CHAPTER 12

Corporate Social Responsibility Informing Business Analytics: New Standards for Engagement and Performance

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Introduction

Data, information, and knowledge are three correlated terms that have been somewhat adjusted in the era of business analytics and Big Data; in the sense that their meaning is not the same in this new data-centered stage of development. The concept of business analytics (BA) has become part of everyday business vernacular; its relevance is clear by the 1,470,000,000 hits a Google search yields. Today, data and its analysis are elemental to organizations' decision making (Power et al. 2018) around the world. The quote "The way to predict the future is to create it" has been credited to both President Abraham Lincoln and Management Guru Peter F. Drucker. And, through the years, many have echoed their words because of the implications of the art of prediction and the attainment of desired results.

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The collection of vast amounts of data is not a practice reserved to Big Data Analytics; for years, before the existence of social media, organizations were collecting and storing large amounts of data as part of their core business operations. Examples of the latter include, banks (particularly for credit card management), airlines, search engines, The World Meteorological Organization (WMO), The National Aeronautics and Space Administration (NASA), Nielsen Holdings Plc and, of course, any Intelligence Agency, amongst many others.

Big Data has become much more than just a buzz word (Sharma et al. 2014). Certainly, the notion of being able to extract valuable information from sizeable collections of data is not new; however, it is fair to say that it has become a mainstream concept. The data and information that can be collected via social media, particularly social networking sites is ubiquitous, thus, so is Big Data (Ward and Barker 2013); in fact, just three years ago, Eberendu (2016) posited that 2.5 quintillion bytes of data were being created daily worldwide.

Business analytics has been widely discussed due to recent scandals involving mismanagement of data. Unethical and/or questionable practices may be due to insufficient standards of behavior. Further, although the number of organizations claiming engagement in corporate social responsibility has increased in the past ten years, there seems to be a disconnect between said concept and business analytics. For such matter, how businesses around the world approach the collection of data, how they are managing it, and why they are doing so, become increasingly relevant to stakeholder engagement and organizational performance.

Ever-changing global conditions and contexts compel organizational leaders to continuously design and execute global strategies fit for global stakeholder needs and wants. There are two elements that have been directly impacting business dynamics intensely for over a decade, these being, the Internet and firm responsibility and accountability toward stakeholders and society. In the era of Big Data and business analytics, are firms able to ensure ethical management of current and potential stakeholders' data and information? The study aims to describe current business analytics dynamics, as well as propose a model for stakeholder engagement and firm performance via the convergence of CSR and business analytics standards.

The main objective of the study is to assess current settings of business analytics around the world in relation to social responsibility. The specific objectives include, to analyze the ethical ramifications and norms

applicable to business analytics; and, to propose a model that puts forth standards of practice congruent with both business strategic objectives and corporate social responsibility, to ensure effective stakeholder engagement and firm performance. To do so, a series of propositions and a conceptual model to illustrate the proposed association of constructs and variables is presented, as well as a discussion on the managerial implications of such association.

Literature Review

Business Analytics

Data is currency and power, in that those that possess it have a greater opportunity to design what is in store. Everyday a massive amount of data is being collected, warehoused, processed, and produced. Yet, it is its analysis that has the potential to provide interpreters with information and knowledge that may reveal key insights for decision making. Analytics has been defined as a process by which statistics and statistical models are developed and applied to solve framed problems to obtain insights (Cooper 2012) which can, eventually, be worked to create knowledge; it has also been defined as a "decision-making-assistance tool" (Ohri 2012). Whilst analytics was once mostly limited to sports, particularly baseball, it has since evolved into a source for competitive advantage, to a buzzword, to a standard in business operations today.

Business Intelligence (BI) is a developed decision support system (DSS) guided by and operated with data (Negash and Gray 2008); according to Curto Díaz (2010) it may be defined as the collection of methodologies, techniques, practices, as well as abilities used to create and manage information with the aim of producing improved organizational decisions. And, Foley and Guillemette (2012) argue that it is a "combination of processes, policies, culture, and technologies for gathering, manipulating, storing, and analyzing data collected from internal and external sources, in order to communicate information, create knowledge, and inform decision making." Business analytics (BA) has been defined as a component of business intelligence (Laursen and Thorlund 2017; Davenport 2006), whilst other authors have debated the merger of both concepts, that is, BI&A (Chen et al. 2012; Chiang et al. 2012). According to Chae et al. (2014), BA involves the use of both methods and analytical techniques, which are data-driven, for diverse business-related

operations. In a sense, the aim of implementing business analytics is to extract value from raw or unprocessed data (Acito and Khatri 2014), in order to develop critical information and shape knowledge; the latter is what, ultimately, provides for improved decision making and enhanced organizational performance (Schläfke et al. 2013; Cosic et al. 2015). As such, BI&A enables the extraction of business data that is critical to the formulation of decisive insights (Lim et al. 2013).

Business analytics has been associated with the undertaking of organizational culture (Hawley 2016), prompt and effective decision making (Hopkins et al. 2010; Holsapple et al. 2014), and theory development (Chahal et al. 2019), amongst other aspects. Increased data availability, its ease of access, and its commodity-like quality have naturally led a significant number of organizations worldwide to delve into and carry out Business Analytics. Furthermore, it would seem that current circumstances and conditions are just right for businesses to explore the use of vast amounts of data to help accelerate business strategies. Both Business Intelligence and business analytics are related to the concept and management of Big Data (Chen et al. 2012), in that it is their primary material on which operations pivot.

Big Data

Big Data has been defined as a field (Canavillas et al. 2016) that merges the implementation of innovative technology with a large volume of data to obtain valuable information. It has also been referred to as the collection of "disruptive tools and technologies" (Kumar 2015). According to Faisal et al. (2012), Big Data is a "collection of large datasets that cannot be processed using traditional computing technologies, such as tools/software." Pethe (2017) has argued that the concept is used to refer to the management complexity of sets of data that are large, potentially unstructured, and grow rapidly. In the sense that, the size of the sets cannot be effectively managed with traditional technological mathematical and statistical tools in an acceptable time frame (Chen et al. 2014) for prompt decision making. And, Kaisler et al. (2013) posit that Big Data is the indication of the actual volume of the data, denoting exabytes (i.e., one quintillion bytes or one billion Gigabytes [Kuner et al. 2012; Shrestha 2014]) at the minimum. Therefore, the concept does not merely refer to the fact that there is now more data available, but that its storage and

processing (i.e., dataset management and data mining), cannot be carried out with conventional systems (ISO 2019a).

There are three main characteristics of Big Data, these being, volume, velocity, and variety (Zikopoulos and Eaton 2011; Fan and Bifet 2013; Suthaharan 2014), also known as the 3Vs of Big Data. However, other authors have discussed 5Vs, adding value and veracity (Pethe 2017; Ishwarappa and Anuradha 2015), whilst others include variety, value, and complexity (Kaisler et al. 2013), veracity, volatility, visualization, and value (Eberendu 2016), etcetera, as important characteristics. According to Chen et al. (2012), there are five main areas of analytics research, including "Big Data Analytics, text analytics, web analytics, network analytics, and mobile analytics." There are various sources of Big Data, including online services and social media, particularly social networking sites (SNSs), such as Facebook, Twitter, Instagram, Snapchat, LinkedIn, YouTube, to name a few.

Since the emergence of social media, its evolution has been exponential. Social networking sites have not only created communities but have brought existing ones closer together, that is, helped them remain connected; as such, these platforms have had a significant impact on collaboration (Liebowitz 2013). Said sources of the data are autonomous (Wu et al. 2014) platforms; their active users, well in the billions, generate a vast amount of content worldwide on a daily basis. Therefore, one of the advantages of Social Media Analytics is that it enables organizations to engage in conversation with stakeholders (Lusch et al. 2010), both current and potential. By sweeping social media platforms, enormous amounts of data, on vast amounts of topics, can be collected. And it is not just the content itself that provides valuable data, in that the emotional responses (i.e., sentiment analysis [Pang and Lee 2008]) to posts, tweets, stories, videos, memes, amongst others, as well as tags, and hashtags are also important providers of diverse data.

It is important to remember that organizations' stakeholders are more than likely users of at least one social networking site; there are approximately 2.1 billion people using Facebook, Instagram, WhatsApp, or Messenger daily (Facebook 2019a). As such, they are also creators of the very content that organizational leaders are interested in, which ought to increase their appeal for what they have to offer. Current and potential stakeholders, including the firm itself, create and disseminate content via SNSs on a range of topics, including but not limited to: politics, religion,

beliefs, sports, likes and dislikes, business practices, products and services, historic moments, entertainment, human rights, breaking news, etc.

The content created and disseminated by both firms and current and potential stakeholders is commonly referred to as Word-of-Mouth (WOM), digital word-of-mouth (Hu et al. 2006), and eWOM (Erkan and Evans 2016), amongst others. It includes original posts and tweets, the emotional responses (i.e., variety of *like* options) and comments to the latter, as well as the action of sharing, retweeting and reposting. The content may be positive, negative, factual and/or fake; moreover, it may be created by authentic social networking sites' users or, as been recently learned, by social media bots (Bessi and Ferrara 2016) inserting spurious content. Amongst other aspects, acknowledging the latter as relevant noise is required for effective Big Data analytics practice. Accordingly, the propositions have been derived as stated below:

P_1: Firms and current and potential stakeholders create and disseminate WOM via SNSs from which valuable information may be extracted.

P_2: The content created and disseminated by firms and current and potential stakeholders via SNSs feeds Big Data for business analytics.

Granted, at the outset, the data may be described as a mass, clutter, noise (García-Gil et al. 2019), unstructured (Liu et al. 2016), which is due to the very characteristics of Big Data abovementioned. Big Data analytics is the process by which advanced analytic techniques are used to manage Big Data (Russom 2011). According to Cao et al. (2015), Big Data analytics is a process, which entails "inspecting, cleaning, transforming, and modeling Big Data to discover and communicate useful information and patterns, suggest conclusions, and support decision making." In the sense that processing data is what enables detaching the noise from consequential data. Analysis of the latter leads to the uncovering of telling perceptions, ideas, opinions, facts, untruths, and significant patterns. And, applying theory, particular interests, and even personal biases, amongst other attributes, is what helps make sense of the analysis so that it is suitable for decision making.

Predictions and forecasting are the very essence of Big Data (Mayer-Schönberger and Cukier 2013); as such, there is great value in extracting information in a variety of fields. Big Data has been studied in relation to Software-defined networking (SDN) (Cui et al. 2016), acquisition (Lyko et al. 2016), Cloud computing (Hashem et al. 2015), supply chain risk (Schlegel 2014), storage and transport (Kaisler et al. 2013),

consumer analytics (Erevelles et al. 2016), management and analysis (Chen et al. 2014; Saeed and Ahmed 2018), and marketing (Verhoef et al. 2016), amongst many others. However, not much has been discussed regarding its association with organizational engagement in corporate social responsibility.

Corporate Social Responsibility

Business responsibility, also known as corporate social responsibility (CSR), has been defined as organizations' responsibility for the effects they have on society and the environment (European Commission 2019a). It has also been defined as an organization's set of policies and actions that both surpass financial performance interests and positively impact stakeholders (Turker 2009; Aguinis and Glavas 2017). Because CSR engagement is not precisely legislated, it continues to be a voluntary practice (Crane et al. 2014), which for many organizational leaders is still reduced to mere philanthropy. Furthermore, several studies have been developed in regards to the promotion, communication, and marketing of corporate social responsibility via social media (Kesavan et al. 2013; Capriotti 2011; Ros-Diego and Castelló-Martínez 2011); however, not much has been said regarding the relation between corporate social responsibility engagement, or lack thereof, and the collection and management of Big Data.

More than ever, current and potential stakeholders have high expectations of the organizations with which they associate. In a sense, they not only prefer to do business with a socially responsible firm (Dawkins and Ngunjiri 2008), but they also insist on the assurance that they have adequate policies and are performing accordingly. Strategically designed and executed CSR objectives, policies, and actions have a direct and effective impact on stakeholder management, development of added value, satisfaction, loyalty, enhanced corporate image, desired performance, and social and business growth and development.

There are six main CSR principles, which ought to guide all operations, stakeholder management, and the development of new policies, standards and norms, including: ethical behavior, transparent communication, stakeholder added value, and social, environmental, and financial performance. For such matter, CSR has commonly been associated with sustainability (Van Marrewijk 2003) and social impact (Toppinen and

Korhonen-Kurki 2013). And, it has also frequently been related to business ethics (Christensen et al. 2007; Joyner and Payne 2002; Carroll 1999; Fassin and Van Rossem 2009), as it is a business approach by which organizations are accountable for their role in society, as well as their actions impacting the latter, the environment, and stakeholders. Therefore, there is research that has put forth the relation of corporate social responsibility and good practices relating to favorable outcomes inside and outside the organization. That being said, the paucity in previous literature in regards to the relation between business analytics and corporate social responsibility necessitates understanding of the criteria and standards for their execution.

Laws and Standards

Currently, everything anyone does online leaves a trail of data, which can easily be mined and managed by third parties to create information and hone knowledge, without users being aware it is being done. There have been various reports over the years of organizations that have mismanaged consumers' data; although many countries have developed laws meant to protect personal data and information, legislation on the matter is not even close to being a mainstream practice. Some examples include Mexico's Federal Law on Protection of Personal Data (IFAI 2010), the European Union's General Data Protection Regulation (GDPR) (European Commission 2019b), Argentina's Personal Data Protection Act 2000 (UNPAN 2000), and Australia's Privacy Act 1988 (Australian Government 2019), amongst others. Despite efforts, there continues to be significant mismanagement of personal data and information, even from firms stating to be ethical, socially responsible.

Standards are clear and detailed specifications of a desired outcome. The organization's corporate philosophy, as well as industry, national and international qualifications, norms, laws, and other standards inform them. Further, they are applicable to any product, service, process, procedure, system, technique, and method. Standardization is the practice of ensuring that standards are designed, executed, and evaluated in a consistent manner. It is what ultimately enables the attainment and assurance of a degree of acceptable quality. Therefore, in a sense, if standards are the vocabulary, standardization is the language.

There are numerous international standards, in fact, ISO (International Organization for Standardization) has developed and published

over twenty-two thousand standards (ISO 2019b). Said organization has developed standards related to corporate social responsibility, business analytics, and data analytics practices. The ISO 26000 Social Responsibility standard was launched in 2010; unlike many other standards, it "provides guidance rather than requirements" (ISO 2019c). Meaning that, unambiguous measurement is difficult to achieve, which ultimately means that certification of said standard is not plausible. The ISO 19731 Digital analytics and web analyses standard was launched in 2017; it includes processes related to the collection, analysis, and report of digital data, as well as particularities of social media analytics (ISO 2019d). As such, it may be applied for business analytics and Big Data analytics practices; furthermore, although still under development, ISO has put forth the ISO/NP TR 23347 standard for Statistics and Big Data Analytics (ISO 2019e).

The reality is that, despite the availability of these standards, linkage between the engagement in corporate social responsibility and business analytics remains absent; moreover, the level of firms' awareness of their existence, knowledge of how to apply them, and interest in doing so is questionable. As such, the required alignment of CSR standards with those of business analytics ought to include the execution of the abovementioned six principles of CSR that include:

- Data collection,
- Data management,
- Data processing, and
- Data usage post-analysis.

In order to ensure standard alignment, processes and procedures should be standardized and carried out ethically (i.e., with providers and suppliers' awareness and consent), which also entails that the firm ought to formally and transparently communicate their policies, standards, and actions with current and potential stakeholders. Consequently, as a firm's standards of practice business analytics are effectively aligned with its social responsibility endeavors, it may genuinely be engaged in CSR. By doing so, the firm may be performing corporate socially responsible business analytics (CSR-BA). Therefore the proposition has been laid as:

P_3: A socially responsible firm aligns its CSR standards with their business analytics practices.

Stakeholder engagement has been positively associated with firm engagement in CSR (Gao and Zhang 2006; Lim and Greenwood 2017); in other words, it aids in the involvement of current and potential stakeholders in the firm's positive CSR-related activities (Greenwood 2007) and decision making. If CSR is a mean by which business ethics may be applied and stakeholders favor firms doing so (Lichtenstein et al. 2004), then, it seems reasonable that business analytics standards converged with the firm's CSR would have the same effect on stakeholders. Furthermore, there is nothing that disenchants and disengages a stakeholder quicker than the realization that a firm, which states to be engaged in CSR, is caught and proven to be carrying out questionable and unethical practices. Therefore, the proposition has been constructed as stated below:

P_4: Firm engagement in CSR-BA directly affects stakeholder engagement.

In the midst of firms gradually taking on a more proactive stance on corporate social responsibility, the digital era has revolutionized the manner in which organizations conduct business. Such was the case of a recent scandal involving SNSs, Big Data, business analytics, and big business.

Business Analytics—A Case of Mismanagement

In 2018, the world woke up to news of the Cambridge Analytica scandal; reports indicated that the British consulting firm specializing in politics collected data from Facebook users without their consent (Gilbert and Ma 2019). Said data was then utilized to profile users and target them with political ads related to the US 2016 Presidential election and the Brexit Campaign (Magee 2019). This case brought Facebook, one of the world's biggest and most successful firms, to the center of the discussion. It is noteworthy that Facebook has approximately 2.41 billion monthly active users (Facebook 2019a), and that reports of the case in question specify that about 87 million users' data and information had been unlawfully harvested (BBC 2019) from users' profiles; this particular Big Data was meant for Cambridge Analytica's processing, transformation, and dissemination.

Facebook was now being urged to provide evidence of involvement, or lack thereof; the firm and Mark Zuckerberg were called to testify before various Congressional Committees, and the European Parliament (BBC

2018), amongst others. An International Grand Committee was held in the United Kingdom in November 2018 to question Facebook's involvement and degree of awareness of alleged accounts. During said hearing, the absence of Mark Zuckerberg was noted and the firm's prior awareness of the mismanagement was mentioned, amongst other particularities.

There are numerous issues that arise with the case at hand. First, Cambridge Analytica and Facebook's practices were questionable and unethical as they possess the following attributes:

- Threatened democracy,
- Collected data without owners' consent,
- Compromised public safety over shareholder value, and
- Ultimately lied about the processes and procedures followed before, during, and after the targeted campaigns.

Second, Facebook's very current and potential stakeholders have begun to question the firm's corporate and generated interests, as well as its overall practices. Third, stakeholder distrust toward the firm and its associates has increased. Fourth, the firm's stance on social responsibility has been called into question; to clarify, although the firm operates a website on their role in sustainability (Facebook 2019b), it does not transparently share a corporate social responsibility report with its current and potential stakeholders, thereby forfeiting the right to be acknowledged as a firm fully engaged in CSR. As such, the firm has given many more reasons for stakeholders distrust, and disenchantment than it has to procure their effective engagement.

That being said, because Facebook's stakeholders are more than likely also groups of interest of numerous firms around the world, their engagement effectivity may also be diminished. For instance, if company A seeks to foster stakeholder engagement via Facebook, and the latter's integrity is questioned, leading stakeholders to debate whether to leave said platform, their relationship with company A may also be fragmented. This is an effect of the principles of supply chain management, in that the behavior and practices of one firm on the chain informs the effects and results of the others. This case of data mismanagement is illustrative of the consequences of a lack of operation standards, to say the least.

The case exemplifies the imperative need for organization's business analytics policies, standards, and practices to be aligned with their CSR

standards, as doing so will ensure that their data management processes are ethical. Furthermore, current and potential stakeholders are likely to be more engaged with firms using social networking site platform when their CSR and BA standards are well-aligned. In fact, they may be much more responsive, more willing to associate with the firm, and even create and disseminate positive WOM regarding the firm in question via SNSs. According to LaValle et al. (2011) high performing firms are those that use more data and analytic insights for strategic decision making; furthermore, they effectively adapt to environmental changes (Utting 2005), and are responsive to stakeholder needs (Dee 2010). Therefore the proposition has been developed as:

P_5: Stakeholder engagement derived from CSR-BA engagement directly influences the firm's performance.

Model Analysis

CSR and business analytics have become an important source of competitiveness; meaning that, they are elemental to the achievement of stakeholder engagement and desired performance. Therefore, for purposes of this study, it is imperative to begin with the premise that the firm actively and proactively engages in corporate social responsibility. This would mean that the firm is ethical, stakeholder oriented, and attains competitive advantage by pursuing business and social growth and development. Current and potential stakeholders, including firms, are social networking site users with varying purposes, be it for entertainment, communication, as a news source, and/or to accelerate business strategies, to name a few. One of the most valuable results of their SNS activity is word-of-mouth creation and dissemination; the latter is, or should be, of particular interest to firms as it may potentially be the source of valuable information (P_1). Therefore, it is the very content that stakeholders are continuously, in many cases daily, creating and disseminating worldwide that feeds the Big Data that firms may pursue for business analytics (P_2).

The principles of corporate social responsibility, as mentioned earlier, include: ethical behavior, stakeholder added value, social, environmental and financial performance, as well as transparent communication of policies, actions, and results. A truly socially responsible firm aligns its CSR policies with all processes and procedures; furthermore, it will strive to be associated only with those that share the same principles, in other

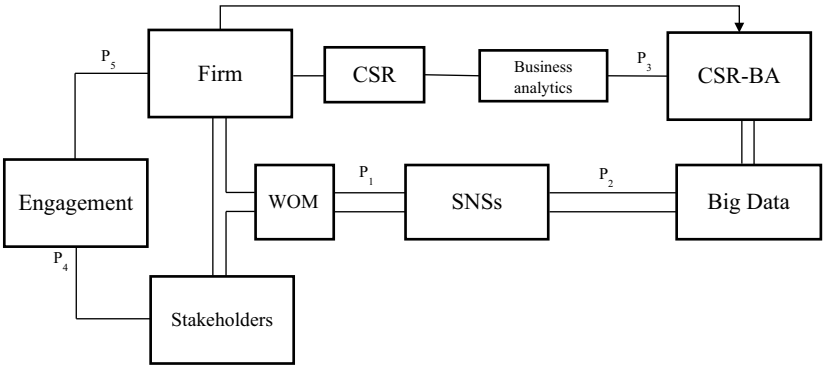

Fig. 12.1 The research model (*Source* Author)

words, ensure that their supply chain is also socially responsible. Consequently, a firm's business analytics' standards of practice ought to be effectively aligned with its social responsibility endeavors, in order for it to be genuinely engaged in CSR. By doing so, the firm may be performing corporate socially responsible business analytics (CSR-BA) (P_3).

Figure 12.1 depicts the conceptual model describing the effects of CSR and BA alignment on engagement and performance.

Stakeholders are more likely to associate with a firm whose moral compass is well-aligned with their own; they are also more likely to become and remain engaged with the firm that does not ignore social and environmental issues, is ethical, and transparent. For that matter, CSR-BA directly affects stakeholder engagement (P_4) as it tells them that their data is being properly managed, or not at all if such is the case, and that they are not merely being viewed as exploitable sources of data and information. Their responsiveness to firms practicing corporate socially responsible business analytics, then, may have a direct and positive effect on firm performance (P_5) and, in turn, on business growth of the firm.

Conclusions and Managerial Implications

It is frequently said that the youngest generation has never known a world without the Internet or social media and, therefore, cannot do without; however, it is not just them who have come to find it difficult to maneuver throughout their day without them. Perhaps one of the major innovations

of this era is social networking sites; not only are they used by billions of current and potential stakeholders around the world, but firms have also taken to them to accelerate business strategies related to their marketing, sales, and stakeholder engagement endeavors, amongst many others.

Scientifically and significantly predicting consumer behavior has become one of the business leaders' top priorities. Further, making strategic decisions in real time and, particularly, in a split second, has become a challenge opportunely accepted by organizational leaders around the world. Business analytics is mainly carried out with the Big Data collected via SNSs. The latter is of utmost importance for at least a couple of reasons: first, social media is not going anywhere, despite a significant backlash that has led many to close their pages and accounts; and, second, reports of business malpractice related to analytics are on the rise and consequences are exponentially more severe. Current conditions of firm behavior related to business analytics have certainly left stakeholders questioning the integrity of the firms, as well as their legitimacy and authenticity in CSR engagement.

That being said, perhaps one of the principal advantages to using Big Data and business analytics is not necessarily related to the former's core characteristics, rather to internal organizational processes. For instance, strategic planning processes typically take months to design, implement, obtain results, and evaluate them. However, by using Big Data, time elapsed from beginning to end may be significantly reduced. For example, suppose an organization wants to know how many consumers are linking their purchase decision making to business practices. However, earlier to Big Data and business analytics it would have taken a significant amount of time to design and execute the plan, now a mere question can instigate an outright research and an active collection of primary data which can, furthermore, be created in real time.

Stakeholder engagement may be achieved by transparent communication of firm dynamics, including its CSR endeavors. Current and potential stakeholders wish to know how the firm is operating, what, why, and how they are using their personal data, and the impact their policies, actions, and results are having on society, the environment, and their financial performance; as such, stakeholder engagement may also be enhanced by means of corporate socially responsible business analytics (CSR-BA) practices. Moreover, if high performing organizations are tending to their current and potential stakeholders' needs and wants, and the latter include

ethical management of their data, then, CSR-BA may also have a direct and positive effect on the firm's performance.

Stakeholders' behavior is, without question, being effectively predicted with the implementation of business analytics; there is significant financial benefit from engaging in Big Data analytics. In other words, sweeping, scraping, SNSs is providing firms around the world with key insights for strategic decision making. In a way that having access to Big Data, and the resources to manage it, means having the ability to be competitive in today's global market. This would give rise to further questions, such as how do firms without the same resources as say multinational enterprises fairly compete? Is it even possible to level de playing field? In addition, then, where is the line drawn for anticompetitive behavior regarding Big Data and business analytics? Certainly, these are questions that require further exploration, as well as adequate answers that aid in the formulation of best practices.

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