household income, and a reduction in environmental damage.

3. Proposed Method

We used a multiple-case approach (Figure 1) that enables replication logic, in which a group of instances is viewed as a series of experiments meant to either confirm or refute the results of a previous set of studies. This allowed us to test whether or not the findings of the first set of studies were accurate. Because of this, we were able to use the instances to either validate the findings of the initial set of research or disprove them.

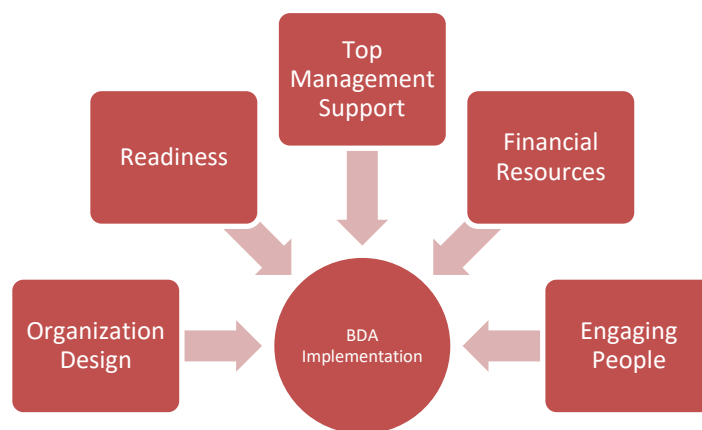


Fig. 1: Conceptual Modelling

Because of the growing significance of analytics in the process of product development as well as the management of business operations and supply chains, we have decided to concentrate our investigation on large manufacturing companies. The BDA revolution has made it possible to use large data sets in predictive modeling, which was previously impossible. This has been accomplished by taking into account the immediate results of complicated and unexpected occurrences that have taken place.

4. Objectives of the Study

- To measure the influence of solvency, profitability and liquidity on the Economic Value in relation with information technology in corporate industry.

- To measure the influence of solvency, profitability and liquidity on the Market Value in relation with information technology in corporate industry.

Each company is a high performer in its own market when measured in terms of annual revenues and the number of employees it employs. This is the case regardless of the industry in which the company operates. In addition to looking for companies with characteristics that were similar to one another so that it would be simpler to make comparisons and replicate the experiment, we also looked for companies that had a significant amount of variation so that it would be easier for us to evaluate the possible generalizability of our findings. This was done in order to find companies that had a significant amount of variation. The three businesses that are the focus of our inquiry are presented in the first table of this report, which provides a listing of pertinent information about those businesses.

Table 1: Respondents' Characteristics

Firm	Respondents	Work Experience in the Firm
1	Sales Manager	12
	Research Operation Head	16
	Lead Operator	10
	Supervisor (Warehouse)	6
2	Manufacturing Specialist	14
	Leader - Market Sales	8
	Head of R&D	28
	Process Automation Supervisor	26
	Specialist - Diagnostic Laboratory	10
3	Manager - Regional Sales	14
	Manager- Technical Production	32
	Leader - Project	6
	Supervisor (Warehouse)	18

For the purpose of this research study, we conducted semi-structured interviews with thirteen workers who were either directly (such as the head of operations or warehouse supervisors) or indirectly (such as sales managers) involved in the production process. The interviews were conducted in order to gather information for this study.

Table 1 outlines the number of years of experience each respondent has had working in the industry. The interviews took place between September and November of 2022, and each one lasted between one and a half and two hours. The interviews were conducted by the author.

The interviewees in this longitudinal study were familiar with the company both before and after the implementation of BDA. This familiarity allowed them to provide insightful comparisons and observations about the company.

The process of analyzing the data was methodical and iterative. For guidance, the process made use of comparisons of data, emergent categories, and the literature that was readily available. We found that the various accounts of how the use of BDA helps operations have both similarities and differences, and we investigated the processes that connect the use of BDA with increases

in operational nimbleness. After that, we decided to evaluate the validity of the open codes that had been generated with the assistance of a second coder who was an expert in qualitative research.

During this stage, we analyzed all of the findings from the preliminary coding and made connections between the various groups that had been found in the earlier stages of the process. The primary data resulted in the discovery of concepts and patterns, and as we carried out an analysis of the data, we not only added new categories but also reorganized some of the ones that were already present. After that, we compared each category as well as the characteristics that are associated with it across all of the cases in order to make our findings more generalizable and to delve deeper into our explanations.

Second, in order to ascertain the level of credibility that is associated with our findings, we disseminated the findings of the preliminary research to key responders working for the three case firms as well as an outside expert in the field. This was done in order to determine the level of credibility that is associated with our findings. The final step involved drawing connections between the ideas that emerged from the reading of the literature and the concepts that had emerged. These connections were made between the ideas that had emerged. During the course of our data analysis, we made frequent transitions between newly emerging themes and previously established ones. The purpose of these transitions was to determine which of these two types of explanations was most likely to account for our findings, and we did this by switching back and forth between newly emerging themes and previously established ones.

Economic Value Added

EVA, which stands for Earnings Before Interest and Taxes, is a popular metric that western companies employ in order to assess their level of success. Because the cost of capital is taken into account in EVA evaluation of performance, a schematization of this concept has been developed as a result. This schematization was developed as a result of the following: In order to arrive at the final number needed for the calculation of EVA, the capital charge is subtracted from the net operating profit after taxes. As a direct consequence of this, this performance metric is superior to the other measures of accounting that are typically put into practice.

The product that is obtained by multiplying the total amount of invested capital by the weighted average cost of capital (WACC) of a specific company is referred to as the capital charge. The calculations for the weighted average cost of capital, also known as the WACC model, include both the cost of equity and the cost of debt. The cost to the company of borrowing money is not factored

into the accounting metrics in any way. This study will analyze the performance of corporations using the EVA rather than any other performance metric due to the EVA superiority to any other performance metric. Previous studies have shown that the EVA is superior to other performance metrics, so this study will follow in their footsteps. The EVA can be computed using the following model, which is provided for your edification and convenience:

$$EVA = NOPAT - (WACC \times Capital\ Employed)$$

where,

NOPAT - net operating profit after taxes,

WACC - Weighted Average Cost of Capital,

Capital Employed - total assets net of non-interest-bearing liabilities.

Weighted Average Cost of Capital

This metric is used to determine the average amount of money that the company has spent on capital across all of its various sources of funding in order to get an accurate picture of the company overall finance.

$$WACC = \sum XW \sum W$$

where,

X = Cost of specific source

W = Proportion of specific source

Net Operating Profit after Tax

The earnings before interest and taxes, adjusted is what EBIT stands for in its abbreviated form. The cash taxes that were paid in addition to the tax deduction on interest contribute to what is known as the adjusted tax. In other words, NOPAT was used as a tool for calculating the amount of profit that was available after deducting the interest on debt as well as the tax benefits that are associated with borrowing money. This is to say that NOPAT was utilized as a tool for calculating the amount of profit that was available after deducting the interest on debt as well.

$$Adjusted\ Tax = Tax + Cash\ Taxes\ Paid$$

Advantage on Interest Capital Employed

Capital utilization refers to the sum of an organization investments in both long-term assets and short-term working capital. This figure represents the organization overall level of investment.

Market Value Added

The term value added to the market refers to the disparity that exists between the current market value of a company and the total amount of capital that has been contributed

by investors. In addition to the market value of the company debt and equity holdings at that time, it displays the total amount of all capital claims that have been made against the company.

$$MVA = \sum EVA_n(1+c)^n$$

5. Results and Discussions

A conceptual framework is an analytical tool that takes into account the nuances and circumstances of a concept in order to arrive at a procedure that can best explain the topic that is currently being discussed. A conceptual framework can be thought of as a method that can best explain the topic that is currently being discussed. Both the practical implementation of enterprise risk management (ERM) and the reporting of progress toward sustainability are among the topics that receive the least amount of attention from academics.

The theoretical reasons that are presented in this study suggest that the implementation of ERM via BDA and sustainability reporting in an organization can lead to the creation of value in that organization. These theoretical reasons specifically draw on the value creation idea of ERM via BDA and sustainability reporting. Specifically, this study draws on the value creation idea of ERM via BDA and sustainability reporting. This study presents a conceptual research model that can improve an organization performance by combining business risk management and sustainability reporting into a single framework. The model was developed as part of this study. Because of this, there is a possibility that the company performance will improve. The descriptive statistics is shows in Table 2.

Table 2. Descriptive statistics of M1

Variable	Min.		Max.	
	CEVA	NCEVA	CEVA	NCEVA
Financial Growth	-0.166	-0.427	2.234	1.151
Financial Capital	-3.456	-57.62	4.294	205.769
Human Capital	-194.62	-313.36	569.140	951.286
Non-Human Capital	-527.62	-25.44	6145.5	69.362
Capital Efficiency	-0.529	-8.505	27.329	3.624
Employed Capital Efficiency	-0.641	-1.205	0.375	1.510
Client Price Index	1.445	1.445	5.573	5.573
Company size	20.020	20.101	24.369	25.061

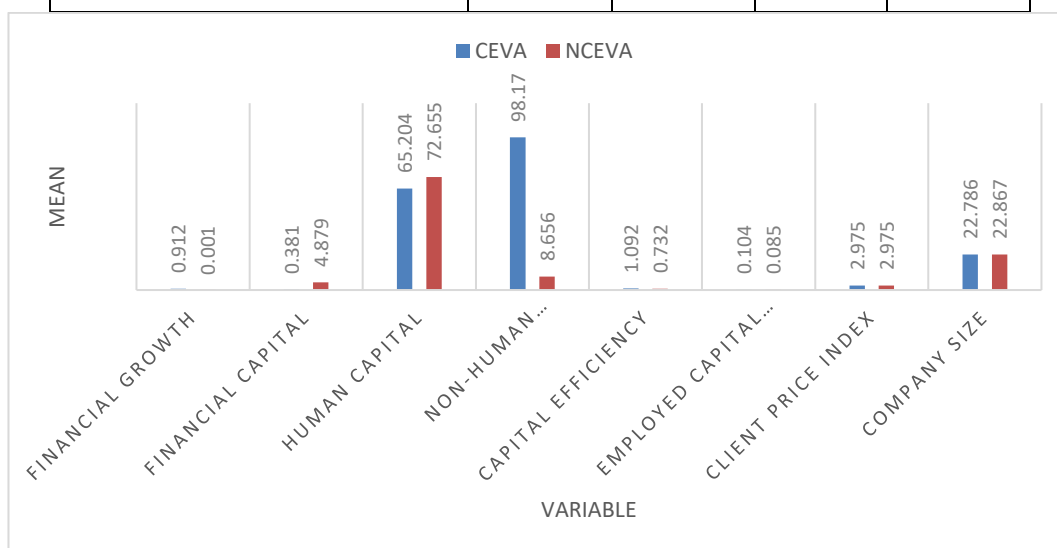


Fig. 2: Mean

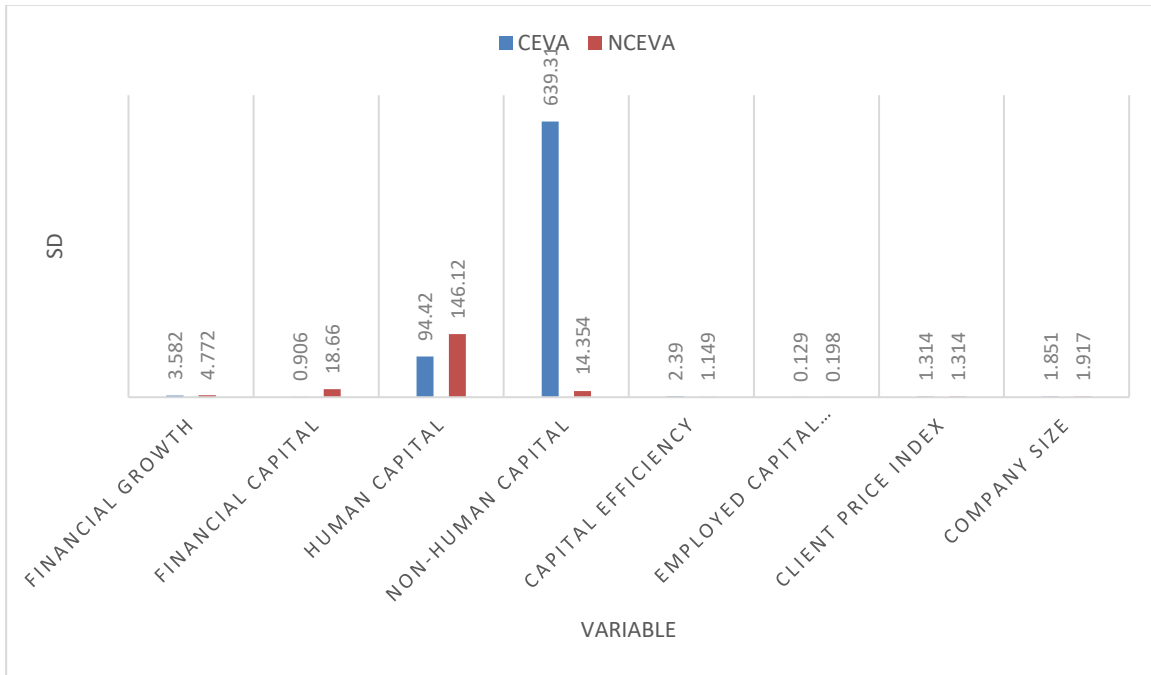


Fig. 3: Standard Deviation

The results of the F-test are summarized in Table 3, which can be found below. Both model (1) and model (2) reach the same conclusion, which is that the null hypothesis cannot be accepted with regard to the BDA group. As a result, model (2) is the one that ought to be utilized. Both

Model 1 and Model 2 are able to disprove the null hypothesis; as a result, the fixed effect model should be selected for the group that is not concerned with high technology.

Table 3. F test of models

Group	Variables	F	Prob.> F
CEVA	M1	7.255	0.0000
	M2	4.211	0.0000
Non-CEVA	M1	8.359	0.0001
	M2	3.726	0.0000

Table 4 and 5 contains the findings that were obtained from conducting a Hausman analysis. The first model, which casts doubt on the validity of the null hypothesis (with a probability of 0), suggests that the fixed effect

model be utilized for the analysis of the BDA subgroup data. When applying the random effect model, one encounters the issue of endogeneity, which can be problematic.

Table 4: Regression Test of M1

M1	CEVA.	NCEVA		
Financial Capital	1.6201***	0.0432**		
Human Capital	0.0001*	0.0003		
Non-Human Capital	-0.0031	-0.0004		
Capital Efficiency	0.0221	-0.0123		
Employed Capital Efficiency	37.2341***	-0.3123		
Client Price Index	-0.1112	-0.0784*		
Company size	-0.7545*	-0.4434***		
	R ²	0.53	R ²	0.39
	F	175.90	Wald chi2	39.38
	Prob.	0.0000	Prob.	0.0000

Table 5: Regression Test of M2

M2	CEVA		NCEVA	
Financial Capital	1.2434***		0.0623***	
Human Capital	0.0086**		0.0002	
Non-Human Capital	-0.0001		0.01751*	
Capital Efficiency	0.0332		-0.0412	
Employed Capital Efficiency	81.02***		1.8323***	
Client Price Index	-0.3123*		0.0632	
Company size	-0.6423		0.0834	
	R ²	0.49	R ²	0.45
	Wald chi2	1584.43	F	37.13
	Prob.	0.0000	Prob.	0.0000

6. Conclusions

Using a conceptual framework that has been presented in this study, the purpose of this study is to investigate the relationship between the implementation of business process management (BPM) and the performance of an organization as measured by economic value added (EVA) analysis. This will be done by utilizing a conceptual framework that has been presented in this study.

Previous research has shown that implementing BDM and reporting on sustainability within an organization increases both the value of the business and the organization ability to compete in its industry. Using a BDM framework is one way for businesses to make their operations more environmentally friendly and sustainable, as well as reduce the amount of damage they cause to the natural world. It is possible that the conceptual framework that has been proposed for the study will have effects that are quite far-reaching.

The model that has been proposed will be of assistance to top-level management in understanding the impact of the BDM framework that is used in the Information Technology industry. The model that is being highlighted here has the potential to serve as a resource for Information Technology companies, providing them with the opportunity to gain a better understanding of the strategic factors that contribute to the economic value of their assets. Second, the purpose of this article is to make an attempt to establish a connection between the growing demands of stakeholders and the significance of environmentally responsible business practices. This is accomplished in two different ways. The purpose of this study was to investigate the current state of affairs in the

Information Technology industry in relation to sustainability reporting.

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