Big Data Usage Intentionusing Toe Framework: Sri Lankan Context

Athambawa Haleem

South Eastern University of Sri Lanka
Email : ahaleem@seu.ac.lk

ABSTRACT

Big data is huge amount of information that cannot be handled with conventional method.In various fields, the field of big data has an essential role to play.This research investigated that the Big Data Usage Intention of listed companies in Sri Lanka, is to provide empirical evidence concerning the Big Data Usage Intention of listed companies. Data were collected using survey and market research techniques in listed companies in CSE. For this purpose, descriptive, correlation, and multiple regression analysis was employed.

In many fields of business and management, Big Data Analysis (BDA) is an emerging technology. Factors affecting the organizational intention to use this technology do not focus on extensive research. In order to fully exploit its advantages and therefore to study it, organizations should take it in a full and profound level. This research, based on the TOE, proposes and examines the determinants which influence the adoption of the BDA in the context of companies from Sri Lanka. There is large collection of data from 96 organizations, which helps us to understand the influences on the use of big data.

Key words: Big Data, Big Data Analytics, Big Data Usage Intention, TOE model, Sri Lanka, CSE

1. BACKGROUND OF THE STUDY

Businesses are always looking for the next big thing, and big data are already changing greatly in many industries. To further develop its competitiveness, a company must strive to balance costs with investment. Better information needs to be required by management. Data use development is revolutionizing management, providing insights needed to better take decisions and manage performance. Early adopters have already increased their operating performance and competitive position in the use of big data and advanced analytics. The enormous amount of data provides both opportunities and new challenges to data analysis. Valid Big Data statistical analysis is becoming ever more important.

Currently, the Sri Lankan market has several major Big Data experiments already, but the reason for their importance is not just because they are revolutionary steps but because they are historical first steps. However, before we can learn to walk we must learn to crawl, and Sri Lanka has some very encouraging signs about the takeover of big data (Zahir Fuard, 2017).

Above all, while the functionality of big data is exponentially increasing, its associated costs are not. In fact , today's big data analytics tools are available at a fraction of the cost and, ultimately, we trust that the size of the investment is not necessarily, but that intelligence will determine who will develop over to the next decade of wide range of business leaders and Knowledge is power (Zahir Fuard, 2017) when it comes to information.

A wealth of research has been published into how management accounting has been affected by new business resource planning and advanced information systems (e.g. Rom& Rohde, 2007; Kallunki, Laitinen, & Silvola, 2011It is also a rare issue to discuss the impact of big data and advanced analytics on business strategy. IT systems face changes as the amount, diversity and speed of data in organizations increases (Chen et al., 2012). According to Granlund and Malmi (2002), the logic of accounting is evaluated when information systems are changed and may also change. This section discusses the impact of big data.

The opportunities and risks that big data offer should be known to companies. One very relevant question is whether management is being sidelined by data experts and managers, or whether controllers are increasing their influence in financial analysis and strategic decisions by exploiting big data. Do control systems have to become information specialists in the new business environment driven by data? In strategic decision-making, which are the drivers' ability to leverage Big Data?The main objective of this study is to investigate big data usage intention of businesses in Sri Lanka.

2. LITERATURE REVIEW ON BIG DATA USAGE INTENTION

The term "big data," which contains structures, semi-structured and unstructured data, can be defined in terms of large dimensions. The processing using traditional methods is so complex. For insights that lead to better strategic choices, big data can be analyzed. Big data is a continuous increase in context of Big Data Analytics, for instance social media data, shares, students and staff of institutions. As shown in the above examples (Kevin Taylor-Sakyi, 2016), its environment offers organizations in various sectors great opportunity to compete with a competitive advantage.

Big Data is a large volume of information that many authors have defined in many ways. Big data have been defined as a cultural, technological and scholarly phenomenon, while Big data has been defined as an information ocean by (Boyd & Crawford 2012; Fan et al.,2014). The "five v" referred to the dimensions of big data, suggested (FossoWamba et al.,2016). Volume, variety, velocity, veracity, and value included. Big data comes from various sources, including social network sites, cloud apps, software, social influencers, database devices, the general public, networking techniques, legacy documents, business applications, weather data, and sensor data in addition to traditional information systems.

The businesses are already planning to invest in technologies for consumer behaviours, fraud detection and even future prediction. Big data analytics (BDA) are used as a competitive advantage by leading companies as per McKinsey report (May 2011). he anticipate that retail chains that are in a position to produce the big data will have a 60% increase.

The positive impact of Big Data may provide strong competitive advantage to organizations. But because of some well benefits of big data, how many companies around the world use it

and how? BDA is a new technology for improving the management overall efficiency and better decision-making that has emerged over the last few years. BDA could contribute to the success and achievement of businesses in a more real-time way compared to traditional analytical systems.

Nevertheless, IS research lacks a focal point on the adoption of BDA, which is only part of an assimilation process, and cannot guarantee the wide utilization and utilization of BDA. Only through broad integration can the benefits of BDA be fully achieved. The phases of integration are particularly worthy of focused studying, in particular in emerging economies such as Sri Lanka, according to (Fichman, 1999). These regions are highly progressive and tolerant when it comes to BDA technology. It is worthwhile to look at how the phenomenon of innovation integration changes when contextual forces are brought into consideration.

The paper presents an integrative model that integrates backgrounds that affect BDA Integration in Indian Context, driven by above theoretical gaps. The framework is based on diffusion of innovation, institutional theory, and TOE framework.

The study was done on e-business integration (Zhu et. al., 2006b) examines the three phases of integration: initiation, adoption and routinization based upon TOE. It is found that technology has a dominant impact on technological integration in developing countries whereas technological integration has a significant influence on technological integration in developed countries.

In this section the TOE Framework literature is presented to identify the history of innovation. The TOE framework identifies factors that may affect IS-related decisions, within the categories of technology, organisation, and environment (Mishra et al. 2007). For obvious reasons, the intent of deterring information systems (Furneaux and Wade, 2011) has also been investigated by a study. Another study uses TOE to examine the adoption of EDI in small companies (Kuan & Chau, 2001). In this study, six variables based on TOE Framework are studied in order to identify non adopters (Hong and Zhu, 2001). This study looks at how characteristics of the TOE information diffusion model affect TOE integration (Zhu et al., 2006b).There is an overwhelming amount of empirical evidence supporting TOE framework.It is based on the analysis of the issue thus allowing for the conclusion on the appropriate decision. Regarding technology, classical DoI Theory (Rogers 1995) identifies five characteristics for innovation including: First: relative advantage, which means "the extent to which an innovation is perceived as better than the idea that it substitutes".The Second: compatibility, which is regarded as the extent to which innovation is compatible with existing business processes, practices and systems of value'. The third: complex and difficult to use innovation (Rogers and Shoemaker, 1971, p. 30). Fourth: observability, the extent to which innovation results have been seen by other people; (Rogers and Shoemaker 1971, p.232). Finally , fifth: trialability to experiment with the extent of innovation (Rogers and Shoemaker 1971, p. 231).The first three of these factors are most used to demonstrate and assess innovation diffusion, and this study therefore suggests that they should be included in the research setting as technological factors.

According to Iacovou et al., (1995), the organizational context outlines a company's characteristics, which primarily include size of the company, centralization, formalization, management structure complexity, the quality of its staff and a range of slack resources.

These factors may help explain why certain companies are more innovative but other organizations are less likely to innovate. One study shows that the diversity of innovation diffusion performance is attributed to the significant variations in the resources that the company has, including management knowledge, technology infrastructure and earlier IT experience (Mishra et al. 2007). Additional studies also show that the value companies obtained from IT depend on their abilities to use it (Bhardwaj 2000; Mata et al. 1995). Companies which have great organizational ability and previous IT experiences can make more efficient use of agile technology such as BDA technology. This study therefore includes management capacity, IT infrastructure and absorption capacity, which is seen as an organizational resource in the past.

The environment context is the scene in which a company conducts its business - industry, competitors and governmental affairs (Tornatzky and Fleischer, 1990). The institutional theory of DiMaggio and Powell suggests that the institutional environment provides rule-like social expectations and norms for suitable organizational structures, operations and behavior and practices. The company's understandings of these pressures have an impact on its overall environment and innovation intentions. This study thus examines factors that affect BDA assimilation processes under institutional pressure. Institutional pressures are classified under three categories: coercive, normative and mimetic.

Different authors have continuously studied various aspects of the subject in discussion in order to investigate the purposes of Big Data use in the listed company. Most of researchers did this study under the qualitative method but very less studies under the quantitative method. However, they have discussed this study from two different view point some of used behavioral approach and others did technology adoption view point.

Agrawal (2013) examined the adoption of BDA in Asian emerging economies and used the (TOE) framework, and suggested and investigated factors which influenced the BDA adoption of companies from the two major emerging economies of Asia – China and India. Agrawal (2013) studied BDA adoption in Asia.

Arnaboldi et al ., (2017) investigated the relations between technology-enabled social media and big data networks and the accounting function. Three areas were selected: the new social media and big data performance indicators; management of the social media and the Big Data resources; and, lastly, the alteration of information and decisionmaking by social media and big data. They did not want to offer an in-depth review, but to stimulate discussion.

Park et al .,(2015) mentioned their research on Technology, Organization and Environment Factors influencing big data adoption and use in Korean firms. The study aimed at identifying and prioritizing the factors influencing the use and adoption of big data in companies with technology-organizational-environment (TOE) perspectives. The study was done using the Korea expert survey data, the Analytical Hierarchy (AHP) method. The results have been identified as the critical determinants for big data adoption by perceptions of benefits of big data and technological capacity. The technological context is highly dependent on the compatibility with current systems , data quality, integration and security and privacy. Management support, financial capital investments competence in the execution and use of large data and the adoption and utilization of organizational and environmental factors respectively, were identified as government support and policies.

Sam and Chatwin (2018) said that big data is a recent technology used by companies to gain a competitive advantage on the understanding of the use of large data analytics in China. Big Data technology investment in the United States in 2016 was estimated at over USD 30 billion. Big data technology investment in China in 2016, however, was relatively small. To investigate this issue, the study used the TEC framework (TOE), identifying the main factors influencing organizational big data adoption in China. The result was that their technological , organizational and environmental assets must be prepared. The empirical results suggest, for psychological results, that all three components of big data readiness are indispensable.

By examining Coyne et al., (2018) study on big data information administration by accountants. They suggest that accountants have not put enough effort into transforming big data into useful data. This results in a gap between what accountants should and could be doing with regard to understanding big data. The objective of the research was to develop an information and control risk model in relation to the life cycle of the big data to explain the process of converting the large data into information and to identify information governing activities and agents who can reduce the risks involved. theme It was concluded that accounts have a strong role in large data governance in identifying the information and control needs of internally and externally responsible decision-makers.

Frank Cervone (2016) reported. In his study on the organization's aspects, he mentioned that organizations that consider Big Data and the implementation of Analytics must explore aspects relating to data that have how they are trying to resolve organizational problems, how data governance will work in a new environment, and how they will define success as a result. Besides the technical issues that would usually be expected in the implementation of the systems. It was done in a qualitative manner. The aim of the study was to support the libraries and information organizations, which consider the implementation of Big Data and Analysis, to start to work on the eight aspects of a Big Data and Analytical Strategy checklist.

3. METHODOLOGY

3.1 Conceptual Framework

To identify the history of adoption of innovation, the TOE framework addresses factors influencing IS-related decisions (Mishra, Konana & Barua, 2007), based on technology, organizations and environment categories. One study , for example, examines the intention of stopping information systems (Furneaux & Wade, 2011). The TOE framework for EDI adoptment in small companies (Kuan & Chau, 2001) is included in another study. One research study examines the TOE framework, in order to differentiate successfully non-adopters from e-commerce adopters (Hong & Zhu, 2001). A study recently examined the impact on e-business adoption on the organizational level of factors within the TOE framework (Zhu et al. 2006b).

In literature, the TOE framework has considerable empiric support. It therefore offers the basis for analyzing and considering appropriate determinants to understand a decision on innovation-adoption. This research consequently uses this framework to understand the influence of histories in each sub-category.

The conceptual framework is the overall structural diagram. This is a framework indicating the relationship between variables. It attempts to visualize the research problem prior to

understanding the research based on the research problem. The pattern of the relationship between key concepts of variables could be in this conceptual model. When considering the conceptual model, can get the clear summarized idea about the overall research. So, the basic conceptual framework can be developed as follows.
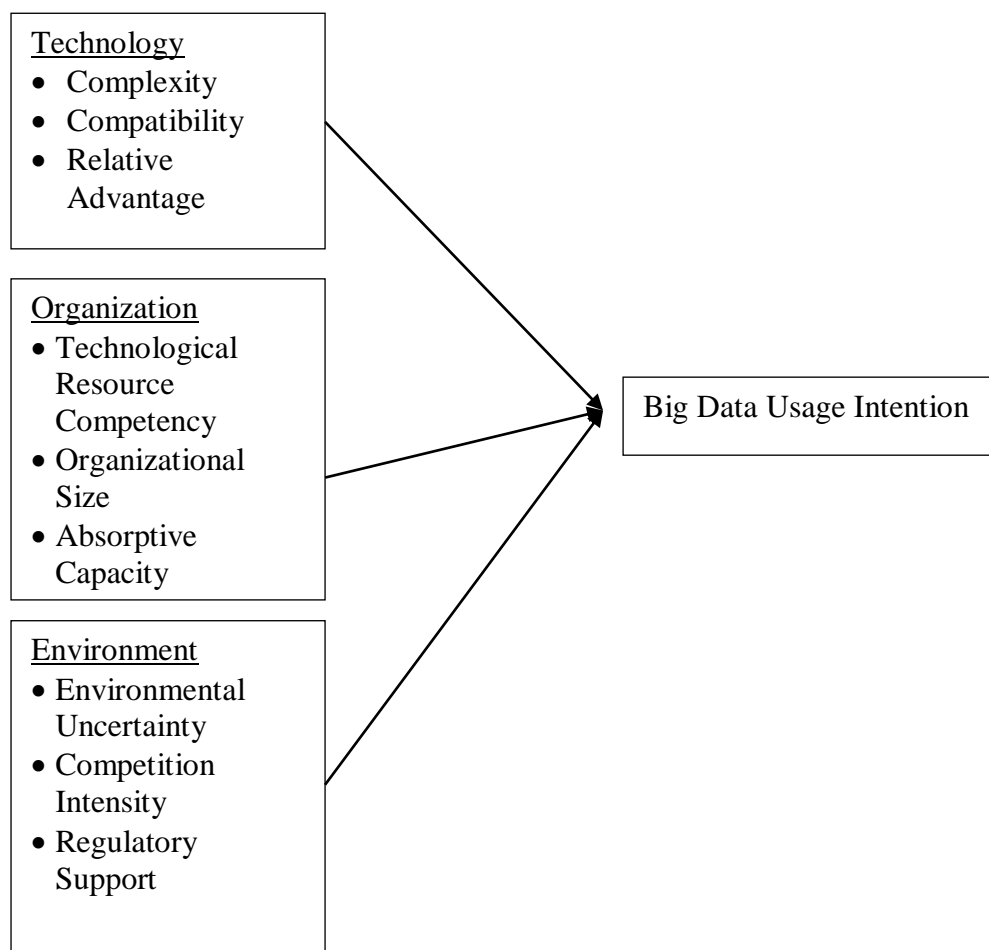

Figure1: Conceptual Framework

3.2 Variables

The research seeks to identify the purpose of the use of big data by listed Sri Lankan companies. The following variables are selected to achieve this research objective. Tornatzky and Fleisher (1990) developed a frameworkon the basis of the technology-organization-environment framework (TOE). It describes factors influencing the adoption of technology and its probability. TOE explains how technological innovative measures and implements are

influenced by the technological context, the organization, and the environmental context (Tornatzky and Fleisher 1990).

The technological context encompasses the internally and externally relevant technologies of the company. Both equipment and processes may include technology. Technologyhas been categorized such complexity (CPX), compatibility (CMP) and relative advantage (RA). And also the organization context has the following category such as: Technology resourcecompetency (TRC),organizational size (OS) , and absorptive capacity(AC). Finally the environmental context has the following category such as: environmental uncertainty (EU), competence intensity (CI) and regulatory support (RS). Firstly, Complexity referrers that It is defined as "the degree to which it is relatively difficult to understand and use innovation "(Rogers & Shoemaker, 1971). The challenges of customizing and high cost (Tsai et al., 2010) comprise two components in their complexity. Compatibility describes as the extent to which an innovation is viewed as consistent with potential adopters' needs or existing practices (Rogers 1983). The relative advantage is the perception of innovation as better than the idea to which it replaces it. The relative advantage refers to whether the innovation is more productive, cost-effective, or improves existing practices in some other manner.

The organizational context refers to the company's characteristics and resources, including company size, centralization, officialisation level, management structure, human resources, slack resources, and employee links. Technology resource Competencies refers the readiness with technology combine IT infrastructure with IT capability (Zhu et al., 2006). In general, larger firms are more able to experiment with new innovations and are thus more able to absorb the risks and costs of innovation implementation (Thong, 1999; Sharma, 2003).Absorptive Capacity describes as the ability of an organization to absorb and use new external information for commercial purposes is a measure of its absorbing capacity (Cohen & Levinthal, 2006). The pre-relevant knowledge and intensity of effort can also be measured in efficient absorbing capacity (Cohen and Levinthal, 1990).

The environment included the size and structure of the industry, the competitors of the company, the macroeconomic environment and the regulatory framework. Environmental uncertainty define that As previous research has shown, companies facing environmental uncertainty are offering greater encouragement to adopt IOS (inter-organizational innovation) to better exchange of information and reduce uncertainty among trading partners. More opportunities for companies with higher environmental uncertainty are seen, more proactive and more innovative than other companies (Sharma, 2000). In addition, environmental and/or market insecurity forces organizations, in order to remain competitive, to adopt and implement new technological developments (Bolloju & Turban, 2007). Completion intensity describes as extent to which competitors on the market affect the company (Zhu et al., 2004). The conventional five-force competitive model (Porter 1980) demonstrates that competitive pressure is a major external driver for the implementation of IOS (inter-organizational innovation) by trading partners. Consequently, the intensity of competition in BDA adoption can play its part. The critical factor influencing diffusion of innovation is regulatory support (Zhu & Kraemer 2005; Zhu et al. 2006b). Innovation diffusion may be affected by two ways. One way is to take taxes and other pay-out measures, while the other way is to change their climate (Williamson 1983). The next step is to reduce pay-offs. Another study examines e-business adoption and finds that governments can encourage the legislation of e-business by

regulating and supporting policies (Zhu et al . ,2006). Finally, the intention to use big data described as the use and use of big data by Sri Lankan enterprises.

3.3 Hypotheses Development

To achieve the stated study objectives, researchers have developed the following literature-based hypothesis.
H1: Relative advantage has an impact on and Big Data Usage Intention.
H2: Complexity has an impact Big Data Usage Intention.
H3: Compatibility has an impact onBig Data Usage Intention.
H4: Technological resource competency has an impact on Big Data Usage Intention.
H5: Organization size has an impact on Big Data Usage Intention.
H6: Absorptive capacity has an impact on Big Data Usage Intention.
H7: Environmental uncertainty has an impact on Big Data Usage Intention.
H8: Competition intensity has an impact on Big Data Usage Intention.
H9: Regulatory support has an impact on Big Data Usage Intention.

3.4Sampling and Data Collection

The research has been planned to test on the listed companies from Sri Lankan. A questionnaire is issued to gather information from the participants selected. A minimum of three years' work experience was a prerequisite for the study.

This study analyzes the information supplied by the management of the Sri Lankan company in order to study the purposes of the big data use of listed companies from Sri Lanka. Random sampling methodwas used for this research in order to select the sample.The survey was conducted by randomly selected 96 companies from leading companies of Sri Lanka to collect data for this study. The questionnaires included several business-related items and information and item on whether an organization was a BDA adopter.After the answers were received the questionnaires were screened carefully so that no professionals in our sample could be avoided.

4.ANALYSIS

4.1 Profile of the Organization
A survey was randomly selected to administrate a questionnaire, consisting of business-related items, predictors assessments and the question of whether the organization was an adopter of BDA. The data collection for this study is done by 200 companies listed in Colombo Stock Exchange Sri Lanka. With a response rate of 50%, 100 useful responses were received.

The Organization Profile is displayed in Table 4.1.

Table 4.1
Profile of the Organization.

Category	Item	Number (N=100)	Percentage
Firm age (years)	<10	40	41.7 %
	10-20	30	31.3 %
	20-30	18	18.8 %
	>=30	08	8.3 %
Employee strength (Number)	<500	40	41.7 %
	500-1500	30	31.3%
	>=1500	26	27.1 %
Capital ($ Million)	<100	42	43.8 %
	100-300	37	38.5 %
	>=300	17	17.7 %
BDA adoption	Yes	60	62.5%
	No	36	37.5 %

The study was conduct among listed companies in Sri Lanka. Majority of the respondent were Big Data adopters 62.5% and only 37.5% respondents were Non-Adopters.

According to the survey age of Firms is mainly divided in to four main categories as "<10", "10-20", "20-30" and ">=30". Maximum percentages 41.7% of respondents represent 40 respondents that belong to the age group of <10 years. 31.3% respondents are at 10-20 age groups. 18.8% respondent are at 20-30 age groups. Less number of respondents included >=30 age groups and 8.3% respondents.

According to the 4.1 table shows the Capital level of Companies. Majority of the respondent were 43.8 % their capital level is Less than 100$ Million. 38.5 % of respondents is in 100-300 $ Million of capital and 17.7 % of respondents have more than 300$ Million of capital. And most of companies 41.7% have less than 500 and 31.3% of respondents have more between 500 to 1500employee strength and Other 27.1% of respondents have employee strength is more than 1500.

4. 2 Reliability Analysis
To ensure the reliability of the instruments which was used in this study, the researcher computed Cronbach's coefficient alphas for each independent variables and dependent variable of the theoretical framework. The widely accepted minimum standard for internal consistency is 0.7.

According to the Cronbach's alpha value of Absorptive capacity is 0.936, Organizational size is 0.934, Technological resource competencyis 0.880, Regulatory support is 0.966, Competition intensity is 0.819, Environmental uncertainty is 0.903,Complexity is 0.870, Compatibility is 0.907, Relative advantage is 0.874 and Big Data Usage Intention is 0.934. This results in a consistent, and clear result for all elements in each construct of this analysis.

4.2Validity Analysis

The sample adequacy measure Kaiser-Meyer - Olkin tests whether there are small partial correlation between variables. In addition, a satisfactory factor analysis should be carried out in excess of 0.5. Larger KMO measurement values indicate that a possible option is a factor analysis of variables. A sphericity test by Bartlett examines whether the correlation matrix is an identity matrix indicating an ineffective factor model. In order to test the null-hypothesis and to check that the variables of the population correlation matrix are unrelated, the sphericity test from Bartlett is used. The sample appropriateness KMO measures are larger than 0.790, and the significant level observed is 0.0000.

From the above analysis, the KMO value of Absorptive capacity is 0.833, Organizational size is 0.767, Technological resource competencyis 0.734, Regulatory support is 0.701, Competition intensity is 0.500, Environmental uncertainty is 0.740,Complexity is 0.500, Compatibility is 0.800, Relative advantage is 0.729 and Big Data Usage Intention is 0.846. This concludes that all the items in each construct of this study show as sampling is adequate. The KMO values between 0.5 and 1 indicate the sampling is adequate.This suggested that the sample was sufficient to take the further analysis.

4.3Correlation Analysis

Table 4.5 shows the dependent and independent variables' correlations coefficients. As already mentioned, the aim of this analysis is to determine the relationship between the various variables under consideration. Correlation indicates in the statistics the strength and direction of a linear relation between two random variables.

The Pearson's correlation is used to find a correlation between at least two continuous variables. The researcher shows these relations as follows.

Table 4.5 Correlations

	CPX	CMP	RA	TRC	OS	AC	EU	CI	RS
r	-.455**	.832**	.396**	.801**	.306**	.515**	.836**	.595**	.342**
Sig	.000	.000	.000	.000	.002	.000	.000	.000	.001

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

As shown in Table 4.5, correlation coefficient for the relationship among Absorptive capacity,Organizational size ,Technological resource competency , Regulatory support , Competition intensity , Environmental uncertainty , Complexity ,Compatibility, Relative advantageand Big Data Usage Intention, are 0.515,0.306,0.801,0.342,0.6595, 0.836,-0.455,0.832 and 0.396 respectively. It indicates that there was positive relationship between these variables. The relationship was statistically significant with a significant value of 0.000. That is less than 0.01 level of significant. So, it can be concluded that there is a positive significant relationship except complexity and big data usage intention. It shows that a negative significant relationship between Complexity and Big Data Usage Intention.

Considering the correlation coefficient between the independent variables Complexity, is negatively correlated with Big Data usage intention and Absorptive capacity, Organizational size, Competition intensity Technological resource competency, Regulatory support, Environmental uncertainty, Compatibility are positively correlated with Big Data usage intention.

4.4 Regression Analysis

The previous analysis used for the correlation of dependent variable with independent variables. In this section, the relationship with regression analysis will be identified further. The regression analysis shows how the relationship between two or more variables can be determined. The known variables are referred to as independent. The predictable variable is the dependent variable. In this analysis the multiple model was employed.

Model:

$BDUI_t = \alpha + \beta 1AC_t + \beta 2OS_t + \beta 3TRC_t + \beta 4RS_t + \beta 5CI_t + \beta 6EU_t + \beta 7CPX_t + \beta 8CMP_t + \beta 9RA_t + \varepsilon$

Where:

P t = Big Data Usage Intention

T t = Technology

O t= Organization

E t = Environment

$\beta 0 = \beta 1 = \beta 2$ = Regression Parameters

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.937[a]	0.878	0.865	0.3760

Predictors: (Constant), RA, EU, OS, RS, CPX, CI, AC, TRC, CMP
b. Dependent Variable: BDUI

The table 4.6 Model summary shows the impact of independent variable and dependent variable. According to that Adjusted R square is 0.878. It means that there is 88 % of the impact of the independent variable on the dependent variable.

Table 4.7 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	83.411	9	9.268	68.775	.000[b]
	Residual	11.589	86	.135		
	Total	95.000	95			

Dependent Variable: BDUI

Predictors: (Constant), RA, EU, OS, RS, CPX, CI, AC, TRC, CMP

According to the Table 4.7, its *p* value is 0.000, which is less than the 0.05, therefore it can be concluded that the independent variable has the significant impact on Big Data Usage intention at 1% significance level.

Table 4.8
Coefficient Summary

Coefficients^a							
	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	.679	.037		1.634	1.000		
AC	.144	.064	.144	2.253	.027	.349	2.867
OS	-.057	.050	-.057	-1.141	.257	.577	1.734
TRC	.367	.078	.367	4.701	.000	.233	4.290
RS	-.196	.055	-.196	-3.579	.001	.472	2.118
CI	.175	.068	.175	2.570	.012	.306	3.271
EU	.336	.075	.336	4.492	.000	.253	3.946
CPX	.079	.058	.079	1.359	.178	.415	2.408
CMP	.238	.076	.238	3.114	.003	.243	4.124
RA	.121	.042	.121	2.879	.005	.805	1.242

a. Dependent Variable: BDUI

This linear regression equation shows that β that means slop of the regression line, which indicates that there is a significant relationship between CMP, RA, TRC, AC, EU, RS, CI and Big Data Usage Intention ($p < 0.05$). But CPX and OS has the positive relationship but it is not significant at 5% significant level. Because its p value is higher than 0.05.

Based on Table 4.8 there is a negative relationship with the OS and RS. OS has a significant negative relationship with Big Data Usage Intention (p (0.257) < 0.05). RS has a significant negative relationship with Big Data Usage Intention (p (0.001) < 0.05). But CPX and OS has the relationship with Big Data Usage Intention but it is not significant at 5% significant level. Because its *p* value is higher than 0.05. And the value of "α" (Constant Value) is 0.679.

$BDUI_t = 0.679 + 0.144AC - 0.057OS + 0.367TRC - 0.196RS + 0.175CI + 0.336EU + 0.079CPX + 0.238CMP + 0.121RA$

4.5 Testing of Hypothesis

According to theresult of regression analysis, H2 and H5 were not support. All other hypotheses were supported. H2 and H5 shows that the p-values are (0.100) and (0.315) respectively, hence, it can be concluded that the both variables: complexity and organizationsize were not significant relationship with Big Data Usage Intention.

Table 4.9
Testing of Hypotheses Summary

No	Hypotheses	Results	Tool
H1	The relative advantage has an impact on Big Data Usage Intention	Supported	Regression
H2	The complexity has an impact on Big Data Usage Intention.	Not Supported	Regression
H3	The compatibility has an impact on Big Data Usage Intention	Supported	Regression
H4	The technological resource competency has an impact on Big Data Usage Intention	Supported	Regression
H5	The organization size has an impact on Big Data Usage Intention.	Not Supported	Regression
H6	The absorptive capacity has an impact on Big Data Usage Intention.	Supported	Regression
H7	The Environmental uncertainty has an impact on Big Data Usage Intention.	Supported	Regression
H8	The Competition intensity has an impact on Big Data Usage Intention	Supported	Regression
H9	The Regulatory support has an impact on Big Data Usage Intention.	Supported	Regression

5. FINDINGS AND DISCUSSION

In this research study, researcher tries to find the Big Data usage intention of the listed companies in Sri Lanka. To achieve this research objective, following variables are selected. Based on the technology-organization-environment (TOE) framework was created by Tornatzky and Fleisher (1990).The information has been obtained from primary data by issuing questionnaire. The result of the correlation, regression analysis and hypothesis testing of the data has been reported. According to the result reported in correlation, regression, five independent variables found to have significant relation with dependent variable (BDUI).Considering the correlation coefficient between the independent variables Complexity, and organization size are is negatively correlated with Big Data usage intention while other variables are positively correlated with Big Data usage intention.

In a summary among several major findings, Seven variables i.e., absorptive capacity, compatibility, regulatory support, environmental uncertainty, relative advantage, technological resource competence and competition intensity were found to be significant determinants of BDUI, and two variables i.e. complexity, organizational size, and were found to be non-significant determinants of BDUI of listed companies in Sri Lanka.

5.1Conclusion

Big data analytics have major benefits in industries across strategic, operational and other aspects. Since current IS investigations lack focus on this technology as well as its organisation's impact determinants, this study has developed and validated a research model

to examine the contextual factors affecting the use of Big Data in the Sri Lankan economies. TOE framework (Tornatzky et al , 1990). Drawing on technology-organization-environment.

This study includes a number of contributions. As the TOE Framework provides a rational skeleton for analyzing and considering appropriate factors that can influence decisions on business innovation, it empirically verifies the TOE Framework and supports its application in Sri Lanka 's economics to the purpose of understanding Big Data Use.

Among several major findings, Seven variables i.e., absorptive capacity, compatibility, regulatory support, environmental uncertainty, relative advantage, technological resource competence and competition intensity were found to be significant determinants of BDUI, and two variables i.e. complexity, organizational size, and were found to be non-significant determinants of BDUI of listed companies in Sri Lanka. Some finding in this research is contradicted with the research of Agrawal that was studied about the Determinants of Big Data Analytics (BDA) Adoption in Asian emerging economies because the Sri Lankan economic context is different from Asian Emerging Economies. His research concluded that six variables-complexity, compatibility, regulatory support, organizational size, competition intensity and environmental uncertainty-were found to be important determinants for BDA adoption from several key findings, and three variables were found to be insignificant, such as relative benefit, absorptive capacity, and technological resource capacity. Regulatory support and complexity are inhibitors of the six determinants, and other determinants facilitate BDA adoption. The most influential factor affecting BDA adoption has been regulatory support, and the next most important predictor has been found complexity in this study (Agrawal 2013).

5.2 Implication

This study has had several valuable and important effects on research and practice concerning BDA adoption. A variety of technologies and technologies have been developed in modern societies to determine, measure and influence individuals and thingsSmartphones and wearable devices help the users in their every-day lives and in their careers. A great deal of information are collated, assessed and analysed in order to realize the social behaviour. We shall reveal various concepts on tracking and control which reflect self-tracking and real-time feedback loops. In order to regulate Big Data, data scientists and social scientists should work together to develop theories of regulation.Social media led to a revolution and led to a paradigm shift in companies ' global operating strategies. As a result, massive data have been collected from a variety of social media channels which need to be used for business intelligence purposes. Although it is of importance, there is little research about the implication for business intelligence of the use of Big Data Analytics.
This research fills the gap. There has been a concept of big data for a while. However, its current role in solving core marketing problems arose from the maturity of search, social, display and other forms of digital marketing as regards data which can be collected on channels and on the media. Finally, at the end of our fingers, our ability to predict "right customer, right message and the right time." This study will contribute to these business problems.

5.2 Recommendation

In this case, the researcher has properly considered usage intention of Big Data, which is quite essential aspect of any commercial enterprise. Our study can be helpful to business people in making effective decisions. In this research, researcher reviewed a lot of data analysis related to the variables used in this research and at the end hypotheses were also tested. Based on the results, all the literature review and discussions, researcher came to the decision that all the listed companies should take into account the importance to increase Big Data usage intention which is main key to their survival and success.

Our outcomes can be successfully implemented in businesses and in addition to those companies in the transport sector that give the related strategic importance.And large size organizations have higher intention to use big data. In Sri Lankan context the regulatory and standards will influence on big data usage intention of listed companies.

5.3 Limitation

While conducting the research , the researcher faced a few problems. These are the limitations of research, which is a common trend. There are some limitations to this research. Because of the time limitations, the research will only be conducted in Sri Lanka, which can not allow extensive research to be carried out on a broad scale. For this study , the sample respondents selected were therefore relatively small (n=100), so the results could be less valid. In addition, the results of the study could be difficult to replicate from other places due to the unique cultural background of the study people.

Another limitation is that only questionnaires were provided in English in one language in this study. Interviewees not familiar with the language might not fully understand the issues contained in the questionnaire and may result in a less reliable collection of data.

Due to the COVID-19 pandemic, the data which required for this research was collected through a single measurement tool it is online questionnaire of the quantitative approach from selected sample and also respondents emotional states are highly unpredictable and psychological, it was challenging to gather the true opinion of the respondents and most of the respondents were doubt to reveal certain information such as Capital and future strategies.

Researchers' bias is another common constraint in quantitative research. Choosing and drawing conclusions from the key observations requires expertise and can easily be influenced by personal inclinations. The researchers' views of the phenomenon studied inevitably affect their cultural background, education and other past experiences. In this case, research into the role of controller as an accounting student and the big data can generate different outcomes compared to an IT student.The data may not be 100% accurate. All data considered from these questionnaires were used to make decisions to provide results which were considered as true and accurate.

5.4 Suggestion for Future Research

There are also certain limits to this study which offer future research opportunities. Since the test is based solely on Sri Lankan Asian economies, the results in other parts of the world may not be generalized.

Because the sample frame of this research included a mere 100 Sri Lankan companies, these companies could have more resources and capacity to offer BDA investments and risks and the BDA adoption rate could be higher than the Sri Lankan adoption rate. Caution must therefore be exercised when generalizing the findings of this study in this or other countries for the entire population. It is also important to collect different sample groups from different countries and industries to make the method more reliable.Future studies can concurrently analyze a number of dependency relationships in a predictive model so that predictor causality and interconnections can be better known.

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