

Accounting Analytics – An Opportunity for Stakeholder Reporting and Improved Policy Decisions

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Abstract

Business has changed in a wide variety of ways, and one of the most prominent is the increasing use of analytics in the business decision making process. Accounting professionals are uniquely well positioned to quantify, analyze, and report on different types of organizational data, including but not limited to financial information. Accounting analytics, and the ramifications of integrating analytics into accounting and broader business decision making represents a tremendous opportunity and a continuous challenge. These advances also allow accountants and management professionals to develop and distribute stakeholder reporting tools to the marketplace. Distributing these different types of information to a variety of end users and stakeholders represents a logical extension of the public service and obligation embedded within the accounting profession. The linkage, and connection to broader policy and informational goals represents an opportunity for expanded research, debate, and analysis.

The purpose of this research is twofold in nature, and seeks to address a potential opportunity in both academic and practitioner arguments. Data analytics, and the increasing integration of technology within the accounting profession, are creating trends, challenges, and opportunities for accounting professionals. Such possibilities exist for accountants working in either public practice or private industry which reinforce the potential for changes, future research, and practical applications in these areas. Additionally, a unique facet of this research and analysis, are the variety of implications for organizations, management decision making, and organizational planning. Specifically, this research both analyzes existing literature related to stakeholder reporting, the development of tools to assist with the creation of a more strategic accounting function, and future directions for expanded application and research. Such a connection and linkage between management decision making and stakeholder requirements potentially allows for a more robust and comprehensive policy framework.

Keywords: Accounting, analytics, stakeholder theory

I. Introduction

The business environment continues to shift, evolve, and become redefined in the face of several forces that are affecting both the accounting profession and the broader business landscape. Stakeholder pressures, competitive forces of both a local and a global nature, and operational initiatives targeted for increased profitability and efficiency are converging to drive organizations forward in an increasingly stakeholder-oriented environment. With these changes, accounting and financial professionals are almost ideally situated to perform well within this dynamic and continuously evolving landscape. Technology plays a critical role in many organizations with regards to data creation, validation, and dissemination of information to financial and non-financial stakeholders. Accounting professionals, working both within organizations and as external consultants and experts possess the competencies and abilities to elevate accounting work as well as the profession at large.

A rapidly shifting and dynamic business landscape requires that both individual practitioners and organizations at large must embrace a more dynamic and fluid business landscape. Human resources and business decision making are increasingly interconnected in a

relatively straightforward manner. In order to best execute and take advantage of opportunities embedded in the marketplace, human resources must coordinate with finance to not only hire appropriate employees, but also provide adequate development opportunities for said employees (Higgins, 2014). The increasingly globalized, interconnected, and digitized business landscape presents individuals and organizations willing to adapt with a multitude of opportunities.

I.1 Theory

That said, with every opportunity there inevitably arise challenges to individual practitioners and the accounting profession at large. Technology continues to automate many of the lower level functions of the accounting and finance professions, and this will result in a radical disruption of what accountants do, as well as the perception of the field by external parties. In the face of radical change, two primary options are available for accounting professionals. First, a repudiation and denial of the effects of analytics and technology on the profession can certainly take place, but this is unproductive when placed within a longer-term framework. Second, and a more realistic as well as productive approach is to embrace the changes occurring within the broader business landscape. Analyzing and understanding the ramifications of these changes is imperative when linking technology to the accounting profession, and this research produces an analysis of accounting analytics with a broader overview of trends driving change within the profession. Specifically, as it pertains to accounting, stakeholders, and a more comprehensive view of operational success, an increasingly digital environment generates opportunities for organizations to better embrace broader policy goals.

II. Business in a Digital Environment

Digitization and technology have redefined the business landscape and competitive marketplace for virtually every business from technology to manufacturing to consumer goods. Traditional industry and competitive lines continue to blur with the rise of organizations such as AirBnb, Amazon, Facebook, Twitter, and Uber. It is no longer necessary for the organization to actually own and operate any assets for business purposes in order to use them profitably. Compounding these forces, the blurring and converging of competitive lines, is the increasing digitization of business, organizational information, and the way in which managerial professionals use this information to make decisions and evaluate business options. Technology and the integration of technology throughout business operations and decision-making processes continue to have dramatic ramifications on organizations and individuals employed within said organizations.

While the effect of technology on business operations is relatively straightforward to understand and project, as well as being increasingly familiar to end users, it is also important to recognize the effect digitization has on information distribution. End users of organizational data are increasingly accustomed to the ability to access and update information on an almost continuous basis from a variety of sources. Financial information is not excluded from such an evolution. End users of organizational information require increasingly diverse and broad based information to properly assess the performance of an organization. Accountants and financial professionals must be able to consistently produce and distribute such data. The impact of a sophisticated accounting information system (AIS) on the decision-making process organizations is directly linked to the efficiency of operational execution. Firms with dynamic AIS, and management teams cognizant of the importance of effectively utilizing data are, on average, able to achieve superior performance versus organizations that do not (Prasad & Green, 2015).

This linkage between an increasingly stakeholder-oriented environment and digitization is one that is worthy of further explanation, and one that requires an overview of what specifically stakeholder theory is to understand completely. It is important, however that in a desire to achieve a digitally oriented strategy and strategic planning process that organizations do not lose track of core business activities of functions. In short, attempting to force alignment with digital tools or tactics is an idea or concept that does not appear to generate value for stakeholders (Kesler & Kates, 2017). Subsequent to this, and appropriate for further analysis in addition to stakeholder information, is to examine and analyze what exactly is meant by accounting analytics. It is not merely the integration of technology within the accounting process. This, while important, is already occurring on a widespread basis. In addition to specific technologies and tools available for utilization, a change in mindset must also accompany the increased integration of technological and financial forces.

II.1 Stakeholder Theory & Analytics

Stakeholder theory represents a relatively straightforward idea from a conceptual perspective that is both a result of, and driving force of, complications occurring within the accounting and finance function. In essence, stakeholder theory addresses an existing reality that many organizations and managerial decision makers contend with while making decisions that drive the entity forward. This represents a clear and present connection and linkage between organizations, the accounting profession, and the broader policy positions that continue to influence business decision making. With multinational corporations, including Boeing, adopting such a stakeholder reporting and valuation process, with quantitative increases in reportable assets, this market trend is clearly increasing in relevance and importance (Carlton & Downs, 2014). Particularly in terms of decisions of a longer term orientation, it is evident that the factors included within the decision making process are not exclusively limited to those of a financial orientation. When ranking alternative decisions and deciding on the final choice, a variety of factors are built into the decision making framework. Factors of a non-financial nature, clearly, have an effect on financial performance, and in light of increased market uncertainty and instability, informational needs of stakeholders increasingly include financial and non-financial information.

Drilling specifically into the types of data required by stakeholder end users, the variety of information appears to reflect the diverse audience to which such information is delivered on a continuous basis. In essence, the growing importance and institutional clout of non-financial stakeholders has led to a reorientation of how business decisions are made in the context of the broader business environment (Weber & Gladstone, 2014). Operational data linked to sustainability and environmentally focused information have a direct effect on bottom line performance of many organizations, and this is not limited merely to organizations operating within extractive or capital intensive fields. Organizations that provide cloud based computer services or utilize large amounts of computing software in other capacities require large scale server farms to support such services. The environmental impact of such a business model is clear upon closer inspection. In order to operate at optimal capacity, computer servers on a large scale must be kept 1) supplied with electricity; and 2) kept cooled in order to prevent overheating. Google is perhaps the highest profile technology company investing heavily in improving the efficiency of existing utilities as well as investing in renewable electric sources.

In addition to sustainability information, an increasingly important source of information for stakeholders, including financial and non-financial end users, relates to information on the corporate governance of the entity. Volkswagen provides an almost ideal example of how

sustainability, governance, and financial performance can converge to create a situation where financial performance and results are severely affected by a failing of governance initiatives. Environmentally-focused tests related to the emissions produced by diesel vehicles were fabricated in order to increase sales, market share, and profitability within international markets, including the United States. While such tactics did indeed lead to VW becoming the world's largest automobile manufacturer, the ramifications and blowback from the underlying fraud continues to negatively affect financial results. With combined penalties and recall costs running into the tens of billions, the financial implications of poor governance, including controls, are abundantly clear. As this and other incidents continue to demonstrate, there does appear to be a potential disconnect between stakeholder requirements, policy goals, and the accounting data that drives decision making (Bradford, Earp, Showalter, & Williams, 2017). Such a disconnect, or gap between what organizations report, and expectations of stakeholders expect, also represents an opportunity for realigning the accounting function alongside a reimagined organization.

II.2 Reorienting the organization

Put simply, the importance of non-financial stakeholders and information continue to increase in importance as organizations increasingly compete domestically and internationally. Stakeholders include non-governmental organizations, corporate governance experts, environmentally-focused groups, and risk management advisory firms that exercise increasing influence over how organizations manage and report information. Following the financial crisis of 2008, and sluggish recovery subsequent to that event, management professionals responded by focusing on methods to improve financial results. By focusing exclusively on financial results, however, a short term orientation is required to take priority over other decision making criteria. Taking the form of corporate buy-backs, reduced capital and R&D spending, and an increasing orientation toward shareholder value delivery, financial returns superseded focus on other organizational areas.

In the aftermath of both the financial crisis, and the subsequent adoption of a short term orientation, a contradiction rapidly emerged. In a business environment increasingly dominated by non-financial stakeholders, a pluralistic and multi-objective decision making process is being implemented in an increasing number of organizations (Mitchell, Weaver, Agle, Bailey & Carlson, 2016). Unfortunately, such an approach to decision making and management practices requires a commitment of capital and human resources, and this presents a stark contrast to consistent increases in earnings required by the marketplace. Additionally, and perhaps most important for this research, is the gap this creates between organizational behavior, and the public sentiment and expectations of the broader stakeholder landscape.

Much bemoaned both within the marketplace as well as in academic publications, a short term focus narrowly oriented toward financial returns creates a situation not ideal toward stewardship and growth of organizational assets. In order to effectively compete and sustain new developments in the marketplace, organizations must both execute in the short term and invest for the long term sustainability and operational performance of the organization. Overtly focusing on short-term financial performance of the firm at the expense of other stakeholders and metrics of return can lead to the following scenario. In essence, the corporate social responsibility factors that influence organizations and management professionals must be integrated into the decision making process. Specifically, CSR initiatives and objectives must evolve beyond mere platitudes and toward a more objective and quantifiable framework (Heli, Takeuchi & George, 2016). Over time, as earnings and

financial performance increasingly occupy the focus and time of the management team, it is increasingly likely that operational decisions will be made with finance as a top priority.

One of the most important and high profile ways that accounting professionals deliver value to the marketplace in tangible manner is the reporting of information to the marketplace. Big data and accounting analytics are redefining the process which information is communicated, the timeliness of the communication of said information, and the interpretation of this information by end users. Using data analytics and data tools to assist in the analysis of financial data, preparation of financial statements, and distribution of information to stakeholders represents an area of growth and opportunity for accounting professionals (Tschakert, Kokina, Kozlowski, & Vasarhelyi, 2016). Drilling down, it is increasingly apparent that audit standards and communication will have to evolve in the face of such increased integration of technology in the audit process (Kraheil & Titera, 2015). Leveraging the insights and timeliness of data received from operational processes is an existing competency of the accounting profession; technology and analytics simply enhance this existing skill set.

Financial management and performance, of course, is an essential aspect of successful business management. Without generating more resources than are consumed by operations the organization will not be able to sustain operations for any substantial period of time. That said, placing the focus of the organization on short-term results, which may take the form of quarterly earnings or other disclosure requirements, can have detrimental effects on the organization. Stakeholder theory, and the focus on non-financial information that stakeholder management and reporting entails, offers a slightly divergent view of management. The linkage between stakeholder theory, accounting, and the utilization of analytics for accounting purposes is clear. In order to consistently generate and distribute meaningful information to end users, the data must be presented in an understandable format. Regardless of whether the focus is financial or non-financial in nature, the requirements of information for decision making purposes are consistent. Analytics can provide accounting professionals the tools necessary to make this data available.

III. Accounting Analytics

Accountants and other financial professionals have long been tasked with preparing, analyzing, and reporting financial and other analytical information to the marketplace. This role has not and will not change based exclusively on changes in the business landscape. This is an important point of emphasis in light of rapidly changing dynamics in the marketplace. Drilling down specifically the proliferation of audio and visual data, and the increasing availability of textual information, the ramifications for both managerial and financial accounting continue to grow (Warren, Moffitt & Byrnes, 2015). Put simply, accounting professionals must be able to leverage this increased amount of information, and turn this information into viable reporting metrics for decision making.

Even as market forces effectuate change in how the profession interacts and deals with other functional groups, including senior management, the primary role and task of the accounting function will remain financial analysis and data management. At a broad level, there are questions related to the specifics of how exactly the transition and inclusion of technology and data analytics will effect current responsibilities (Qi & Vasarhelyi, 2014). However, the responsibilities and roles that will be assigned in addition to this role that the accounting and finance function will have to evolve and develop alongside their organizations within the marketplace. Accounting professionals currently possess many of the competencies required

to play larger roles within individual organizations and the market at large. Familiarity with the decision making process, comfort with interacting between other functional groups and senior management, and the ability to quantitatively express organizational results represent skills already embedded within the accounting function. Additionally, and providing a unique perspective different than that possessed by other quantitative professionals, is the reality that many accountants already work with non-financial information on a frequent basis.

A specific area of interaction between accounting and non-financial information is present within the increased interaction between technology professionals and accounting. The growing intersection between organizations, stakeholder, and public policy goals and objectives only appears to be growing more important for how organizations make decisions for the medium and long term. Beginning at the C-suite level, the trend toward greater integration of the two functions is apparent. In many organizations, the CFO is often involved with or supervises the information technology function. If financial reporting, in essence, summarized and reports on the results of business operations, the integration of technology throughout accounting processes will result in more timely and relevant (Vasarhelyi, Kogan & Tuttle, 2015). Throughout the finance function, this increased integration is also felt on a day-to-day basis, as accountants work closely with IT on software design, implementation, and end-user testing.

This provides an opportunity for accounting professions to gain a thorough understanding of system capabilities, and where trouble spots arise for end users. Such knowledge, and the knowledge linkage between accounting information and what end users actually need, provides a foundation from which further metrics, reporting, and analytical tools can be developed.

III.1 Making Data Understandable

As with any presentation of information, the most appropriate test for the validity and worth of the information or presentation is whether or not the recipients are able to understand what the information is communicating. Depending on the specific audience of end users, and whether or not these end users are financially oriented or more interested in operational data from the organization, the data and method of presentation will differ. An important trend, regardless of trends, is how organizations and management can use data to make better informed decisions for financial, stakeholder, and broader policy goals (Borthick, Schneider, & Viscelli, 2017). Analytics and big data are, clearly, powerful informative tools and techniques but the presentation and analysis of the information must be customized for the applicable end users (Hagel, 2015). Stated another way, a core aspect of analytic decision making must be linked and applied to a business problem facing the organization to enhance effectiveness. Additional considerations that must be accounted for when introducing an enhanced analytics program, or simply including new metrics in the reporting process, include some of the following. Will the information be read in-person, from an email, or as a component of a PowerPoint-like presentation? Also, will the data itself only be communicated to individuals with the preparer of the information, or will other views be available via a virtual meeting tool?

After addressing these concerns, it is also imperative that the information can be read on a stand-alone basis, if need be. Stated differently, the information that is distributed must be able to be understood without an excess of explanation or qualitative support. An important aspect of making data understandable is the communication of this information, but there are other factors that must be integrated within the data presentation framework. While charts,

diagrams, and PowerPoint presentations are staples of financial analysis, there is a risk that many of the presentations and information become muddled due to extraneous data. In other words, there is a risk that in an attempt to include as much information as possible, financial professionals overwhelms and confuses the recipients of the information.

III.2 Metrics

Financial and accounting professionals develop metrics and reporting tools that fill a definitive need in the marketplace. End users, including financial shareholders and non-financial stakeholders, both require information containing several similar characteristics. Publicly disseminated data must be comparable, consistent, verifiable, and applicable to a number of different organizations within different industries. These qualities are particularly important when analyzing the information communicated from auditors to the marketplace, as well as the insights and recommendations garnered from the audit information (Murphy & Tysiac, 2015). Drilling down, and especially applicable to stakeholder recipients, are the future oriented recommendations that can and should be made off of more timely and relevant audit information. Stakeholders must be able to interpret the information of individual organizations and use said information to accurately evaluate the performance of the organization. An additional aspect of financial metrics and the underlying information that generate value for end users is that, in large part, the underlying information is quantitative in nature.

Quantitative information drives organizational decision making, and this concept links to the growing demand for non-financial stakeholder information. Financial statements audits require consistent and comparable information, and technology can certainly assist with the reporting process. Specifically, and linking to the growing importance of stakeholder information, increased analytic and big data capability, analytics can assist in streamlining the audit process (Min, Chychyla & Steward, 2015). Sustainability, governance, and operational drivers of both cost and revenues must be quantified for a relatively straightforward reason. Business decision makers and end users have a familiarity with quantitative information, and stakeholder information must be presented in a familiar format to facilitate decision making. As with financial decision making and information, there are clearly different types of metrics and information that will be more applicable to certain organizations than others. That said, developing metrics that are applicable to organizations requires that management accountants establish relationships with other functional groups.

Information technology, digitization, and the increasing use of technology in business operations and decision making are filtering throughout the rest of the decision making process. With the growing availability of quantitative information, from both operations and financial perspectives, the need and requirements of end users will continue to increase correspondingly. Challenge, however, are present within the accounting profession as practitioners attempt to better integrated information technology into the audit. Enhanced technological integration can assist with transiting audit procedures to continuous processes, but such a transition inevitably receives pushback in terms of financial pressures, management pressures, and inertia from the profession itself (Dzueanin & Malaescu, 2016). While the most common metrics and information usually pertain to sustainability and other environmental information, it is important to understand the broader ramifications of sustainability linked data. For example, many organizations list utilities as the second largest expense following payroll and benefits. Manufacturing organizations are a clear example of companies that use a large amount of utilities, including electrical costs, but there are other types of entities that consume large amounts of electrical and other utility costs.

Google and other technology firms were listed previously as large users of electricity, but virtually every organization is increasingly attuned to the ramifications that environmental costs can have on decision making. Service firms, working in buildings that are either owned or leased, invest in environmental measure to lower electric costs and reduce the organizational carbon footprint. Such actions are not undertaken lightly by organizations seeking to generate a return for shareholders. Between tax credits and other types of incentives for environmental actions, the financial benefits of sustainability are increasingly clear.

IV. Analytics and Stakeholder Reporting

After determining or identifying the appropriate information for the organization to focus on, the next logical step is to be able to report and communicate this information in a way that is beneficial to stakeholders. Financial reporting, of course, forms a cornerstone of how accounting and financial information is disseminated to shareholders, and includes many of the same characteristics that are also important to developing appropriate metrics. Traditional financial reporting, including comparative information for publicly traded corporations and private organizations, allows shareholders to make accurate and timely decisions. Stakeholder information, much of which influences financial results, should also be reported to stakeholders in a manner that is timely and allows for comparison.

Building on the points outlined above relating to stakeholder metrics, there are facets of financial reporting that can be integrated within the stakeholder reporting process. Stakeholder reporting also provides an opportunity for organization in general, and specifically the accounting profession, to quantitatively demonstrate a connection and linkage between decisions being made, and broader policy objectives. Different stakeholders are more or less interested in different policy objectives or goals, but an overarching theme is that organizations must become more responsive to market requirements. Stakeholder reporting, and the increased analytic capabilities of organizations and accounting professionals, serves as a foundation for improved coordination between these traditionally disparate areas.

As with any emerging field of research and practice, however, there are organizations currently established in the marketplace that can serve as both benchmarking tools and best practice goals. As the broader business landscape increasingly includes organizations with global supply chains and just-in-time inventory management systems, accounting professionals have an additional opportunity for accounting analytics and reporting. The ability of organizations to efficiently manage and plan supply chain trends, including cost fluctuations and currency rates, represent a unique opportunity for analytics to assist operational and management decision making (Schoenherr & Speier-Pero, 2015).

Analyzing market trends both in the United States and international markets, there appear to be two broad areas of growing importance to financial shareholders and stakeholder groups. Sustainability is clearly an area of current and emerging importance to organizations operating within extractive industries and service industries, and there are several market-driven examples of how organizations are applying analytics to environmental information. Whether accounting professionals work in the private sector, publicly traded corporations, or in the education of accounting professionals, technology and big data are bringing radical changes to the accounting profession (Capriotti, 2014). Drilling specifically into different types of reporting and analytics utilized in the marketplace, several appear to be particularly relevant for business decision making. These examples prove that increased coordination

between organizations, reporting, and policy objectives is not only possible, but increasingly common among industry leading organization in the marketplace.

IV.1 Water Stewardship

Coca Cola, beginning in 2008 began to quantify and report water conservation and recycling goals, labeling the report as the water stewardship report. The water stewardship report relies exclusively on operational outputs, i.e., the amounts of water used on a per bottle basis, in total, and the amounts of water recycled and returned to the surrounding environment. While the information contained within the report is based on operational results and information linked directly to production functions, the report is presented and analyzed within the context of both operational and financial results. An additional benefit of compiling such a report is that focusing specifically on aspects of operations, management attention and organizational focus inevitably are increased on that specific area. The organization consumes large quantities of water, and in light of increasing concern regarding the future of sustainable uses of environmental resources, it is critical that management focus financial and human capital on this area.

A common theme in stakeholder reporting, and the broader decision making environment, is that when types of information are analyzed, resources and management focus flow along those areas of focus. Business decisions take place in a stakeholder environment, whether or not the different stakeholder groups are explicitly outlined within the reporting process. Sustainability, especially for companies such as Coca-Cola that generate a large environmental footprint, is transitioning from an optional reporting requirement to an integrated report of the decision making process. Coca-Cola, after establishing both the format and information to be included within the water stewardship report, has continuously issued this report every year to track and compare results and progress toward sustainability goals.

IV.2 Adidas

An additional example of how sustainability is integrated within the traditional analytic framework is taking place at Adidas. Management at the firm realized that with a global supply chain, consumers on a global scale, and distribution initiatives spanning the world, cost-saving initiatives linked to sustainability should be explored. That said, much has been documented on the specter of greenwashing. An overt connection between sustainability governance, sustainability reporting, and disclosure characteristics provides a critical bridge between operational results and financial reporting (Peters & Romi, 2015). A typical example includes organizations that simply make superficial changes to processes in order to appear more sustainable. In essence, what is required is an objective review of sustainability initiatives through two separate and equally important lenses. Business decisions are not made in a vacuum and must integrate various types of information. Drilling into how such a decision making framework was implemented at Adidas lends an example of how accounting and finance can add value to the sustainability decision making process.

Adidas coordinates with the Environmental Defense Fund, a program that places MBA students into training initiatives with the Climate Corps, where the students learn the operational aspect of sustainability. Published in Bloomberg, the report on the program at Adidas focused on one specific participant of the EDF program that was hired to work at the US headquarters of Adidas after graduation. This approach appears to be an almost ideal representation of the research of (Morio, 2014), i.e., the possibilities attainable when linking business intelligence to strategic decision making. Utilizing the experience and knowledge

gained through working at organizations in an operational role, the results of this program are specifically outlined. Beginning with lower dollar amount projects and achieving success early on in the process, Adidas as an organization allocates up to \$3 million annually to fund a portfolio of sustainability oriented initiatives. Since inception, the internal rate of return on these projects has averaged 33% annually. Viewed with the support of such market driven evidence, the linkage between sustainability and financial results is clear.

IV.3 Governance and Analytics

Framed within the context of business decision making, the importance and relevance of corporate governance are difficult to overstate. Drilling down to the specific definition of governance most applicable to the decision making process results in the following definition of corporate governance. Corporate governance represents how organizations and the management professionals guiding the organizations forward interact with internal and external decision users. Specifically, and in light of governance failures and issues at organizations including Yahoo!, Alibaba, Viacom, and Volkswagen illustrates a need to examine and possibly reevaluate the relationship between CEOs and respective boards of directors (Misangyi & Acharya, 2014). Specifically, it appears that governance initiatives and efforts are more effectively when implemented in a complementary manner to other organizational plans, in place of simply utilizing governance as a replacement for other initiatives.

While often expressed in a qualitative manner specific to senior level decision makers, governance continues to increase in importance as organizations contend with an increasing number of stakeholders. Governance can and should play a role in how organizations respond to the increasing number of hybrid organizations, i.e., benefit corporations and flexible purposes corporations that disrupt traditional operating frameworks (Lee & Jay, 2015). Since corporate governance represents how the management team interacts with internal and external users of organizational data, the importance of maintaining positive governance relations is critical. Illustrated both in academia and marketplace, the increasing importance of corporate governance is an emerging trend ignored at a cost to the profession.

Clearly, corporate governance is managed in different manners on a global scale, but there are common themes that are beginning to be quantified and ranked. GMI, a division of MSCI, reports on and ranks organizations explicitly based on governance metrics linked to transparency and the decision making process. Regardless the specific organization, industry, or topic in question it is clear that the intersection of accounting, analytics, and stakeholder oriented reporting is driving change in the profession (Murthy, 2016). The rise of activist investing in the post financial crisis business landscape is not a chance occurrence. Shareholders and stakeholders demand more of organizations and are most likely to express their dissatisfaction. Financial ripple effects of poor governance and a subpar understanding of the analytics driving governance decision making can be seen in organizations ranging from Volkswagen, Viacom, Yahoo, and even Alibaba as it initially held its IPO. There is a clear and growing need for analytics driven by both organizational needs for information and stakeholder requirements for comprehensive organizational information.

V. Discussion and Analysis

Organizations are driven by information, and quantitative information drives the vast majority of the decisions undertaken by management professionals. While qualitative information certainly provides framework and context within the decision making process, the underlying driver of business decisions is quantitative data. Accounting and finance

professionals have experience and training related to the quantification and reporting of financial information, and this provides a foundation from which to address the changing analytic needs of business. Financial information is a major driver of business decisions, but it is apparent that decisions are not made solely based on one metric. Environmental concerns, partners, shareholders, regulators, and employee based stakeholders all must be addressed and incorporated into the decision making process. Business analytics have evolved, and accounting professionals have the required competencies and skills to address these needs, but the tools and methods must be leveraged to ensure maximum productivity of professional efforts.

Specifically, coordination between the CIO, CFO, and technology infrastructure teams is imperative to initiate and sustain change management implementation. Cloud based services and tools generate tremendous opportunities for financial professionals, but adopting cloud based services requires changes to back office processes, analytic functions, and front end dashboard presentations (Naukam, 2014). While the specific analytical tools and ERP systems will be different depending on the organization and the industry, there are trends and concepts that must be integrated into accounting analytics.

The most important aspect of accounting analytics outlined previously in this research, is the necessity of developing and disseminating information that is useful to stakeholders. In order to perform that task, accounting professionals must be able to extract information from the systems utilized i.e., the system must be created and organized in a way that makes using the information generated by the system a simple and straightforward matter. Accounting information systems are what drive the primary way in which accounting and finance professionals add value to their organizations. Transforming operational data into financial information is an essential part of the accounting process, and requires a functioning AIS that is both user friendly and robust enough to contend with inevitable organizational changes.

V.1 Analytical Characteristics

While specific characteristics of systems and functional workflows differ from functional area to functional area, several general themes and characteristics should be applied. First, the accounting system must be integrated with other modules such as accounts payable, procurement, IT support services, accounts receivable and cash collection, investor relations, and capital planning. Connecting these various modules together is an essential part of the transition of accounting professionals to a role as data analyst and expert. Second, the specific chart fields and components of the system must establish commonalities throughout the various sub-modules that can be used to generate reports. For example, in a multi-divisional organization the system can be constructed a number of ways. There can be one entity of business unit set up atop the system with other business entities set up as departments, customers, or another unique identifier.

The above scenario may work for an organization with only one legal reporting entity, but if the organization has several different reporting entities, the ERP structure must be established to mirror the reporting requirements already in place. Once that is established it is imperative to return to specific chart fields utilized by the organization. Are reports able to be generated and run off of each identifying field, or only with a combination of chart fields? Drilling deeper, are the chart fields utilized within the ERP system reflective of operational results across the business, or are different metrics more applicable to different segments of the business? Third, is the information contained within the ERP broken out and distributed to users? Obviously, different levels of information (payroll, operational, etc.) are restricted

based on job title and workflow patterns, but this question drills down an additional level linked to the usability of the system.

In essence, the driving inclusion of analytics within the accounting and financial profession relies on the fact that accounting professionals have the capability to present information in a variety of methods. Grouping information in principle-based reporting structures linked to the functional alignment of the broader organization is an example of how analytics can assist accountants with the creation of higher quality information (Schneider, Jun, Janvrin, Ajayi & Raschke, 2015). Better alignment between operations, accounting, and the information communicated to internal and external stakeholders is a critical benefit of increased integration of technology within the business decision making process.

Analytics and dashboards may very well be generated, and contain large amounts of important information for end users, but if the information is not distributed appropriately the odds of it being used successfully drops. Communication is essential for organizational success, and that is especially important for quantitative information; when viewed by non-financial professionals it is possible for the information to overwhelm recipients. Developing templates and reports is an important part of analytics and accounting information. Dashboards and other presentations represent the most common method by which data is communicated so it is imperative that the end result be easily understood. Linking together the various aspects of the organization, and the different functional groups operating within the entity assists in creating templates and information applicable for broad based decision making.

V.2 Conclusions

Analytic tools continue to advance at an increasing rate, reflective of the growing digitization of business operations and the needs of stakeholders for information. Building on existing ERP systems such as Oracle, PeopleSoft, and specific software packages such as Hyperion and PowerPlan, tools are available that enable accountants to generate higher quality information for decision makers. Accounting professionals are uniquely well positioned to take advantage of several trends converging in the marketplace and the profession. Effectively leveraging technology is essential for accounting professionals seeking to elevate the profession from that of reporting specialists to that of strategic partner and decision maker (Pickard & Cokins 2015). Familiarity with other functional groups and areas, especially the information technology function, provides insights and practical hands-on knowledge necessary for developing appropriate tools and information. In addition to a broad based knowledge of operational data and functionality, accountants are already included with the production and distribution of metrics and quantitative data.

These same skills set can and should be applied to the creation of stakeholder analytics, in addition to refining existing metrics and information applied to financial information. As the business environment continues to evolve and change at an increasing rate, it is imperative that the accounting profession adapt. Extracting information from existing systems is only one aspect of the analytics process, however. It must then be formatted and presented in a way that is user friendly to the end users. Specifically, an important part of accounting analytics is an analysis of the existing technology structure, or whether or not the existing structure is actually capable of generating the necessary information. The tools are already within the marketplace, data exists both inside and outside of organizations, and accountants have the necessary skills to effect change. The only next step is for professionals to seize the

opportunity and leverage their skills and competencies to fully realize and maximize this opportunity.

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