This report summarises the findings of a business survey conducted by the Mona School of Business and Management between January 1 and February 15, 2020, which sought to determine Big Data capabilities, attitudes and value opportunities among Jamaican organizations across the public and private sectors. A total of 40 organizations, largely private sector companies, completed the survey. Findings and insights from the study indicate significant value opportunities for Jamaican organizations to work in collaboration with Academia to fully exploit Big Data assets.
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1. EXECUTIVE SUMMARY

Big Data is rapidly becoming one of the most valuable assets for organizations. Big Data Analytics has become a significant competitive capability for businesses to drive process improvement, market intelligence, customer service enhancements, operational efficiency and cost optimization. Across both industry and academia, there is increasing focus on Big Data and its value potential. While companies in many developed countries embracing this emerging field, it remains less clear how public/private sector companies in developing countries, plan on exploiting the opportunities and resolving the challenges created by Big Data.

In response to these trends, the Mona School of Business & Management, UWI has sought to determine Big Data capabilities, attitudes and value opportunities among Jamaican companies. The team of researchers conducted a survey to: 1) assess the level of awareness of Big Data among Jamaican companies; 2) identify the various sources of Big Data within these organizations; 3) assess the attitudes of companies towards sharing their Big Data for the purposes of national development (official statistics); and 4) assess internal capabilities of these companies to conduct Big Data Analytics.

The online survey was conducted between January 1 and February 15, 2020. A total of 40 organizations, largely private companies, completed the survey. The findings from the study revealed that Jamaican companies seem to be aware of and have a fairly good understanding of what Big Data actually means, however, the majority of the companies have no experience or are beginners in the use of BD. Moreover, most companies do not have a Big Data strategy. While companies collect data from several sources such as emails, social media and real-time systems like sensors and Earth observation, the findings showed low utilization of the data collected for value generation. The main barriers preventing companies from maximizing the use of their Big Data assets were lack of analytical skills, privacy concerns, infrastructure readiness, the complexity of the data collected and organizational culture.

The study further explored the organizations’ attitudes towards sharing their data with other entities and to contribute to national statistics. All the organizations indicated some willingness to share their data, once issues surrounding proprietary data and privacy are resolved. Academia has a role to play in Big Data readiness and the majority of companies participating in the study expressed an interest in partnering with the Mona School of Business and Management, UWI. The main support and services these organizations expressed an interest in, through this collaborative partnership, were executive training, workshop and consulting.

Finally, we present organizations with several examples of the opportunities that exist for greater value generation by exploiting their Big Data assets.
2. INTRODUCTION

2.1 CONTEXT

We live in a world awash with information and the volume of data keeps increasing at an astronomical rate. Today, with the advancement in information and communication technology, coupled with the ubiquitous nature of electronic devices such as mobile phones and computers, high volumes of data are generated daily. IBM estimates that over 2.5 quintillion bytes of data are generated daily (IBM, undated¹). This type of high volume, high variety data is what is termed Big Data. From academia to industry, there is increasing focus on Big Data and the potential it can unlock. Big Data and Big Data Analytics are expected to shape future global decisions. While companies in many developed countries are embracing this new ambitious field, it remains less clear how public/private sector companies in developing countries, like Jamaica, plan on exploiting the opportunities and resolving the challenges created by Big Data.

Big Data and Big Data Analytics are largely regarded as the new frontier for innovation and competitive advantage and are considered a significant differentiator between high performing and low performing organizations. However, while sitting on these vast pools of data, many organizations are simply not ready to take advantage of this new strategic resource as much of the data that is generated remains untapped, while only a small fraction is exploited. In order to fully exploit their Big Data assets organizations need to first identify their data sources and then address the barriers preventing them from generating value from their data. In response to the trends in Big Data and Big Data Analytics, the Mona School of Business and Management, UWI conducted this study to determine Big Data capabilities, attitudes and value opportunities among Jamaican companies.

2.2 AIMS AND OBJECTIVES

The main aims of this study are:

- To assess the level of awareness of Big Data among Jamaican private/public companies.
- To identify the various sources of Big Data within Jamaican companies.
- To assess the current and expected use of Big Data among Jamaican companies.

¹ See http://www-01.ibm.com/software/data/bigdata/what-is-big-data.html

Big Data for development – A Business Survey
• To assess the attitudes of companies towards the use of Big Data for the purposes of national development (official statistics).

The study attempts to answer the following questions:

• Are Jamaican companies aware of the meaning and concept of Big Data?
• From what sources do these companies currently collect or plan on collecting data?
• To what extent are Jamaican companies exploiting the value of their data?
• Are Jamaican companies willing to share their data for the purpose of contributing to official statistics?
• What are the barriers preventing Jamaican companies from sharing their data?
• What factors will motivate companies to share their data?
• Are Jamaican companies willing to collaborate with UWI on Big Data initiatives and if so, what support or services would companies be interested in as a part of this collaboration?
3. A COMMON UNDERSTANDING OF BIG DATA

3.1 DEFINING BIG DATA

There are several definitions of Big Data, however, most definitions focus on the (i) characteristics of the data, which are often classified according to a number of V’s, and (ii) how the data differs from the traditional view of data. The numerous definitions often cause some lack of understanding of Big Data (Gandomi & Haider, 2015), so for the purpose of this report we adopt the following definition:

“Big Data is the information asset characterized by such a high volume, velocity and variety to require specific technology and analytical methods for its transformation into value.” (De Mauro, Greco, & Grimaldi, 2016).

Whatever the definition considered most agree that Big Data has three minimal characteristics (termed the 3 V’s) (Gandomi & Haider, 2015) as follows:

**Volume**: Big Data’s primary characteristic is its sheer volume as compared to “traditional” data. Size is now in multiple terabytes and petabytes which makes “big” data too large to fit into the memory of a single computer when processed. It is too large for traditional technologies and so special physical and logical infrastructure, such as Hadoop File System (Wang et al., 2013) has emerged to manage its storage and retrieval (Gupta, Gupta, & Singhal, 2014; Isasi, Frazzon, & Uriona, 2015).

- **Velocity**: Big Data is also about the rate at which new data is being made available and the speed with which it needs to be analyzed to action (Gupta et al., 2014; Isasi et al., 2015). This has implications for the systems capturing and storing that data, as well as the analytical techniques integrating that data with existing data. Given both the increasing availability of data sets, and the increasing rate of data production from sources such as the Internet of Things (Agarwal & Dey, 2016), this promises to be a challenge for some time to come.

- **Variety**: The degree of diversity and complexity of Big Data arises from the multiple sources of data, both inside and outside the organization (e.g. social media tweets, Facebook likes, mobile and video content). Conventional data models rely upon predefined structure, such as in relational databases, which is not possible in many cases where data have been automatically collected from sources such as the web or human-written documents. This results in less-structured data which require new techniques for analysis.

Although these three characteristics are at the core of most definitions, additional characteristics of Big Data have emerged such as: v*astness*, which speaks to not just the volume but also the extent of the full data set...
it is representing; veracity, which speaks to the trustworthiness of the source; and value, which speaks to the usefulness of the data for decision-making.

3.2 DRIVERS AND BENEFITS OF BIG DATA

Big Data is fast gaining the attention of many industries, since it can provide high value to companies. The benefits of Big Data have been categorized according to four (4) different kinds of benefits namely: transactional, strategic, transformational and informational. The most common kind of benefit, transactional benefit, is the enhancement of productivity growth which means that the Big Data technology is able to achieve efficiency goals. One of the most frequently recognized strategic benefits of Big Data is the ability to provide better products and services. In fact, many products have undergone changes in their features due to insights garnered from Big Data. Another strategic benefit is the use of Big Data to quickly respond to changes that occur in the business environment. The most frequently recognized transformational benefit of Big Data is increasing the organization’s capabilities, because when companies invest in new technologies they need to develop new skills and hire new people who are able to handle the new technology (e.g. data scientists). Big Data capabilities allow organizations to collect and integrate structured and unstructured data from different sources over a short timeframe. This benefit allows for the development of new business opportunities since companies are now able to operate in new value chains that they were not previously in, reflecting the transformational benefit of Big Data. Finally, the informational benefits are those related to data management, data accuracy and enabling easier access to data. Big Data technologies have allowed organizations to obtain a higher quality of data and have less trouble in accessing them.

It has been shown that Big Data can generate value in the majority of domains where its impact has been studied, such as retail, healthcare, finance, manufacturing, public sector, etc. Big Data has resulted in increased operating margins, efficiency and quality. Big Data Analytics has been used to help organizations improve customer service, identify and develop new product offerings and new markets and customers. For example, it has been reported that in the developed economies of Europe government administrators could save up to $149 million in operational efficiency by harnessing their Big Data and this did not include the saving from using the Big Data to reduce fraud and errors and increase the collection of tax revenues (Reference???).
3.2 **BARRIERS TO BIG DATA ADOPTION**

The literature has identified several barriers to implementing Big Data Analytics. One of the most cited barriers is the inadequate human resources and skills for Big Data Analytics and Big Data technologies (e.g., Hadoop). Other barriers to Big Data adoption are the lack of business support mainly due to the lack of business sponsorship (Russom, 2011) and the absence of a data driven culture which requires changing the mindset of employees decision-making which must now be based on data, where previously this was often based on intuition. The change of culture requires a strong commitment at the executive level. The identification of a “champion” at this level is often cited as a good way to help to overcome this barrier. Another barrier is the lack of understanding and quantification of the business value of Big Data which is essential for stakeholder commitment (Manyika et al., 2011). Privacy, confidentiality and security are also major concerns for organizations considering the adoption of Big Data.

To overcome these barriers, it will be important for organizations to establish policies related to privacy, security, intellectual property, and even liability as it relates to Big Data. Organizations cannot just consider having the required skills and technology in place but must also structure workflows and incentives to optimize the use of Big Data and to help overcome the cultural issues. Availability and access to the Big Data are critical and therefore organizations must consider the opportunities for integrating information from multiple data sources, including third parties, and incentives should be in place to encourage this.

4. **METHODOLOGY**

Data for this study was collected via an online survey. In order to maximize the response rate, the questionnaire was kept simple with more than 80% of the questions being multiple-choice, dichotomous (yes/no) responses. A few open-ended questions were posed so that respondents could provide insights into their responses. One hundred public and private companies from the contact list of Mona School of Business and Management were invited to complete the online survey during the period January 1- February 15, 2020.
4.1 PERSONAL AND COMPANY PROFILE

4.1.1 BREAKDOWN OF COMPANIES BY INDUSTRY SECTOR

In total, 40 companies from both public and private sectors completed the survey; the majority (70%) of the companies are private companies from several industry sectors as shown in Figure 1. Thirty percent (30%) of the respondents were from government/public sector companies.

![Figure 1: Industry sector of respondents](image)

4.1.2 NUMBER OF EMPLOYEES

Number of employees was used as a proxy for company size. The breakdown of the companies based on number of employees is shown in Figure 2. Forty-three per cent (43%) of the organizations have 500 or more employees and are therefore considered large companies.
4.1.3 POSITION OF RESPONDENT

More than 80% of the respondents occupy senior positions in their organizations, such as CEO/General Manager, Manager, Chief Information Officer (CIO) and Chief Operating Officer (Figure 3). Based on the respondents’ positions in their organizations, the responses to the survey questions are assumed to be credible and accurately reflect the organization’s position and attitude towards Big Data.
4.2 BIG DATA PROFILE OF ORGANIZATIONS

4.2.1 BIG DATA AWARENESS

Respondents were asked to indicate their level of awareness of Big Data. All 40 respondents (100%) claim some level of awareness; 65% claims to be strongly aware, 35% claims to be somewhat aware (Figure 4).

![Figure 4: Big Data awareness](image)

This result suggests that Jamaican organizations seem to be aware of the concept of Big Data.

4.2.2 DEFINING BIG DATA

Respondents were further asked to define Big Data. Responses included:

- A large collection of structured and unstructured data from multiple sources which may be analyzed to show trends, patterns, etc. to determine behaviour
- Big Data is a field that treats ways to analyze, systematically extract information from, or otherwise deal with data sets that are too large or complex
- Large (both in size and number of values) that may be contained in either a structured or unstructured format
- Massive amount of data that could be analyzed to find patterns
- Evaluating customer information
Findings and Analysis

- Gathering transactional data from various sources and using it to derive actionable insights from the data sets being generated
- Analyzing large data sets in multiple ways

The responses suggest that Jamaican companies seem to have a fairly good understanding of what Big Data actually means as the majority of the respondents identified at least 2 of the 3 original 3 V’s associated with Big Data, that is, volume and variety.

4.2.3 ORGANIZATION’S EXPERIENCE WITH BIG DATA

Respondents were asked the extent to which their organizations have experience with Big Data. 90% of the respondents have no experience, are beginners in the use of Big Data or are planning to use Big Data (Figure 5). Only 10% believe they are effectively using Big Data. These results show that although Big Data is becoming one of the most valuable assets for organizations, most private companies in Jamaica are not effectively using their data and have not begun to look more closely at the benefits of their Big Data asset. Although the companies are aware of Big Data and know what it means, they are not effectively using it for value generation.

![Figure 5: Experience with Big Data](image)

4.2.4 BIG DATA STRATEGY

With respect to having a Big Data strategy, 68% of the respondents indicated their organizations did not have a Big Data strategy (Figure 6). It is interesting that despite 28% of the organizations having a Big Data strategy, many of these companies still consider themselves beginners in the use of Big Data. This finding appears to
suggest that although a Big Data strategy appears to exist in some companies, these largely private companies, appear to not be effectively using Big Data.

Figure 6: Big Data Strategy

4.2.5 DATA SOURCES

Respondents were asked to identify the sources from which their organizations are collecting or expect to collect data in the next 1-3 years. The most relevant sources of data collected by the organizations surveyed are transactions, events, emails, social media and multimedia (see Figure 7). The data sources and proportion of respondents collecting or expecting to collect are reported in Table 1.

Figure 7: Data sources
Findings and Analysis

<table>
<thead>
<tr>
<th>Data source</th>
<th>Collecting now</th>
<th>Expect to collect in 1-3 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transactions</td>
<td>76%</td>
<td>5%</td>
</tr>
<tr>
<td>Social media</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Events</td>
<td>53-58%</td>
<td>16 - 32%</td>
</tr>
<tr>
<td>Emails</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multimedia</td>
<td>47%</td>
<td>18%</td>
</tr>
<tr>
<td>Open data/Public Sector Information</td>
<td>34%</td>
<td>37%</td>
</tr>
<tr>
<td>Phone usage</td>
<td>32%</td>
<td>32%</td>
</tr>
<tr>
<td>Geospatial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reports from authorities</td>
<td>32-40%</td>
<td>13 - 26%</td>
</tr>
<tr>
<td>POS or RFID</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Most relevant data sources. Percentage of respondents collecting now and expecting to collect in the future

It is not surprising that majority of respondents (approximately 80%) are collecting transactions data such as sales, financial and customer service data from their customers. Much of the transactional data captured by organizations is considered a byproduct of the day to day activities of the organization and therefore explains its prevalence. The most relevant data sources companies expect to collect in the next 1-3 years are Open Data/PSI, emails, phone usage and social media. It appears that many of these companies have recognized that data sources such as emails, social media and phone usage are rich sources of information, hence the forecast for collection in the near future. Not much interest has been indicated towards collecting more data from these sources: Earth observations, sensors, phone usage, POS/RFID and geospatial data. From a technical point of view, new technology and tools such as sensors and real-time systems such as Earth observation and geospatial data make it possible to process large amounts of data in real-time and it is interesting that these largely private companies do not seem interested in collecting data from these valuable sources that may be sources of competitive advantage. Data from these new real-time sources can help organizations to respond quickly to external challenges/trends and make faster, more precise data-driven decisions.
4.2.6 BIG DATA INITIATIVES/PROJECTS

Respondents were asked about Big Data projects or initiatives in their organizations. Almost half the respondents were aware of some Big Data project or initiative being undertaken by their company. Projects/initiatives identified by the respondents included:

- Creating a Centre of Excellence to serve multiple entities with business analytics
- Creation of a shared service unit for groups dedicated to data analytics
- Using customer transaction data to create customer profiles and predict customer behaviour
- Collecting transactional and demographic data of departing passengers, flights and retail spending to analyze and predict future targeted retail opportunities.
- Plan to establish a data centre for processing for sale of mined and packaged data
- The development of students' learning profile, performance and progression to graduation, including an early warning system
- There are plans to use Big Data to help to fill data gaps for the indicators of the SDGs.

4.2.7 SENIOR MANAGEMENT’S COMMITMENT TO BIG DATA PROJECTS

While there are Big Data projects/initiatives being undertaken, less than half the respondents believe senior management in their organization is committed to Big Data-related projects (Figure 8). The fact that more than 50% of the respondents believe senior management is not committed or are unsure of their commitment to the Big Data projects in the company will impact the success of these projects as existing literature speaks to the support of senior management as a critical success factor for Big Data and analytics projects (Gao & Selle, 2015; Saltz & Shamshurin, 2016).

Figure 8: Senior Management’s commitment to Big Data-related projects
4.2.8 DATA TO BE EXPLOITED FOR VALUE GENERATION

When asked whether they believe there is data their organization considers to be of value but has not yet been able to exploit, 80% of the respondents answered in the affirmative. Data identified by the respondents that they would like to exploit for business value include:

- Trade and trade patterns
- Travel transaction
- Aligning consumer data with social media data in order to better design and push products and services for their needs
- Geospatial data focusing on housing in order to determine mortgagers by location and compute income inequality and GINI measures for Jamaica
- Cargo manifest for all ports
- Website traffic
- Farm data such temperature, rainfall and various inputs versus farm outputs.
- Customer purchase history
- Crime data
- Road traffic data

These results show that Jamaican companies have recognized that there is a vast array of data sources that they can exploit but have not yet done so. Therefore, they do recognize the untapped opportunities that Big Data and Big Data Analytics can provide. Interestingly, a number of areas that have been identified by these organizations are areas that are known to have provided value to similar organizations and is supported in the literature on case studies of organizations and sectors that have been successful in adopting Big Data and analytics. For example, there are many cases where organizations have successfully used Big Data and Analytics to build customer-centricity and loyalty by predicting their behaviours (Erevelles, Fukawa, & Swayne, 2016; LaValle, Lesser, Shockley, Hopkins, & Kruschwitz, 2011). These applications include customer segmentation, target marketing rather than mass marketing, identifying and profiling loyal customers, identifying the lifetime value of customers and optimizing pricing strategies. It is well known that 80% of the profits are produced by the top 20% of profitable customers and 80% of the costs are produced by top 20%...
of unprofitable customers (80/20 rule) and therefore identifying this 20% can be very beneficial to an organization (Kim, Jung, Suh, & Hwang, 2006).

Another example in which Big Data and analytics have generated value is the farming industry. In terms of farm data, a number of cases have highlighted these opportunities (Kamilaris, Kartakoullis, & Prenafeta-Boldú, 2017) including providing guidance to farmers on the responsiveness to fertilizers for their crops which will optimize fertilizer use, and to improve yield and demand predictions. Additionally, Big Data Analytics has been used to provide new insights to give advance weather decisions, improve yield productivity and avoid unnecessary costs related to harvesting, use of pesticide and fertilizers (Bendre, Thool, & Thool, 2015).

Another area that has seen significant opportunities from Big Data is customs. The three primary functions of customs agencies are: security and facilitation of international trade; fair and efficient collection of revenue; and protection of public health and safety. These functions are becoming more difficult due to rapid changes in the operational environment. In this increasingly difficult environment, the World Customs Organization advocates less intrusive customs inspections under the revised Kyoto Convention. However, customs administrations in developing countries, like Jamaica, have to contend with the simultaneous conflicting tensions between growing trade flows, service quality demands of private operators, and increased revenue demand pressures of governments. Therefore, there are opportunities for these countries to consider Big Data and analytics for improving customs operations by increasing the precision of targeted physical inspections.

Big Data and Analytics can be beneficial in helping to deal with crime. Crime is one of the most important social problems in Jamaica that affects all aspects of our life (e.g. public safety, business, children development, etc.). Understanding what factors cause higher rates of crime is critical for policy makers in their efforts to reduce crime and in so doing increase citizens’ quality of life and business sustainability. Big Data, such as Geospatial data, can be used to answer some important questions such as where the next crime will be committed, who will be the victim and who will be committing the crime. Such data is currently being used to optimize the security resources based on the identification of crime hot spots. If the number of complaints from a particular area is found to be very high, extra security resources can be quickly redeployed from areas where there may be some slack during a particular period. This will not only ensure the efficiency of the utilization of the often-limited security forces but can also improve their image as they can now be more responsive. Additionally, Big Data sources have proven to be useful as alternate data sets for the crime rate inference problem which is a way to estimate the crime rate in one region using the crime rate of other regions in the same year by considering the features of regions and correlations between regions. Typically, this inferencing is done with traditional demographic data but now, given the availability of non-traditional
sources, Big Data sources such as Point of Interest and taxi flow data have been shown to be beneficial for this crime rate inferencing (Wang, Kifer, Graif, & Li, 2016).

### 4.2.9 BARRIERS TO MAXIMIZING BIG DATA

Respondents were asked to identify the main obstacles or barriers preventing their companies from maximizing the use of their Big Data assets. Big Data research suggests the main barriers are infrastructure readiness, complexity, lack of skills, privacy and cultural barriers (specifically organizational culture). As it relates to infrastructure readiness respondents identified barriers such as ‘access to appropriate technology; cost of infrastructure; and possible risk of little return on investment in infrastructure’. Complexity was also highlighted as a barrier, which includes challenges such as ‘data quality; structure of data; the wide dispersion or multiple sources of data; and multiple applications that require standardization’. The most cited obstacle among the respondents is lack of skills, for example, ‘availability of local expertise; understanding how to collect and use Big Data; competent data scientists; lack of knowledge and analytics capability of the teams’. Privacy issues were also identified as a barrier. Several respondents identified their organization’s culture as a barrier. Responses include ‘lack of understanding of Big Data; culture that is not data-driven; buy-in from leadership; lack of awareness of Big Data to key executives on what Big Data is and the value to the organization; Board of Directors lack of comprehension of the value of Big Data Analytics; and slow adoption of data analytics culture across the organization’.

Again, these perceived barriers are not unique to Jamaican organizations and many of them including, lacks of skills, data quality issues, culture, buy-in from leadership and investments in infrastructure are all barriers that are highly cited throughout Big Data adoption literature. Big Data adoption will require work with organizational and cultural changes as more effort has to be taken to educate people on how to treat data. Moreover, Big Data requires comprehensive technological infrastructure, that in many instances will require major changes in the current IT infrastructure, which can be costly to implement. These barriers must be overcome if companies are to fully exploit their Big Data assets.

### 4.2.10 ATTITUDES TOWARDS DATA SHARING

Approximately 90% of the companies indicated that they share their data with other entities: most of them with government, regulatory agencies and business partners, but also with the national statistical office, customers and suppliers to a lesser extent (see Figure 9).
Overwhelmingly, most respondents share their data to meet regulatory requirements or statutory obligations. Other motivating factors for sharing data include:

- Quality control
- Marketing
- To build opportunities
- To provide ease of doing business for customers
- Collaboration possibilities/reciprocity
- Differentiating our services

These results suggest that the majority of the respondents are not voluntarily sharing their data. Only a few companies share data in order to build trust, for openness and transparency, for reciprocity and public recognition and to contribute to policy development and planning.

Organizations that share their data see some added value for sharing data such as:

- New market opportunities
- Increased trade
- Build company’s profile
- No sanctions
- Feedback from regulator helps to track performance
- Better customer experience which builds loyalty and retain customers
- To gain regulatory compliant status
- Build partnerships
- Enhanced communication between the company, clients, suppliers, partners and the government

A small number of companies (10%) do not share their data. The main reasons for not sharing data are mainly because the data is proprietary and due to confidentiality/privacy concerns. This is not surprising as one of the main concerns when talking about Big Data and Big Data Analytics is individuals’ privacy. Big Data Analytics has the potential to give very detailed insights about the habits and lives of individuals that could reveal significant patterns of behaviour and also accurately predict individuals’ behaviours. This is a major concern expressed by organizations and therefore their reluctance to share customers’ data. The potential threat to the privacy of their customers is a major deterrent for many organizations to share their data with external entities.

Further, these companies were asked to indicate what would be needed to support their organization’s collaboration on data sharing. All the companies indicated a willingness to share their data if they could be assured of data privacy protection.

As it relates to contributing their data to national statistics, 65% of the respondents were willing to do so (Figure 10), while the remaining companies were uncertain. Interestingly, no company indicated an unwillingness to contribute to national statistics, provided the data was anonymized.

![Figure 10: Willingness to share data to contribute to national statistics](image)
4.3 BUSINESS DATA ANALYTICS

4.3.1 DATA USED FOR VALUE GENERATION

Respondents were asked to indicate the approximate percentage of the data collected that is used for value generation. The results show low utilization of the data collected; 53% of the respondents use between 10-40%, while 28% use less than 10% of the data to generate value for the company. Less than 10% of the respondents indicated they were using more than 90% of the collected data for value generation for the company (Figure 11).

![Figure 11: Percentage of data used for value generation](image)

Presently, most of the companies are not maximizing the use of their data to add value to the company or create a sustainable competitive advantage. Opportunities clearly exist for Jamaican companies to recognize the value of their data and reap the benefits as Big Data has the potential to deliver better customer experience, enhance internal efficiency, and, ultimately, improve profitability and competitiveness of organizations across all industries.

4.3.2 SKILLS TO HANDLE BIG DATA

In order to fully exploit the value of their data sources, companies need to have the requisite skillset to do so. Only 35% of our respondents believe their organization has the necessary skills to handle Big Data (Figure 12). This finding is not surprising as a lack of analytical skills was identified as a major barrier preventing organizations from maximizing the use of their Big Data assets.
In recognition that lack of skills is an impediment, almost 80% of the respondents agree that the recruitment of staff with strong data skills is important to their organization. Academia certainly has a role to play by helping to train students competent in Big Data Analytics that are market ready.

Sixty-five per cent (65%) of the respondents believe data-driven decision-making is part of the organizational culture (Figure 13), while at the same time, several respondents identified their organization’s culture as a barrier preventing their company from maximizing the use of its Big Data assets and fully exploiting its value.
4.4 COLLABORATION WITH UWI

Sixty-five per cent (65%) of the organizations participating in the study expressed an interest in partnering with UWI, Mona School of Business and Management, on a Big Data project. The types of support or services these organizations would be interested in as a part of the collaborative partnership are reflected in Figure 14. It is clear that many organizations recognize that academia has a role to play in increasing Big Data awareness among private/public sector companies.

![Figure 14: Services/support required from UWI](chart.png)
6. CONCLUDING REMARKS AND FUTURE PROSPECTS

It is clear from this study that there are tremendous opportunities for Jamaican organizations to fully exploit Big Data. Several findings from the study demonstrate that these companies are in a position to benefit from these opportunities.

1. The level of the respondents who answered the survey was heartening as one of the critical success factors for Big Data is senior leadership buy-in. The fact that senior management were the ones who completed in the survey speaks to this interest and they did indicate their commitment to Big Data.

2. Based on the types of data that are being collected organizations are already “sitting” on sources of Big Data. Therefore a vast array of data already exist and there are plans for many companies to capture even more data from other sources. We can therefore conclude that there is no shortage of Big Data among public/private companies in Jamaica. This is interesting as the Caribbean region, including Jamaica, is often regarded as being ‘data poor’. This study provides some empirical evidence to support the notion that data availability is not the main issue for the region. Data clearly exists, however, timely dissemination and effectively exploiting the data are more critical issues.

3. The survey indicates that although Jamaican organizations are either not using or just starting to use Big Data, there is an awareness of it. Furthermore, the sources of data the Jamaican organizations have indicated they would like to exploit e.g. customer data, trade data, crime data are similar to areas where other organizations and countries have had success. Therefore, Jamaican organizations can use the results/findings from these successful cases to guide them as they move forward with Big Data.

4. Some of the respondents have recognized the need for a Big Data strategy, even though many of those using Big Data are at a beginne’s stage. A Big Data strategy aligned with the organizational strategy is one of the critical success factors for Big Data and therefore Jamaican organisations need to be sensitized to this. The fact that some have recognized this need is, again, a positive finding from the study.

There are clearly some barriers to the adoption of Big Data, but these are not unique to Jamaica and case studies have shown they are not insurmountable. Local organizations need to develop initiatives to overcome the following barriers.

1. Lack of skills
2. Lack of infrastructure
3. Lack of a data-driven culture
Concluding remarks and future prospects

4. Senior–management buy in

5. Complexity e.g. data quality issues

6. Loss of data privacy and security

The opportunities for partnership can help to overcome some of these barriers. For example, the University is and can continue to provide training at various levels to address some of the issues around the lack of data skills as well as facilitating workshops to help with addressing culture and senior management buy-in. Often times the senior management buy-in and culture may be a matter of a lack of awareness of the opportunities for Big Data and if this is clearly demonstrated within the constraints of the organization it can change attitudes. There is a view that Big Data and analytics is a highly resource intensive undertaking and thus is best suited for the “big players”. However, through the development of partnership that promote awareness it can be clearly demonstrated to organizations that there are now infrastructure and software options that make Big Data viable for Small and Medium Sized Enterprises (SMEs).

References


