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This Issue

Workplace conflict is known to have severe implications on employees and organisations worldwide. Conflicts at the workplace have resulted in the destruction of cordial relationships among working colleagues as well as subordinates and superiors and has also changed enthusiastic employees to rather hostile and ineffectual actors. Consequently, these employees are not able to meet their targets due to negative attitudinal changes towards work, thus hampering the attainment of organizational goals. However, there is little empirical studies on this subject in both academic and industrial circles. In examining the outcomes of workplace conflict and its influence on the attitudes of media employees, this paper employed qualitative methodologies to select forty two (42) respondents from six Ghanaian print and electronic privately and state owned media houses. Findings revealed that attitudes of employees towards work were predominantly influenced negatively as employees decline in commitment to work and cooperation with others. Further, following conflicts, employees engaged in many adverse behavioral tendencies including not being on talking terms, not greeting one another, hostile behaviours and insecurity. Nonetheless, the paper interestingly found some positive outcomes such as idea sharing, unity, activeness and alertness from conflicts.

GUIDELINES FOR SUBMISSION

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Domain Statement

The *Journal of Management Policy and Practice* is dedicated to the advancement and dissemination of management theory, standards and practices by publishing, through a blind, refereed process, ongoing results of research in accordance with international scientific or scholarly standards. Articles are written by business leaders, policy analysts and active researchers for an audience of specialists, practitioners and students. Articles of regional interest are welcome, especially those dealing with lessons that may be applied in other regions around the world. This would include, but not limited to areas of strategic marketing, strategic management and policy, managerial finance and accounting, management information systems, human resource management, business law, organizational theory and behavior, operations management and production. Focus of the articles should be on applications and implications of business, management decisions and performance. Theoretical articles are welcome.

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Enhance the development of the management discipline.

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Provide an additional outlet for scholars and experts to contribute their ongoing work in the area of management decision making and practice.

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North American Business Press
301 Clematis Street, #3000
West Palm Beach, FL 33401
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Big Data -- What Data and Why?

Badie N. Farah
Eastern Michigan University

Data is collected daily and automatically from multitude of sources using all possible formats, stored, and backed up for future use and applications. However, it is less obvious that such an activity will generate a positive economic value when the data is used in mining for strategic advantage. Therefore, the current upward trajectory for collecting and storing data with the expectation of great economic returns might not pan out. The rational way is to analyze all data collection, storage, and analysis proposals using cost and benefit metrics to guarantee that economic benefits for the organization will be the outcome.

INTRODUCTION

Data is collected daily from multitude of sources using all possible formats and stored (and backed up) for future use and applications (Laurilla, et al, 2012; Ferris, et al, 2014). The intent of storing data is multifaceted. One reason for collecting and storing data is historical preservation; where the data might be interrogated for reflection on what had taken place sometime ago. Processing of data for such usage might be limited to organizing, cataloguing, and reproducing. Another reason for collecting and storing data is to produce summary reports to comply with the requirements of the organization. Yet still another reason for collecting and storing of data is for the purpose of mining such data for possible discoveries that might be of value to the organization (Oracle, 2013; Taylor, 2012). These reasons have been around for a very long time. What fueled the magnitude of collecting and storing of data today is the tremendous processing power of computers, the availability of such powerful computers to almost all organizations, the availability of tremendous data storage devices with great capacities at a very reasonable price, and above all the availability of advanced statistical methods that make processing the data and extracting information possible (Bollier, et al, 2010). Businesses, certainly large ones, are to a large extent, convinced that collecting and storing data for future use can solve problems and generate economic payback (Lohr, 2012; Boyd, et al, 2011). In certain situations, such as generating summary reports or keeping data because of legal requirements, the value of such data is obvious. However, it is less obvious that such an activity will generate an economic value when the data is used for mining (Wu, et al, 2014). Such a return may, or may not, be of a positive economic value. Therefore, the current upward trajectory for collecting and storing data with the expectation of great economic returns might not pan out. It is the herd mentality what driving this activity. The rational way is to analyze all data collection, storage, and analysis proposals using cost and benefit metrics to guarantee that economic benefits will be the outcome of such an undertaking (Podesta, et al, 2014).

The love of generating, storing, and analyzing data at organizations is very obvious. Most of large organizations, if not all, have certain entities in charge of maintaining data operations. That requires

employees with specialties of data storage, security, and manipulation (Chen, et al, 2012). Somehow the herd mentality dictates the desirability of having such an activity simply because every other organization (or the competition) is also on the same path. As such, organizations produce data about all activities. In addition, many organizations subscribe to external data sources related to their activities, businesses, and their environments. But no one necessarily points to the evidence of the value of such an activity; nor, that the collected data lead to better decisions (Trnka, 2014).

In some instances, it is the desire of the executive of the company to run the business in his own way. To do that sometimes the executive might require certain data to be collected and summarized in a certain way. Such an activity could require the work of hundreds of people over extended periods of times to produce such summaries and comparative analysis. This also could be repeated over and over again on monthly, quarterly, or yearly basis. This requirement may not be beneficial to the organization wellbeing, it is simply how the executive performs his job. Another executive might do away with all these summaries thusly eliminating the wasted resources for data collection and analysis. That is, in the perspective of the new executive, the business will be fine without all these reports. In some sense we can argue that data collection, storage, and analysis is based (not entirely) on the executive in charge attitude, which in turn create a culture within the organization that is reflective of his attitude. There is no doubt that data is essential for the success of organizations. None the less, the important question remains the same; what data and why?

Organizations in general and managers in particular should ask themselves the following questions before they commit to any particular program of data collection, storage, and analysis to improve their return on investment.

1. Does such an activity lead to better decisions?
2. At what cost such an activity should be undertaken?
3. Does this activity create confusion?
4. Is certain data unnecessary for the effective operation of the organization?

It might be beneficial for organizations to ask such questions before they embark on an extensive gunshot approach to data collection simply because they can. We advocate the position that data collection, storage, and analysis should be based on feasibility analysis rather than mere possibilities. The feasibility study should consist of:

a) Technical feasibility of data collection, storage, and analysis. This addresses the availability of devices to collect the data (the source), to store the data (enough storage, for how long to store such a data, accessibility of data, data format), and to process the data (software to process the data and possibly mine the data).
b) Economic feasibility of data collection of data collection, storage, and analysis. This addresses the economic value of the data to the organization. A detailed analysis is advocated in this paper and is elaborated upon in future sections.
c) Personnel feasibility of data collection, storage, and analysis. This addresses the viability and expertise of the current personnel of the organization with respect to the proposed data. If such expertise does not currently exist, can the organization attract such talent?

In the following sections of this paper we will discuss the above questions in detail and develop some possible answers.

Does Such an Activity Lead to Better Decisions?

Organizations seem to collect most, if not all, the data that is available in addition to acquiring external data. This data comes in a variety of format, quantity, and complexity (Agrawal, et al, 2011). Answering this question will be the first step in improving the data acquisition process. In other words, the organization first should decide on the questions that they hope the data will answer, and then tailor the data collection toward answering these questions. A question might take the form of hypothesis and therefore the answer might be the outcome of hypothesis testing.

These questions may be related to the various functional areas of the organization. In other words, some of the questions may be generated by the marketing activities of the organization. Other questions may be related to the accounting function of the organization. Also some questions may be generated by the financial activities of the organizations. Other questions may rise as a result of the production activities of the organization. Yet others could be the result of current activities of the information technology of the organization.

A Strategic Planning Process for Data Acquisition

One possibility to ascertain that data collection, storage, and analysis could lead to better decision is to process the questions, generated by the various functions of the organization, by a task force (or standing committee) with members who have different specialties and interest from across the organization. This process may be structured like a strategic planning for data collection, storage, and analysis. It filters up and consolidates from the department level of the organization to the executive level of the organization. Such a strategic process for data acquisition takes place yearly during the planning period which could extend for several months.

This process may coincide with the strategic planning process for the organization. Each department (or interest group) generates statements of needs for certain data to be collected, stored, and analyzed. These statements should contain rationale for such requests and should be augmented with value analysis for such endeavor. Value analysis is discussed in the next section of this paper. The rationale for the acquisition of data should explain why such an activity will lead to better decisions for that particular department or interest group. Such explanation should examine the current decision processes, their deficiencies, and how the proposed data acquisition will mitigate these deficiencies and lead to better decisions. In addition, the proposed data acquisition should articulate what data to be collected, the source of such data, the storage form and length of storage of data, how often such data will be collected, how to dispose of data, who has access to such data, and what kind of access is granted.

During the data acquisition strategic planning period the department accumulate all requests in a fashion that is defined by the organization data acquisition task force following its required content and format. This document is then forwarded to the next level prescribed by the data acquisition task force process. During the same planning period the possible elimination of currently existing data acquisition projects are discussed, and when necessary requests to terminate such projects are included in the departmental data acquisition plan for the current planning year. This allows the wider organization to comment, concur, or object to terminating existing data acquisition projects. Since it might be the case that one department is not interested in an existing data program no longer, while another department still see value in such a program for making better decisions.

As the departmental plans move up the organization structure they are compared to other plans and differences and similarities are noted. After all plans are received, the task force will then have the final authority to approve, consolidate, or disapprove any of these plans. This process, when executed properly, should eliminate redundancy or duplication in data acquisition plans. By following this process, the organization will continue to have the widest support for its data acquisition program.

At What Cost Such an Activity Should be Undertaken?

Given that it has been determined that such a data acquisition project is desirable because it leads to better decisions; it is important to figure out at what cost. This cost includes entities such as data collection, data storage and maintenance; and data analysis. There are two major components to each one of these costs. The technical component – cost of hardware and software; and the human costs which pays for some data generation and data analysis. This last component could be the most expensive and that is why it pays to be very cautious in deciding whether to undertake such an activity.

A Total Cost of Ownership (TCO) calculation may be appropriate for computing the cost the organization will incur to adopt a particular data acquisition project. A TCO formulation may be advanced, or required, by the data task force of the organization. This approach will provide consistency in calculating data acquisition cost across all similar projects, and thus lead to meaningful comparative

analysis, as to what data acquisition project to undertake, when necessary. A sample formula for the TCO is:

$$\mathbf{TCO = TDC + TDS + TDA} \quad \mathbf{(1)}$$

Where: TDC is the total cost of Data Collection, TDS is the total cost of Data Storage, and TDA is the total cost of Data Analysis. TDC, TDS, and TDA may be further decomposed into their cost components.

$$\mathbf{TDC = \sum tdc\ (i) \quad for\ all\ i,} \quad \mathbf{(2)}$$

Where: tdc (i) represents the total cost of collecting say data set i.

$$\mathbf{TDS = \sum tds\ (i) \quad for\ all\ i,} \quad \mathbf{(3)}$$

Where: tds (i) represents the total cost of storing say data set i.

$$\mathbf{TDA = \sum tda\ (i) \quad for\ all\ i,} \quad \mathbf{(4)}$$

Where: tda (i) represents the total cost of data analysis on say data set i.

The total costs in formulas (2), (3), and (4) may further be given in their cost components. These components include the cost of human operator, the cost of the necessary software, the cost of the necessary hardware, and other cost that are related to infrastructure and the like.

The above cost must be balanced with comparable benefits for the organization. The benefits minus the cost will then determine the value of the data acquisition for the organization. The benefits may assume one of two forms. Tangible and intangible benefits. Tangible benefits may be calculated in terms of a dollar value; while intangible benefits may be analyzed separately or assigned a dollar value to complete the cost/benefit analysis. Sometimes the intangible benefits that accrue to the organization is of such a great magnitude that it is the major deciding factor for undertaking a data acquisition project. The following is a formula for calculating the benefits of a data acquisition project.

$$\mathbf{BDA = TBDA + IBDA} \quad \mathbf{(5)}$$

Where: BDA is the total benefits; TBDA is the tangible benefits; and IBDA is the intangible benefits of data acquisition project respectively. In the case where the organization does not assign a dollar value for IBDA, the term will be dropped out of the formula and the analysis of IBDA is done separately.

A further decomposition of the TBDA and IBDA may be formulated as follows:

$$\mathbf{BDA = \sum tbda\ (i,j) + \sum ibda\ (i,j) \quad for\ all\ i\ and\ all\ j,} \quad \mathbf{(6)}$$

Where: tbda (i,j), ibda (i,j) represent the tangible and intangible benefits of data set i to project j respectively. This formulation allow for the case where a particular data set benefits more than one project within the organization.

Does This Activity Create Confusion?

Data is usually fragmented and might come in bits and pieces from different sources. Sources such as mobile devices, Internet services like Google and Yahoo, stock markets, weather satellites, and internal accounting and production activities. In addition, the data has different formats from text, to voice, to picture, and video.

It is important that the organization create a story from the collected data so it is appropriate to answering the posed questions rather than creating confusion. To a certain extent, this is the job of the organization's managers since automated data systems (such as enterprise data systems) cannot (on their

own) create a coherent representation of the story of the organization. Managers should strive to ascertain that the new data would contribute to generating a clearer picture, of the organization, than the existing one. Absent this assertion, the new data might be at best useless, or at worst introduce confusion among the decision makers and their understanding of the current status of the organization.

An entity within the organization such as a department, a team in charge of a particular project, or a managerial task force that has interest in data acquisition needs to construct a story around the data. In other words, what does such an entity see the data reflecting on the organization? For example, sales data might tell a story about the velocity of an item, the category of customers, or a relationship between the categories of customers and the configuration of the sold item (say a tablet, smartphone, or even a service contract).

In the following section we will discuss a measure of confusion that new data might introduce in the decision making process. Uncertainty will be used as a measure of confusion and a mathematical model to calculate uncertainty will be introduced.

Uncertainty as a Measure of Confusion

Decision making in organization is fraught with uncertainty particularly when the decisions are of strategic nature and span a long period of time. Decision makers use data to alleviate or decrease uncertainty. Therefore, any data introduced in the decision making process must contribute to decreasing uncertainty for the decision maker rather than contribute to increasing such uncertainty (increasing confusion), or at best be neutral.

Let **u (i)** be the uncertainty associated with decision i under the current state of decision making and the data associated with the decision. Let us also assume that introducing new data (with appropriate analysis) will change this uncertainty by a certain percentage **x (i)**. Therefore, the uncertainty of a decision after the new data is incorporated in the decision making process is given by the following equation:

$$\mathbf{U(i) = u(i) + x(i) * u(i) = u(i) * [1 + x(i)] \quad for\ all\ i,} \tag{7}$$

x (i) may assume negative, positive, or zero values. If **x (i) < 0,** then the new data contribute to better decisions by decreasing the uncertainty associated with the decision. In this case the organization benefits from the added data because it enhances the certainty of the decision. However, if **x (i) > 0**, then the new data adds to the uncertainty of the decision. In other words, the new data may add confusion rather than further illuminate the decision. In this case, the organization is better off not spending any resources or efforts collecting and analyzing the new data. In the case that **x (i) = 0**, then augmenting the new data with the existing data does not contribute to better decision, and simply it should be ignored. In summary for **x (i) ≥ 0**, the decision maker should forgo the proposed new data and save the resources of the organization.

Since it is possible (may be even probable) that certain data could be used in multiple decisions, it is therefore appropriate to sum equation **(7)** over all i. The result, given by equation **(8)**, represents the total uncertainty of all decisions after new data is introduced in the decision making process of the organization.

$$\mathbf{U = \sum U\ (i) \quad for\ all\ i,} \tag{8}$$

The total uncertainty **U** may be examined (compared to a certain threshold) to determine if such a data collection, storage, and analysis is beneficial to the organization. In the case where **U** is determined to be very high (a high level of confusion), then the data is more confusing than helping the decision maker and a different data should be sought.

Measuring the uncertainty (confusion) of data with respect to decision making is an added tool to determine if collecting, storing, and analyzing data sheds better light on the decision making process; or to the contrary it adds to the confusion of such a process. Quantifying the confusion that data collection, storage, and analysis might add to the decision process gives the decision maker the opportunity to decide

if it is at all valuable or necessary before undertaking such an activity. It is not always the case that more data is better.

Is Certain Data Unnecessary for the Effective Operation of the Organization?

Collected data is historic by its nature. It is important for the organization to determine if the data mainly looks back, or it is helpful for predicting the future. Some historic data is essential for forecasting the future such as Time Series Analysis. However, not all historic data can provide basis for predicting a direction for the organization. The organization needs to determine what data is essential for the effective operation of the organization, and what data is simply historic and has no predictive value. If the process that generate the data is none recurring, then probably the data will have no value for the future operation of the organization and should be tagged as such so it does cause any confusion within the organization. Data (both qualitative and quantitative) that is predictive of the future is helpful for the effective operations of the organization. How much qualitative vs. quantitative data to be collected is highly dependent on the type of questions the organization need to be answered. For the purpose of the effective operation of the organization, data may be considered as "Backward Looking Data", or "Forward Looking Data".

Backward Looking Data

Most of the data collected by an organization is of historic nature. Production and operation data, sales data, accounting data, financial data, and inventory data are some examples. This historic data provide the organization with snapshots of the past which will help in adjusting the operations within the organization to enhance its performance, correct mistakes, and even enlarge certain departments while discontinuing others. This data has one or more of the following objectives among others.

- Data that are required by law to be maintained for a specific period of time. Such as, tax withholding data, data that is covered by current litigation, and email messages.
- Data that is necessary for the daily operation of the organization. Such as, quality control data, back order data, payroll data, and sales data.

None the less, some of this data may also be used to discover trends with respect to products, sales, and services. In this sense it may be considered forward looking data and used, as described in the following section, in telling a story about the organization and formulating questions about the direction the organization might assume in the future.

Forward Looking Data

Forward looking data provides the organization with a possible view of the future. This data might highlight a particular trend, a new market, a new product, a new pricing policy, or even an opportunity for changing the total direction of the organization to steer a new course. All of these decisions are strategic in nature and tremendously important for the wellbeing, even the survival, of the organization. As such, collecting, storing, and analyzing data is justified, as long as, it is the appropriate data. If it happens that the data is the wrong data, the result will be confusion at worst, or missing an opportunity at best. So in this case, the return on investment to the organization is none existent to disastrous. That is why an organization must collect, store, and analyze the correct data at all times. From all available data, the organization must select what is plausible for assisting in making the correct decisions. Making the correct decisions depends on asking the correct questions, collecting the necessary data, and using the appropriate tools for analyzing the data to help answer these questions. Asking the correct questions should be based on the ability of the organization's management to tell a story about the current state of the organization and where they see the future for the organization. .Most of the times, the organization might find that the future is merely an extension of the present, rather than a total reinvention of the organization. For this reason, an organization needs to tell a story using its current internal data and augment it with external data and pose questions which are then translated into hypothesis. These hypothesis will determine if the current data is sufficient for testing the hypothesis, or more data need to

be collected. Results from testing the hypothesis will shed light on the questions asked, or may provide answers.

SUMMARY

Organizations constantly collect data from multiple sources using a variety of available devices, venues, and formats. The data comes from mobile devices, Internet services such as Google and Yahoo, stock markets, weather satellites, and from the internal operations of the organization. The data is then stored (and backed up) for future use, analysis, and applications. What fueled the magnitude of collecting and storing of data today is the tremendous processing power of computers, the availability of such powerful computers to almost all organizations, the availability of tremendous data storage devices with great capacities at a very reasonable price, and the sophistication and power of statistical analysis algorithms. The value of such activity is well demonstrated in certain instances where the data is necessary for the operation of the organization, such as, production data, accounting and finance data, and compliance data. However, it is less obvious that such an activity will generate an economic value when the data is used for mining. Such a return may, or may not, be of a positive economic value. Therefore, the current upward trajectory for collecting and storing data with the expectation of great economic returns might not pan out. The rational way is to analyze all data collection, storage, and analysis proposals using cost and benefit metrics to guarantee that economic benefits will be the outcome of such an undertaking. In this paper we provided formulas for measuring such economic value. When mathematical formulas were not appropriate we articulated how an organization can demonstrate the value of such an activity.

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A Comparison of Startup Entrepreneurial Activity Between the United States and Japan

Paul Kegel
Rollins College

Entrepreneurship plays a critical role in the growth and development of national economies. This study looks at two highly innovative countries, the United States and Japan, and compares startup entrepreneurial activity in both countries. Various characteristics are analyzed which contribute to the differences that impact entrepreneurial activity. These include culture, available financing, entrepreneurial education, R & D transfer, entry regulations, and the physical, commercial, and legal infrastructure. Additional factors are also analyzed such as the influence of immigration in new business creation, as well as implications for the future.

INTRODUCTION

According to World Bank Group, "entrepreneurship is a critical part of economic development and growth and important for the continued dynamism of the modern economy" (worldbank.org, 2014). In terms of new job creation, "business startups contribute significantly to both gross and net job creation" (Haltiwanger et al., 2013). Based on a review of 57 entrepreneurial studies, researchers at the University of Amsterdam concluded that entrepreneurship has a very important economic function, including creating employment, increasing productivity, economic growth, and producing high quality innovations (Van Praag & Versloot, 2007).

New firm creation is also an important feature in the development of new market sectors and "there is evidence that regions with higher levels of firm creation will have greater economic growth in subsequent periods (Reynolds & Curtin, 2007). Research in both Canada and the United States has shown that new business entry drives economic growth more than the activity of existing firms. (World Bank, 2013).
In this report, we will compare entrepreneurial activity in the United States and Japan and analyze the factors that contribute to a nation's entrepreneurial activity and how they differ in the two nations.

ENTREPRENEURSHIP

There are several definitions of entrepreneurship. Klapper and Love (2011) define entrepreneurship "as the activities of an individual or a group aimed at initiating economic enterprise in the formal sector under a legal form of business". According to Sternberg and Wennekers (2005), there are three popular definitions. The 'occupational notion of entrepreneurship refers to "owning or managing a business on one's own account and risk" (p. 193) and simply refers to the number of business owners. The 'behavioral notion of entrepreneurship' refers to the "seizing of an economic activity" (p. 193) and can include owners and non-owners engaged in innovation. The third definition refers to entrepreneurship simply as

"new venture creation" (p. 193). The Global Entrepreneurship Monitor, an organization that studies entrepreneurship worldwide, defines entrepreneurship as "any attempt at a new business or new venture creation, such as self-employment, a new business organization, or the expansion of an existing business, by an individual, a team of individuals, or an established business" (Amoros & Bosma, 2014, p. 17)). For purposes of this paper, we will focus on the latter definition.

A COMPARISON OF ENTREPRENEURIAL ACTIVITY

According to a recent article in Forbes, the percentage of adults involved in starting a new business venture in the United States reached 13% in 2012, a record high (Pofeldt, 2013).
Japan, another one of the world's most industrious societies, has business-friendly regulations, low business taxes compared to other highly developed nations, and it spends more on research and development than any other G20 country (EY-Japan, 2013). However, the state of its entrepreneurial activity is dismal. According to a recent article in the Economist (2013), "the overall number of firms (in Japan) is shrinking, and the rate at which new companies are born as a proportion of existing ones is less than half that in America". The article went on to say that Japan ranked twenty-fourth out of twenty-four in developed countries for levels of entrepreneurial activity. According to Reynolds and Curtin (2007), "compared to the United States, Japan has half the population but just 4% of the count of high-potential growth enterprises" (p. 158). Like the U.S., more new jobs in Japan come from young companies, yet Japan creates the fewest new businesses among all the industrialized nations (Rosen, 2014). The World Bank reports that Japan had 89,000 new business registrations (limited liability corporations) in 2011 and averaged 1.1 new business registrations per 1,000 people ages 15-64 (WorldBank.org, 2014). Comparative World Bank data for the U.S. was unavailable, but, according to data from the U.S. Census Bureau, there were 409,040 new firms created in the Unites States during the same year (SBA.org, 2014).

The GEM Report

Each year, the Global Entrepreneurship Monitor, which began 1999 as a partnership between London Business School and Babson College, releases a report assessing entrepreneurial activity across the globe. In the most recent report, 2013, " more than 197,000 individuals and approximately 3,800 national experts on entrepreneurship participated in the study across 70 economies, collectively representing all global regions of the world and a broad level of economic development levels" (Amoros & Bosma, 2014). The main goal of the GEM Report is to measure differences of entrepreneurial activity between countries (p. 11). Specifically, it "analyzes the propensity of the adult population of a country to participate in entrepreneurial activities and the conditions that enhance these entrepreneurial initiatives (p. 14).

The report evaluates two types of entrepreneurship: necessity and opportunity. Necessity entrepreneurs start a business because they have no other options for employment. Opportunity entrepreneurs start businesses to improve their incomes and / or gain a higher degree of independence (p. 32). The main focus of the report is startup business activity or what the report calls 'Total Early-Stage Entrepreneurial Activity (TEA)'. This refers to adults 18-64 in an economy that are either getting ready to launch a business (nascent entrepreneurs) or recently launched businesses that are less than 42 months old. Most "future job creation and innovation can be expected from this group of entrepreneurs" (p. 29).

The GEM study shows that "entrepreneurship rates differ among economies at similar stages of economic development (p. 11). What is interesting is the difference in entrepreneurial activity that exists between the United States and Japan, both of which have innovation-driven economies. A nation's entrepreneurial attitudes and perceptions can have an impact on startup activity (p. 24). For example, only 7.6% of adults in Japan believe that entrepreneurial opportunities exist in their country, compared with 47.2% in the U.S (p. 27). The nascent entrepreneurship rate in Japan is 2.2%, compared to the U.S. at 9.2% (p.31). The rate of Total Early-Stage Entrepreneurship in Japan was among the lowest of the innovation-driven economies at 3.7%, compared with the U.S. at 12.7% (p. 33), which was among the highest. With respect to the percentages of necessity versus opportunity entrepreneurship, Japan and the United States are very close. (p. 33).

When the GEM data is combined with country economic data from the IMF, it produces some very interesting results. In the United States, for example, startup business activity rates tend to follow GDP growth and, logically, tends to rise as the unemployment rate rises. Like the U.S., Japan's entrepreneurial activity tends to follow unemployment rates. However, unlike the U.S., levels of entrepreneurial activity in Japan are less affected by dramatic changes in GDP (p. 58).

The Kauffman Index of Entrepreneurial Activity

One of the best sources for measuring new business creation, especially recent activity, in the United States, is the Kauffman Index of Entrepreneurial Activity. This index measures the number of business startups launched each month by state. The following are some of the key findings from the 2014 Report (Fairlie, 2014):

- The total number of new business owners exceeded 5 million in 2013
- The percentage of new business creation declined in 2013 from 2012
- The amount of entrepreneurial activity decreased for men, women, and all racial and ethnic groups
- All adult age groups experienced a decline in entrepreneurial activity 2013, except ages 45-64, which increased
- Although there was an increase in college level entrepreneurial education, the group with the highest rate of new business creation is the least educated.
- There was a significant decrease in the level of business startups owned by veterans
- The construction industry had the highest rate of new business creation, followed by the services industry

Factors Contributing to Entrepreneurial Activity

Entrepreneurship "is a regional event that can only be understood if regional framework conditions, including networks and regional policies, are taken into consideration" (Sternberg & Wennekers, 2005). The Global Entrepreneurship Monitor identifies several key entrepreneurial framework conditions that are important for entrepreneurship to flourish. These include entrepreneurial finance, government policy, government entrepreneurship programs, entrepreneurship education, R & D transfer, commercial and legal infrastructure, entry regulation, physical infrastructure, and cultural and social norms (Amoros & Bosma, 2014). We explain each of these conditions below:

Entrepreneurial Finance

Entrepreneurial Finance is the "availability of financial resources – equity and debt - for small and medium enterprises (SMEs) (including grants and subsidies)" (p. 45). The United States has a "deep financial ecosystem for entrepreneurial ventures, that performs very well in terms of access to funding" (EY-USA, 2013) and ranks first among the G20 nations in the EY G20 Entrepreneurship Barometer 2013(p.6). Funding is available through banks, angel investors, venture capital firms, and more recently, creative crowdfunding options (p. 6). Japan has one of the most highly developed financial systems in the world. However, there is a shortage of non-bank lending options. New ventures do not have the credit experience to borrow from banks, and there is a shortage of private equity and venture capital firms (EY-Japan, 2013).

Government Policy

Government Policy is the "extent to which public policies give support to entrepreneurship" (Amoros & Bosma, 2014, p. 45). Although the government has not fully supported entrepreneurship in the past, the landscape in changing in Japan. Japan's new Prime Minister, Shinzo Abe, is committed to helping startups and has a goal of doubling the rate of new business ventures by 2020 (The Economist, 2013). The program, part of a larger economic strategy, referred to as 'Abenomics', mixes aggressive monetary loosening, fiscal stimulus and structured reform" (EK-Japan, 2013).

Government Entrepreneurship Programs

Government Entrepreneurship Programs are the "presence and availability of programs directly assisting SMEs at all levels of government (National, regional, municipal)" (Amoros & Bosma, 2014, p. 45). Business incubators and accelerators, institutions that are developed to help entrepreneurs launch new businesses, are good examples. Although there is a sizeable support system in the United States for entrepreneurial endeavors, the U.S. ranks eighteenth among the G20 for government support of entrepreneurs. This is changing however. The Small Business Administration has recently set aside $2 billion for entrepreneurship mentorship and incubator programs (Clifford, 2013). This is part of the larger Start-up America Partnership, a White House initiative, which aims to "foster an alliance between the country's innovative entrepreneurs, corporations, universities, foundations and thought leaders to maximize the success and competiveness of America's entrepreneurs" (EY-USA, 2013). Japan's startup community has had limited access to government entrepreneurial programs but is improving. According to a recent BBC article (Fitzpatrick, 2013), "Japan now has over 400 business incubators, up from 30 in 1999" (p. 2).

Entrepreneurial Education

Entrepreneurial Education is the "extent to which training in creating or managing SMEs is incorporated within the education and training system at all levels" (Amoros & Bosma, 2014, p. 45) and can be very important for the development of new businesses. This includes both traditional business education and specific entrepreneurship education. Solomon (2009) reports that "while there is general agreement that the core management courses offered in traditional business programs is essential for success in any business career, there are fundamental differences between business principles applied to new ventures and those applied to large corporations" (p. 170). A long-standing question regarding entrepreneurship is whether students can learn entrepreneurship in school. Studies have shown, however, that entrepreneurship can be taught or at a minimum, it can be encouraged by entrepreneurial education (p.171).

The United States has seen tremendous growth in the availability of college courses in small business management and entrepreneurship over the past fifteen years (p. 169) and ranks third in education and training among the G20 nations, behind France and Australia (EY-USA, 2013). There is concern, however, about the future. The U.S. ranks fifth for individuals aged 25-64 with post-secondary degrees and fourteenth in the 25-34 age group (p. 9). There is also concern that the educational system in the United States is not producing enough graduates in science, technology, engineering and mathematics to support future high tech startups.

Japan ranks poorly among G20 countries in government spending on education (p. 11), and most business education is geared toward preparing students for life-long employment in the large corporations. Historically, entrepreneurial education has been minimal. However, a recent New York Times article reports that several top universities in Japan are developing curriculum geared toward business startups (Fackler, 2013).

R & D Transfer

R & D Transfer is the "extent to which national research and development will lead to new commercial opportunities and is available to SMEs" (Amoros & Bosma, 2014, p. 45). Investment in R&D is high in both Japan and the United States, where they rank first and third respectively among the G20 nations, for R&D expenditures as a percentage of GDP. (EY-Japan, 2013). Although Japan spends more than twice the G20 average on R&D, is a leader in technological innovation world-wide, and has one of the highest rates for registering patents (p. 7), most of the benefits are realized by the larger, established companies and are not accessible to the startup community.

Commercial and Legal Infrastructure

Commercial and Legal Infrastructure - refers to the "presence of property rights, commercial, accounting and other legal and assessment services and institutions that support SMEs" (Amoros &

Bosma, 2014, p. 45). Both the United States and Japan have a highly developed commercial and legal infrastructure.

Entry Regulation

Entry Regulation refers to the "extent to which new firms are free to enter existing markets" Amoros & Bosma, 2014, p. 45). The Doing Business Report 2013, a co-publication of the World Bank and the International Finance Corporation, compares business regulations in 185 countries. The report measures "the procedures, time, cost and paid-in minimum capital required for a small or medium-sized limited liability company to startup and formally operate" (World Bank, 2013). Countries are ranked and analyzed according to their 'ease of doing business'. The best countries are not those with the least amount of regulations, but rather, ones which have governments that create rules and procedures that facilitate business activity, including new business startup. The report covers two types of indicators: those related to the strength of a country's legal institutions as related to business activities, and those related to cost and level of complexity in starting and operating a business. In the 2013 report, the United States ranked fourth out of 185 countries on ease of doing business, and Japan ranked twenty-fourth (World Bank, 2013). In the 2014 report, the U.S. remained in 4th place overall in ease of doing business, but dropped 7 positions in 'starting a business'. Japan's rank worsened in almost every category (World Bank, 2014). The following (See Table 1) summarizes and compares the Ease of Doing Business rankings for the U.S and Japan 2013 – 2014:

TABLE 1
EASE OF DOING BUSINESS RANKINGS FOR THE U.S. AND JAPAN

Indicator	U.S. 2013	Japan 2013	U. S. 2014	Japan 2014
Ease of doing business	4	24	4	27
Starting a business	13	114	20	120
Registering property	25	64	25	66
Getting credit	4	23	3	28
Protecting investors	6	19	6	16
Paying taxes	69	127	64	140
Trading across borders	22	19	22	23
Enforcing contracts	6	35	11	36
	Source: World Bank (2013) (2014)			

Physical Infrastructure

Physical Infrastructure refers to the "ease of access to physical resources – communication, utilities, transportation, land or space – at a price that does not discriminate against SMEs" (Amoros & Bosma, 2014, p. 45). Both the United States and Japan have a highly developed physical infrastructure.

Culture and Social Norms

Culture and Social Norms refers to the "extent to which social and cultural norms encourage or allow actions leading to new business methods of activities that can potentially increase personal wealth and income" (Amoros & Bosma, 2014, p. 45). Of all the entrepreneurial framework conditions this is perhaps one of the most important differentiators between the United States and Japan.

The United States "leads the G20 for its 'entrepreneurship culture', which is part and parcel of the country's DNA" (EY-USA, 2013). Many of the traits necessary for an entrepreneur to be successful "are imbedded in our national culture" (p. 7). Attitudes toward failure, for example, are more acceptable in the

United States than Japan. In the United States startups often fail. This is a normal part of the entrepreneurial process and founders frequently will attempt several startups before they get it right. In fact, 43% of American entrepreneurs see failure as a learning opportunity (p. 7). In Japanese culture, failure, especially in business, is viewed negatively. Failure in business could have a high social cost, including extreme embarrassment and a loss of social status (Ready, 2013). Japan also is a strong uncertainty avoidance culture which means that its people are generally risk averse (Hofstede, 1983). For the majority of its young population, "the traditional pattern of lifelong employment in large companies remains more attractive than the more uncertain path of starting out as an entrepreneur" (EY-Japan, 2013). A recent article in the Tokyo Times (Nuwere, 2013), discusses some of the cultural challenges that Japan has with startups. The brightest college graduates are recruited by the larger established companies or the Japanese government and begin what is usually a life-long career, and there is a negative stigma attached to smart graduates that do not get recruited. Not only does the educational system encourage this 'safer' career path, but family members do also. A recent article in The Economist (2013) refers to the 'mother-in-law factor', in which "wives, mothers and mothers-in-law exert a strong influence on men not to join risky startups". If an individual decides to start a business right after college, there is no opportunity later to join a major company if the venture fails. Another challenge in Japanese culture is the inability of a young entrepreneur to do business with older established companies or to even get in to meet with senior level decision makers. Established companies are wary on working with individuals or startups that do not have a long history.

Japan and the U.S. differ significantly with regard to gender distribution of early-stage entrepreneurs. Women play a significant role in U.S. entrepreneurship. There are seven women involved in entrepreneurship for every ten men (Pofeldt, 2013). Recently, the U.S. government launched the Women's Entrepreneurship in America (WEAmericas) initiative that focuses on "the main barriers that women face for starting new ventures: access to training and networks, access to markets and fundraising" (EY-USA, 2013). In the U.S., 15% of the male adult population and 10% of female adult population are involved in startup activity. This contrasts with 5% and 3% respectively in the Japan (Amoros & Bosma, 2014, p. 83). In fact, Japan "has the second-lowest female entrepreneurship rate in the world (Rosen, 2014). This is largely due to socio-cultural factors. Japan also has one of the lowest female employment rates in the developed world. In a report by the Goldman Sachs Group, it was estimated that if Japan could raise that rate to equal the current rate of employed males, Japan could increase GDP by as much as 15% (Matsui et al., 2010).

Entrepreneurial Motivation

Researchers from Japan and South Korea compared entrepreneurial activities in Japan and the Silicon Valley along four dimensions: entrepreneurial motivation, risks and obstacles, perceived growth factors, and supporting infrastructure (Suzuki et al., 2002). Entrepreneurial motivation is the driving force that encourages entrepreneurs to start a business and strive to make it successful. It includes both environmental factors and individual characteristics of the entrepreneur. The study showed that there were major differences between the two regions in this category. Japan ranks high as a 'group focus' nation in the Culture Wizard Model (Solomon & Schell, 2009). Therefore, Japanese entrepreneurs are more society-oriented and start businesses for social recognition, whereas Silicon Valley entrepreneurs tend to be more individualistic and motivated by personal achievement (p.601). Risks and obstacles are the unknowns in business that occur throughout the various stages of development, such as litigation, competition, cash flow, etc. Japanese entrepreneurs are most concerned with human, organizational, and globalization risks, whereas Silicon Valley entrepreneurs are inclined to consider market and financial risks (p. 604). Growth is essential for startup companies (p. 601). Perceived growth factors are the factors that entrepreneurs consider to be most important to the success and development of their organizations. Japanese entrepreneurs perceive R&D to be the most important factor for success, while Silicon Valley entrepreneurs are most concerned with the startup team and investors. Founders in both regions consider 'customer focus' to be another important factor (p.602). Supporting infrastructure includes the available human resources, business services, financial resources, business climate, logistics, etc. necessary to

promote business development. Japanese entrepreneurs benefit more from bank loans and government financing, while Silicon Valley entrepreneurs benefit more from venture capital financing and better professional services, such as accounting, legal, etc. (p. 604).

The Importance of Immigrants to Entrepreneurial Activity

One factor that is unique to the United States is the influence of immigration on entrepreneurial activity. According to the Partnership for a New American Economy, "immigrants or their children founded more than 40 percent of America's Fortune 500 companies…and now own more than 18 percent of all incorporated businesses in the United States" (Fairlie, 2012). This trend is continuing today. In fact, immigrants started more than one out of every four businesses created in 2011. (p. 2). In addition, these ventures comprise twenty-five percent of new businesses in the fastest growing sectors of the U.S. Economy. (p. 3). Current studies show that immigrants in the U.S. are twice as likely to start a new business as native-born Americans (Fairly, 2014). This is a sharp contrast to Japan, which is averse to immigration in general (Dyloco, 2012).

CONCLUSION

The United States provides "one of the most favorable entrepreneurial environments of any country in the G20, where entrepreneurship is deeply embedded in the culture and mindset" (EY-USA, 2013). But there is plenty of room for improvement. The United States is starting to lag behind other developed countries in S.T.E.M. training and in rates of higher education and our current corporate tax rates are seen as a threat to new business development. One of the bright spots in U.S. entrepreneurship is the huge potential of global markets. Only 12% of U.S. entrepreneurs said that more than 25% of their customers are overseas (Pofeldt, 2013). Despite the slow economy, optimism is high with American entrepreneurs. According to a survey conducted by Babson College, 43% of adult Americans believe that that there are good opportunities for entrepreneurship, and 56% believe that they have the capabilities to start a business (Babson.edu, 2014).

So far, entrepreneurship has struggled in Japan, but there are signs that startup activity is turning around. Japanese startups that are having the most success have a foreign connection; either education, investors, technology deals, or talent (Fitzpatrick (2013). It is too early to determine what the effects of 'Abenomics' will be on new venture creation in Japan. A recent New York Times article (Fackler, 2013), reports a 'startup spirit' is emerging in Japan and that hundreds of new Internet and technology companies have launched in the last two years, as well as new incubators and accelerators to support them.

There is an interesting note regarding Japanese consumers and entrepreneurship. Startup companies rely on 'early adopters' when they launch new products or services. Early adopters use new technology as soon as it is available and provide companies with valuable feedback. Although Japan lags behind in the development of new products, Japan leads the world in early adopters, helping foreign inventors and startups gain momentum (Fitzpatrick, 2013).

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Competition, Strategy, and Performance: A Case Study of China's Emerging Air Purifier Industry

Chuanyin Xie
The University of Tampa

When industries are in their early stages of evolution, competitors often show some common behaviors (Geroski, 2003), but "right" strategies do not seem to exist (Porter, 1980). By using data from a major purchasing website, this study investigates the emerging air purifier industry in China. Findings support some assumptions on new industries: a surge of new entries, competing technologies, and unrealistic expectations. Implications for effective strategies include product positioning and branding. The study also suggests the importance of early entry into a new industry, but early entry does not ensure success.

INTRODUCTION

Any industry evolves. Its life cycle is the supply-side equivalent of the product life cycle which is one of the best known and most enduring concepts in the field of marketing (Day, 1981). The industry life cycle is likely to have a longer duration than that of a single product. The early stages of industry evolution tend to be uncertain because different options exist (Eggers, 2014). There are no clear rules of the game in this period of time (Porter, 1980). However, some structural features are often shared by different industries and firms show some common behaviors (Geroski, 2003; Verreynne & Meyer, 2010).

Geroski (2003) investigated the common features existing in new markets. First, there is often a huge surge of entry into new markets. Though only a few firms are present at the very beginning, the number of new entrants will increase dramatically soon after, leading to an extremely high level of population of firms by any standard. These new entrants include both newly formed firms and newly formed units of established firms, but the percentage of the former is often much higher (Porter, 1980). Second, competing technologies tend to exist in early markets. They solve customer problems in different ways. Product designs vary and change frequently and there is no dominant design preferred by a majority of consumers (Grant, 2008). Third, new markets are often fluid. A number of new entrants come and go frequently with high entry rates and low exit rates leading to high net entry rates. Products with new features also come and go with great frequency. The fluidity of new markets is associated with competition, the innovations new entrants bring to the market, and their failures. Do these characteristics such as a surge of new entries, competing technologies, and market fluidity still hold true in non-western contexts? This is a question this study explores.

According to Porter (1980), there is no "right" strategy when an industry is emerging. Competitors include pioneers and fast followers. They may adopt different technologies and product configurations, position their products in the marketplace in different ways, and use different marketing approaches. Coping with competitors is a difficult task due to the wave of entry during this period of industry development. In addition, consumers usually do not have much knowledge about a specific technology

and product. When they face a large number of choices, they become bewildered. Winning skeptical customers is likely to go beyond the product itself. Though specific "right" strategies may not be available, Verreynne and Meyer (2010) offered some broad suggestions for firms competing in the emerging industries: broadening product scope and innovation in product lines.

This study explores a new industry in a different context: the air purifier industry in China and attempts to answer the following questions: How does this industry look like in its early stages? Is there a surge of new entries? If yes, how do firms compete and position themselves? Are there any effective strategies? By examining these questions, this study makes two contributions. First, it contributes to theory development by testing existing theories in a different context and suggesting new theories. Second, it provides practical implications for firms that compete in emerging industries.

This article proceeds as follows. First, I introduce the air purifier industry in China. Second, I discuss research methodology and present data. Third, I perform an analysis of the data, compare the results to the findings in the literature, and discuss implications. Finally, I discuss limitations and directions for future research on China's air purifier industry.

CHINA'S AIR PURIFIER INDUSTRY

The term "air purifier" was unfamiliar to most Chinese people just a few years ago, but it has become a hot topic recently in China due to its heavy pollution, particularly in big cities. Pollution results from a variety of sources including automobile exhaust, chemical factories, power plants, industry boilers, painting and decorative materials, etc. Improving outdoor air quality is beyond individuals' control, but indoor air quality may be improved with proper technologies. Therefore, Chinese people have started to use air purifiers to clean their indoor air recently. The air purifier industry has thus begun to emerge.

Indoor air purification is related to removing airborne pollutants in the room. Pollutants can be grouped into three categories: particulate, gaseous, and microbial. In China, PM2.5, airborne particles equal to or smaller than 2.5 micrometers in diameter, is a major concern for people. These fine particles are believed to pose a great risk to health because they can get deep into the lungs and cause respiratory and cardiovascular problems. Gaseous pollutants such as formaldehyde and odors from remodeling or other sources also concern Chinese people. The release of formaldehyde into the air can cause health problems, such as coughing, eye/nose/throat irritation, skin rashes, headaches, and dizziness. Hospitals are becoming interested in removing microbial pollutants such as bacteria and viruses in their operating rooms.

Consumers fall into two categories: household and organizational. Household users often possess the following characteristics. First, they are health conscious. Usually, children, senior people, and pregnant women are the drivers of air purifier purchasing. Second, they sometimes buy air purifiers to solve specific problems. For example, if they stay or will stay in a newly remodeled homes, they would be concerned with formaldehyde or other harmful substances and be motivated to own one or more air purifiers. Third, they are often well-educated people who have good knowledge about the consequences of living in a polluted environment and the possibilities of using technologies to protect themselves.

Based on China Air Purifier Industry Bluebook (2015), sales of air purifiers had been lukewarm before 2013, but have increased dramatically since 2013. Hundreds of companies, including both specialized and diversified, have entered the industry in a very short period of time. In 2013, there were 151 firms competing in the air purifier industry, but 2014 saw a dramatic increase, with the number of competitors reaching 556. Among them, about 80% were domestic firms, but it was the foreign firms that controlled 80% of the market. How do they compete? Do they compete effectively? I address these questions by collecting data from JD.com, a major online purchasing platform in China.

DATA COLLECTION

Beginning from 2014, a majority of firms have started selling air purifiers through online platforms and offline sales have begun to decrease (China Air Purifier Industry Bluebook, 2015). The important

online platforms include JD, Taobao/Tmall, and Amazon. Among them, JD is most popular and is preferred by both sellers and buyers. Some anecdotal evidence suggests that air purifier firms need to display their products on the JD platform in order to achieve success. In addition, customers often use the information from JD to help them make informed decisions, even if they make a purchase offline. In this study, I examine industry competition, firm strategy and performance based on the data from JD.

As of June 2015, there were 416 firms selling air purifiers through JD platform. Among them, 360 were domestic firms and 56 were foreign firms representing 11 countries. Both specialized and diversified firms were involved in this industry. Diversified firms were largely well-known multinational corporations including 3M, Haier, Honeywell, Lenovo, Mitsubishi, Panasonic, Philips, Samsung, Sanyo, Sharp, Westinghouse, etc. Prices ranged from below RMB 1,000 ($158) to RMB 50,000 ($7,936). Competitors offered different air purifiers in terms of technologies and filters used which were priced differently. The same company often competed in different price ranges by using different models. Price can be an important segmentation variable for an industry. Table 1 shows information on price-based industry segments: the number of firms competing in different price ranges. Products with prices above RMB20,000 or below RMB1,000 had relatively low sales, so firms competing in those segments were not included.

TABLE 1
PRICE-BASED INDUSTRY SEGMENTS

Price Range (RMB)	Number of Domestic Competitors	Number of Foreign Competitors	Total
¥15,000 - ¥20,000	1	4	5
¥10,000 - ¥14,999	2	8	10
¥9,000 - ¥9,999	2	8	10
¥8,000 - ¥8,999	2	4	6
¥7,000 - ¥7,999	3	6	9
¥6,000 - ¥6,999	9	8	17
¥5,000 - ¥5,999	15	19	34
¥4,000 - ¥4,999	13	20	33
¥3,000 - ¥3,999	34	21	55
¥2,000 - ¥2,999	33	17	50
¥1,000 - ¥1,999	51	19	70

Firms competing in the price ranges shown in Table 1 used different technologies, including HEPA, negative ionizers, ozone generators, ultraviolet light, photocatalytic oxidation, and electrostatic. Under each technology, there were a variety of product designs. For example, the inflow and outflow of air were designed in different ways. Some brands used a bottom-to-top air flow, while others used a top-to-bottom air flow. Some brands looked simple, while others complex with additional features and functions. An interesting phenomenon is that many competitors combined different technologies which allegedly could remove different types of pollutants. Table 2 shows those technologies and their characteristics. Each technology has its advantages and disadvantages. No single technology can effectively solve the indoor pollution problems Chinese people face.

Though hundreds of firms were competing through JD platform, only a few of them performed well. When ranking firms' sales performance, JD and other purchasing websites used the number of reviews

consumers created after purchasing. I followed this practice. Table 3 shows top performers' information in different price ranges since they started selling air purifiers through JD.

TABLE 2
AIR PURIFIER TECHNOLOGIES AND THEIR CHARACTERISTICS

Technologies	Pros	Cons
HEPA filters	– Effective in removing 99.97% of 0.3-micrometer particles – No ozone production or other harmful byproducts	– Short lifespan – Ineffective in removing viruses, harmful gases and odors
Activated carbon	– Effective in removing viruses, harmful gases, and odors	– Short lifespan – Ineffective in removing airborne particles
Negative ion generator	– Effective in absorbing airborne particles, harmful gases, and odors	– Ozone production
Photocatalytic oxidation	– Effective in removing harmful gases and viruses	– Ineffective in removing airborne particles – Ozone production
Ultraviolet light	– Effective in sterilizing air that passes UV lamps via forced air	– Ineffective in removing airborne particles
Electrostatic filters	– Able to remove airborne particles, viruses, and odors – Relatively longer lifespan	– May not be as effective as traditional filters

In the air purifier industry, the number of customer reviews could be as important as the reviews themselves to online sellers. The reason is that consumers had very little knowledge about air purifiers, so they would look at the information on how well a specific brand was selling online to make a purchase decision. If a certain air purifier has been sold in large quantities, consumers would assume it was a good product or people would not buy it. The information about actual sales was not available online, so consumers would use the number of reviews as a substitute. As a result, online sellers had tried to encourage buyers to create reviews. It may be argued that sellers ranked #1, #2, and #3 in an industry are successful competitors. In this air purifier industry, however, the second or third best seller could be far behind the best seller, so they might not count as top performers. For the purpose of this study, if the number of customer reviews the second or third best seller received was only 25% or less than 25% of that of the best seller, they were not included in the "Top Performers" column of the table.

DISCUSSION

Both domestic and foreign firms rushed into China's air purifier industry in a very short period of time. While 151 air purifier firms were competing in 2013, 405 more were quickly added to the competitor population the following year. This phenomenon confirms the new market entry theory and is consistent with the findings in the West. For example, the number of automakers in the US reached about 275 shortly after the birth of the car industry. The population of beer producers was about 500 before the War, but skyrocketed to more than 25,000 just after the War (Geroskib, 2003).

The surge of entry often occurs before the industry begins to grow large. When it grows, the number of firms tends to decrease and the industry becomes more concentrated (Agarwal et al, 2002; Geroskib, 2003). Therefore, market entry and market size are often negatively correlated, which seems counterintuitive. Actually, the wave of entry into a new market is more like a speculative bubble which

will eventually burst because sooner or later industry shakeout will occur. In the case of China's air purifier industry, there is no obvious sign of exit yet, but given that most competitors received very limited or no customer reviews, the industry does not seem to have expanded big or fast enough to support all the players' entries. Why did so many firms flood into this industry before it was large enough to accommodate all of them? There could be several reasons.

TABLE 3
TOP PERFORMERS IN DIFFERENT PRICE RANGES

Price Range	Sales Ranking	Top Performers	Number of Reviews	Starting Time at JD
¥15,000-¥20,000	#1	IQAir	110	March 2013
	#2	Airgle	64	June 2014
	#3			
¥10,000-¥14,999	#1	IQAir	1,228	March 2013
	#2			
	#3			
¥9,000-¥9,999	#1	Philips	161	May 2010
	#2	Austin	73	September 2013
	#3	Siegenia	58	June 2014
¥8,000-¥8,999	#1	A.O Smith	102	June 2015
	#2	Honeywell	43	December 2014
	#3			
¥7,000-¥7,999	#1	Airdog	66	January 2015
	#2	Sharp	51	February 2012
	#3			
¥6,000-¥6,999	#1	Blueair	3,361	April 2013
	#2	NBE	1,003	September 2014
	#3			
¥5,000-¥5,999	#1	Blueair	1,238	April 2013
	#2	Airdog	345	January 2015
	#3			
¥4,000-¥4,999	#1	Shinil	1,433	December 2012
	#2	Austin	804	September 2013
	#3	NBE	648	September 2014
¥3,000-¥3,999	#1	Mfresh	7,279	January 2015
	#2	Blueair	6,303	April 2013
	#3	Sharp	5,630	February 2012
¥2,000-¥2,999	#1	Philips	18,265	May 2010
	#2	Daikin	7,049	April 2012
	#3	Honeywell	6,633	December 2014
¥1,000-¥1,999	#1	Sharp	26,698	February 2012
	#2	Panasonic	12,164	October 2010
	#3	Honeywell	8,247	December 2014

First, the entrants might have assumed China would be a huge market for air purifiers due to its deteriorating environment, so there could be an opportunity for them to set up a profitable business there. Getting into the market early would give them first-mover advantages. Second, the barrier of entry was relatively low. Set-up costs were typically small. The main components of an air purifier included filters, a motor, and housing. It was not difficult to acquire and assemble them. Standards explaining air purifier performance were yet to be established. There were a number of test centers in China, but they did not use the same indicators in their test reports and present the test results in the same ways. Third, most consumers did not have sufficient knowledge about air purification technologies and how to select air purifiers that would fit their needs. The entrants might have thought that consumers would not be likely to become fixed in their purchasing habits and loyal to a certain technology or brand. Therefore, its product would be as good as others' at satisfying consumer needs.

Table 1 shows that a majority of firms were competing in low-end segments. When competitors are broken down into domestic and foreign ones, we can see domestic competitors were more involved in low-end segments, while foreign competitors more involved in high-end segments. Interestingly, the number of firms competing in the price range RMB7,000-RMB8,999 was relatively low. A possible explanation is that firms would be more likely to position themselves as either being a high-quality brand or a low-price competitor. They did not want to be "stuck in the middle," which might not be an effective strategy (Porter, 1980; Segev, 1989).

Theory suggests competing technologies and a variety of product designs often exist in the early stages of industry evolution (Grant, 2008; McGahan, 2004). China's air purifier industry appears to support the theory. Competitors employed different air purification methods as shown in Table 2. Each had its own pros and cons. Despite the limitation of each technology, most competitors, including low price competitors, claimed they used the world-class technologies which could solve customer problems effectively. The fact is that only a very small percentage of firms appear to have convinced and acquired enough customers as shown in Table 3. This finding is not rare in new industries. The reason is simple: there are simply not enough customers to consume so many competitors' products.

The air purification technologies can be grouped into two categories: physical absorption and chemical decomposition which are used to address specific pollutants and customer concerns. The former category was more often used by competitors in high-end segments and advertised as producing no secondary pollution, but could be ineffective in filtering out bacteria. The latter was more often used by low price competitors and advertised as being able to kill bacteria, but could generate ozone. In order to improve their products' appeal, some competitors combined different technologies, but the result has yet to be seen. It is not clear whether combining technologies will become a trend in the future. Product designs seem to reflect the Chinese culture to a certain degree. For example, people in China often like their important household items to be aesthetically pleasing as well as functional. Therefore, many competitors, particularly domestic ones, had their air purifiers beautifully designed, but whether this could deliver real customer value in terms of cleaning the air was another issue.

From the competition point of view, not all strategies the air purifier firms used were effective. Only some seem to have worked well. First, top sellers competed either in the high-end or low-end segment, but seldom competed in both. For example, Sharp, a well-known multinational corporation, was leading in the low-end segment. It did not offer any expensive air purifiers though it had a deep pocket to develop them. There were some firms that offered air purifiers with both high and low price tags, but few of them succeeded. This result is consistent with the competitive strategy theory developed in the West. Firms are advised to be a cost leader or a high-quality brand, but not to be both because being both would harm their images and confuse consumers as well as complicate operations.

Second, like many other competitors, top performers had also offered a variety of models that were intended to address different customer concerns such as airborne particles, formaldehyde, odor, smoke, bacteria, etc., but only a few models sold well. Each top performer generally relied upon one or two models to generate most of the revenue. It seems product positioning is important in this emerging industry. A general theory is that a firm's product should be positioned distinctively in the competitive

marketplace (Porter, 1980), but in China's air purifier industry top sellers do not seem to have unique product positioning strategies, which is discussed next.

Third, competing air purifiers were not of much difference from a technical point of view. When they were in the same price range, they tended to use similar technologies and incorporate similar features. Facing a bewildering array of choices, most consumers only focused on a few brands that were relatively better known. Overall, foreign brands sold better than domestic ones. Chinese people have a tendency to favor foreign brands, which might be a reason why foreign firms achieved better success. Many foreign firms have actively participated in this industry, but only a few were able to attract enough consumers. Top performers were generally early entrants. They seem to have enjoyed an important "first-mover" advantage: brand awareness which has helped them enter a virtuous cycle, that is, the early buyers led followers to purchase the same brand who in turn led their followers to do the same so that more and more people would choose the same brand. Though early entrants enjoyed some advantages, not all of them achieved the same level of success. Based on Table 3, later movers still could outperform the pioneers, suggesting the importance of competitive strategy.

LIMITATIONS AND FUTURE DIRECTIONS

This study has two limitations. I collected additional data to assess their impact. First, I only used data from a major purchasing website: JD.com. Actually, firms sold air purifiers both online and offline. For online sales, firms also used other websites like Taobao/Tmall. A clearer picture about the industry might be generated if both online and offline data were combined. For the purpose of this study, however, this limitation would not have significant impact on the implications it provides. Theoretically, the study tests assumptions on industry structure and competition in a different context. The data from the JD website seem to confirm them. Though offline data were not collected, given the importance of online presence for air purifier firms, the online data from the major purchasing website would be able to reflect the real situation to a large degree. Practically, the study explores effective competitive strategies in a context of emerging industry. The data suggest the importance of competitive positioning, brand awareness, and early entry, which has important implications for practitioners. In order to make sure the data from JD were sufficient to explain competitive strategies, I performed additional research. First, I interviewed an air purifier firm in Beijing whose sales were both online and offline. I asked the employees about their pricing strategy for online and offline sales. Their response was that they kept prices consistent both online and offline. They stated this was a common practice in the industry because inconsistent online and offline prices would cause problems such as customer dissatisfaction and inappropriate competition within the same business. Second, I examined data from another important purchasing website, Taobao. I found that most sellers on JD also appeared on Taobao and those did well on JD were also doing well on Taobao, suggesting the data from JD would not lead to significant representativeness issues.

Given the importance of online presence in the air purifier industry, future research might compare online and offline sales and examine how online sales facilitate offline sales. According to Miller, Fabian, and Lin (2009), online sites can affect product demands, but strategy scholars have made very limited contributions to understanding demand dynamics through Internet. This study suggests online sales can improve customer awareness and firm credibility in a new market. Therefore, online presence might be a source of competitive advantage firms can exploit to acquire customers when the market is new.

The second limitation of this study is related to the assessment of firm sales. I followed JD and other online platforms' practices and used the number of customer reviews as an indicator of firm sales performance. It is likely that not all customers left comments online after purchasing, though sellers made great efforts to encourage them to do so. To be sure that the measurement would not cause significant problems in this study, I interviewed an air purifier firm whose employees stated that the number of customer reviews generally reflected a firm's sales performance, so it was often used as a benchmark for comparing competitors' online sales. Future research might focus on how the number of reviews affects consumers' perceptions and their choices.

When assessing sales performance, I did not consider the impact of the time the firm started selling air purifiers through JD. The earlier the firm started online selling, the more customer reviews it might receive cumulatively if all other things are equal. Therefore, firms might become top performers due to the measurement the study used rather than their actual competitiveness. In order to assess the time impact, I examined the data on Taobao. Taobao presented information about a firm's sales in the most recent 30 days measured by the number of customer reviews. I found that top performers listed in Table 3 were also selling better than most competitors on Taobao in the past 30 days. Based on this finding, it might be argued that the total number of customer reviews a firm received over time could serve as an indicator of its overall competitiveness. Therefore, the time impact would be limited, controlling for "first mover" advantages.

China's air purifier industry is still in its early stages of evolution. At this time, it is hard to know how the future will unfold, which provides ample research opportunities for strategy and entrepreneurship scholars. Future research may focus on three broad areas. First, how will the industry evolve? This question is practically important for firms currently competing in this industry. Firms have used different technologies to clean the indoor air. Would it be likely that a few of them finally become "standards?" Under the same technology, product designs such as air flows vary. Would there be a dominant design in the future? Another important question air purifier producers might need to answer is: how likely is it that this industry evolves to a growth stage? For example, firms have started to explore the possibilities of adding the air cleaning function to the air conditioning system, which means the air purifier as a single unit might disappear in the future. If this substitution is technically feasible, would the air purifier industry be an ephemeral phenomenon?

The second research area is related to the factors influencing the air purifier industry. The emergence of the industry was mainly driven by environmental concerns and consumer needs. What factors would play a key role in shaping the industry evolution? Would the evolution be influenced more by its own structure (competitors, customers, and suppliers) or by the macro environment factors such as sociocultural, political, technological, economic, and environmental concerns? As the industry evolves, consumers will become more knowledgeable. How would more knowledgeable consumers affect the industry in the future? The government has recognized the irregularities in the air purifier industry and has recently created new standards which will take effect March 1, 2016. The new standards would probably eliminate a number of existing air purifier producers, but would they encourage or discourage new entrants in the future?

The third research area is related to strategy. There have been so many competitors rushing into this industry. They have largely focused on the functionality of their products, but most of them were not successful in terms of winning customers. How would they change their strategy in order to avoid being driven out of the market? For example, a product may be seen as a collection of characteristics organized in a certain way (Geroski, 2003). These characteristics can be grouped into two categories: core and peripheral. Core characteristics are largely related to the technologies used in the product. They determine the nature of the product and how the product solves customer problems. Other characteristics are peripheral. Would peripheral characteristics become more important? Competitors include both big firms with deep pockets and smaller firms specializing in air purifiers. How would they compete against each other in the future? Who would do better? Competitors also include foreign and domestic ones. Currently, foreign competitors seem to be leading in this industry. Could they sustain their success? How likely would domestic competitors catch up and establish their positions? For entrepreneurial firms, could they survive competition and grow? How?

CONCLUSIONS

This study examines competition, strategy and performance implications in an emerging industry in China. Though the broad context in China is different from that in the West, the Chinese air purifier industry appears to present some common features found in the West. It is easy to understand why this industry emerged recently, but more difficult to predict how it will evolve. Many factors could affect its

evolution and they are probably intertwined. Research on this industry would not only contribute to theory development in the field of strategy and entrepreneurship, but also provide practical implications to practitioners.

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The General Motors Ignition Switch Incident Viewed Through a Proposed Economic Impact Severity Index

Ian J. Shepherd
Abilene Christian University

Phil Vardiman
Abilene Christian University

Management's response to any disaster has historically been based on hindsight. Little work has been done to offer tools by which a company can examine possible decisions in light of compounding factors that can cause disasters to spiral out of control. This paper will review the General Motors (GM) Cobalt Key disaster and apply a proposed methodology for review as the disaster unfolds. Rather than hindsight, the proposed decision matrix will identify for future companies proactive decision points which are key to changing the economic outcomes of each company. GM will be examined for strategic decision errors leading to their current situation and its final outcome.

INTRODUCTION

A contemporary part of business and organizational life is the ever-present possibility of an economic and marketing disaster such as the one found at General Motors (GM). Disaster for this motor company could come in the form of enormous recall and repair costs, a tainted image, negative press, and enormous product liability costs. Disaster could also come from the collapse of a strategic alliance (a supplier error) and unfavorable court ruling, or an un-envisioned surprise causing long term damage to both company finances and company image.

In anticipation of a disaster, organizations of all types should have disaster prevention plans in place. Should these measures fail, a disaster recovery plan would address the resulting damage. What is currently missing from this discussion, in the context of economic and marketing disasters, is a mechanism for assessing the level of damage to which redemptive / recovery efforts can respond ***prior to*** events worsening.

This paper will review the GM Cobalt key disaster and apply a proposed methodology for review as the disaster unfolds. Rather than relying solely on hindsight, the proposed decision matrix will identify for future companies proactive decision points which are key to changing the economic outcomes of each company. GM will be examined for strategic decision errors leading to their current situation and its final outcome.

SIGNIFICANCE OF THIS PROJECT

Traditionally, disaster management within companies tends to focus on four areas which include:

A. Mitigation – activities taken prior to an event that will lessen the probability or effect of the incident.
B. Preparedness – efforts taken to enhance the response capabilities of an organization in order to handle the resulting problems.
C. Response – the activities that occur during an event to improve the outcome through a well-developed plan that will activate needed resources within the disaster response system.
D. Recovery – includes the short-term and / or long-term measures to bring the system back to normal operation.

This paper will examine these four current disaster steps that are standard within corporations today and expand on them using a severity index proposed in 2015 by Timmerman, Sharp, and Shepherd (Timmerman, et al., 2015) (TSS). Using the GM Cobalt Key Disaster (GM), the writer will then examine the GM disaster and extrapolate from these standard responses and the proposed TSS matrix a three-dimensional model for evaluating the severity of an economic and marketing disaster. By overlaying this matrix with this well-known situation we allow users to see the value of examining their strategic decisions in a new light and offer insight into how this new matrix can alleviate and inform current decisions.

There were a few questions raised regarding the TSS matrix and its origins:

1. The origins/antecedents for the scales themselves – the response was and still is that when one first presents a concept (such as the Fujita Scale for tornado damage) that finding precedents is somewhat difficult.
2. Defense of the additive nature vs. multiplicative, exponential, etc., nature of the scales. The position remains that changes, whether additive or multiplicative or exponential, all coincide with inflection points for the analysis, thus focusing ones attention on the impact of decisions at that inflection point.

Intuitively and pragmatically, practitioners can see how the TSS system would work.

The purpose of this paper is to actually apply the TSS scales to a real application showing both the problems of the proposed scale as well as the benefits. It is not the intention of this paper to prove why each of the TSS scale attributes is chosen. That work is contained in the original paper.

THE TSS RECOMMENDED MODEL

The TSS model (Timmerman, et al., 2015) extrapolates from other existing rating systems. The TSS model proposes a three-dimensional model for evaluating the severity of a company disaster:

1. the *scale* of the problem,
2. the *nature (impact)* of the damage, and
3. the degree of *culpability* of the organization.

Scale (S) is important because it signifies the *reach* or *scope* of the problem and the region over which the recovery activities must be directed. In this case, scale employs a measure using a local, regional, or pervasive rating to designate how far-reaching is the problem. The scope of a problem, whether localized or expanding into every facet of the operation, is a significant determinate of the kind and level of response required to address the damage. When a disaster is localized, its effects may be contained, minimized, and addressed with little impact on the entire enterprise and may even go unnoticed externally. At the other extreme, a pervasive disaster denotes that it has invaded a large portion of the market, society, or organization and requires significant recovery efforts.

Table 1 sets out the criteria for classification of the scale. The scale of the crisis is given a weight based on a cross reference of knowledge and effect.

Knowledge is defined as the spread of information regarding the crisis to ever-expanding areas, some controlled, and others uncontrolled.

0. None – no knowledge at all.
1. Internal or local - can be seen as those areas within the span of control of the company. These are crisis scenarios that are contained within the culture and scope of the organization or town.
2. Market or Regional - are those areas where some control is kept over the flow of information and its spread is contained within the market. Crises in this category are contained in the market for this particular product or service.
3. Non-Market or Pervasive - represents the spread of information beyond the market into regions uncontrolled by the corporation. Crises in this category have spread outside of the market and influence perceptions in society as a whole.

Effect can be defined as the containment area for the physical problem.

0. None – no effect at all.
1. Internal / Local - indicates that the physical outcome is contained within the corporation.
2. Market / Regional - indicates that the physical outcome of the crisis is contained within the known market area of the company.
3. Non-Market / Pervasive - indicates that the physical outcome of the crisis has moved outside of the market area into society as a whole.

The scale is determined by selecting the category which best determines the combination of knowledge and effect. A crisis that is known only by those within the company and its effect has been contained to those within the company receives a Low – Low rating of 1 x 1 or 1. Crises where the knowledge is contained within the market and where the effect is contained within the region are assigned a multiplier of Medium – Medium or 2 X 2 or 4 for scale. Crises that are known outside of the market and in society as a whole and affect Non-Market regions physically are assigned a multiplier of high – high of 3 x 3 or 9 for scale.

TABLE 1
DIMENSIONS OF SCALE

SCALE		*Knowledge*			
		None – 0	*Internal / Local - 1*	*Market / Region - 2*	*Non-Market / Pervasive - 3*
Effect	*None – 0*	0	0	0	0
	Internal/Local - 1	0	1	2	3
	Market/Regional - 2	0	2	4	6
	Non-Market/Pervasive - 3	0	3	6	9

Nature (N) is the term we use to designate both the kind of disaster and the number and type of victims of the disaster which combine to result in the degree of impact. Nature can be categorized as duration (short-term, medium-term, or long-term) and impact (low, moderate, and high).

Duration refers to the span or interval of time over which the disaster might run its course. The definition and interpretation of duration is heavily dependent on the industry or activity being reviewed.

0. None – no duration involved.
1. Short-Term – business can carry on almost as usual or the problem can be corrected and ameliorated within a day or two with internal resources.
2. Medium-Term– problem can be addressed within a week or so with little use of outside help.
3. Long-Term - response may take a month or more, even with significant external assistance and, in extreme cases, may result in complete business failure.

Impact refers directly to the number of victims that are affected by the disaster.

0. None – No impact involved.

1. Low impact - affects a relatively small number of customers or clients.
2. Moderate impact - affects a significant share of customers or clients.
3. High impact – affects all customers or clients and may affect additional persons outside the usual control of the company.

Table 2 sets out the classification scale for Nature. This table compares both the duration and impact that the crisis might have on a corporation.

TABLE 2
DIMENSIONS OF NATURE

NATURE		Duration			
		None - 0	Short Term - 1	Medium Term - 2	Long Term - 3
Impact	None - 0	0	0	0	0
	Low Impact - 1	0	1	2	3
	Moderate Impact - 2	0	2	4	6
	High Impact - 3	0	3	6	9

"Low impact / short term disasters" are assigned a scale of 1 x 1 or 1 and can have a temporary debilitating effect on the organization, but their cause is typically localized and directly affects a relatively small number of customers/clients in an annoying, but non-critical manner.

"Moderate impact / Medium term disasters" are assigned a scale of 2 x 2 or 4 and are distinctly noticeable among a significant share of both customers and employees and lead to enduring and more debilitating consequences.

"High impact / long term disasters" are assigned a 3 x 3 or 9 and can have life- or business-threatening consequences. Knowledge of the problem is widespread, many people are affected, and damage is devastating. Sometimes a disaster is such that the organization is left literally fighting for its very survival by an event or decision that brings into question its integrity. Falsifying data, misleading consumers or stockholders, employing fraudulent accounting practices, taking deliberate shortcuts in production to the harm of customers, or deliberately producing products known to be harmful can all lead to a high impact disaster.

Culpability (C) is the state of being responsible for the wrong or injury inflicted and deserving of blame and censure. It certainly raises the severity quotient when an organization directly contributes to the decision or event which brings about the disaster. In harmony with the three-part rating schema employed thus far, culpability can be rated:

Contribution defines the corporation's involvement and ranges from no contribution to direct contribution to the disaster at hand.

0. None – where the corporation has no involvement.
1. Incidental – where the corporation has incidental involvement and is not one of the contributing factors.
2. Indirect – where the corporation may be one of the contributing factors, though not the immediate cause.
3. Direct – where the corporation caused the problem as a direct result of organizational choice.

Intent measures the level of intended actions by the company.

0. Innocence – where the corporation had no intent to harm anyone.
1. Ignorance - where the corporation should have known what was happening, but did not act because of its ignorance.
2. Negligence – where the corporation knew but did not act to prevent the crisis from occurring.
3. Guilt – where the corporation knew of their contribution to the crisis and acted improperly.

Table 3 sets out the classification scale for culpability. This scale is based on a comparison of *contribution* and *intent*.

TABLE 3
DIMENSIONS OF CULPABILITY

CULPABILITY		Contribution			
		None - 0	Incidental - 1	Indirect - 2	Direct - 3
Intent	Innocence - 0	0	0	0	0
	Ignorance - 1	0	1	2	3
	Negligence - 2	0	2	4	6
	Guilt - 3	0	3	6	9

The instance of "Incidental Contribution / Ignorant Intent," is assigned as score of 1 x 1 or 1 and signifies a situation in which an organization may be implicated in a disaster, but it did not participate directly.

A case of "Indirect Contribution / Negligent Intent," is assigned a scale of 2 x 2 = 4 and is one in which the organization allowed the damage by virtue of its action or inaction, but had it not been for other coinciding events, the disaster would not have occurred. In other words, the organization was co-culpable.

A "Direct Contribution / Guilty Intent" is assigned a scale of 3 x 3 = 9 and would be one resulting from the organization trying to "put one over on" the market. Cases of deception, malfeasance, and clearly faulty product design or manufacturing would fit into this category

SNC Application Summary

The conditions of a disaster can be visualized as a summation of the 3 X 3 X 3 matrix as follows in Table 4. The value of this matrix approach is that it provides guidance in the nature and extent of recovery response. By applying a three-dimensional designation to each of the 27 cells in the matrix (with the convention of 1 to 3 representing the levels of severity in ascending order), one can categorize each combination of scale-nature-culpability by its cell coordinate. For example, an extremely mild disaster case could be represented by the cell designation 111 and the most severe set of conditions would be designated 333.

The SNC Severity scale has a visual component that rates the crises based on the sum of the three base scales. See Table 4 for visual sizing of the SNC Severity scale. The summation of the 3 x 3 x 3 grid reference for each component in the crisis scales the crisis for evaluation.

TABLE 4
SNC SEVERITY SCALE

SNC Severity Index	
Low	< 7
Moderate	7 – 17
High	> 17

For manageability, three relatively broad categories of response have been designated. It is important to remember that these responses are generic and must be tailored to the individual organization. It is also important to note that the response categories are deliberately broad for discussion's sake, but an individual organization may find it useful to narrow each of these divisions to reflect finer definitions of response.

An egregious set of confluent conditions, all of which are on the high end of their respective SNC severity, would call for forceful, robust action to demonstrate that the organization comprehends the

magnitude of the disaster and understands the need for swift, decisive action to minimize harm and to do what is right. This would be a case in which the top guns are brought in to address the problem directly, offering assurances that every action that the situation calls for will be taken.

At the other end of the continuum are a confluence of SNC conditions which suggest that, while there is definite reason for concern, the situation is manageable and the recovery responses indicated are best addressed by lower-level officials. To bring in top management and to respond with overwhelming force (shock and awe) would represent overkill and could serve to exacerbate the problem by suggesting that it is greater than it actually is. Of all times, this is one of the most important to remember that *perception is reality* for customers. Anything that feeds the perception of "major disaster" by over-representing the severity of the harm, could add the sensation of severity, much in the way wind can intensify the perception of cold, producing a "wind chill factor." Positions in-between these two extremes call for a moderate response.

In order for an organization to protect itself from the consequences of disaster, it must anticipate the attendant risks and provide prevention and planning measures. Then, when a disaster has occurred and while the emergency is still at its height, an organization must be able to identify and quantify its effects as accurately as possible so that it can design rehabilitation and reconstruction programs and identify resources that will have to be channeled to the affected business or constituents.

APPLICATION OF THE MODEL TO THE GM COBALT KEY PROBLEM

To illustrate how the model could aid a company in a realistic assessment of its situation, and thereby select an appropriate response, consider the recent problems with the GM Cobalt situation which led to several fatalities. The GM situation qualifies as a disaster, having started out as a relatively minor crisis that could have been resolved in pre-production (where the problem was kept internal (Basu, 2014)), but as the result of subsequent decisions and cover-ups, led to devastating consequences to the organization's posture and appearance to the world.

To begin applying the model we have to go back to the preplanning stages of the Cobalt. Our analysis begins in January of 2001 when GM engineers detected a defect during pre-production testing of the Saturn Ion (a precursor to the Cobalt). At that time GM engineer who designed the Ion switch described it as the switch from hell (Valukas, 2014). This switch was later rolled into the Cobalt and used without any changes to the key system. This is the beginning of the problem and dates from January of 2001.

In order to track each step through the analysis, the authors set up a continuum table where notes were made within each month as to investigative and research findings. Figure 1 below shows how these notes were then taken and evaluated month by month with regard to each attribute of scale, nature and culpability. As the readers evaluated each statement with regard to the relative levels under each of the scales, a scale number was applied to that event. Once that entry was made, the entry then replicated itself throughout the table until a higher number entry could be assigned. During each month, the severity scale took the summation of the scale, nature, and culpability results and applied the low, medium and high measurements as the items changed.

As changes were made to each scale the writers indicated a change in level by coloring the column / row cell where the change occurred. The summary table as shown in Figure 1 really covers 168 months of data. For the sake of brevity, months without research entries are excluded from the table and only months where we feel GM had a decision to make were included here.

FIGURE 1
EXAMPLE OF APPLICATION PROCESS

Economic and Marketing Disaster Severity Index

Date		Scale									Nature									Culpability										Severity Scale		
		Effect				Knowledge					Impact				Duration					Intent				Contribution								
		None	Internal / Local	Market / Regional	Non-Market / Pervasive	None	Internal / Local	Market / Region	Non-Market / Pervasive	Scale Total	None	Low Impact	Moderate Impact	High Impact	None	Short Term	Medium Term	Long Term	Nature Total	Innocence	Ignorance	Negligence	Guilt	None	Incidental	Indirect	Direct	Culpability Total	Scale + Nature + Culpability	Economic and Marketing Disaster Severity Scale	Notes - Brackets indicated reference number used as a source.
Year	Month / Rating	0	1	2	3	0	1	2	3	Effect x Knowledge	0	1	2	3	0	1	2	3	Impact x Duration	0	1	2	3	0	1	2	3	Intent x Contribution	Extrapolated Total	Interpretation (Low Medium High)	
2001	January	0	1	1	1	0	1	1	1	1	0	1	1	1	0	0	0	0	0	0	1	1	1	0	1	1	1	1	2	LOW	2001: GM detects the defect during pre-production testing of the Saturn Ion. (Basu, 2014) GM engineer who designed switch described it as the switch from Hell (Valukas, 2014) The switch was redesigned and still failed to meet GM standards (Valukas, 2014)
2001	September	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	2	2	1	1	1	1	2	3	LOW	Component level testing of the ignition switch occurs. 10 of 12 switches failed to meet engineering requirements and that failure is significant. (Valukas, 2014)
2002	December	1	1	2	2	1	1	1	1	2	1	1	1	1	0	1	1	1	1	2	2	2	2	1	1	1	1	2	5	LOW	Saturn ION launch for Model year 2003 using ignition system (Valukas, 2014)
2003	January	2	2	2	2	1	1	2	2	4	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	2	7	LOW	2003: A service technician closes an inquiry into a stalling Saturn Ion after changing the key ring and noticing the problem was fixed. (Basu, 2014) Starting early after the launch GM receives hundreds of complaints regarding ignition switch shutting off and intermittent stalls. (Valukas, 2014)
2004	February	2	2	2	2	2	2	2	2	4	1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	2	8	MEDIUM	DiGiorgio initiated a work order to implement changes in part adding grease and changing the circuit board. There was a change in part number. Focused on the cold crank start problem of the part DiGiorgio considered the stalls part of the same problem. (Valukas, 2014)
2004	May	2	2	2	2	2	2	2	2	4	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	2	2	4	10	MEDIUM	GM presents to NHTSA that engine stalls are not safety events. (Valukas, 2014)
2004	July	2	2	2	2	2	2	2	2	4	1	1	2	2	2	2	2	2	4	2	2	2	2	2	2	2	2	4	12	MEDIUM	One injury caused by ignition after side impact by drunk driver. Airbags not deployed. (Valukas, 2014)
2005	March	2	2	2	2	2	2	2	2	4	2	2	2	2	2	2	2	3	6	2	2	2	2	2	2	2	2	4	14	MEDIUM	March 2005: GM rejects a proposal to fix the problem because it would be too costly and take too long. (Basu, 2014) March 2005: A GM project engineering manager closed the investigation into the faulty switches, noting that they were too costly to fix. In his words: "lead time for all solutions is too long" and "the tooling cost and piece price are too high." Later emails unearthed by Reuters suggested that the fix would have cost GM 90 cents per car. (Plumer, 2014) March 9th PRTS closed with no action - no one knows who authorized it being closed. GM maintains that were the level safety issue, not convenience, it would not have been closed. (Valukas, 2014) GM product investigations group creates framework that 20 to 30 incidents (stalls) per 1000 was a reasonable rate for engine stalls. No evidence that NHTSA was advised are agreed to this rate. (Valukas, 2014)
2006	April	2	2	2	2	2	2	2	2	4	2	2	2	2	3	3	3	3	6	2	2	2	2	2	2	2	3	6	16	MEDIUM	April 2006: A GM engineer responsible for the ignition switch design approves a new design to increase torque performance. Delphi, a parts maker, later told Congress that the new switch for 2008 models was harder to move out of position but still below GM's original specifications. This new switch was also never given a new part number, which means that newer cars may have inadvertently received the older, defective switch as a replacement part when they went in for repairs. (Plumer, 2014) DiGiorgio, by not changing the part number, exacerbated the problem for years. It masked the true error in the part itself so that people continued to drive faulty cars. (Valukas, 2014) Delphi documents state that DeGiorgio agreed to implement the change without changing the part numbers. it fixed the problem but hid the change. Failed engineering 101...always change the part number if the part is different. (Valukas, 2014) In March of 2007 the NHTSA expresses interest in the Cobalt Non-Deployment. (Valukas, 2014. Page 128)
2006	September	2	2	2	2	2	2	2	2	4	2	2	2	3	3	3	3	3	9	2	2	2	2	3	3	3	3	6	19	HIGH	Saturn Ion death Case against GM submitted. (Valukas, 2014) Engineers note that the SDM was not designed to capture the position of the key during the accident. (Valukas, 2014, Page 122)
2013	April	2	2	2	2	2	2	2	2	4	3	3	3	3	3	3	3	3	9	2	2	2	3	3	3	3	3	9	22	HIGH	DiGiorgio deposed and shown two different plungers although he said he made no changes. Peregery by DiGiorgio under the auspices that he could not remember the changes. Three days later Malladi and others hired. (Valukas, 2014. Page 209) Identified as a root cause is the delay in how long it took to recall (2014) causing additional deaths. (Valukas 2014. Page 268)
2013	May	2	2	2	2	2	2	2	3	6	3	3	3	3	3	3	3	3	9	3	3	3	3	3	3	3	3	9	24	HIGH	Malladi finally contacted for analysis (Valukas, 2014, page 203)
2014	February	2	2	2	3	3	3	3	3	9	3	3	3	3	3	3	3	3	9	3	3	3	3	3	3	3	3	9	27	HIGH	Feb. 7, 2014: GM notifies NHTSA "that it determined that a defect, which relates to motor vehicle safety, exists in 619,122 cars." (Basu, 2014) Feb. 13, 2014: GM officially recalls 2005-2007 Chevrolet Cobalt's and 2007 Pontiac G5s. (Basu, 2014) Feb. 25, 2014: GM adds 748,024 more vehicles to the recall. (Basu, 2014) Between the first and second groups of recalled vehicles, GM identified 54 crashes, resulting in at least 13 fatalities, where this defect likely contributed to the non-deployment of the frontal air bags. In its recall notices, GM stated that it is "very important that customers remove all items from their key rings, leaving only the vehicle key. The key fob . . . should also be removed from the key ring." February 27: U.S. auto safety regulator says it is investigating whether GM responded quickly enough to the ignition switch problem. February 24, 2014 The New York Times publishes an article "G.M. Recalls some cars but not all with ignition switch problems." (Valukas 2014, Page 235.) February 24, expanded the recall to HHR and Solstice. Total Recall numbers now 842,000 (Valukas 2014. Page 235) February 14 the GM Board is first informed of the Cobalt Problems (Valukas 2014. Page 243)

As we proceed through the analysis it becomes evident that there are certain points where the findings escalate the problem significantly.

APPLICATION OF THE MODEL

Prior to examining the model we had to set parameters for each decision point. Most companies can look back on other disasters that have occurred in house, use those disasters as decision criteria for setting foundation points, and then recommend that future problems be examined through these criteria. A suggested methodology is to gather strategic partners within the corporation and (using past disaster experiences) identify key "what if" points in the disaster process where different decisions would have mitigated the problem. Using these waypoints, each corporation can identify markers whereby future problems can be gauged. Ford might examine the rollover incident situation. Toyota could examine the accelerator issue. Each company can apply the costs associated with each disaster to begin to assign probable future costs to missteps that were made by each corporation. Costs would include internal costs, external costs, and social costs. Where applicable, punitive and civil damage costs can be used to apply accountability measures to future steps in the model. The process of data compilation benefits the corporation by creating a leveling of expectations and common interpretation of key points in the model.

Acting outside of GM in the creation of this paper we found ourselves somewhat at a disadvantage in that we had to overlay our interpretation of events based on mostly external reporting. Internal application of in-house criteria would be much easier for corporations to finalize.

For this model to succeed, each department and level of the company would need the same interpretation of given parameters to ensure they are calculating the risk correctly and in a manner

consistent to gauge possible outcomes. The following are the authors' suggested applications for each criterion in the model when examining GM's responses.

Scale Table Attributes Suggested for GM

Knowledge is defined as the spread of information regarding the crisis to ever expanding areas, some controlled, and others uncontrolled. For GM we suggest:

0. None – no knowledge at all.
1. Internal or local - can be seen as those areas within the span of control of the company. For GM this would be for any model in pre-release mode. While the car is in development and problems can be contained within GM, this is that classification.
2. Market or Regional - are those areas, where some control is kept over the flow of information and its spread is contained within the market. Once a vehicle is released to the market this automatically warrants escalation by GM to this level. Knowledge of problem becomes widespread based on the geographical area of release and the statistical representation of the problem e.g., 1 in 10 owners experience a problem. This is limited to customers only.
3. Non-Market or Pervasive - represents the spread of information beyond the market into regions uncontrolled by the corporation. This level occurs when media begin to report to non-GM customers problems within GM products. In this situation future customers become knowledgeable of the problem and may change purchasing decisions based on this information.

Effect can be defined as the containment area for the physical problem.

0. None – no effect at all.
1. Internal / Local - indicates that the physical outcome is contained within the corporation. For GM this would be for any model in pre-release mode. While the car is in development and problems can be contained, this is that classification.
2. Market / Regional - indicates that the physical outcome of the crises is contained within the known market area of the company. Once a vehicle is released to the market this automatically warrants escalation by GM to this level.
3. Non-Market / Pervasive - indicates that the physical outcome of the crisis has moved outside of the market area into society as a whole. This level occurs when media begin to report to non-GM customers problems within GM products. In this situation future customers become knowledgeable of the problem and may change purchasing decisions based on this information.

Nature Table Attributes Suggested for GM

Duration refers to the span or interval of time over which the disaster might run its course. The definition and interpretation of duration is heavily dependent on the industry or activity being reviewed.

0. None – no duration involved.
1. Short-Term – business can carry on almost as usual or the problem can be corrected and ameliorated with internal resources once a problem is found. For GM this could be applied to a situation of less than six months after the release of a vehicle to market. In early release any correction can be carried out quickly.
2. Medium-Term– problem can be addressed with little use of outside help. For GM we assign a period of greater than six months but less than two years and when only internal advisors are used to correct the problem.
3. Long-Term - response may take much longer than two years, even with significant external assistance and, in extreme cases, may result in complete business failure. For GM, we assign a period of greater than two years and when external advocates and researchers are sought to resolve the problem.

Impact refers directly to the number of victims that are affected by the disaster.

0. None – No impact involved. For GM this can be assumed for any vehicles in pre-release where the markets are yet to be involved and the cost of corrections minimized.
1. Low impact - affects a relatively small number of customers or clients. For GM the decision to go with any product that still has problems implies that a quick decision to replace or change the part will minimize the impact on the market. The earlier the correction is made, the lower the impact on the corporation.
2. Moderate impact - affects a significant share of customers or clients. For GM this is a post-production release of the vehicle to several markets where a significant number of complaints are received about the new product.
3. High impact – affects all customers or clients and may affect additional persons outside the usual control of the company. For GM this is the point at which the product is post release and begins to impact non GM product owners such as extended family and / or the general public.

Culpability Table Attributes Suggested for GM

Contribution defines the corporation's involvement and ranges from no contribution to direct contribution to the disaster at hand.

0. None – where the corporation has no involvement. For GM, this is the pre-production and pre-release environment where GM is reliant on the advice of their employees that the situation is in hand.
1. Incidental – where the corporation has incidental involvement and is not one of the contributing factors. For GM, the detection of a problem in pre-production that that lower level management has failed to address (such as the design engineer) is incidental. Senior Management and company representatives have not knowingly released a dangerous product. In effect, middle to senior management are "in the dark" regarding the situation.
2. Indirect – where the corporation may be one of the contributing factors, though not the immediate cause. For GM, middle management makes an incorrect decision or misclassifies a problem, causing the problem to escalate or continue. Senior leadership is not involved in the decision or misclassification.
3. Direct – where the corporation caused the problem as a direct result of organizational choice. For GM, this is where senior leadership knows of the problem but due to ineptitude, ignorance or deceit; delays its efforts to resolve the immediate problem. Senior leadership is, in this case, involved in the continuation of the problem with their decision/indecision and actions.

Intent measures the level of intended actions by the company.

0. Innocence – where the corporation had no intent. For GM, this is the pre-production and release environment.
1. Ignorance - where the corporation should have known what was happening, but did not act through their ignorance. For GM, this is where a general misunderstanding of the issue occurs at a low level of the corporation. Middle and senior management do not know of the extent of the problem.
2. Negligence – where the corporation knew but did not act to prevent the crisis from occurring. For GM, the continuance of the problem based on ignorance after recurrent part failure begins to implicate middle to higher management.
3. Guilt – where the corporation knew of its contribution to the crisis and acted improperly. For GM, once a representative of the company covers up a problem to intentionally divert attention, and the company fails to act immediately when liability is found, requires a complicit guilt finding. Every action after this point that does not address the problem implies guilt at all levels of the corporation.

THE COST OF INDECISION

In an attempt to estimate costs we examined both internal costs of repair and external costs of fines, civil damages, and punitive damages. These external costs are those that would be assessed against GM by outside sources. Table 5 sets out cost estimates in total. These total costs are than allocated to each vehicle as a cost per vehicle for each vehicle that will be recalled.

Internal cost repairs consist of one hour of fully loaded labor salary at an estimated $100 and a $5 cost for the part. Labor and parts total to $105 per vehicle for each repair (Answers To Your Questions). We do not include the opportunity cost of lost billable hours for the repair mechanic not working on revenue generating repairs. Compared to the disasters total costs, the repair costs make up only 8% of the total costs of the recall at $245,799,195. Fines of $35,000,000 are allocated to each vehicle at $14 per vehicle with fines representing 1% of the total recall cost (Basu, 2014). Civil Damage costs were estimated at $600,000,000 or $247 per vehicle (GURFOCUS, 2014). Civil Damages represent 18% of total recall costs. Punitive Damages are thought to be $2,400,000,000 or $989 per vehicle (GURFOCUS, 2014). Total costs of the recall are estimated at $3,289,799,195 or $1,356 per vehicle recalled.

Allocation of the costs was achieved by allocating costs across all vehicles. Fine tuning of the cost allocations could be made if more detail were paid to the timing of each assignation of fines, civil damages, and punitive damages. In reality, were GM active in recalling the cars early, they would only have been assigned repair costs and civil damages. This would force more costs to be allocated to vehicles later in the recall process. This would be consistent with the level of SNC where culpability begins to increase.

TABLE 5
NORTH AMERICAN GM COST ESTIMATES

General Motors North American Ignition Recall Cost Estimates

	Internal Repair Costs	Fines	Civil Damages	Punitive Damages	Total Costs
Costs per Vehicle	$ 105	$ 14	$ 247	$ 989	$ 1,356
Extended Costs	$ 254,799,195	$ 35,000,000	$ 600,000,000	$ 2,400,000,000	$ 3,289,799,195
Extended Costs %	8%	1%	18%	73%	100%

Source: Internal Repairs – (Answer to Your Questions, 2015 Fines: (Basu, 2014), Civil Damages: (GURFOCUS, 2014), and Punitive Damages: (GURFOCUS, 2014)

To allocated costs correctly we need to understand the release times and unit sales of each recalled vehicle. Table 6 sets out the vehicle construction and release schedule (GOOD CAR BAD CAR) combined with the recall costs assigned to each year as there calculated in Table 5 above.

TABLE 6
NORTH AMERICAN GM VEHICLE RELEASE AND RECALL NUMBERS BY YEAR

2002 - 2014 Production / 2002 - 2007 Recalled Vehicles									
Year	Pontiac G5	Pontiac Soltstice	Saturn Sky	HHR	Cobalt	Saturn Ion	Total	Running Total	Recall Costs
2001	-	-	-	-	-	-	-	-	$ -
2002	-	-	-	-	238,225	6,066	244,291	244,291	$ 331,183,053
2003	-	-	-	-	256,550	117,230	373,780	618,071	$ 837,913,147
2004	215	-	-	-	229,641	116,367	346,223	964,294	$ 1,307,284,470
2005	16,289	5,962	-	42,824	265,154	114,105	444,334	1,408,628	$ 1,909,663,970
2006	33,453	21,599	8,947	106,778	243,537	115,026	529,340	1,937,968	$ 2,627,285,320
2007	53,139	18,595	11,876	110,201	233,290	61,805	488,906	2,426,874	$ 3,289,799,195
2008	51,875	11,638	9,571	100,969	221,799	760	396,612	2,823,486	$ -
2009	22,447	6,085	3,568	73,704	119,074	15	224,893	3,048,379	$ -
2010	2,920	203	179	77,184	151,012	-	231,498	3,279,877	$ -
2011	2	7		38,226	266,848	-	305,083	3,584,960	$ -
2012	-	-	-	194	270,387	-	270,581	3,855,541	$ -
2013	-	-	-	9	281,408	-	281,417	4,136,958	$ -
2014	-	-	-	-	307,481	-	307,481	4,444,439	$ -

Table 7 sets out the change in costs as each SNC scale attribute increases. By allocating costs to each vehicle and then assigning these costs to each month, we can see how SNC escalation costs change as the SNC scale attribute changes for each successive decision point.

TABLE 7
NORTH AMERICAN RECALL COSTS AT TIME OF EACH SNC SCALE CHANGE

Economic and Marketing Disaster Severity Index								
		Severity Scale						
Date		*Scale Total*	*Nature Total*	*Culpability Total*	*Scale + Nature + Culpability*	*Economic and Marketing Disaster Severity Scale*		
Year	*Month / Rating*	*Effect x Knowledge*	*Impact x Duration*	*Intent x Contribution*	*Extrapolated Total*	*Interpretation (Low Medium High)*	*Running Total of Recall Costs*	*% Change*
2001	*January*	*1*	*0*	*1*	*2*	*LOW*	*$ -*	
2001	*September*	*1*	*0*	*2*	*3*	*LOW*	*$ -*	
2002	*December*	*2*	*1*	*2*	*5*	*LOW*	*$ 331,183,053*	*100%*
2003	*January*	*4*	*1*	*2*	*7*	*LOW*	*$ 373,410,560*	*12.8%*
2004	*February*	*4*	*2*	*2*	*8*	*MEDIUM*	*$ 916,093,122*	*145.3%*
2004	*May*	*4*	*2*	*4*	*10*	*MEDIUM*	*$ 1,033,363,084*	*12.8%*
2004	*July*	*4*	*4*	*4*	*12*	*MEDIUM*	*$ 1,111,543,059*	*7.6%*
2005	*March*	*4*	*6*	*4*	*14*	*MEDIUM*	*$ 1,457,587,872*	*31.1%*
2006	*April*	*4*	*6*	*6*	*16*	*MEDIUM*	*$ 2,148,579,613*	*47.4%*
2006	*September*	*4*	*9*	*6*	*19*	*HIGH*	*$ 2,447,588,509*	*13.9%*
2013	*April*	*4*	*9*	*9*	*22*	*HIGH*	*$ 3,289,799,195*	*34.4%*
2013	*May*	*6*	*9*	*9*	*24*	*HIGH*	*$ 3,289,799,195*	*0.0%*
2014	*February*	*9*	*9*	*9*	*27*	*HIGH*	*$ 3,289,799,195*	*0.0%*

Ignoring the first cost impact of 100% at the release point for the vehicle we can see that the months prior to February, 2004 were the most impactful in containing the disaster. The period leading into February of that year saw an increase in costs of 145%. Of course, as the disaster escalates and the running total costs increase, later percentage increases (even though smaller) become considerably larger. In September of 2006, an increase of almost one billion dollars occurs as the disaster continues to spiral out of control.

It should be noted first, that these costs are just for the North American continent. North America consists of both the United States and Canada. This paper focuses only on this region. The GM disaster is worldwide. Several of the vehicles were released overseas. Any costs of repairs or fines in these other countries are ignored in this analysis. Second, our research indicates that GM has underestimated the actual costs of the recall in their set aside to handle the final costs by as much as a billion dollars.

SUMMARY OF EVENTS AND SCALE ENTRIES

January 2001 - Prior to January 1st 2001 we begin with all Scale, Nature, and Culpability entries set to zero.

Event: GM engineers note a defect in the pre-production ignition switch.

Running Total of Recall Costs: $0

Scale

Scale Application: Remember that Scale is important because it signifies the *reach* or *scope* of the problem and the region over which any recovery activities must be directed. Since this is pre-production we set the Scale Effect to Internal / Local (1), and Scale Knowledge is set to Internal / Local (1) since all efforts to negate the problem at this time are internal. Having both entries present we begin by multiplying these together to get a Scale Total of 1 x 1 = 1

Scale Decision: When a disaster is localized, its effects may be contained with little impact on the entire enterprise. This score would indicate that lower to mid-level managers should be able to contain the problem with proper planning and process controls. It should be noted that the status of "pre-production" automatically limits the market impact of this situation by naturally keeping the problem from expanding outside the company itself. Middle management should be informed and knowledgeable of the problem and should be ready to stop the transition to the market should the problem not be solved.

Nature

Nature Application: Remember that Nature is the term we use to designate both the kind of disaster and the number and type of victims of the disaster which combine to result in the degree of impact. We categorize nature as a duration of short-term, medium-term, or long-term, and we categorize impact as low, moderate, or high. Once again, as the problem with the key is a pre-production problem we set Nature Impact to Low Impact (1). This situation really has not presented itself to market so we set Nature Duration at zero (0) as it has not actually become an issue at market. We then multiply both to get Nature Total to be 1 x 0 = 0.

Nature Decision: Any situation that can be corrected pre-market is a good situation. Additionally management should note the benefit of pre-production not multiplying the nature of the situation. Looking at this entry from a preventative position, a manager might ask if this continues to market and becomes a short term problem, and how might it impact the company? The mathematics of "what if" still indicates a low impact disaster, but it is obvious that minimization at this point is important to save time and money later on.

Culpability

Culpability Application: Culpability is the state of being responsible for the wrong or injury inflicted and deserving of blame and censure from the market. Since the part involved is an ignition switch and is therefore seen as an integral part of the workings of the car (as opposed to, say, the head lining in the roof – not related to the workings of the car), we have to set the culpability rating to ignorance (1) since "we don't know what we don't know," and yet the part is integral to the safety of the car as a whole. With Intent set to 1 for this reason we (at least in this case) feel compelled to do the same for contribution by setting it to incidental, also at 1. By multiplying both these together we get a Culpability Total to be 1 x 1 = 1

Culpability Decision: The nature of the part in question leads us to classify the culpability analysis as key in any decision about the problem management process. Remember that typically all disasters are handled in hindsight. Using this moment as foresight - i.e., "should this become a more serious issue due to the important nature of the part," - we believe that close oversight of the issue needs to occur.

Precipitating factors for these assigned rankings are that GM detected the key defect during pre-production testing of the Saturn Ion, a precursor to its use in the Cobalt (Basu, 2014). This implies that the problem was identified quite early on and yet continued through production. We note here that the GM engineer who designed the switch described it as "the switch from Hell" (Valukas, 2014). To a GM manager this should have implied that there could be ongoing problems with the part. Finally, even after the switch was redesigned, it still failed to meet GM standards (Valukas, 2014) which should have caused concern.

Severity Scale Total

Initial Scale Entries: On the Severity Scale we add Scale + Nature + Culpability giving a total of 2, which is in the "low" impact range for a disaster. With a SNC rating of "low," it can be recognized that there is definite reason for concern, but the situation at hand is manageable and the recovery responses indicated are best addressed by lower-level officials. GM appears to have responded naturally to the current internal situation and yet its response (again in hindsight) was insufficient.

September 2001

Event: In September of 2001 component level testing of the ignition switch occurred at GM and 10 of 12 switches failed to meet basic engineering requirements. That level of failure is significant, and yet nothing was done within GM (Valukas, 2014).

Running Total of Recall Costs: $0

Culpability Application: Since GM ignored such a significant failure rate on what is considered to be an important component of the vehicle, the authors feel that this oversight warrants an escalation of culpability to Negligence. Culpability Intent is set to Negligence (2) and Culpability Contribution remains at Incidental (1). By multiplying we get a Culpability Total of 2 x 1 = 2. Now on the Severity Scale we add Scale + Nature + Culpability giving a total of 3, which is still in the low impact range for a disaster.

Culpability Decision: Remember that Incidental is where the corporation has incidental involvement and is not one of the contributing factors to the problem. Since this is a problem localized in engineering we leave Contribution scale where it was until we see where GM as a corporation contributes to the problem.

December 2002

Event: Launch of the Saturn ION using the faulty ignition system to market now involves individuals outside the corporation.

Running Total of Recall Costs: $331,183,053

Scale Application: Scale Effect is set to Market / Regional where the car has been released (2) while Scale Knowledge remains unchanged at (1). By multiplying we get a Scale Total of 2 x 1 = 2.

Nature Application: With release outside of the corporation the minimum effect on the market becomes short term. Nature Duration is now set to Short Term of 1. By multiplying we get a Nature Total of 1 x 1 = 1. On the Severity Scale we add Scale + Nature + Culpability giving a total of 5 which is still in the low impact range for a disaster.

Scale and Nature Decision: Precipitating factors for the change were the Saturn ION launch for Model year 2003. The moment the vehicles hit the market the web of problems expand. The regional launch of the Saturn ION with the faulty switch problem caused us to re-evaluate duration to short term if GM addressed the problem quickly. This did not happen. There appears to be a significant failure within GM where different departments were unaware of problems in other areas that should have held up release of these models until this component part was repaired or replaced.

January 2003

Event: Stall complaints begin to come in regarding the ignition switch. The classification of these as an inconvenience rather than a significant danger precipitated further problems.

Running Total of Recall Costs: $373,410,560

Scale Application: Scale Knowledge is set to Market / Regional (2) while Scale Effect remains unchanged at 2. Scale total now becomes 2 +2 = 4. This change in Scale Total now affects Scale + Nature

+ Culpability and resets a new total to be 4 + 1 + 2 = 7. This equates to a low impact for a disaster.
Scale Decision: A precipitating factor for the change in Market / Regional was that a service technician closed an inquiry into a stalling Saturn Ion after changing the key ring and noticing the problem was fixed. This indicates that knowledge of the problem extended outside the company (Basu, 2014). Starting early after the launch GM received *hundreds of complaints* regarding both the ignition switch shutting off and intermittent stalls in the vehicle (Valukas, 2014). This indicates that as the problem spread it began to affect all markets.

February 2004
Event: Anniversary of Saturn ION release puts the problem at longer than a suggested six month horizon on fixing problems.
Running Total of Recall Costs: $916,093,122
Nature Application: By exceeding six months in duration the problem has escalated. Nature Duration is set to Medium (2) while Impact remains unchanged (1). Nature Total now becomes Impact x Duration or 1 x 2 = 2. With this change in the Nature Scale, the Total changes. Scale + Nature + Culpability now changes to be a new 4 + 2 + 2 = 8. This now equates to a "medium" impact for a disaster.
Nature Decision: The change in duration to medium is brought about because DiGiorgio (the ignition design engineer) initiated a work order to implement changes in the ignition part by adding grease and changing the circuit board. There was also (in this first instance) a change in the part number once he had made these changes. These changes were made because he was focused on the cold crank start problem of the part. DiGiorgio considered the stalls part of the same problem in the airbag non-deployment (Valukas, 2014). The change of status here is due to the problem now being longer than the six months which we considered short term. DiGiorgio has been focused on the problem but has not reacted quickly to complaints about the ignition. By making changes he has tacitly acknowledged that there is a problem. From GM's perspective time equates to sales, sales equates to increased market numbers, increased market numbers equate to increased complaints and exposure to the inherent problem with the part.

The change in classification to a Medium level disaster should have produced a renewed level of attention by GM management. Remembering that *perception is reality* for customers, GM should have renewed efforts to analyze internal and external data to see why a solution to the problem might be taking so long. This change in classification would also indicate a shift in emphasis from low level management to mid-level management examining the problem, as this "in-between" level of the scales extremes calls for a moderate response that tries to minimize panic and yet address the problems at hand.

May 2004
Event: GM presents to the National Highway Transportation Safety Administration (NHTSA) that the stalls and complaints experienced by consumers are not safety events.
Running Total of Recall Costs: $1,033,363,084
Culpability Application: Culpability Contribution is set to Indirect (2) while intent remains unchanged (2). Remember that Culpability Indirect is where the corporation may be one of the contributing factors, though not the immediate cause. Culpability Total now becomes Intent x Contribution or 2 x 2 = 4. With the change in Culpability Total that now changes Scale + Nature + Culpability to be the new 4 + 2 + 4 = 10. This still equates to a medium impact for a disaster.
Culpability Decision: The fact that GM presents to the NHTSA that engine stalls are not safety events (Valukas, 2014) shows the level of misunderstanding on the part of GM. This is a massive disconnect requiring an upgrade to the level of Indirect applied to GM. The fact that GM cannot link ignition switch stalls with non-deployment of airbags is almost unthinkable. Research outside of the corporation was already making these links. GM's inability to scan these (external to GM) studies and reports dramatically implicates them to the extent that their negligence causes more injuries.

July 2004
Event: The number of injuries reported begins to escalate.

Running Total of Recall Costs: $1,111,543,059
Nature Application: Nature Impact is set to Moderate Impact (2) while Duration remains unchanged (2). Nature Total now becomes Impact x Duration or 2 x 2 = 4. With the change in Scale Total that now affects the Scale + Nature + Culpability to be the new 4 + 4 + 4 = 12. This still equates to a medium impact for a disaster. Remember that once many injuries begin to be reported we can assume that the problem has become distinctly noticeable among a significant share of both customers and employees and leads to enduring and more debilitating consequences for GM if the problem continues.
Nature Decision: The reason for the change in nature to moderate is that we begin to see injuries caused by the ignition switch after one particular side impact by a drunk driver. During that event the airbags did not deploy (Valukas, 2014). As impact injuries begin to be reported this causes us to scale up the problem. GM again has failed to connect the dots through inadequate reporting across departments. Again, as this remains a moderate level disaster, middle management at GM needs to recognize the expanding nature of the problem if these types of accidents continue to be reported. GM appears, through silo-type departments, to be unable to access and analyze data in ways that keeps all departments up to speed and informed of the problems.

March 2005
Event: By refusing to correct the problem with the part because of costs, GM fails to solve the problem and extends the problems being experienced.
Running Total of Recall Costs: $1,457,587,872
Nature Application: Nature Duration is set to Long Term (3) while Impact remains unchanged (2). Nature Total now becomes Impact x Duration or 2 x 3 = 6. With the change in Scale Total this now affects the Scale + Nature + Culpability to be the new 4 + 6 + 4 = 14. This still equates to a medium impact for a disaster. Failing to address the problem because of costs extends the problem into the future necessitating a rating of long term.
Nature Decision: Precipitating factors for the change include the following: In March 2005 GM rejects a proposal to fix the problem because it would be too costly and take too long to implement (Basu, 2014). According to other sources, in March 2005 a GM project engineering manager closed the investigation into the faulty switches, noting that they were too costly to fix. In his words: "Lead time for all solutions is too long" and "the tooling cost and piece price are too high." Later emails unearthed by Reuters suggested that the fix would have cost GM 90 cents per car (Plumer, 2014). On March 9th PRTS (an internal investigative group at GM) closed their investigation with no action. No one knows who authorized the investigative group being closed. Had GM maintained that the problems with the key system were a safety issue and not just an inconvenience, it would not have been closed (Valukas, 2014). The GM product investigations group created a framework that 20 to 30 incidents (stalls) per 1000 was a reasonable rate for engine stalls. There is no evidence that the National Highway Transportation Safety Administration was advised or agreed to this rate (Valukas, 2014). After years of study, this problem now becomes long term.

At this point one begins to question the detached nature of the decision to not fix the issue based on cost. From an outsider's perspective and hindsight, one questions the misclassification as an inconvenience to users rather than a safety problem. This is another disconnect that exacerbates the problem for GM.

April 2006
Event: DiGiorgio (the designing engineer) changes the switch design without changing the part number. Based on evidence, this looks like he knew the extent and consequences of the original part's problem and tries to cover up the fact that the issue was caused by his design. Engineering 101: you never change a part and give it the same part number as the one it replaces.
Running Total of Recall Costs: $2,148,579,613
Culpability Application: Culpability Contribution is set to Direct (3) while intent remains unchanged (2). Culpability Total now becomes Intent x Contribution or 2 x 3 = 6. With the change in Culpability

Total that now affects the Scale + Nature + Culpability to be the new 4 + 6 + 6 = 16. This still equates to a medium impact disaster.

Culpability Decision: Precipitating factors include the fact that in April 2006 DiGiorgio (a GM engineer responsible for the ignition switch design) approves a new design to increase torque performance. Delphi, a parts maker, later told Congress that the new switch for 2008 models was harder to move out of position but still below GM's original specifications. This new switch was also never given a new part number, which means that newer cars may have inadvertently received the older, defective switch as a replacement part when they went in for repairs. (Plumer, 2014) DiGiorgio, by not changing the part number, exacerbated the problem for years. It masked the true error in the part itself so that people continued to drive faulty cars. (Valukas, 2014) Delphi documents state that DiGiorgio agreed to implement the change without changing the part numbers. This deception did fix the problem, but hid the change. This is indicative of "Failed engineering 101." Engineers will always change the part number if the part is different. (Valukas, 2014) This deception indicates that DiGiorgio was intent on covering up his error.

As an agent for GM, DiGiorgio increased the culpability level, but GM as a corporation did not know of this deception. For this reason we leave intent for the corporation unchanged. Once the company becomes aware of the problem but does nothing, the level of intent would change. For now, it remains unchanged.

September 2006

Event: The number of deaths reported dramatically increases.

Running Total of Recall Costs: $2,447,588,509

Nature Application: Nature Impact is set to High Impact (3) while Duration remains unchanged (3). Nature Total now becomes Impact x Duration or 3 x 3 = 9. With the change in Scale Total that now affects the Scale + Nature + Culpability to be the new 4 + 9 + 6 = 19. This now equates to a High impact for a disaster. Remember that a high impact rating is warranted because the problem now affects all customers or clients and may affect additional persons outside the usual control of the company.

Nature Decision: Precipitating factors for the change are the increasing number of deaths in other GM vehicles using the same ignition switch as the Cobalt. A Saturn Ion death Case against GM was submitted for the first time (Valukas, 2014). Engineers at GM also noted that the SDM (the cars recording computer) was not designed to capture the position of the key during an accident. This is later considered a major oversight (Valukas, 2014, page 122). GM should have processes in place that first identify and monitor significant events such as accidental deaths caused while driving their products (even apart from law suits being filed for damages) and then proactively act to ensure that conditions do not get worse.

With escalation to a high impact disaster, senior GM management should have quickly reacted to the situation and quickly placed a team of high level managers and / or outside consultants on the problem. GM insiders were in a sense blind to what was later seen as unknown. Outsiders may have viewed the situation with new and fresh eyes that might have picked up the problem.

April 2013

Event: GM finds out that DiGiorgio lied to cover up the change and remained unresponsive at the market level for months. This delay by GM and their inability to address the recalls caused additional deaths.

Running Total of Recall Costs: $3,289,799,195

Culpability Application: Culpability Intent is set to Guilt (3) while intent remains unchanged at (3). Culpability Total now becomes Intent x Contribution or 3 x 3 = 9. With the change in Culpability Total that now affects the Scale + Nature + Culpability to be the new 4 + 9 + 9 = 22. This equates to a high impact disaster.

Culpability Decision: Precipitating factors for the change at the corporate level to "guilt" include the fact that DiGiorgio was deposed and shown two different plungers although he said he made no changes to the part. That response equates to perjury by DiGiorgio, although he claimed he could not remember the changes that he had made to the part. Three days after the deposition disaster, Malladi (a high powered solutions man) and others are hired by GM to handle the fiasco (Valukas, 2014, page 209). This cover up

by DiGiorgio was identified as a root cause in how long it took to recall all the cars with the problems. It took GM until 2014 to begin to respond to this revelation. This delay caused many additional unnecessary deaths which the authors believe implicates GM and warrants the guilt level applied to this situation (Valukas 2014, page 268). The culpability change is based on our notion that knowing that they had a major problem GM should have recalled all these vehicles much earlier.

May 2013
Event: Non-customer interest in world news reports pushes the gravity of GM's actions outside of the typical GM customer base to the world through news outlets. Customers who have never purchased a GM vehicle now know of the situation and the gravity of the losses incurred because of GM's hesitation in addressing the problem.
Running Total of Recall Costs: $3,289,799,195
Scale Application: Scale Knowledge is set to Non-Market / Pervasive (3) while Scale Effect remains unchanged at 2. Scale total now becomes 3 x 2 = 6. With the change in Scale Total that now affects the Scale + Nature + Culpability to be the new 6 + 9 + 9 = 24. This equates to a High impact for a disaster.
Scale Decision: The precipitating factor for the change is that GM finally contacts their trouble shooter Malladi leading to a decision to recall. This recall becomes known outside of just those who have experienced the problem. Now, anyone who hears media coverage knows of the problem and makes judgments about the company based on information presented around the recall (Valukas, 2014, page 203).

February 2014
Event: The number of recalls and deaths becomes pervasive and well known outside of regular GM customers.
Running Total of Recall Costs: $3,289,799,195
Scale Application: Scale Effect is set to Non-Market / Pervasive (3) while Scale Knowledge remains unchanged at 3. Scale total now becomes 3 x 3 = 9. With the change in Scale Total that now affects the Scale + Nature + Culpability to be the new 9 + 9 + 9 = 27. A score of 27 is the highest disaster scale possible for the model.
Scale Decision: Precipitating factor for this change was: On February 7, 2014, GM officially notifies the NHTSA "that it determined that a defect, which relates to motor vehicle safety, exists in 619,122 cars," (Basu, 2014). Again on February 13th, 2014, GM additionally officially recalls 2005-2007 Chevrolet Cobalt's and 2007 Pontiac G5's, (Basu, 2014). Then again on February 25th, 2014, GM adds 748,024 more vehicles to the recall, (Basu, 2014). Between the first and second groups of recalled vehicles, GM identified 54 crashes, resulting in at least 13 fatalities, where this defect likely contributed to the non-deployment of the frontal air bags. In its recall notices, GM stated that it is "very important that customers remove all items from their key rings, leaving only the vehicle key. The key fob should also be removed from the key ring."

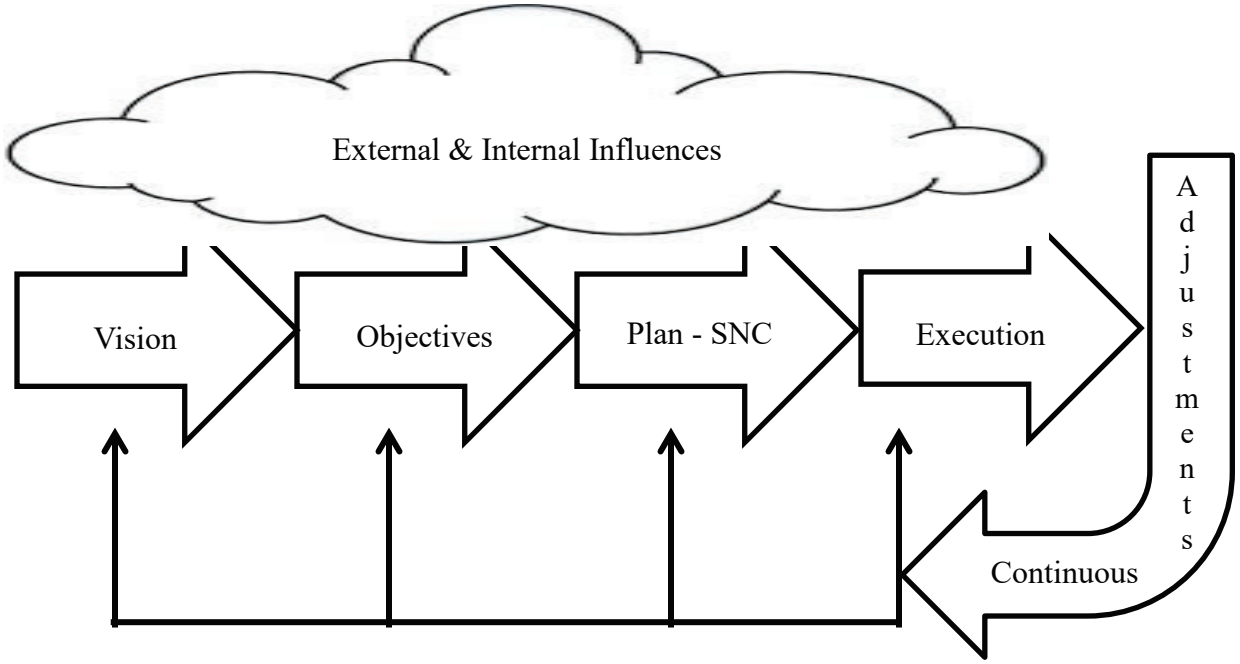
Based on the history of these recalls, on February 27th the U.S. auto safety regulator says it is beginning an investigation into whether GM responded quickly enough to the ignition switch problem. By February 24th, 2014 The *New York Times* publishes an article "G.M. recalls some cars but not all with ignition switch problems," (Valukas 2014, page 235). This media coverage begins an incredible cascade of bad publicity for GM. Again on February 24th, GM expands the recall to HHR and Solstice vehicles. The news of these additional recalls now further incites market response to the problem. Total Recall numbers now amount to 842,000 (Valukas 2014, page 235). Reacting slowly to the escalation of the situation, on February 14 the GM Board is first informed of the Cobalt Problems (Valukas 2014, page 243). The situation becomes the worst publicity disaster for GM in its history.

A final analysis of this situation can be summarized by the statement "too little…too late!"

GM STRATEGIC DECISION ERRORS

The strategic decision process involves many critical steps and each step needs to be made in a systematic process. Key to each step is the need for an objective analysis that not only looks at the big picture but also the true picture without a hidden or bias agenda. For most strategic planning processes you start with a vision and then build objectives that result in a strategic plan. Once the strategic plan has been developed, then you launch the execution part. Critical to the whole process is the understanding that constant adjustments need to be made throughout the process to make sure everything is aligned and heading in the right direction. As noted in Figure 1 below the typical strategic management process follows several steps that flow smoothly together to achieve the desired vision (Gamble and Thompson, 2011). Figure 2 shows the threat or potential for external and internal challenges throughout each step with our SNC added to plan.

FIGURE 2
GM STRATEGIC PLANNING INFLUENCES



Within the GM ongoing story line there were several critical moments when the vision of high quality and safety took a back seat to the need for immediate production needs and project completion. As noted in Figure 2 above, it is critical to constantly review (look back) to the vision as you establish objectives; design the strategic plan and implement (execute) the plan. The possibility of misdirection or lack of appropriate adjustments grows the more external and internal influences are ignored and consequences are not forthcoming. Without accountability, the SNC plan and outcome of any strategic decision are in doubt.

These external and internal influences need to be identified and accounted for upfront in the SNC disaster planning process. You can't just hope that you will recognize and account for the external and internal influences as they occur. This is both naïve and potentially detrimental to the whole SNC disaster plan development process.

KEY FACTORS SHAPING STRATEGIC MANAGEMENT DECISIONS

Once a company SNC vision has been developed and communicated, SNC disaster management is built on a system of steps that take a proactive approach to addressing key factors that help shape the decisions and ultimately the desired outcome. Addressing potential factors that can promote or hinder (derail) the desired outcome (plan execution) is fundamental to the overall strategic management process. Basically reducing the potential for errors to occur with scheduled corrective adjustments steps (assessment and analysis) being made is a measure of strong strategic management. The SNC model allows companies to begin to identify key strategic moments and proactively act in the best interest of all involved.

Some of the key factors that impacted the GM decision making process are listed below. Throughout the production process these factors were inappropriately addressed and many times allowed to cloud the judgment and corrective processes that ultimately resulted in a total system breakdown.

Competitive Forces within the Industry

Throughout the development and implementation stages of the manufacturing process there were several common forces. These included challenging production goals, cost controls and even the need to meet or achieve individual personal success based on specific launch dates. There were so many opportunities to correct the deficiencies, but the competitive forces clouded so much of the individual judgments.

Communication Challenges within the GM Organization

These communication challenges involved several areas such as misclassification of quality information, changing products while keeping the same part number, delaying timely information, and even covering up key information. Within these challenges was also an underlying need for profitability over quality. It should be noted that this need was never stated, but it was implied by many of the critical decisions (or should we say mis-decisions).

Quality Standards (Not Fully Defined or Understood)

As noted in the communication challenges, there was also a very blatant acceptance of defective parts or incidents by key individuals who felt no need to immediately take corrective action. Each of the seemingly small decisions on quality snowballed into a major and fatal outcome. Many times errors begin small and then escalated into an out-of-control situation. The SNC model attempts to focus attention on these escalating points allowing proactive attempts to resolve the situation.

Price and Costs (Competitive with Industry)

This area directly impacts the execution stage of the strategic management process. It is at this point that results must be monitored and evaluated for success. This stage is also the area of great temptation to overlook or simply ignore potential problems with the hope that they will self-correct or even be allowed because of a cost control requirements. Again, it takes a culture of acceptance to allow price (profit) to override quality. The GM executives were so blinded by the need to achieve production and market goals they allowed unacceptable performance in many critical areas.

Willingness to Accept the Current Strategic (Behavior) for Performance

A key strength of strategic management is the process for self-assessment. This includes the SNC model where looking at each key step in the strategic planning process and doing an objective assessment for strengths, weaknesses, opportunities and threats will help the company. If the SNC self-assessment is completed correctly it will identify areas for continuous improvement and also answer the basic question on how you are doing. General Motors failed to self-assess this key factor from the standpoint of internal influences. The organization simply did not self-assess and correct for this potential influence based on

internal needs and goals. Again, this lack of corrective action clouded the judgment process needed to properly identify and correct substandard manufacturing processes.

ERRORS IN JUDGMENT

In addition to the factors identified above, it is also important to highlight that these problems were allowed to go unchecked because of an unethical culture of meeting production goals at all costs. In other words, the error of judgment was much more that an incorrect decision; it was an unethical decision.

A lack of ethical judgment can be the result of many different things and many times it happens slowly without regard to the potential full threat. In this case, there are many stages of errors in judgment beginning with the initial knowledge of the defective switch and lack of action to correct it at an early stage. Just think how much suffering and cost could have been avoided if action (appropriate adjustments) would have taken place in a timely manner. The purpose of the SNC model is to identify these errors early and act accordingly reducing culpability.

There are several possible reasons business people act unethically and some of these include (Wheelen, Hunger, 2006):

1. The people involved may not be aware of the problem or that what they are doing is wrong.
2. People have different values and this causes a different understanding of what is right and wrong.
3. Sometimes the issue or challenge causes people to rationalize their decision and find a way to justify the different approach to address the problem.

In the existing strategic planning and execution process by GM it appears that rationalization and different perspectives or values regarding ethical decision-making caused a lack of corrective action to address the problem appropriately.

GM RECOMMENDATIONS – STRATEGIC PLANNING AND IMPLEMENTATION

Recommendation for improvement in the strategic planning process starts at the very beginning of the manufacturing stage. It is recommended that controls be established that include areas of behavior, output and input (Wheelen, Hunger, 2006). It is acknowledged that these controls were probably established to some degree, but evidence suggests the controls in behavior were not enforced. These controls include such areas as:

1. Following company policies and procedures
2. Completing work appropriately (meeting guidelines)
3. Meeting ISO standards (such as ISO 9000 standards that focus on quality)

These types of controls help assure that manufacturing processes are being followed correctly and a process is in place to monitor performance. This monitoring requirement is constant and occurs at every critical stage of the strategic planning process. The SNC model helps with this problem.

CONCLUSIONS AND RECOMMENDATIONS

Internal Applications

The application of the SNC model (at first) feels overwhelming to anyone trying to look externally at a corporation as if you were an internal member. From an internal point of view (as each company will individually describe the criteria for each category break) the writers find the model extremely useful in allowing us to gauge the “what if” scenarios. For example, what if senior management had just found out that DiGiorgio had lied to cover up his error and that by doing this lie had caused deaths? Slow reaction time caused by indecisiveness or unbelief would have to be seen as an admission of guilt or culpability and perhaps warranted an immediate recall rather than a delay of months. This scenario is akin to Tylenol finding a few packets of drugs had killed a person or two and then left the defective boxes on the shelves

for six months so they could further examine the cause of the situation. That reaction by the makers of Tylenol would have been the end of that brand. Might GM not have been able to pre-gauge the reaction to their delay were they applying this SNC model strategically?

Strategic application of this SNC model can aid any company in minimizing potential problems. Key to its success is pre-planning, scale scenario attribute creation, training, and finally application of this methodology. Follow through in its application is a foundation to success. A suggestion for implementation follows.

SNC Model Application

In situations where you are a small or new company and do not have a previous experience with disasters it becomes more complicated to define key decision points on the SNC scale. Easy applications include situations where you are in beta test and not out in the market (pre-production) where there are definite indicators of delineation. Problems occur with scale attributes such as culpability. How does one gauge the "what if someone really is covering up here" when you are a new company? You can't evaluate what you don't know. GM constantly underestimated the impact of a stall on a vehicle because all they could think of was that the car could be handled by the normal driver. In no way did they link in their minds the idea that a stall could be combined with a crash to result in the air bags not being deployed, and that this situation was a severe safety hazard. How do you anticipate what you don't know and then report it? Having gone through the process, the authors can say that the process of examination itself is informative. It creates questions on how applications could be made and formalizes a vision of what can occur if something is missed.

The scale sometimes feels limited in that when you select a first entry it is important that both entries have a number - i.e., it is impossible for there to be a noticeable effect with no knowledge. Thus one requires a selection of the other. It can be argued that in some cases no knowledge might imply a final result of zero where 1 x 0 = 0. In the final application of the model, it really is the examination process that is important. The examination itself is more important than the result. It is through examination that we gain knowledge of the current situation which informs better decision making in the future.

The scales as presented can be modified by corporations based on the individual corporation's experience. Again, remember that the scale interpretations and impacts can be specific to certain corporations. Examples of differences in scales could be shown where one company has the problem where few individuals may be hurt (a toy company) versus a nuclear plant corporation where hundreds of thousands could be hurt or killed if a disaster occurs. It is the construct of the model and the thought process rather than the specific math that informs corporations' decision processes.

The structure of GM by committee meant that no one was held responsible and that no one took the lead. The "separation of church-and-state" like natures of different GM projects (e.g., litigation versus Customer safety) caused this issue to drag on for years. One group did not feed information to the other. The nature of litigation forces secrecy in some cases, tying up cars and keeping them from engineers due to them being part of evidence. The SNC model would force the company to look outside of the silos to see how situations may be linked. This, of course, is problematic. How does one ensure communication between divisions or other departments?

External Applications

During the examination of GM, the authors found that the model would be well suited to being used as a scale for punitive penalty calculations. The more egregious and outrageous the acts, the more the multipliers kick in when calculating civil or punitive penalties. Perhaps the courts might find this model applicable in the structural application of economic impact? The creation of a penal scale such as this (once standardized and imposed) adds to the willingness of companies to implement the SNC review process because now penalties are understood, quantifiable, and a certainty.

Is There an App for That?

As silly as that heading statement sounds, the practitioner in me looks for ways to remove barriers to communications and one way is to use an application for the cell phone. How do you empower all employees to ensure everyone is on the same page? You use technology. Cell phones are almost universal in the work place. Having worked on a system where questions and feedback are collected electronically, it struck me that a focused version of that system would fit the SNC model perfectly. There is an obvious need to allow immediate and timely measurement in small manageable increments that provide better quality data for GM. The use of technologies to link timely events with actions and measure outcomes immediately would remove the silo effect and encourage a 360 degree type of reporting within the corporation. The application data itself could be either push (GM sends text questions) or pull (GM employees make a note of a concerning incident) in nature for each category of the SNC model. The collection of this data would allow GM or others to examine data for trends that currently are impossible to see.

Should an employee note a problem where there is no record in the application of that problem, the employee would be able to add an entry. For example, if that employee heard in the break room DiGiorgio bragging that he had covered his error by changing a part but not a part number, the employee could open the GM application on the phone, touch the culpability scale, and add an entry about what he or she just heard or may suspect. The application also works in reverse, so that GM can push questions at differing intervals to all levels of the corporation asking about problems and progress on solutions. These questions can even focus on whether there is potential for escalation of the problem. Numerical based responses can be quickly analyzed for feedback and problem status.

An employee could receive an example text: "With regard to the Cobalt airbag deployment problem, do you see this problem as: 1. Not a problem, 2. An inconvenience, 3. A problem, 4. A serious problem, 5. Escalating and placing GM in a bad light? Different personnel levels across different company departments can be polled using the application. The polling when received on the phones forces an immediate reinforcement of situations causing the employee and / or GM concern.

With regard to anonymity, the push / pull nature of the SNC application might warrant anonymity to ensure the quality of feedback being received. The success of this type of capability requires GM to adopt a culture where feedback is valued and not penalized, and in all probability requires the data to be managed by a trusted external facilitator. This type of application would benefit GM by being:

1. real time in data collection,
2. real time in data feedback,
3. and enable SNC model trajectory tracking on a constant basis.

The GM SNC application would:

1. Transmit questions and receive responses regarding SNC scales sent as SMS texts to employees, management, and perhaps even customers.
2. Be designed to transmit questions based on scheduled events (to follow up at regular intervals). Nothing gets left behind or ignored.
3. Be used to randomize questions to employees or even customers based on application algorithms regarding the position on the SNC scale. Different viewpoints or perspectives can be polled to avoid silo vision.
4. Allow unrequested feedback to open new problem instances and questions. Recording exact times of notification and recording feedback creates new levels of responsiveness within the corporation.
5. Ensure that incomplete or unresponsive behavior is tracked and corrected through resubmission and follow-up by the system facilitator. Unanswered questions are re-asked until the question resolution is complete.
6. Create a decision tree follow-up question system where the user can be guided through other questions to clarify and record his or her observation ensuring accurate and timely feedback

for GM. Responders sometimes lack information on how a problem might be classified. The decision tree builds as the user delves deeper into recording the problem.

Other GM SNC Application Benefits

In addition to the benefits of this delivery methodology for the SNC model, GM might benefit from personnel internal "360 evaluations." This type of internal employee evaluation has become vital to managing companies and ensuring that SNC goals are met. Catching DiGiorgio in his error might have shortened GM's lead time in responding if a co-worker was able to notify GM what had happened. In human resources or industrial/organizational psychology, 360-degree feedback, also known as multi-rater feedback, multisource feedback, or multisource assessment, is feedback that comes from all around an employee. "360" refers to the 360 degrees in a circle, with an individual figuratively in the center of the circle. Feedback is provided by subordinates, peers, and supervisors. It also includes a self-assessment and, in some cases, feedback from external sources such as customers and suppliers or other interested stakeholders. It may be contrasted with "upward feedback," where managers are given feedback by their direct reports, or a "traditional performance appraisal," where the employees are most often reviewed only by their managers. By looking and asking everywhere, accountability for company goals becomes everyone's responsibility.

The results from 360-degree feedback are often used by the person receiving the feedback to plan training and development. With GM using this system to track the SNC model, this capability becomes an additional benefit ensuring accountability. Results for GM could be used to make administrative decisions, such as "are our employees following procedures and working in the best interest of the company."

CONCLUSIONS REGARDING THE SNC MODEL

1. The SNC model can disentangled companies from addressing disasters in hindsight.
2. The SNC model allows companies to minimize internal, external, and social costs to problems.
3. The SNC model is a useful tool by which a company can examine possible decisions in light of compounding factors that can cause disasters to spiral out of control.
4. The development of SNC scale attributes by each corporation is informative. This knowledge creates both power and the ability to intervene in a deteriorating process.
5. The SNC model can be used both internally for mitigation and externally for assignation of punitive damages.
6. Strategically, the SNC model provides structure out of what sometimes appears to be the chaos of everyday business processes. A common and consistent vision in any corporation ensures improved outcomes.
7. The systemization of the SNC model through a cell phone and/or website application will ensure that all levels of the company have buy-in and access to the system.

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Political Economy of GMO Foods

James W. Fairfield-Sonn
University of Hartford

Over the last several decades, the growth in the development, cultivation, and consumption of genetically modified organism (GMO) foods has been dramatic in some areas of the world while strongly resisted in others. This paper discusses how some major multinational corporations and international political organizations have influenced this pattern of growth and how recent developments in Guatemala, India, and the United States are raising new questions about the political economy of GMO foods, in general, that may impact the future direction of the production and use of these foods around the world.

INTRODUCTION

Since the original pioneering work by Adam Smith (1776) and David Ricardo (1817), Political Economy, as a broadly-based, interdisciplinary area of study, has provided many valuable insights into how changes in the international production of goods or services and trade relations influence both the creation and distribution of wealth as well as their impact on human conditions in a wide variety of ways. In this paper, this perspective is specifically used to provide a lens to examine how technical developments in the field of genetic engineering (GE) have allowed a number of major multinational firms with interests in agrichemicals and/or agricultural biotechnology to begin producing and distributing genetically modified organisms (GMO) foods on a world-wide basis over the last several decades and the controversy that this has development has generated.

The paper begins by examining the growth in the development and use of GMO foods during this time, which has been dramatic in some areas of the world while facing strong resistance in others as well as the current public policy positions that several international, regional, and national organizations have taken in regard to the potential value and concerns associated with GMO foods. This general examination is followed by a specific discussion of some on-going developments in Guatemala, India and the USA that suggest continued growth in the use of GMO foods may face different challenges moving forward, particularly in the court of public opinion as it relates to the role of major corporations and their control over the world-wide food system.

WHAT ARE GMOs

Unlike relatively slow, traditional trial-and-error crossbreeding hybridization methods within a species that have been used for centuries, genetically modified organisms (GMOs) are created much more quickly and precisely by a process called genetic engineering (GE), whereby genetic material from one species is artificially manipulated in a laboratory and then introduced into another species to develop new

strains of plant, animal, bacteria, and viral life that do not occur in nature (World Health Organization, 2015; The Non-GMO Project, 2015).

While the initial work on GMOs was done on bacteria, over time its greatest commercial use has certainly proven to be with foods. Specifically, the first GMO patent was granted in 1980 to a General Electric genetics engineer for a bacterium with an appetite for crude oil that could be used to control oil spills. Shortly thereafter, in 1982 the USA Food and Drug Administration (FDA) approved the first GMO drug called Humulin, which is a genetically engineered form of Insulin (Woolsey, 2013). A little over a decade later, in 1994, the FDA approved the first commercially available food product, a strain of tomatoes called Flavr Savr, which was developed by Calgene with the intent of providing greater shelf life. While this particular GMO food product was not very well received and was withdrawn in 1997 (Wineup, 2013), it was soon followed by many other food products (e.g., soy and corn) that are currently commercially available throughout the USA today (Fernandez-Cornejo, 2014).

Historically, the mid-1990 marked the beginning of the dramatic growth of commercially available GMO food products, particularly in the USA, which is also the number one GMO food producer in the world (Fernandez-Cornejo, Wechsler, Livingston, & Mitchell, 2014). Indeed, the growth of these products has been nothing short of phenomenal as evidenced by data provided by the USA Department of Agriculture (USDA). They reported that by 2013, 93% of the soy acres, 90% of the corn acres, and 90% of the cotton acres planted in the USA were with GMO products (Fernandez-Cornejo, Wechsler, Livingston, & Mitchell, 2014). As a result, with the exception of organically grown foods, it is hard to find many foods in any USA grocery store today that are completely free of GMO food content.

ECONOMICS OF GMO FOODS

To appreciate the full economic scope of GMO foods, it is necessary to consider not only the consumption and cultivation of these foods, but also the production of the seeds that are used to grow these products. To this point, it is notable that along with being the largest GMO food consumer and cultivator in the world, the USA is also home to the two largest GMO seed producers, namely, Monsanto, which is headquartered in St.Louis, Missouri and DuPont, headquartered in Wilmington, Delaware. Following Monsanto and DuPont, by size, the other major GMO seed producers in the world include: Syngenta (Switzerland); Groupe Limagrain (France); Land'O Lakes (USA); KWS AG (Germany); Bayer Crop Science (Germany); Sakata (Japan); Takii (Japan); and DLF-Trifolium (Denmark). Recent data indicates that these top 10 GMO seed producers are not only all located in developed countries, but there has also been a significant consolidation of the market share of the largest producers from 37% in 1995 to 73% in 2013 (Sarich, 2013). Given the growth in GMO seed sales, the location of the major producers, and the market consolidation occurring in this industry, it is not surprising that political questions have been raised about how this industry is evolving and operating around the world.

POLITICS OF GMO FOODS

As noted above, the development and use of GMO seeds and foods has been welcomed in some areas of the world yet faced strong resistance in others. Before looking at some specific examples of international, regional, and national institutional positions on GMO foods, it may be helpful to note some of the general arguments in favor of and against these products. For example, on the positive side of the ledger, there is the argument that with the growing world population it is important to find new ways to more efficiently increase the food supply by growing more crops, which are both pest resistant and use less water, on less land. On the other hand, those concerned about GMO foods argue that the long-term impact of these products on individuals who consume them has yet to be demonstrated and so caution in their development and use is advised. Moreover, there are early indications that the use of some of these products has already led to some unintended consequences such as: the development of super weeds; the decline of the bee population; and the cross-pollinated of GMO plants with other plants.

As scientific evidence about the long-term impact of GMO foods continues to build, three general observations can be made. First, pre-assessed GMO food products in the USA have, to date, been shown to be generally safe for consumption. Second, when GMO products such as Flavr Savr tomatoes have not lived up to their initial claims, they have been taken off the market. Third, the long-term consequences of the use and consumption of GMO food products is still uncertain.

Despite the lack of long-term, conclusive scientific evidence about the safety and impact of GMO food products several major international, regional, and national bodies have nonetheless stated their positions on GMO foods. In doing so, these positions have fallen into roughly three camps. These camps are those who believe: reasonable assessment standards and processes are in place at this time to adequately evaluate the safety of GMO food products; those that feel while evidence is accumulating there are ways that future assessments can be improved upon; and those who believe there are reasons for concern. Below, a sample of some representative positions are provided as a way for readers to get a richer feel for the range of positions that are currently being taken.

Reasonable Standards and Processes are in Place

At this time, in the reasonable standards and processes are in place to adequately evaluate the safety of GMO food products camp, for example, we can look to the positions of the World Health Organization (WHO) and the U.S. Food and Drug Administration (FDA) as useful illustrations.

The World Health Organization (WHO) is primarily concerned about the safety of GMO food products as a public health issue. Accordingly, they have been working with member countries on ways to help them to effectively evaluate GMO foods on a number of dimensions through the work of the Codex Alimentarius Commission. At this time, the assessment dimensions include advice on the evaluation of: direct health effects; potential allergic reactions; components that might have nutritional or toxic properties; the stability of the inserted gene(s); nutritional effects associated with genetic modifications; and any unintended effects that could result from gene insertion. In addition, the WHO encourages countries to also evaluate potential environmental risks created by GMO food products such as the capability of the GMO to escape and potentially introduce new genes into wild populations. That said, while most countries can evaluate new GMO food products, they are not required to do so and in some countries there is no regulatory review requirement at all. Accordingly, while the WHO has not yet identified any major problems with pre-assessed GMO food products their role is primarily to provide counsel and guidance to member nations on how to insure that no safety or environmental problems emerge moving forward (World Health Organization, 2015).

The U.S. Food and Drug Administration (FDA**)** regulates GMO foods as part of a coordinated effort with the Environmental Protection Agency (EPA) and the U.S. Department of Agriculture (USDA) based on a policy framework established in 1992 (Bashshur, 2013). This policy framework states that GMO foods will be evaluated based on the same standards and processes as naturally cross-bred foods. Specifically, that it is the responsibility of the new food producer to provide information to the agency on a voluntary, consultative basis about the safety and characteristics of new foods and once the FDA scientists are comfortable with the information they will approve the product for marketing (U.S. Food and Drug Administration, 2015).

Future Assessments Can Be Improved

In the, while evidence is accumulating there are ways that future assessments can be improved upon camp, we find the U.S. Department of Agriculture (USDA) and the American Medical Association (AMA) as informative examples.

The U.S. Department of Agriculture (USDA) studies and reports data on the experience of the three major stakeholders in agricultural biotechnology, namely, GMO food seed suppliers/technology providers, farmers, and consumers. Based on their research, they found that the amount of research and development by GMO seed suppliers/technology providers grew dramatically from 1985 until 2002, when the number of new field releases for testing GE varieties by the USDA reached its peak. Since that time, the number of new releases has held relatively steady at a fairly high level. In terms of farming,

three crops (i.e., soybeans, corn, and cotton) make up the majority of acres planted with GE crops. Despite increased use of GE crops, farmers still question their economic and environmental impacts, the evolution of weed resistance, and consumer acceptance. Meanwhile, despite the growing consumption of GE crops around the world, the reaction to them has been mixed with some consumers willing to pay more for non-GMO food products and others more for GMO food products (Fernandez-Cornejo, Wechsler, Livingston & Mitchell, 2014).

The American Medical Association (AMA) has a very clear Code of Medical Ethics that includes not only an emphasis on caring for patients, but also the duty to constantly study developments in the field and to work to promote better public health (American Medical Association, 2015). In 2012, the AMA House of Delegates met and debated what its policy should be on GMO foods going forward. Based on these deliberations it was voted that the AMA would support mandatory pre-market safety testing of new GMO products by the Food and Drug Administration (FDA), in lieu of the current practice of firms' voluntary consultation with the FDA, but they stopped short of endorsing mandatory food labeling because they do not consider GMO foods to be materially different from non-GMO foods (Eng, 2012).

There are Reasons for Concern

In the, there are reasons for concern camp, we find the United Nations (UN), and the European Union (EU) positions as instructive examples.

The United Nations (UN) position through its Food and Agriculture Organization (FAO) is that GMO food products are not necessarily bad, but they need to be considered on a case-by-case basis. That is to say, it needs to be recognized that the movement of GMO foods between two countries is a matter that should be worked out by the two nations (FOA, 2002). As to the cultivation of GMO foods, this is a matter that each nation also needs to determine for itself, but one that should be made with an eye toward how these products might impact the environment (FOA, 2002). On the issue of whether or not GMO food products have the potential to eliminate world hunger, their view is less sanguine than some others in that they believe these products can be part of a larger solution, but there are also other ways to increase crop yield that should likewise be considered (gmeducation, 2013).

The European Union (EU) view on GMO foods has long been in stark contrast to that expressed by proponents of these products, particularly in the USA. Since the 1980s, the EU regulatory environment, heavily influenced by consumer opinion within the EU, has been significantly stricter on potential health, safety, and environmental risks associated with technological innovations than in the USA (Lynch and Vogel, 2001). Reflecting this position, the EU has one of the strictest systems in the world regarding GMOs that requires extensive testing, labeling, traceability and monitoring of agricultural products. Indeed, for some time the EU was opposed to the growing of GMO foods altogether based on concerns about their possible connection to the rise of super weeds, infertility, allergies, and cancer. In 2011, the universal EU opposition was lifted, but individual countries were still allowed to ban or use them at their discretion. Today, GMO food products continue to be banned in several European countries with the only exception being Spain where they are grown extensively (Onusic, 2012).

POLITICAL ECONOMY OF GMO FOODS

When the economics and politics of GMO foods are considered together, it becomes clear that given its leading position in the development of GMO seeds, the cultivation of GMO foods, the consumption of GMO foods, and the relatively lenient regulatory environment that the USA is the epicenter for the GMO industry. On the other hand, among the developed countries of the world, the source of greatest concern and resistance to GMO foods, particularly among consumers, is within the European Union. Meanwhile, in the developing countries of the world, the reaction to GMO foods has been generally muted with the exception of Peru and Kenya where they are banned.

Viewed from a high level perspective, it could be reasonably suggested that for the last several decades the debate about the pros and cons of genetically modified organisms (GMO) created through genetic engineering (GE), with the exception of consumers in the EU, has been largely confined to the

scientific and institutional communities. Specifically, in these communities, proponents of GMO foods have been trying to make the case that by creating new strains of food it will be possible to address growing levels of world hunger. On the other hand, opponents of GMO foods continue to express concerns about the unknown long-term consequences of consumption of these foods as well as their potential impact on the environment.

While this debate has been going on, with only a few exceptions, the result has been that the use of GMO foods has continued to grow throughout the world. Whether or not this growth will continue in its current form is an open question. If the debate continues to be primarily within the scientific and institutional communities, it seems likely that GMO industry may continue to grow, consolidate, and operate much as it has in the past. On the other hand, if the debate becomes more broadly-based through the inclusion of concerns by other important stakeholders such as farmers and consumers around sustainable growth (United Nations, 2012), particularly vis-à-vis the power of major multinational organizations and regulatory bodies to control the food supply, then the future shape of the GMO food industry may begin to look different moving forward (Woolsey, 2012). In the next section, some developments in Guatemala, India, and the USA provide examples of how concerns by farmers and consumers, in particular, are starting to raise questions that the GMO industry will need to address.

Monsanto in Guatemala

As noted earlier in this paper, Monsanto, a USA-based firm with recent revenues of USA $15.2 billion (FinanceYahoo.com, 2015), is by far the largest GMO seed producer in the world. It was founded by John F. Queeny in 1901, a pharmaceutical salesmen, to sell its first product, saccharin to Coca-Cola for use as an artificial sweetener in its drinks. Since its founding, this American multinational firm headquartered in St. Louis, Missouri, has evolved into an agrochemical and agricultural biotechnology giant. The growth of this firm over the years has been fueled by the sale of products such as aspirin, PCBs, polystyrene, a chemical herbicide called Roundup first introduced in 1976 as well as acquisitions (e.g., Calgene in 1997), mergers (e.g., most notably in 2000 to become part of Pharmacia) and then in 2002 as a result of a spin-off to become once again a free standing firm with its current agricultural and biotechnology focus (Monsanto Web Site, 2015a; Global Research, 2015).

Monsanto's controversial position in Guatemala can be traced back to the 2005 CAFTA-DR free trade agreement that included Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and the United States. As part of this trade agreement, the signatories were obligated to pass a law like that in Guatemala called the "Law for the Protection of New Varieties" known more commonly in Guatemala as the "Monsanto Law", which was heavily criticized for its formidable seed-privatization provisions. In essence, this law offered producers of GMO seeds, like Monsanto, strict property rights to the original and harvested seeds of protected varieties without the producer's authorization. In doing so, the rights of plant breeders would become superior to the rights of Guatemalan citizens to freely use seeds. Moreover, anyone who violated the law would have been subject to a one-to-four year prison term and fines up to USA $1,300 (RT USA, 2014).

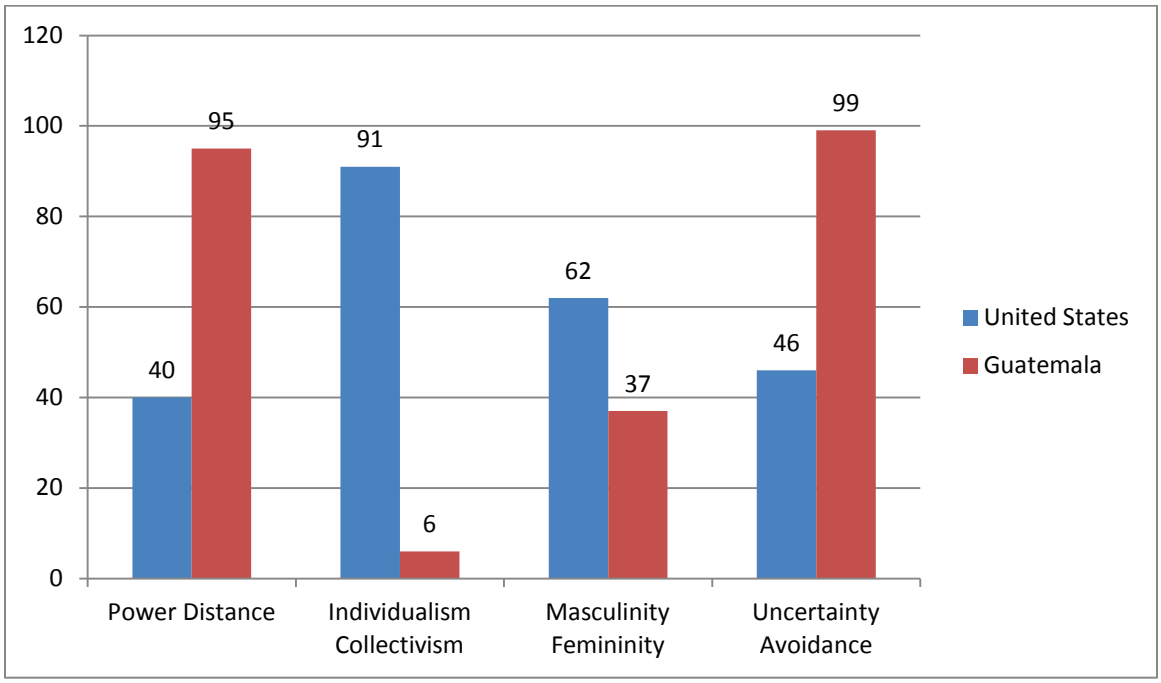
After the law was passed in June 2014, but before it would go into force in September 2014, the highest court in Guatemala suspended it (RT USA, 2014). Then, following ten days of wide-spread street protests by native Mayans, who represent over half the population, along with representatives from farmer organizations, trade unions and women's groups, the Guatemalan Congress repealed the law (Sandberg, 2014).

This development is interesting on several dimensions. First, it illustrates the possibility that local groups in a developing country are able to successfully challenge the interests of a major multinational GMO seed producer from a developed country in their efforts to establish their influence in another region of the world even when strong economic differences and political pressures are evident. Specifically, to put the economic conditions within the United States of America (USA) and Guatemala in perspective, it is instructive to know that in 2013 based on Gross Domestic Product adjusted for purchasing power parity (PPP) per capita the USA ranked 7th in the world at $51,248, which the World Bank classifies as high-income, versus Guatemala at 120th with $5,335, which the World Bank classifies

as middle-lower (Global Finance, 2015). As to political pressure, the fact that a free trade agreement was being used to create legislation in another country that would clearly benefit a major USA multinational corporation speaks for itself.

In addition, this development speaks to the power of national culture to influence the direction of work and life conditions within a country. Specifically, to gain some insight into how a USA-based company might experience operating challenges in Guatemala when it comes to the use of GMO seeds it is useful to compare several cultural dimensions of the two countries. Here, Hofstede's (1980) study of work-related values is helpful. Specifically, on the four cultural dimensions where there is data available for both countries (Hofstede, Hofstede, & Minkov, 2010), clear differences are seen on all four dimensions of: power distance, masculinity-femininity, individualism-collectivism, and uncertainly avoidance (Hofstede Centre, 2015).

FIGURE 1
COMPARISON OF UNITED STATES AND GUATEMALA
ON HOFSTEDE'S CULTURAL DIMENSIONS



When you compare these two countries cultural profiles what emerges is a clear contrast between the USA, a country that values individual or organizational achievement and is willing to take risks to explore new ways to innovate and make change happen versus a very collectivist country that is both cautious about the adoption of new technological innovations and is generally willing to allow leaders to decide on what new opportunities should be explored. In the case of GMO seeds, however, the natural cultural tendencies of the population to follow their leaders directions was overwhelmed when that meant it would influence citizens control over one of their historical food crops, namely, corn (Sandberg, 2014).

Monsanto in India

Data from the World Bank (2015) shows that, in 2010, 51% of the population in India worked in agriculture versus 2% in the USA. This data reflects the fact that not only does about half of the Indian population work in agriculture, but that the agrarian economy of India is dominated by small farmers

versus the USA where only a relatively small percentage of the population works in agriculture and it is dominated by large farmers.

Farming is a stressful occupation full of significant challenges that have historically led this occupation, among other things, to have a relatively high rate of suicide compared to other occupations. We also know that India as a nation has for centuries had a relatively high rate of suicide compared to other nations and that the highest rates of suicide occur in the Southern farming states where small, indebted, cash-crop (e.g., cotton) farmers, in particular, have experienced significantly higher rates of suicide than the national norm (Kennedy & King, 2014). Indeed, from 1995 to 2013, a total of 296,438 Indian farmers have committed suicide (Sainath, 2014).

Monsanto's involvement in this national tragedy, according to Shiva (2014), can be traced back to the 1988 Seed Policy imposed by the World Bank that required India to deregulate the seed sector. This policy made Monsanto's entry into the Indian seed sector possible. A few years later, in 1995, Monsanto introduced their Bt Cotton Technology into India through a joint venture with the Indian company Mahyco. By 2013, 95% of the cotton seed in India was controlled by Monsanto.

Whether or not Monsanto's introduction of GMO cotton seeds into India is responsible for the continuing high rate of suicide among Indian farmers is an open question. In the opinion of Shiva (2014, p.1) "Monsanto's seed monopolies, the destruction of alternatives, the collection of superprofits in the form of royalties, and the increasing vulnerability of monocultures has created a context for debt, suicides and agrarian distress which is driving the farmers' suicide epidemic in India. This systematic control has been intensified with Bt cotton. That is why most suicides are in the cotton belt". In reply, Monsanto (2015b) argues on their website that there is no confirmed link between Indian farmer suicides and the use of GMO cotton. Rather, they attribute the primary causes of Indian farmer suicides to systematic and social issues among the farmers such as: unavailability of timely credit; cropping patterns; cotton price fluctuations; and farmer indebtedness. While the search for the truth behind these opposing positions continues, one thing is clear, namely, situations like this will put increasing pressure on GMO firms to justify or change their methods of operation in light of concerns in the court of public opinion.

GMO Foods in the USA

As noted above, given its leading position in the development of GMO seeds, the cultivation of GMO foods, the consumption of GMO foods, and the relatively lenient regulatory environment, today, the USA is the epicenter for the GMO industry. In addition, to date, the concerns of consumers and farmers in the USA about GMO foods have never escalated to the levels seen in the EU, Guatemala, or India. That said, concerns about GMO foods are not completely absent from the USA landscape and they may be growing in visibility as evidenced by: on-going efforts of consumer groups in the USA advocating for the labeling of GMO food products; an announcement by Whole Foods Market, an American-based supermarket chain on GMO food labeling; as well as an announcement on GMO labeling by Chipolte, an American-based international fast-food restaurant chain.

To date, in the USA, the major consumer GMO food concerns have been not only about whether or not GMO foods are good or bad, but also whether or not they are different. Moreover, if they are different, then whether or not consumers have the right to know what is in the food they are eating, so they can better evaluate the risks and benefits they have in making in their food choices. While grass roots organizations in the USA have been fighting for labeling GMO foods for some time, a right that has already been recognized in over 60 countries (Pollan, 2012), major USA seed producers like Monsanto as well as the USDA have resisted it. Given these competing interests, a number of state bills and ballot initiates have moved forward to determine whether or not some form of GMO labeling is warranted. As a result, some form of mandatory labeling has been approved in Connecticut, Maine, and Vermont (Byrne, Pendell & Graff, 2014), but has failed to gain sufficient support for passage in highly charged votes such as that in California in 2012 called Proposition 37, where Monsanto and DuPont spent over $12 million dollars to defeat the measure (Pollan, 2012). While the grass roots food movement versus big food has only experienced modest success in the formal political arena, nonetheless, the message of the consumers' right to know and their willingness to push back against what is perceived to be undue influence of major

agricultural corporations has been seen in the actions of some other corporations in the larger food system as seen below in the actions of Whole Foods Market and Chipolte Mexican Grill.

Whole Foods Market, a supermarket specializing in organic foods, joined the GMO labeling debate when they announced in 2013 that they would be the first supermarket chain to set a deadline for when all GMO foods in their inventory would be labeled. In their case, the deadline would be 2018. In making this announcement, the company explained that given the prevalence of GMO products in the market and the lack of labeling, it was a necessary step to support consumers' right to know. At the same time, they stated their intention to also step up support for certified organic agriculture that is GMO-free and to work with their suppliers to grow more non-GMO products (Polic, 2013).

Chipolte Mexican Grill, which was once partly owned by McDonalds, became involved in the labeling debate in 2015 when they announced that after years of work to develop a sufficient number of non-GMO suppliers that it would be the first "GMO-free" fast food restaurant in the world. While admitting that their pork and chicken products still come from animals that were grown with GMO feed, nonetheless, all the ingredients for their tortillas, rice, chips, salsa, and marinades used to cook its meats are GMO-free as is their corn. In addition, it has changed its cooking oil from soybean to GMO-free sunflower oil and rice barn oil. Their stated rationale for this movement was to provide a better way to do fast food in their rapidly growing chain of restaurants that reflects classical cooking techniques (Alesci & Gillespie, 2015).

DISCUSSION

As the above discussion illustrates, the growth of the GMO food industry, to date, indicates how economic incentives (Levitt & Dubner, 2009) for multinational corporations in the GMO food industry to increase their business combined with political interests of some international, regional, and national bodies has led to substantial growth of these products, but not one without controversy. From the perspective of Monsanto (Humphrey, 2015), this growth has been done in a way that reflects the organization's commitment to corporate social responsibility (CSR) (Carroll, 1991). At the same time, while those critical of Monsanto's methods, might agree that their approach has been one that incorporates concern for economic and legal correctness, it nonetheless falls short of a truly ethical or good citizen approach. As pro-GMO and anti-GMO proponents continue to press their positions, how this debate will impact on the next steps in the evolution of the GMO industry remains open. While many scenarios seem likely, one possibility is that the debate itself might evolve from one centered on more scientific and political issues to a more general concern that if GMOs can make the life of individuals better, then that can be accepted (Chu, 2012). What may not be so easy to resolve are the associated concerns about corporate control over the food system in the name of profits (Little, 2014).

SUMMARY

The growth of the GMO food industry over the last several decades has been both phenomenal and controversial. From a political economy perspective is provides an excellent example of how a major technological innovation can have far-reaching economic and political ramifications that reflect the varying interests of: multinational corporations; international, regional, and national institutions; consumers; and other stakeholders. At the same time, in the case of GMO foods, we find that beyond the particulars of the case, we see that the growth of this industry has also generated debate around such important issues as: the role of multinational organizations to control the world food supply; the rights of consumers to know what is in the food they eat: the power of developed countries to intervene in the daily life of developing countries; and what does it mean to have long-term sustainable growth.

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Towards an Integrated Management System: A Hypothetical Case

Said Malki
Prince Sattam Bin Abdulaziz University

This paper provides an evaluation of the implementation of an integrated management system (IMS) by a hypothetical case company called Alpha Inc. It also compares the key principles of ISO 19001, ISO 14001, and OHSAS 18001. Moreover, this contribution includes a gap analysis for the IMS and an evaluation of the compliance to quality, environmental, and occupational health & safety standards. Additionally, the paper focuses on the requirements of the legal compliance for ISO 14001 standard and OHSAS 18001 standard in relation to customer requirements of ISO 19001. Finally, this research advocates the benefits of the IMS for Alpha Inc and also outlines the system's challenges and the necessary steps to be taken by the company in order to foster the systemic improvement.

INTRODUCTION

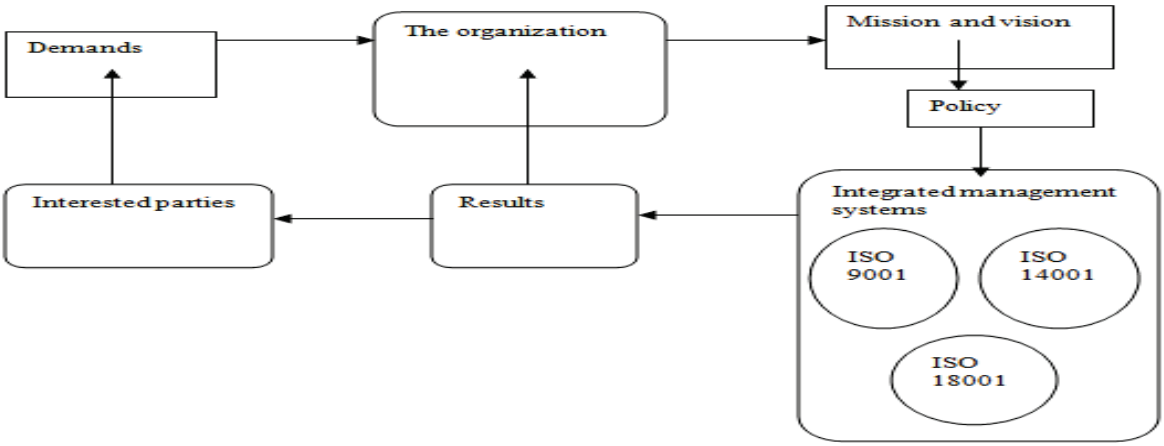
Alpha Inc Company produces sport clothes and exports them to Europe, North Africa, and the Middle East. It is already certified to ISO 9001 and considering incorporating management systems for ISO 14001 and OHSAS 18001. The Quality assurance manager at Alpha Inc aims to convince the company top management to implement the integrated management system (IMS). Such system should help the company (i) practice its business overseas with confidence and assurance of its quality and environmental responsibility; (ii) gain market shares through a green corporate image, (iii) attract more ethical investment, and (iv) reduce insurance risks and costs (Whitelaw, 1997).

Alpha Inc should use the Integrated Management System (IMS) as a single structure to manage its processes or activities that transform resources into a product which meet objectives and equitably satisfy the stakeholders, health, safety, environmental, security, ethical or any other identified requirement (Dalling, 2007).A simplified description of the IMS is given in Figure 1.

A single IMS helps the organization to remain competitive and still meet requirements if managers harmonize relations among spatial elements and integrate strengths of individual goals in shaping the future (Jackson, 1997). As compared to isolated environmental management systems, the IMS can improve environmental protection among other benefits, because ecological criteria can be considered from the early stages when the customer oriented products and processes are designed (Von Ahsen & Funk, 2001).

The revision of ISO standards creates a need for an integrated management system (Jørgensen & Remmen, 2005). Such system should foster the performance of the organization. However, this integration is not an obligation but an opportunity to exploit benefits associated with its implementation (Zeng et al., 2007). In this context, the integration of environmental management system, health and safety management systems, and quality management system into a single system leads to more efficiency and savings in the organization's business management system (Patience, 2008).

FIGURE 1
SUMMARY OF IMS DRIVING FORCES AND BENEFITS



Source: Patience (2008)

The objectives of Alpha's business include elements of quality, the environment and occupational health and safety. These objectives are the same as many of the requirements of its stakeholders especially customers, shareholders, employers, and the community.

TABLE 1
THE COMPANY'S BUSINESS REQUIREMENTS

Customers Requirements	Shareholders Requirements	Employees Requirements	Community Requirements
Safe and reliable products/services	Return on investment	Safe working environment	Minimum environmental impact
Reliability of supply	Profitable business	Job satisfaction	Employment opportunities
Fitness for purpose	Legal compliance	Care and recognition	Stability
Environmentally safe product	Good image	Rewards for good work	
Value for money	Growth		

Source: Whitelaw, 2004, pp. 126-127

Alpha Inc should implement the IMS for two major reasons (Whitelaw, 2004):

1) To reduce costs to the business and add value to processes. This includes better use of auditors' time (both internal auditors and certification bodies' auditors). The reduction in management time has tangible internal cost benefits such as more efficient maintenance of the management systems.

2) To reduce risks to the viability of the business: The management of an organization performs effectively an analysis of the risks to the business related to customers, the environment, and occupational health and safety.

IMS allows the organization to: (i) decrease the extent of documentation and bureaucracy which arises due to work organization and control, referring to separate procedures or different standards; (ii) save resources, entrusting the management of the IMS to one leader instead of appointing separate leaders to each and every management system, including the certificated one; (iii) carry out an internal and external audits more clearly and effectively; and (iv) promote concentrating on the organization's activity by improving connections between quality, employee health and safety and social responsibility. Nevertheless, few issues arise during the implementation of the IMS. In fact, up to eighty percent of works about quality management, environmental protection management and employee health and safety management in different organizations are very alike in their nature. There still remain twenty percent of issues, the content of which, talking about different organizations and their management areas, is not similar. Another problem is the organization's leaders' approach to the importance of management systems (Raišiene, 2011).

In general, the highest rank in organizations is usually given to quality management, and the environmental protection, employee health and safety and social responsibility is pushed to the background, or serves as a proof that reach for quality exists in all work areas (Jorgensen et al., 2006). Moreover, the realization of an IMS depends on the organizational culture and specifically the level of involvement of employees in decision making, teamwork, motivation, training and learning. However, many organizations do not develop and advance organizational culture often due to scarcity of resources (Wilkinson & Dale, 2002).

THE THREE STANDARDS KEY PRINCIPALS

Alpha Inc. should consider opportunities and challenges of the IMS and also understand its principles. Indeed, it is essential to look at similarities between ISO 9001, ISO 14001, & OHSAS 18001. Regarding the Quality Management System ISO 9001, it is based on eight management principles:

- customer-focused organization,
- leadership,
- involvement of people,
- process approach,
- system approach to management,
- continual improvement,
- factual approach to decision making and
- Mutually beneficial supplier relationship.

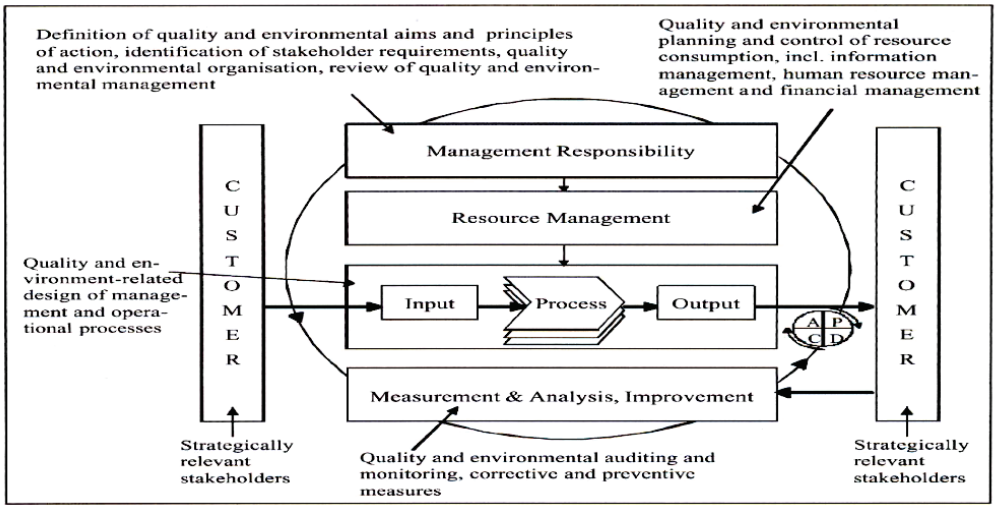
The model of process-based quality management systems is represented in Figure 2.

This model shows that customers play an important role in defining requirements as input and are also the main beneficiary of the output. Furthermore, although this standard does not include requirements specific to other management systems, it enables organizations to align or integrate its quality management system with the requirements of other management systems such as the environmental management system (ISO, 2002).

Concerning ISO 14001, it provides a structured management system for any organization that seeks to improve its environmental performance and to be consistent with environmental laws and policies. This standard is based on the Plan-Do-Check-Act model (PDCA) which can be applied to all processes of a company thus the link and compatibility of the ISO 9001 and 14001. These management systems are based on the Plan Do Check Act, (PDCA) model which is also called the Deming circle, named after W. E. Deming (Sokovic et al., 2010):

- Plan - The design and establishment of objectives and procedures required to produce results in conformity with the organization's environmental policy.
- Do - This is the implementation of the processes or procedures.
- Check - This is the measuring and monitoring of processes to ensure that they meet environmental policy, objectives and targets, legal and other requirements, and reporting results.
- Act - This includes the actions taken to improve performance of the environmental management system continuously.

FIGURE 2
MODEL OF PROCESS BASED QUALITY MANAGEMENT



Source: Périgo (2015)

It is a fundamental principle of ISO 14001 that an organization sets its own goals, based on whatever considerations it wishes to include, such as demands of customers, regulators, communities, lenders or environmental groups. The ISO 14001 standard provides a framework for developing plans to meet the organization' targets, and to produce information about whether or not the targets are met. An important benefit of adopting ISO 14001 is to give stakeholders the reassurance they need that the organization's environmental claims are valid. The ISO 14001 standard is intended to be flexible, and to be of value in a wide variety of situations. However, it is applicable most readily to large companies that already have a formal management system in place, and which have the expertise and resources to incorporate environmental issues into that system. The good news is that ISO 14001 principles have been designed to apply also to smaller businesses, and to non-business organizations (IISD, 2013).

With respect to OHSAS 18001 standard, it based on the following key principles (Shrestha, 2011):

- Leadership involvement: the top management of the organization must be actively engaged in the management system;
- Risk management : The implementation of an OH&S management system is driven by the hazards and risks identified and the controls that are determined to be necessary to prevent injuries and ill health;
- Commitment to compliance :Societal interests, as reflected in the laws and regulations promulgated, must be addressed;
- Worker participation : Workers, as the primary stakeholders of an occupational health and safety management system, have the right to be involved in management system processes;

- Performance monitoring & improvement: Continual improvement cannot be achieved unless processes are in place to measure performance.
- Prior to the integrating ISO 14001 and OHSAS 18001 into the ISO 9001, Alpha Inc should scan its internal environment to identify its strengths and weaknesses. In this regard, a gap analysis is imperative.

GAP ANALYSIS

The PDCA approach proposes to identify requirements of different three standards, and looks to what needs to be done for a successful implementation of an IMS. Alpha Inc is ISO9001 certification and seeks to integrate ISO1 4001 and OHSAS 18001.

TABLE 2
GAP ANALYSIS AS A PREREQUISITE FOR IMS IMPLEMENTATION

Clause	Status (In place; Not in Place	Responsible	Deadline
ISO 14001 Environment 4.1 General requirements	Not in place	Brian	6/15/2016
ISO 9001 Quality 4.1 General requirements	OK	—	—
OHSAS 18001 4.1 General requirements	Not in place	John	6/15/2016
PLAN	**PLAN**		
ISO 14001 Environment 4.2 Environmental Policy	Not in place	Brian	7/31//2016
ISO 9001 Quality 5.3 Quality policy	OK	—	—
OHSAS 18001 4.2 OH&S policy	Not in place	John	7/31/2016
ISO 14001 Environment 4.3.1 Environmental aspects	Not in place	Brian	7/31/2016
ISO 9001 Quality 5.2 Customer focus	OK	—	—
ISO 9001 Quality 7.2.2 Review of requirements related to the product	OK	—	—
OHSAS 18001 4.3.1 Hazard identification, risk assessment and planning of controls	Not in place	John	7/31/2016
ISO 14001 Environment 4.3.2 Legal and other requirements	Not in place	Brian	7/31/2016
ISO 9001 Quality 7.2.1 Determination of requirements related to the product	OK	—	—
OHSAS 18001 4.3.2 Legal and other requirements	Not in place	John	7/31/2016
ISO 14001 Environment 4.3.3 Objectives, targets and program(s)	Not in place	Brian	31/7/2016

ISO 9001 Quality 5.4.1 Quality objectives	OK	—	—
OHSAS 18001 4.3.3 Objectives and programs	Not in place	John	7/31/2016
ISO 9001 Quality 5.4.2 Quality management system planning	OK	—	—
ISO 9001 Quality 8.5.1 Continual improvement	OK	—	—
DO	**DO**		
ISO 14001 Environment 4.4.1 Structure and responsibility	Not in place	Brian	3/31/2017
ISO 9001 Quality 5.1 Management commitment	OK	—	—
ISO 9001 Quality 5.5.1 Responsibility and authority	OK	—	—
ISO 9001 Quality 5.5.2 Management representative	OK	—	—
ISO 9001 Quality 6.1 Provision of resources	OK	—	—
ISO 9001 Quality 6.3 Infrastructure	OK	—	—
OHSAS 18001 4.4.1 Resources, roles, responsibility, accountability and authority	Not in place	John	3/31/2017
ISO 14001 Environment 4.4.2 Training, awareness and competence	Not in place	Brian	3/31/2017
ISO 9001 Quality 6.2 Human resources	OK	—	—
OHSAS 18001 4.4.2 Competence, training and awareness	Not in place	John	3/31/2017
ISO 14001 Environment 4.4.3 Communication	Not in place	Brian	3/31/2017
ISO 9001 Quality 5.5.3 Internal communication	OK	—	—
ISO 9001 Quality 7.2.3 Customer communication	OK	—	—
OHSAS 18001 4.4.3 Communication, participation, and consultation	Not in place	John	3/31/2017
ISO 14001 Environment 4.4.4 Documentation	Not in place	Brian	3/31/2017
ISO 9001 Quality 4.2.1 Documentation requirements (general) and 4.2.2 Quality manual	OK	—	—
OHSAS 18001 4.4.4 Documentation	Not in place	John	3/31/2017

ISO 14001 Environment 4.4.5. Control of documents	Not in place	Brian	
ISO 9001 Quality 4.2.3. Control of documents – A DOCUMENTED PROCEDURE IS COMPULSORY	OK	—	—
OHSAS 18001 4.4.5 Control of documents	Not in place	John	3/31/2017
ISO 14001 Environment 4.4.6 Operational Controls	Not in place	Brian	3/31/2017
ISO 9001 Quality 7.1 Planning of product realization	OK	—	—
ISO 9001 Quality 7.3 Design and development	OK	—	—
ISO 9001 Quality 7.4 Purchasing	OK	—	—
ISO 9001 Quality 7.5 Production and service provision	OK	—	—
OHSAS 18001 4.4.6 Operational control	Not in place	John	3/31/2017
ISO 14001 Environment 4.4.7 Emergency preparedness and response	Not in place	Brian	3/31/2017
ISO 9001 Quality 8.3 Control of nonconforming product	OK	—	—
OHSAS 18001 4.4.7 Emergency preparedness and response	Not in place	John	3/31/2017
CHECK	**CHECK**		
ISO 14001 Environment 4.5.1 Monitoring and measurement	Not in place	Brian	3/31/2017
ISO 9001 Quality 7.6 Control of monitoring and measuring devices	Continuous	Stacy	3/31/2017
ISO 9001 Quality 8.1 Measurement, analysis and improvement - general	Continuous	Stacy	3/31/2017
ISO 9001 Quality 8.4 Analysis of data	Continuous	Stacy	3/31/2017
OHSAS 18001 4.5.1 Performance measurement and monitoring	Not in place	John	6/30/2017
OHSAS 18001 4.5.2 Evaluation of compliance	Not in place	John	6/30/2017
ISO 14001 Environment 4.5.2 Evaluation of compliance	Not in place	Brian	6/30/2017
ISO 9001 Quality 8.2.3 Monitoring and measurement of processes	Continuous	Stacy	3/31/2017

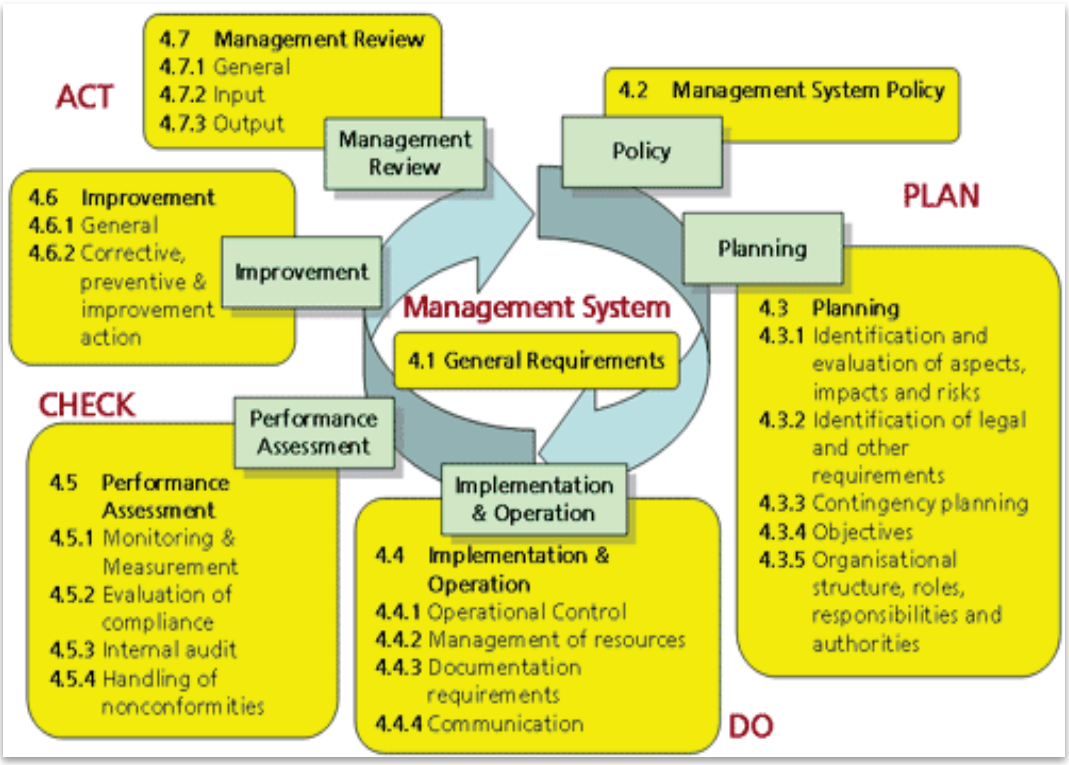
ISO 9001 Quality 8.2.4 Monitoring and measurement of product	Continuous	Stacy	3/31/2017
ISO 14001 Environment 4.5.3 Nonconformity, corrective action and preventive action	Not in place	Brian	3/31/2017
ISO 9001 Quality 8.5.2 Corrective action	Continuous	Stacy	3/31/2017
ISO 9001 Quality 8.5.3 Preventive action	Continuous	Stacy	3/31/2017
OHSAS 18001 4.5.3 Incident investigation, nonconformity, corrective and preventive action	Not in place	John	3/31/2017
ISO 14001 Environment 4.5.4 Control of records	Not in place	Brian	3/31/2017
ISO 9001 Quality 4.2.4. Control of records – A DOCUMENTED PROCEDURE IS COMPULSORY	Continuous	Stacy	3/31/2017
OHSAS 18001 4.5.4 Records and records management	Not in place	John	3/31/2017
ISO 14001 Environment 4.5.5 Internal audit	Not in place	Brian	3/31/2017
ISO 9001 Quality 8.2.2 Internal audit	Continuous	Stacy	3/31/2017
OHSAS 18001 4.5.5 Internal audit	Not in place	Brian	3/31/2017
ACT	**ACT**		
ISO 14001 Environment 4.6 Management Review	Not in place	Brian	12/15/2017
ISO 9001 Quality 5.6 Management Review	Continuous	Stacy	12/15/2017
OHSAS 18001 4.6 Management Review	Not in place	John	12/15/2017

The successful implementation of the IMS at Alpha Inc depends not only on the degree of coping internally with ISO 14001 and OHSAS 18001 requirements, but also the ability to comply with customers' requirements, laws, and regulations.

CONDITIONS FOR COMPLIANCE'S ACHIEVEMENT

The compliance to ISO 19001, ISO 14001 and OHSAS 18001 can be achieved by referring to PAS 99 which a specification is issued by the BSI; a British business standards company that internationally helps organizations make excellence a habit. Alpha Company may utilize PAS 99's framework to insure the compliance between the three different standards. PAS 99 has six common requirements: (i) Policy; (ii) Planning; (iii) Implementation & Operation; (iv) Performance Assessment; (v) Improvement; and (vi) Management Review (BSI, 2012).

FIGURE 3
INTEGRATED MANAGEMENT SYSTEM



Source: The CQI (2007)

The achievement of compliance to various standards based on PAS 99 requires the merging of the following support procedures/processes:

- Document control
- Records keeping
- Control of nonconforming product/situations.
- Coercive action
- Preventive action
- Internal auditing
- Training & competence
- Management review

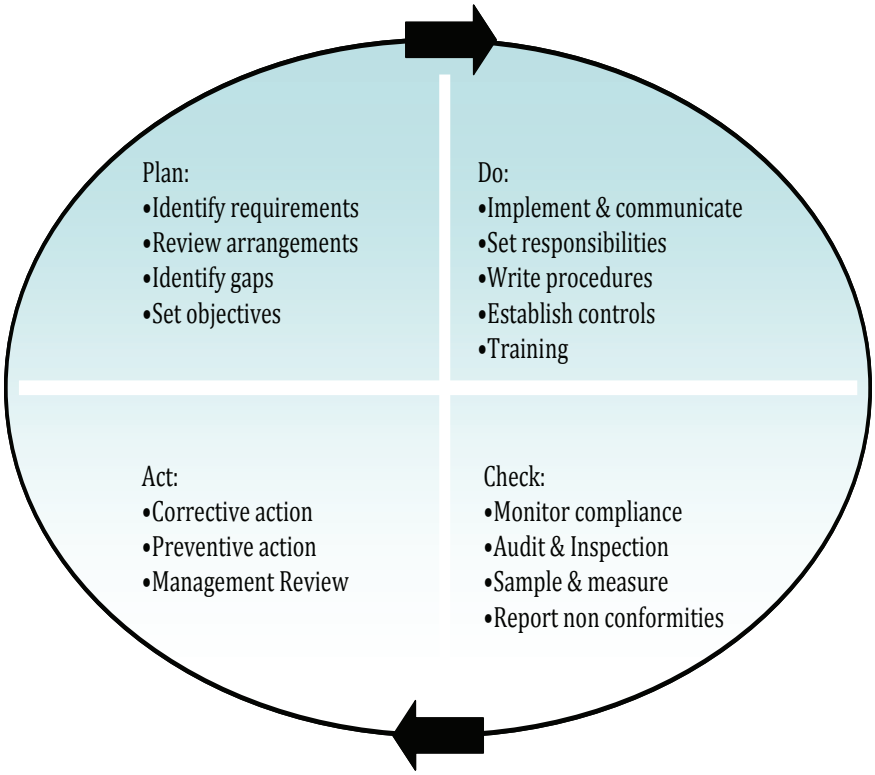
TABLE 3
CORRELATION OF THE MANAGEMENT SYSTEM MODELS STANDARDS ON CLAUSE BY CLAUSE BASIS

Clause	PAS 99- 2012	ISO 9001	ISO 14001	OHSAS 18001
4	Context of the Organization	__	__	__
4.1	Understanding Alpha Inc and its context	4.1	4.1	4.1
4.2	Understanding the needs & expectations of interested parties	5.2	4.3.2	4.3.2
4.3	Determining the scope of the IMS	4.2.2	4.1	4.1
4.4	IMS	4.1	4.1	4.1
5	Leadership	__	__	__
5.1	Leadership & Commitment	5.1	4.4.1	4.4.1
5.2	Policy	5.3	4.2	4.2
5.3	Organizational roles, responsibilities & authorities	5.5	4.4.1	4.4.1
6	Planning	5.4 , 7	4.3	4.3
6.1	Actions to address risks & opportunities	4.1 , 5.4.2 , 7.1 , 6.4	4.3.1	4.3.1
6.2	IMS objectives & planning to achieve them	5.4.1 , 5.4.2, 7.2 , 7.3, 7.4, 7.5	4.3.3	4.3.3
7	Support	6		
7.1	Resources	6.1, 6.2 , 6.3	4.4.1	4.4.1
7.2	Competence	6.2	4.4.2	4.4.2
7.3	Awareness	6.2	4.4.2	4.4.2
7.4	Communication	5.5.1, 5.5.3, 7.2.3	4.4.3	4.4.3
7.5	Documented information	4.2	4.4.4	4.4.4
8	Operation	7		
8.1	Operational planning & control	7.1	4.4.6 , 4.4.7	4.4.6 , 4.4.7
9	Performance evaluation	8		
9.1	Monitoring, measurement, analysis & evaluation	8.2 , 8.2.1, 8.3,8.4	4.5.1	4.5.1 , 4.5.2
9.2	Internal audit	8.2.2	4.5.5	4.5.5
9.3	Management review	5.6	4.6	4.6
10	Improvement	8.5		
10.1	Nonconformity & corrective action	8.5.2 , 8.5.3	4.5.3	4.5.3
10.2	Continual improvement	8.5.1		

Source: Comparison of ISO 9001, ISO 14001, and OHSAS 18001 clauses

The PDCA approach insures the achievement of compliance in the IMS. The figure 3 outlines aspects to be considered in this domain.

FIGURE 4
THE ACHIEVEMENT OF THE COMPLIANCE IN THE IMS



Source: The CQI (2007)

In total, Alpha Inc should refer to the correlation of the management system standards on a clause by clause basis and to the PDCA approach to insure the achievement of compliance in its IMS. Furthermore, the company should have an integrated risk management approach that considers concomitantly risks related to customers, the environment, and occupational health & safety.

TABLE 4
EVALUATION OF THE COMPLIANCE

Category	ISO 9001	ISO 14001	OHSAS 18001
Understanding the needs & expectations of interested parties	**5.2 :Customer focus** Top management shall ensure that customer requirements are determined and are met with the aim of enhancing customer satisfaction.	**4.3.2: Legal and other requirements** The organization shall establish, implement and maintain a procedure(s) a) to identify and	**4.3.2: Legal and other requirements** The organization shall establish, implement and maintain a procedure(s) for identifying and accessing the legal and other OH&S

		have access the applicable legal requirement and other requirements to which the organization subscribes related to its environmental aspects, and b) to determine how these requirements apply to its environmental aspects. .	requirements that are applicable to it. The organization shall ensure that these applicable legal requirements and other requirements to which the organization subscribes are taken into account in establishing, implementing and maintaining its OH&S management system. The organization shall keep this information up-to-date. The organization shall communicate relevant information on legal and other requirements to persons working under the control of the organization, and other relevant interested parties.
	7.2.1. Determination of requirements related to the product The organization shall determine a) requirements specified by the customer, including the requirements for delivery and post-delivery activities, b) requirements not stated by the customer but necessary for specified or intended use, where known, c) statutory and regulatory		

	requirements applicable to the product, and d) any additional requirements considered necessary by the organization. **8.2.1 Customer satisfaction** As one of the measurements of the performance of the quality management system, the organization shall monitor information relating to customer perception as to whether the organization has met customer requirements. The methods for obtaining and using this information shall be determined. NOTE Monitoring customer perception can include obtaining input from sources such as customer satisfaction surveys, customer data on delivered product quality, user opinion surveys, lost business analysis, compliments, warranty claims and dealer reports.		
Evaluation of compliance	**No explicit clause for compliance in ISO9001.**	**4.5.2: Evaluation of compliance** 4.5.2.1 Consistent with its commitment to compliance , the	**4.5.2 Evaluation of compliance** 4.5.2.1 Consistent with its commitment to compliance, the organization shall

		organization shall establish, implement and maintain a procedure(s) for periodically evaluating compliance with applicable legal requirements. The organization shall keep records of the results of the periodic evaluations. 4.5.2.2. The organization shall evaluate compliance with other requirements to which it subscribes. The organization may wish to combine this evaluation with the evaluation of legal compliance referred to in 4.5.2.1 or to establish a separate procedure(s). The organization shall keep records of the results of the periodic evaluations.	establish, implement and maintain a procedure(s) for periodically evaluating compliance with applicable legal requirements (see 4.3.2). The organization shall keep records of the results of the periodic evaluations. 4.5.2.2. The organization shall evaluate compliance with other requirements to which it subscribes (see 4.3.2). The organization may wish to combine this evaluation with the evaluation of legal compliance referred to in 4.5.2.1 or to establish a separate procedure(s). The organization shall keep records of the results of the periodic evaluations.

Source: OHSAS 18001, 2007, pp.1-23; ISO 14001, 2004, pp.1-24; ISO 9001, 2008; pp. 1-28

Alpha Inc should examine environmental and OH&S requirements along with its customers requirements. The compliance to various standards can be achieved by referring to clauses 5.2, 7.21, and 8.2.1 of ISO 19001 in one hand, and clause 4.3.2 of both ISO 14001 and OHSAS 18001 in the other hand. Although there is no explicit clause related to legal compliance in ISO 19001,it is essential to connect clauses 8.2.Monitoring and measurement, 8.2.1, Customer satisfaction, 8.2.2 Internal audit; 8.3 Control of nonconforming product; and 8.4. Analysis of data of the standard to "Legal Compliance" Clauses of ISO 14001 and OHSAS 18001.

The evaluation of compliance at Alpha Inc should start early in the design phase when reviewing drawings and process flowcharts to ensure incorporation of legal requirements and system optimization. This helps eliminate or reduce environmental and OH& S risks. Additionally, the analysis and monitoring of data is a crucial during the compliance's evaluation. Moreover, periodic inspection of work and storage areas and programmatic regulatory auditing are also important tools to reinforce adherence to specific regulatory administrative and technical requirements. If noncompliance conditions are identified, Alpha Inc should include processes for taking corrective action to prevent recurrence and, as appropriate, for proactively taking action to prevent occurrence elsewhere in the organization (clause 4.5.3).

Alpha Inc does not have to do a comprehensive evaluation of compliance as does a regulatory auditor, but it should perform a sampling of specific regulations and operations to collect objective evidence to determine whether procedures are established as necessary. Such procedures not only identify and address compliance requirements, but also show that the company has periodically evaluated its status with respect to all of the applicable regulations.

Alpha Inc should also verify that evaluation of compliance is performed by a knowledgeable and qualified person and that the company is addressing any noncompliance identified in a systematic way through corrective and preventive action system or through its objectives, targets and program processes. Evidently, the final evaluation of compliance is performed during the management review process (clause 4.6). Top management reviews Alpha Inc's environmental performance and evaluate the adequacy, suitability and effectiveness of the IMS (Quality; Environmental; & OH&S requirements) in achieving the policy commitments. The company's compliance performance results and status as examined internally and independently (e.g.; regulatory agencies) should be included in the evaluation. Through this evaluation, areas for prioritized improvement are identified and addressed.

In sum, even though there is no system or regulatory scheme that can insure full compliance permanently, the ISO 14001 standard and OHSAS 18001 standard should enable Alpha Inc to systematically identify its compliance status and address its noncompliance issues.

CONCLUSIVE REMARKS

The adoption of the IMS by Alpha Inc should generate the following benefits:

- Improved operational performance, internal management methods and cross-functional teamwork
- Higher motivation of staff
- Fewer multiple audits and costs reduction
- Enhancement of customer confidence
- Elimination of redundancy and conflicting elements
- Enabling a comparative advantage and attract investments
- Improvement and protection of brand reputation and increase stakeholders' attention and satisfaction.
- The inclusion of the best practice and lessons that offer knowledge within many disciplines (safety, environment, quality).
- The development of an individual set of requirements thus reducing the documentation system to the minimum.
- The possibility to carry out training in an integral system and hence reduce its duration

Nevertheless, Alpha Company should face barriers to the implementation of IMS (Buhl-Hansen et al., 2008):

- Lack of competence and knowledge in the company
- Hope for a clear focus in depth of a single standard.
- Security with the existing management systems
- The systems are separated organizationally
- The management has one-sided focus on one area

- The workers have to work differently.

Other barriers to integration can be identified (Dalling, 2012):

- Failure to gain senior management commitment: Senior managers may not be conscious that integrated management is relevant to their organization and that by not adopting it they may become less effective and efficient than their competitors.
- Vested interests: In most organizations there will be functional heads of health and safety, environment and quality. When creating an integrated management system who would be the head of the integrated function? When one of the individual functional heads is given overall responsibility there may be a tendency for emphasis to be given to that individual's area of expertise.
- Lack of a universal integration methodology/model: ISO has generally made no significant attempt to unify the various approaches to management and there has been a proliferation of published management system standards each managed by separate technical committees with little cooperation and coordination.
- Lack of understanding and concerns about competence: The organization may perceive integration as a mere merging of documentation and may not be aware of the full potential and implications of integrated management
- Adverse organizational culture that resists change: The staff within the organization may be change averse and perceive all change to be negative. Staff may be used to operating in silos and cooperating and coordinating behaviors may be alien to them.

FUTURE STEPS FOR IMPROVEMENT

Upon the completion of the gap analysis, Alpha Inc should (i) formulate a policy for the IMS; (ii) define the system by writing a well structured manual to act as the company's instruction book; (iii) communicate IMS requirements and expectations throughout its structure; and (iv) install common system elements. At the level of planning, Alpha Inc must insure permanently that (i) risks are identified and managed; (ii) responsibilities and roles are identified and communicated; (iii) an expected emergencies plan is set.

During the IMS implementation, it is critical to respond to the following questions:

- For each process are there procedures for measurement and monitoring and are results recorded?
- Are personnel assessed as competent to carry out their tasks?
- Are resources adequate?
- Are documented procedures in place as required by specific standards?

At the level of performance assessment, it is indispensable to insure that (i) requirements of each process are defined and measured; (ii) performance is measured against requirements and recorded; (iii) a corrective action is taken and tested when problems arise; and (iv) the audit system is comprehensive.

Additionally, Alpha Inc should :(i) have an effective system for corrective actions; (ii) take into account stakeholders feedback when reviewing nonconformities; (iii) identify risks of actions to be taken; and (iv) have a system for measuring improvement. However, the main tool for achieving improvement is through the management review. This latter should take place regularly and focus not only on maintaining records but also look on opportunities for improvements including those related to the overall integrated system (BSI, 2003).

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Container Ship Routing: Panama Canal vs. U.S. Land Bridge

Robert F. Cope III
Southeastern Louisiana University

Rachelle F. Cope
Southeastern Louisiana University

John M. Woosley
Southeastern Louisiana University

In our work, we investigate choices for container ship transportation from the eastern Pacific to the western Atlantic based solely on time. Choices include traveling through the Panama Canal or using the U.S. as a land bridge (via truck and rail car). A breakeven methodology, given vessel size, is employed to discriminate between paths. Interested parties of our work might include those investigating multi-modal integration opportunities, those seeking transportation efficiencies in water, truck and rail, and students as a case assignment in Transportation and Logistics courses.

INTRODUCTION

A new era in container shipping is coming. The Panama Canal Authority will soon complete a third lane to the water-way that will double its capacity and allow access to the largest cargo-carrying vessels. However, the impact that the canal will have on global trade patterns remains to be seen. Roughly 65% of the goods sailing through the canal go to or from U.S. ports, and those ports and American rail-yards that compete with the canal will fight to retain as much business as possible (Lynch, 2009). Cargo from Asia, for example, can reach U.S. markets either through the canal or by docking at a west coast port and riding rail lines to inland or east coast destinations.

The issues of container transportation traffic and timely route choice are ones that increase in complexity, as opportunities for trade expand and supply chain activities evolve internationally. Today's container traffic moves mostly from the Far East to the U.S., Europe and other western ports. Two routes of choice have evolved over time. One is through the Panama Canal, and the other uses the United States as a land bridge where container ships dock on the west coast, unload, then travel by truck and/or rail car to the east coast and are loaded onto other container ships headed across the Atlantic.

Time is the variable of most importance in our work, as time is the common denominator to both distance and cost in this industry. "Estimated Time of Arrival (ETA)" is the cry of many ship captains and others in the industry, making time of arrival, dock time, and time of departure very important parameters in the shipping industry.

Our work begins with an explanation of how the U.S. is used as a land bridge. We then discuss how poor port productivity and congestion create dead time for vessels that end up waiting in a queue for

service. We then give careful consideration to the impact of the Jones Act in restricting U.S. maritime commerce. Next, we discuss how canal expansion in Panama stands ready to alleviate port productivity and congestion problems by moving cargo to other areas for dispersion. Finally, we move to the development of our modeling methodology for determining best choice routing – through the Panama Canal or the U.S. land bridge.

THE U.S. LAND BRIDGE AND WEST COAST PORT TRAFFIC

European bound cargo from Asia has several options for reaching its destination. One would be to go west over many treacherous mountain ranges and several seas. Customs stops are required by many countries along the route, making the trip quite long and segmented. Another route would be to go east across the Pacific Ocean, cross the U.S. by rail or highway, then cross the Atlantic Ocean to reach Europe. This path takes the freight through only one country, requiring only one customs checkpoint. It is obvious that the second option may be longer in miles, but stands to be shorter in time, prompting those in the global transportation industry to refer to it as a "land bridge" across the U.S. When time is the important factor, the U.S. "land bridge" is the option many use. However, there is one bottleneck along the way – the U.S.'s west coast ports.

The Ports of Los Angeles and Long Beach are the first and second busiest container ports in the U.S, respectively. The Port of Los Angeles is located just north of the Port of Long Beach on the California coastline. Together, the two ports are known as the San Pedro Bay Ports. These two ports handle more than 40% of the nation's total containerized cargo import traffic and 24% of the nation's total exports (Port of Long Beach, 2007). Combined, the San Pedro ports moved 1.16 million containers in January 2012, up from 1.14 million a year earlier (White, 2012).

In turn, the large amount of cargo traffic has led to a rise in congestion at the two bustling ports. Such deep draft ports experience delays as space for increasing volumes of import and export cargo is limited by environmental and community concern factors. Congestion also occurs when vessels arrive at the same time rather than dispersed throughout the week (U.S. Department of Transportation, 2009). The time lost as a result of this bottleneck can be 3 to 6 days depending on the season (Conway Consulting, 2008). Even when ports can berth and unload ships quickly, the increasing size of container ships is moving congestion from ports to access roads, rail and highways (U.S. Department of Transportation, 2009). Such delays and congestion at the Long Beach and Los Angeles ports have shippers and receivers looking for more reliable, efficient options for transportation.

THE JONES ACT

The Merchant Marine Act of 1920, commonly referred to as the Jones Act, is a U.S Federal statute that regulates maritime commerce in U.S. waters and between U.S. ports (Brackins, 2009). Two parts of the Jones Act are of specific importance. The first part heavily supports American built, owned, and staffed ships. This was accomplished by restricting shipping and passenger trade within the U.S. to American-owned or American-flagged ships, and specifying that at least 75% of a ship's crew must comprise American citizens. In the second part of the Jones Act, the use of foreign parts and labor in ship construction and repair was also greatly restricted. This section of the Jones Act was created to produce a strong, well staffed merchant marine that could be responsible for efficiently serving the U.S. (Smith, 2010).

It is important to realize that at the time the Jones Act was enacted, a strong, resilient merchant fleet was crucial for a country's success and commerce. Today, the effects of the Jones Act have been felt widely in the shipping industry as foreign cargo vessels are not allowed to travel port-to-port in the U.S. – they must drop off and pick up only. In comparison to other nations that lack such cabotage restrictions, there has been a noticeable decline in the U.S. shipping fleet, losing out to the competition of other nations using alternate routes (Brackins, 2009).

THE PANAMA CANAL

The Panama Canal opened in 1914 and instantly revolutionized water transportation. For ships steaming between California and the east coast of the U.S., the canal turned a 15,000 mile journey around Cape Horn into a relatively swift 6,000 mile jaunt (Lynch, 2009). The current expansion includes dredging the existing channel to the depths needed for the largest cargo vessels. Table 1 contrasts the lock dimensions of the original canal lanes and the new lane.

TABLE 1
PANAMA CANAL LOCK COMPARISONS
(Panama Canal Authority, 2006)

Dimensions	Current Locks	Panamax	New Locks	New Panamax
Length	320.04 m (1,050 ft)	294.13 m (965 ft)	427 m (1,400 ft)	366 m (1,200 ft)
Width	33.53 m (110 ft)	32.31 m (106 ft)	55 m (180.5 ft)	49 m (160.7 ft)
Draft	12.56 m (41.2 ft)	12.04 m (39.5 ft)	18.3 m (60 ft)	15.2 m (49.9 ft)
TEUs		5,000		12,000

The centerpiece of the expansion is the pair of massive new locks at the Pacific and Atlantic canal entrances. Today, the largest ships that can use the canal are the *Panamax* class, capable of carrying about 5,000 standard shipping containers. They squeeze through the waterway's 110-foot-wode locks with just 2 feet to spare on either side (Lynch, 2009). Wider, deeper and longer than the existing portals, the new locks will handle a class of bigger ships known as *New Panamax* vessels, the world's largest cargo carriers, which can haul more than twice as many containers.

METHODOLOGY FOR ROUTE CHOICE

The methodology for route choice compares the sum of expected times and deviations from an import point to an export point on each side of the U.S. land bridge against the sum of expected times and variances using the Panama Canal. It is straightforward, but based on several assumptions:

1. Cost is not an issue. Any costs that arise will be passed on to the customer.
2. Import and export container ports work around the clock for loading, unloading, sorting, and preparing for additional container transportation.
3. There is adequate rail and highway infrastructure support, and an ample supply of trucks and rail cars to ferry containers across the U.S.
4. Container vessels of similar size are waiting at east coast ports to complete the journey.

Our expected time functions and three step methodology follows.

Calculation of Expected Travel Time across U.S. Land Bridge (μ_{lb})

$$\mu_{lb} = (t_i + t_r + t_t + t_e) + \sigma_{lb} \quad (1)$$

Where t_i = time at an importing port; t_r = time on a rail car; t_t = time on a truck, and t_e = time at an exporting port. A similar structure is used to determine the variance for the land bridge.

$$\sigma_{lb}^2 = (\sigma_i^2 + \sigma_r^2 + \sigma_t^2 + \sigma_e^2) \quad (2)$$

Calculation of Expected Sailing Time via the Panama Canal (μ_s)

$$\mu_s = (t_{ie} + t_{pc}) + \sigma_s \quad (3)$$

Where t_{ie} = sailing time from an import point to an export point, and t_{pc} = time through the Panama Canal. A similar structure is also used to determine the sailing variance.

$$\sigma_s^2 = (\sigma_{ie}^2 + \sigma_{pc}^2) \quad (4)$$

Step 1: Evaluation of Time based on Container Ship Size

Using equations 1 & 2, determine the expected total travel time across the U.S. land bridge from import point to export point for each container ship size of interest. Placing this data in a table may help during analysis.

Step 2: Evaluate Sailing Time using Panama Canal

Using equations 3 & 4, determine the necessary sailing time through the Panama Canal traveling from the same import and export points selected earlier. This value should be valid for any size vessel.

Step 3: Analysis

Inspect the container ship-land bridge travel times for a "breakeven" point created by the travel time through the Panama Canal. Linearly interpret the "breakeven" vessel size. Assign smaller ships to the U.S. land bridge and larger ships to the Panama Canal route. Total travel time should be minimized for a given size vessel.

CONCLUSIONS AND FURTHER STUDY

After reviewing the Panama Canal's exciting expansion news, we find that the U.S. transportation industry is poised for a revolution in container cargo movement in the near future. We studied the choice between traveling the U.S. land bridge or the Panama Canal using only one west coast and one east coast port – abiding by Jones Act restrictions. However, other maritime and Canadian opportunities may exist in the future creating a network of routes from which to choose.

Through the methodology presented here, we have been able to discriminate between route choices for container vessels based solely on ship size and time. In future research, we plan to explore more of the economic effects on commerce associated with shifts to and from the land bridge and the canal. The objective is to transfer a "perfect" shipment from point A to point B as cheaply, quickly and consistently as possible (Bowersox, et al., 2010). However, in the long run we expect that delivery speed (time) will still be the variable of interest in the shipping industry.

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Holistic Human Resource Development: Balancing the Equation Through the Inclusion of Spiritual Quotient

Adeel Ahmed
Universiti Sains Malaysia
University of Turbat, Pakistan

Mohd Anuar Arshad
Universiti Sains Malaysia

Arshad Mahmood
Universiti Sains Malaysia

Sohail Akhtar
Universiti Sains Malaysia

This conceptual paper aims to shed light on the significance of human spiritual dimension in the process of human resource development (HRD). It suggests spiritual intelligence as the missing link in the process of human development that should be indentified and considered as an important factor for developed and morally qualified human resources. The conventional strategy of organizations in flourishing their employees is more on enhancement of individual's knowledge, skills, abilities (Intelligence Quotient (IQ)) and emotions control (Emotional Quotient (EQ).However, despite this immense interest in human capital, organizations tend to fail to have holistic approach of human resource development which eventually affects their performance. Therefore, based on this, we conclude that the emerging notion of human spiritual quotient (SQ) and its multi-dimensions must be included in human resource development initiatives in order to have holistic mechanism.

INTRODUCTION

This paper offers an holistic approach to consider the role and function of human resources in organization with the inclusion of a crucial component, spiritual intelligence (SI) in the formulation of human resource development programs. There are numbers of studies about knowledge based human resources and their valuable contributions in organizations while considering employees as a key performing element in the attainment of specific organization objectives. In the fast changing world, the role of human resources in the success and sustainability of organization is becoming more strategic and much crucial. Therefore, organizations are transforming in line with a unique human resource management system that comprises of human resource philosophies, policies, practices and processes to support the organization operation (Jackson, Schuler & Jiang, 2014). Well-developed, effective and

value-added employees are the outcome of competitive and strategic HRM systems which will result from well structured human resources development program in serving the broader plan of the organizations. However, despite well developed HRD program, organizations are still experiencing human crises which lead to a great loss of the organization's assets. Among the human crises occurring in the organization are giving and taking bribery, account manipulation, sabotage, dishonesty, selling company's information and so forth which create a huge dilemma for the organization.

Regardless of investment in human resources for their growth and development, organizations are also very much concerned on the deviant behavior issues of the workforce. Thus, in general, firms provide several types of training opportunities for their employee's welfare and growth that are ranging from skill enhancement to social development programs. The organizations' human resource development programs cover the cognitive and non-cognitive elements of humans such as improvement in the level of individuals knowledge, skills, attitudes, self management, anger control, stress handling, conflict management and communication skills. Organizations always strive to enrich their employees with optimal competencies to perform their tasks in efficient manner. Organizations usually assert that people are the most important assets that needs to be developed or else it will be an expensive cost to the organization (Cascio, 2014). Hence, Walton (1999), and Holton (2000) define human Resource Development (HRD) as a set of formal organizational and individual practices that are designed to enhance the potential contribution of human resources to the organization.

In addition, the strategic role of Human Resource Development (HRD) has been recognized and established by researchers and practitioners (Garavan, Heraty & Barnicle, 1999). According to Harrison (1997), strategic HRD is referred as the provision of training, development and educational activities designed to enhance the utilization of human resources within the organization and it will contribute to the accomplishment of explicit corporate and business strategies of the organization. Organizations around the globe are performing their operations in knowledge based economy. Subsequently in this phenomenon knowledge workforce is considered as a driving force for the organization success. Therefore, ensuring proper training and development will enhance competitiveness of the employees that could become a competitive advantage for the firm in the long run (Li & Huang, 2011). According to Becker (1993), the development of human resources of any country could bring sustainable long term development of the country. In turn, Gupta and Govindarajan (2000) stressed that proper human resource development system is crucial for broader human resource management system in the multinational companies due to the transfer of knowledge and employees competencies across the globe. HRD as a field of study and practice that will ensure sustainable innovation via the continuous and efficient utilization of resources, creative and dedicated people, technology, structure, and conducive working culture which will lead to a greater organizational performance and productivity (Watkins & Marsick, 2014). The growing evidence of new concepts in the field of HRD are emerging and becoming more significant whereby similarly and commonly HRD was also termed as "employee development," "learning organizations," and "talent management"(Brewster, Sparrow, & Vernon, 2007; Kim & McLean, 2012).

CURRENT TRENDS OF HUMAN RESOURCE DEVELOPMENT (HRD)

The rapid changes in business environment as a reason of globalization created ample potential of uncertain elements that may affect a well designed HR system which also potentially affect on HRD (Kuchinke, 2013). Thus, HRD is becoming a major priority in MNCs for achieving continuous improvement and growth (Collings, McDonnell, & Scullion, 2009). Edralin (2011), explicate that organizations heavily spending on their human resources through implementation\execution of technical and behavioral training programs to enhance their competencies that stimulate innovation and helps in attaining competitive advantage in business world. Furthermore, training and development of employees becomes inevitable and a strategic investment in human resource capital (Edralin, 2011). Over the years, the role of training has changed due to several factors like globalization, the advent of new technology, attracting and winning talents, workforce diversity, quality emphasis, need for leadership, increased value

placed on knowledge, and the high performance model of work systems (Noe, 2002). In addition, HRD is considered as a social and discursive construct. Generally, organization views their HRD programs either at individual level or organizational level as investment rather than a cost. In fact, HRD programs comprise a set of learning activities that reinforces other human resource strategies. The execution of HRD initiatives ensured effective management and deliverance of training for human resources within organization. Above all, managers put their utmost efforts to integrate HRD plan with firm strategic plans to achieve competitive advantage and to maintain business sustainability in the world. Apparently the purpose of HRD is to identify and improve employee's core competencies in order to attain organization's short term and long-term goals (Clardy, 2008).

HRD scholars such as Elliott and Turnbull (2005), and Sambrook (2012), critically expressed that individual is the end role in organizational success. Moreover, from the ethical and pragmatic perspective the integrity of HRD might be at risk if the major concerns of human resources such as clearing, wellbeing, growth, meaning and spirituality taken as a tool to achieve firm goals rather than values in themselves. The improper alignment of HRD goals and objectives can lead organization's members towards dysfunctional behavior (MacKenzie, Garavan & Carbery, 2011).

Researchers criticized that the area of human resource development has been focused on the short term goals rather than on the long term performance (Bierema, 2009; O'Donnell, McGuire, & Cross, 2006; Sambrook, 2009) and this approach have a strong potential to give birth to dysfunctional behaviors in organized manner at work place (Giroux, 2008; Martynov, 2009; Society for Human Resource Management [SHRM], 2008).

HOLISTIC MECHANISM OF HRD

In the era of knowledge and unanticipated future, the need for learning has gained new meaning at work. Besides that, the environment uncertainty which is characterized by restrictive growth, economic and social turmoil, dispersed work activities, climate change, complex and unstable organization structures (Russ-Eft, Watkins, McLean, Jacobs & Marsick, 2014) had contributed to the escalation of human crises in the organization has calls for new approach for a deeper quest of wholeness in leadership development (Drucker, 1999; Friedman, 2005; Kouzes & Posner, 2007). The new move towards leadership and management had resulted authentic engagement, sustainability and genuine quest for wholeness. Therefore, the pursuance for holistic human resource development is indispensable for exploration, learning, growth and accomplishment in existing workplace environment (Thakadipuram, 2010).

The HRD activities need more rigorous exploration in order to solve and develop a suitable design of solution to the existing human resource problems. It requires HRD practitioners to consider diverse dimensions, constraints, and requirements in designing a well thought-out learning system that entail a proper alignment of macro and micro aspects of human resource practices (i.e. selection, compensation, on-the-job training, work design, and others) in a balanced and coordinated fashion (Kuchinke, 2013). According to Kuchinke (2013), previous HRD research and theories generally are not based on the holistic and self directed approach for employees' development at work. In fact, HRD had moved beyond training and development to encompass an array of needs for preparing, recruiting, developing, supporting, and terminating employees and professionals within organizations. However, HRD literature shows that there is lack in holistic understanding of human resources in coming out with holistic human resources development program. Therefore, there is a great call for redesigning HRD philosophy in holistic manner in order to establish greater satisfaction for all stakeholders (Marques, 2005). Kuchinke (2013) perceived holistic viewpoint was fundamental to humanistic psychology and existentialism that support for organization development, employee training and development in prior theories. The holistic development of employees and building learning communities where the organization exploits spiritual needs of people is considered as a new initiative in human development process (Fenwick & Lange 1998). Subsequently, the holistic human resource development program will enhance the quality of employee where they do not only come at work with their bodies and minds but also with hearts, souls,

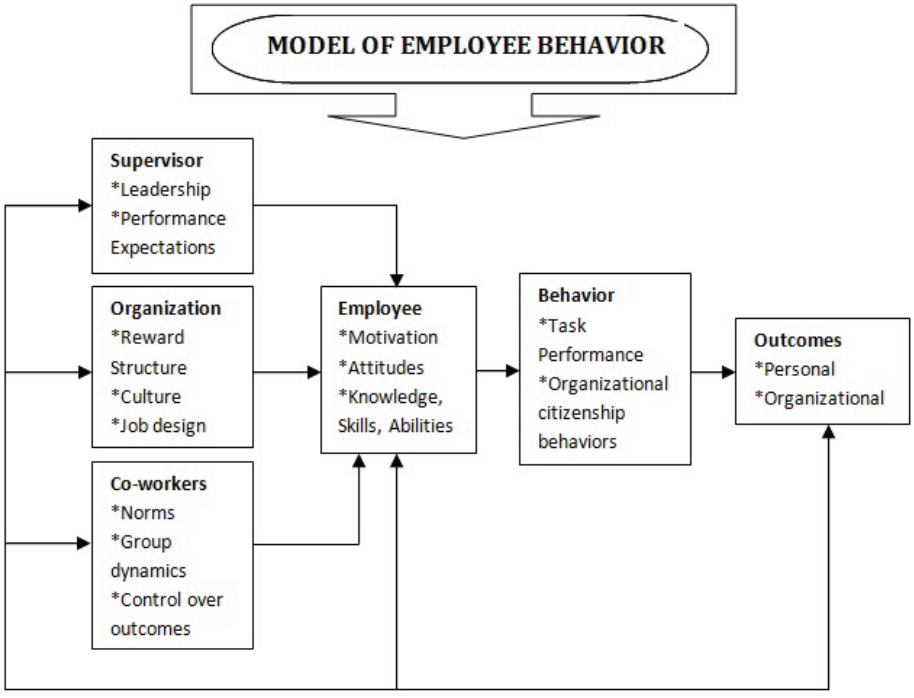
creativity and divine spirit (Karakas, 2010). It has been recognized and witnessed that there is gradual shift in employee work behavior, as described in the model of employee behavior which elaborate and underline the core components on employee behavior that normally flourish.

MODEL OF EMPLOYEE BEHAVIOR

In general, employee behavior is considered as the most critical aspect for HRD program design, delivery and implementation. Werner & Desimone (2008) presented a model of employee behavior and indentified the basic factors that shape individual behavior in two important categories which are internal and environmental forces (Refer to Diagram 1). This model depicts that employee related forces are motivation, attitudes and KSA (Knowledge, Skills, and Abilities), likewise, environmental factors are supervisors, the organization and colleagues.

Generally, majority of organizations are much meticulous with regard to the inclusion of these attributes in the HRD programs. However, the employee behavior model is more focused and based on rational (IQ) and emotional (EQ) aspects for human development. As a result, employees will conduct their behaviors depend upon cognitive and non cognitive characteristics, for instance, education, skills, abilities, experience, emotional intelligence and spiritual intelligence (Wright, 2008). Little consensus were found on the definition of intelligence whereby, Neisser, Boodoo, Bouchard, Boykin, Brody, Ceci, Halpern, Loehlin, Perloff, Sternberg, & Urbina, (1996), Sternberg, (1997), and Pinker (1997) define intelligence as the ability to attain goals in the face of obstacles by means of decisions based on rational rules. In addition, Chiu, Hong, and Dweck (1994), define intelligence as the level of skills and knowledge currently available for problem-solving. On top of that, Emmons (2000), given some specific domains of intelligence which are: breadth of knowledge, depth of knowledge, performance accomplishments, automaticity or ease of functioning, skilled performance under challenging conditions, generative flexibility, and speed of learning and developmental change.

FIGURE 1
MODEL OF EMPLOYEE BEHAVIOR



However, Cherniss (2010) argued that success in work and life depends on more than just the basic cognitive abilities typically measured by IQ tests and related measures but it also depends on a number of personal qualities that involve the perception, understanding, and regulation of emotion. The enormous recognition on emotional quotient (EQ) from academicians, practitioners, business leaders and psychologists shows its' importance in the HRD (Burbach, Barbuto & Wheller, 2003). Back in 1990, the concept of emotional quotient (EQ) was first coined by Salovey and Mayer (1990) and the researchers argued that emotional quotient (EQ) is a type of social intelligence, that is individual ability to monitor their own and others' emotions, to discriminate among them and to use that information to guide their thinking and actions. Emotional quotient has its roots in the notion of social intelligence as first proposed by Thorndike in 1920. Later on, the idea was popularized by Goleman's best-selling book Emotional Intelligence (1995), in which he claimed that emotional quotient (EQ) is beyond the intelligence quotient (IQ) and has significant effects on person's life outcomes. Mayer and Salovey (1997) have conceptualized emotional quotient as a set of mental abilities concerned with emotions and the processing of emotional information. EQ is becoming a central component in understanding organizational behavior dynamics (Ybarra, Kross & Sanchez-Burks, 2014). In reality, employees face various problems and experience dynamic states of emotional feelings such as anger, anxiety, stress and frustration at work. Organizations are striving in enhancing their employees' ability in dealing and controlling their emotional state which will affect their work performance and job satisfaction. This is because an effective management of positive and negative emotions of employees oneself and others could be helpful in dealing with work related issues and promote appreciative interpersonal relationships. For example, such abnormalities which are the result of stress, and anger could be prevented through effective training mechanism such as stress and anger management that will ultimately influence human behavior and improve communication skills (Besharat, 2007).

Intelligently, controlling the emotions of oneself and understanding the emotions of others in any environment could be sooth full in achieving ones goals (Mayer & Salovey, 2005). According to Clarke (2006), wide focus of training programs on employees' emotional quotient resulted in positive personal and organizational outcomes. This is because mismanagement of employee's emotion will lead to physical illnesses, mental disorders, behavioral disturbances, and inappropriate reactions of the employee. Empirically, a study by Safari, Jafary & Baranovich (2014) found that training in anger management, stress management, and intrapersonal communication skills will enhance Emotional Quotient (EQ) of the female students. Proper HRD program on EQ will enhance the employees' quality especially to those who posses sensitive and fragile emotion can monitor their moods and emotions effectively (Salovey, Mayer, Goldman, Turvey & Palfai, 1995). Employees' capability in managing their emotions will determine their work success and well-being as emotions build valuable base of information for individuals to understand their social environment (Salovey & Grewal, 2005).

Human noble potentialities need further analysis to better understand the individual's motives for any action at work as well as to obtain the maximum impact of their presence. Thus, the nobility of employees at work is achieved when individuals put their efforts to perform their tasks with higher motivations (material, psychological, moral, and spiritual) to accomplish the organization's objectives. Therefore, Guillén, Ferrero and Hoffman (2014) said that understanding employee motivation taxonomy is crucial besides the effort to achieve organizational objectives. Further, Guillén et al., (2014) claimed that there is a rising interest regarding employee moral and spiritual motives that also help managers in developing human resources, decision making, to be on right direction, to gain valuable organizational outcome and improved esprit de corps for better consideration of employee work. Therefore, besides IQ and EQ, when the employee's ethical and spiritual values or motives are neglected from business sphere it will give worse effect on employee's motivation and lead to moral issues (Brophy, 2014).

Rousseau (2014) argued that spirituality constitutes three crucial factors by which individuals can live in superior perspective by knowing that their life has meaning, value, and purpose in positive ethical spectrum. People with spiritual qualities show signs of positivity in their behaviors as they become more patience, cordial, sincere, just, gratitude and with enhanced sense of community spirit.

SPIRITUALITY AS AN INTELLIGENCE AND ITS SUBSTANTIAL BENEFITS FOR HRD

Societies of post industrial revolution moved their concerns from survival needs to much higher needs, such as self respect, sociality, self actualization and spirituality (Tischler, 1999). Spirituality has many dimensions, domains, and definitions (Rovers & Kocum, 2010). History indicates that spirituality has been considered as central aspects of human intelligence and has been discussed by philosopher, psychologist and theologians (Gardner, 1983; Zohar & Masrhall, 2000; Emmons, 2000; Vaughan, 2002). Spirituality is the personal expression of ultimate concerns that bridges motivation, spirituality, and intelligence (Emmons, 2000). Therefore, spirituality as intelligence is a tentative concept, which is underscore by slight agreement concerning the definition of spirituality (Collins, 2010). However, spirituality is understood in several diverse ways that is different from religiosity and morality (Emmons, 2000; Vaughan, 2002; King & Dec Cicco, 2008). Literature provides ample evidences on the characteristics of spirituality which are found or recognized as spiritual quotient (SQ) which is also describe as spiritual intelligence. According to Wink and Dillon (2002), spiritual quotient (SQ) is built through the accumulation of separate experiences, that is, individuals increasingly experience an expanded commitment to engage in actual spiritual practices. On the other hand, Katilienė and Malinauskas (2011) emphasized that spiritual culture-based organizations agreed that people have both intelligence and spirituality in their work.

Zohar and Marshall (2004) found people with spiritual attributes described as spiritually intelligent as the word 'spiritus' in Latin mean that which gives life or vitality to a system. In addition, Ronel and Gan (2008) define SQ as an ability to understand the world and oneself through God-centeredness and to adapt one's life accordingly. In fact, it is a basic ability that shapes and directs all other abilities and there are several attributes of SQ, such as faith, humility, gratitude, integrative ability, the ability to regulate emotions, morality and the ability for moral conduct, and the ability for forgiveness and love, are portrayed in a non-inclusive description. On top of that, (Nachiappan, Andi, Veeran, Ahmad & Zulkafaly, 2014) define SQ as the abilities to act accordingly, being empathy and intelligent to maintain internal and external freedom without considering any conditions. On the other hand, Zohar and Marshall (2004) and Rousseau (2014) interpret SQ as the intelligence with which we access our deepest meanings, values, purposes, and highest motivations in positive ethical spectrum. Therefore, in short, SQ means the ability to behave with Wisdom and Compassion while maintaining inner and outer peace (equanimity) regardless of the circumstances (Wigglesworth, 2011).

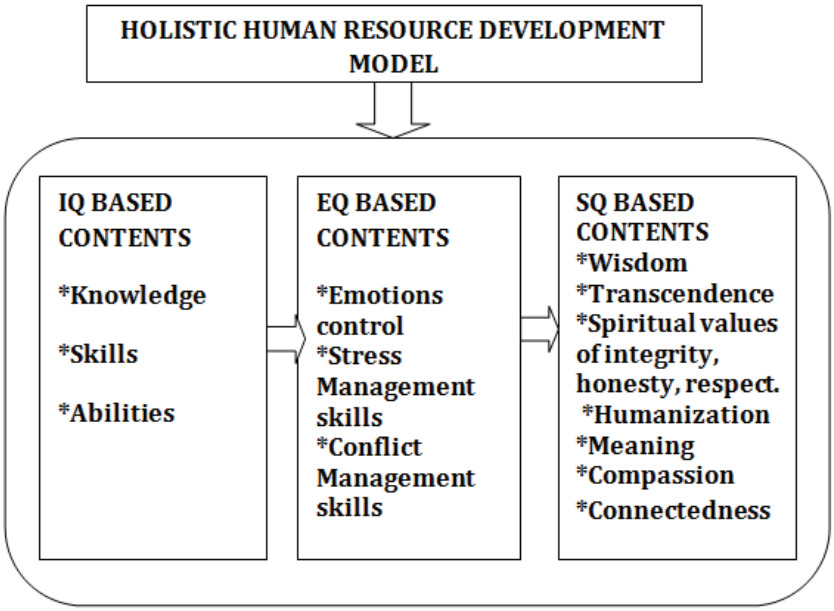
Spirituality encompasses the way an individual lives out his or her sense of interconnectedness with the world through an ability to tap into deep resources comprising truth, service, and wholeness reflecting self awareness and unity (Howard, 2002). Recent scholarship provides compelling correlations between spirituality and good business (Brophy, 2014; Geh, 2014) and it has gained the interest of both scholars and practitioners (Hicks, 2003; Kinjierski & Skrypnek, 2004; Krishnakumar & Neck, 2002). In addition, Karakas (2010) confirmed that the incorporation of spirituality at work increases employees' well-being by increasing their morale, commitment, and productivity; and decreases employees' stress, burnout, and work holism in the workplace. Empirically, a case study of Southwest Airlines suggests that the incorporation of spiritual values in the organizational culture had an influence on the behaviors of employees as well as on the organization's mission, goals, and objectives (Milliman, Ferguson, Trickett & Condemi,1999). This phenomenon described by Ashmos and Duchon (2000) as spiritual movement where organizations follow or adopt the spiritual environment with meaning, purpose, and sense of community that makes employees become simple, meaningful, and connected (Marques, King & Dhiman, 2007) and that feeling definitely lead employees to satisfaction and commitment (Piryaei & Zare, 2013).

In order to achieve higher and substantial employees' engagement organizations must recognize and understand spirituality at work in order to gain utmost benefits from highly engaged human resources (Saks, 2011). The reason is employees at work always attempt to align their self concept with spirituality and they express their spiritual identity by meaningful work and sense of community (Chawla & Guda, 2010). Organizations with spiritual culture lead to maximum employee benefits (Kolodinsky, Giacalone & Jurkiewicz, 2008). Besides, Daniel (2010) stressed that workplace spirituality is a key element of

organizations culture that fosters trust, creativity and respect, which would ultimately have a positive effect on team performance and can be helpful in resolving and avoiding ethical dilemmas at work (Gull & Doh, 2004).

Indeed, the promotion of spiritual values in the organization certainly enhance employee's organizational commitment, performance, morality and job satisfaction(Brophy, 2014; Van der Walt & De Klerk,2014; Gupta, Kumar & Singh, 2013; Bodia & Ali, 2012;Dehaghi, Goodarzi & Arazi, 2012; Willingham & Anderson, 2012; Altaf & Awan, 2011; Chawala & Guda, 2010; Issa & Plck, 2010; Pawar, 2009; Hall, Oates, Kinjerski & Skrypnek, 2008; Kolodinsky et al., 2008; Rego & e Cunha, 2008; Markow & Klenke, 2005; Milliman, Czaplewski & Ferguson, 2003). In a nutshell, the Holistic Human Resources Development (HHRD) model should incorporate the elements of IQ, EQ and SQ as their main contents in enhancing the quality and worthy of the employees in the organization. Below is the proposed diagram of the HHRD model to the organization.

FIGURE 2
PROPOSE HOLISTIC HUMAN RESOURCE DEVELOPMENT MODEL (HHRDM)



CONCLUSION

It is significantly noticed that current theoretical and practical base of HRD model missed spiritual dimension in its application. Researchers in principle agreed on the opinion that there has to be a holistic approach beyond traditional model for human resource development (Thakadipuram, 2010). Whereby, in the new world economy, human spirit is a core issue of business paradigm (Ashar & Lane-Maher, 2004). Moreover, the significance of individual spiritual attributes and competencies in organizational life treated as missing attribute in the literature (Gotsis & Kortezi, 2008). It is strange situation that the employee ethical and spiritual motives has been neglected that has worse effect on employees motivation (Guillén, et al., 2014) hence spiritual values is a central derive in adult learning and development (Merriam & Heuer, 1996). Consequently, leader must understand and recognize that spirituality at work place is the core value of organization (Petchsawang & Duchon, 2012) and there must be a holistic system of personal and cultural values where workplace spirituality and spiritual leadership are encouraged (Fry, Hannah, Noel & Walumbwa, 2011). In fact, employee's Spiritual Quotient (SQ) is a key contributor or predictor to work performance and builds structural relationships among different variables (Rani, Abidin & Hamid, 2013). As a result, managers must apply their collective intelligence (IQ, EQ, and SQ) in the

process of decision making, thinking, and behaving at the work place (Ali, Bemby & Sentosa, 2013). Certainly, spiritual quotient (SQ) strengthen human integrative perception of wholeness and thinking beyond materialism, which push people towards spiritual path and also help them to cope with painful circumstances (Ronel & Gan, 2008).

We can deduce from the above significant sources as discussed in earlier sections which had given strong attention to the adoption of a holistic system for human resources development in the organization. Human resources development model needs to be re-designed and consideration of employees entire being (mind, body, and spirit) creates a climate for holistic flourishing of the employees (Poole, 2009). Moreover, Hoover, (2014) claimed that it is possible to design and implement spiritual actualization learning system within the organization. The comprehensiveness of this application is also supported by Ronel and Gan (2008) and they declared that spiritual intelligence cover all key domains of human functions that is the central capability to live one's life with values, motivation, intentions, emotions, and personality structure. The inclusion of SQ in the organization's HRD model will prosper humanization among employees as well as enhances commercial benefits to the organization (Ronel & Gan, 2008). However, further empirical study in the field of human resource development with proper consideration of the human spiritual quotient and its core dimensions still requires great attention.

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Empirical Analysis of Workplace Conflict and its Influence on the Attitude of Media Employees in Ghana

Olivia Anku-Tsede
University of Ghana Business School, Legon

Nancy Adjadogo
Ghana Institute of Management and Public Administration

Workplace conflict is known to have severe implications on employees and organisations worldwide. Conflicts at the workplace have resulted in the destruction of cordial relationships among working colleagues as well as subordinates and superiors and has also changed enthusiastic employees to rather hostile and ineffectual actors. Consequently, these employees are not able to meet their targets due to negative attitudinal changes towards work, thus hampering the attainment of organizational goals. However, there is little empirical studies on this subject in both academic and industrial circles. In examining the outcomes of workplace conflict and its influence on the attitudes of media employees, this paper employed qualitative methodologies to select forty two (42) respondents from six Ghanaian print and electronic privately and state owned media houses. Findings revealed that attitudes of employees towards work were predominantly influenced negatively as employees decline in commitment to work and cooperation with others. Further, following conflicts, employees engaged in many adverse behavioral tendencies including not being on talking terms, not greeting one another, hostile behaviours and insecurity. Nonetheless, the paper interestingly found some positive outcomes such as idea sharing, unity, activeness and alertness from conflicts.

INTRODUCTION

Conflicts in general are inevitable and are found in daily human interactions. Many types of relationships such as marriages, families, churches, ethnic groups, nations and workplaces suffer from conflicts (Deutsch, Coleman & Marcus 2006; Afful-Broni, 2012). Most conflicts are normally linked with negativities and so are workplace conflicts. Usually, workplace conflict occurs when there are misunderstandings about how a task or a job is to be done (the process of the task), the content of the task or the interactions among people or working colleagues (relationships). The outcomes of these misunderstandings are largely known to be negative and disastrous as they may result in working colleagues (superior and subordinate; subordinate and subordinate or superior and superior) fighting, not greeting each other, not talking to each other and quarreling, among others. Relationships at the workplace get strained and affect the attitude of employees towards work and this affects productivity as well as quality and other elements of production thereby making the achievement of the organizational goal very difficult. Workplace conflict usually results in high rate of absenteeism among employees and badly managed conflict causes stress, reduces confidence levels, and produces anxiety and frustrations

that result in lowered job motivation, humiliation and physical illness (Riaz & Junaid, 2011). According to Buss (2009), conflicts at the workplace result in psychological and physical distress among employees that even affects their family and friends. This consequently worsens medical conditions of employees, damages quality of work life, gives impression of ineffectiveness at work, increases labour turnover and above all declines productivity. As a result, clients also become dissatisfied because the quality of the product or service is tampered and above all the image of the organisation is destroyed (Riaz & Junaid, 2011; Buss, 2009).

Riaz and Junaid (2011) therefore outlined some outcomes of workplace conflict to include low job satisfaction, low confidence, low organisational commitment, lack of job involvement, tension, anxiety and inability to influence decisions. A report by the Chartered Institute Personnel and Development (CIPD) (2008) revealed that employees spend, depending on the country in which the survey was conducted, between 0.9 hours and 3.3 hours a week dealing with badly managed conflicts, amounting to 2.3 per cent and 8.3 per cent of the weekly working hours. For instance, the Netherlands averagely spend 0.9 hours while France and Denmark spend 1.8 hours and yet United States and Germany spend 2.8 and 3.3 hours respectively. Reynolds and Kalish (2002) who made a similar revelation emphasised that spending so much time in resolving conflicts in the workplace obviously affects the productivity of managers and employees, thus affecting organisational performance. Again, CIPD (2008) observed that workplace conflicts lead to personal insults and attacks, sicknesses, absenteeism and sometimes project failures. In Ghana, Owusu-Mensah (2009) recorded that conflict results in physical and psychological withdrawal of people, aggression and damage to property. Considering these disclosures, it is clear that workplace conflicts have negative connotations that adversely affect employees, their work and the organisation alike. It is therefore, imperative to explore workplace conflict and its influence on the attitudes of media employees. In the sections that followed, we present the literature and theoretical foundations followed by the description of the methodology after which the discussion and implications are presented.

LITERATURE AND THEORETICAL FOUNDATIONS

Literature on conflict according to Buss (2009) does not provide a uniform definition. For instance, Wise (2000) regarded conflict as "two pieces of matter trying to occupy the same space at the same time". That is, a conflict can occur between two people in opposing positions on the same subject. This means that two individuals struggling to occupy a vacant position could be in conflict. Again, Laue (1992) described conflict as an escalated natural competition between two or more parties about scarce resources, power, and prestige. These parties believe that they have incompatible goals so they aim at neutralising, gain advantage, injure or destroy one another. However, workplace conflict differs from other conflicts in that in the workplace, employees are obliged to work together (they are interdependent) whether they are experiencing conflicts or not in order to achieve organisational goals (Rahim, 2010). Whereas Dana (2001) explained that workplace conflict is a condition between or among workers whose jobs are interdependent, who feel angry, who perceive the other as being at fault and who act in ways that cause a problem, De Dreu and Gelfand (2007) argued that workplace conflict may arise because of scarce resources (e.g. time, status, budgets) or values (such as political preferences, beliefs, religion, moral and social values). Ramani and Zhimin (2010) further reported that organisational conflict occurs when members engage in activities that are incompatible with that of colleagues within their network, members of other groups or unaffiliated individuals who utilise the services or products of the organisation.

From these definitions, it could be argued that people must work together and interact before workplace conflict could occur. What seems to be clear from the various definitions of workplace conflict is that the concept has different perspectives. Aminu and Marfo (2010) observed that conflict does not submit itself to a single and widely accepted pattern. According to Rahim (2001), conflicts can occur within an organisation (intra-organisational) and between two or more organisations (inter-organisational). Advisory Conciliation and Arbitration Services (ACAS) in its 2009 booklet "managing conflict at work" however stated that not all conflicts are so obvious. Some individuals might hide their

feelings as a way of coping with a problem; while a team might react to pressure by cutting itself from the rest of the organisation. In line with the distributive and the social exchange theories, employees are thus likely to relent on their efforts toward achieving individual targets and for that matter organisational goals not only if they think they are not benefiting from the organisation but when efforts outweigh returns.

Ayoko, Callan and Hartel (2003) observed that characteristics of intergroup conflicts are tasks and relationships related and that conflict is accompanied by emotions of frustration, anger, and behaviours of yelling, screaming and swearing. The authors argued that conflict is one of those specific events that arouse various emotional reactions at work. Similarly, Werner, Jan, Herman and Jenni (2012) also revealed that when employees experience intergroup conflict, it influences them and results in stress, anger, alienation and decline in cooperation among others. It also affects the functioning of the group and intergroup relations negatively. These feelings are said to manifest negatively in forms such as decline in performance, hostility towards colleagues, depression, job change, alienation from colleagues and physical health problems.

A report by the Psychometrics Canada (2008) on conflict in Canadian workplaces revealed that personality clashes and warring egos, leadership from top management and issues related to communication and stressful work environment play considerable roles in conflict generation at work. Indeed, these reflect in people leaving the organisation, sickness and absence, personal insults and attacks and firing of people. Furthermore, the Harvard Business School in 2009 on several thousand U.S. managers and employees who engaged in conflicts revealed outcome of conflicts as decrease in work efforts, decrease in time at work, decrease in work quality, decline in performance, loss of work time, worrying about the incident, avoiding the offender and decline in commitment to the organisation. In contrast, Aminu and Marfo (2010) as well as Jehn and Bendersky (2003) disagree with the claim that workplace conflict has nothing good to offer so must always be avoided. The authors averred that workplace conflict contains something positive and that it is a way of achieving some kind of unity. Stimulation of interest and curiosity, feedback, motivation, relieving of tension and catalyst to change are some of the major positive outcomes reported to be churned out through conflicts.

Among the theories that this study is anchored is the Distributive Justice Theory developed by Walton and McKersie. Bartos and Wehr (2002) re-emphasised this theory which propounds that people believe that they are treated unjustly if they receive less reward not proportional to their contributions or investments.

OVERVIEW OF THE GHANAIAN INKY FRATERNITY

There are three categories of mass communication media in Ghana namely, print, electronic (broadcasting) and film media (The National Media Policy (NMP), 1993). The print media comprises newspapers and magazines that are printed for mass readership while the broadcast or the electronic media covers radio and television. They involve the transmission by the air waves, cable or satellite of sound or images for simultaneous reception by a mass audience. The third category, the film media refers to the recording of moving images and sound on cellulose, video tape, disc or other recording medium for public exhibition. This paper, however looked at the print and the broadcast media because these dimensions of the Ghanaian media have been vibrant and occasionally experience some conflicts as well. Few decades ago, the print media in Ghana was limited mainly to state-owned publications and few embattled privately owned newspapers. Around the mid-1980s, there was a launching of a number of a privately owned newspapers and magazines. During that period, there were only about 30 newspapers and magazines in circulation out of which four of them were dailies and two weekend papers. They were the Daily Graphic, Ghanaian Times, Evening News, Mirror and Weekly Spectator (all state-owned) and the Pioneer which was privately owned and distributed mainly to a limited enclave. Until 1996, the only electronic (broadcast) media in the country was Ghana Broadcasting Corporation which operated both television and radio services in the country. In line with the relevant provision of the 1992 Constitution of Ghana, authorisation was given in 1996 for privately owned broadcast media to be established and by mid-1999 there were 31 stations in operation in the country. Currently, there are over 100 media houses

registered with the National Media Commission (NMC) although there are many more which are yet to register with the Commission (NMC, 2015).

METHODOLOGY

Design and Sampling Techniques

The study adopted the case study design because Yin (2003) argues that case study allows an investigation into retaining the holistic and meaningful characteristics of 'real life' events and also for obtaining meaning and in-depth understanding of a phenomenon. In fact, there is a large number of media houses in Ghana, hence some were selected as cases to obtain detail information and to also determine if prevailing situation in one media orifice runs through the others. The sampling frame consisted of all media houses in Accra, Ghana, both print and electronic (broadcast), private and state owned. For the purposes of this study, six (6) of them were however selected. Since Yin (2003) and Frimpong (2014) argued that multiple case studies may be preferable for reliability and validity checks, the multiple cases of six media houses were therefore deemed appropriate.

TABLE 1
DETAILS OF MEDIA HOUSES AND CORRESPONDING NUMBER OF RESPONDENTS

No.	Media House	Type	Ownership	No of Respondents
1.	New Times Corporation (NTC).	Print	State	7
2.	Graphic Communications Group Limited (GCGL).	Print	State	6
3.	Western Publications Limited (WPL).	Print	Private	7
4.	Metropolitan Entertainment Television Limited (Metro TV).	Electronic TV station	Private	6
5.	GBC • GTV • Radio Ghana	Electronic TV and Radio station	State	10
6.	Omni Media Limited (OML)/CitiFm	Electronic Radio station	Private	6

The participants were drawn through the purposive sampling technique. The HR Managers at various selected organisations arranged for respondents who have had one conflict or the other to be interviewed. A total of forty-two respondents (19 males and 23 females) were engaged from the participating media houses. This explains why Zikmund, Babin, Carr and Griffin (2010) posited that qualitative research rarely uses hundreds of respondents, instead a handful of people are usually the source of qualitative data. The ages of respondents ranged between 23 to 59 years and the tenure of work was between 1 to 30 years. Respondents ranked from Administrators, Journalists, and Producers to Editors.

Data Collection Procedure

Person to person interviews were conducted to provide the opportunity to have in-depth conversations with respondents in sharing their experiences, thereby bringing out direct interaction for the necessary information especially when the respondents were people who have previously engaged in conflicts. Two separate semi-structured interview protocols containing different wordings but same meanings were designed for senior managers and middle/junior levels respectively. The purpose for designing different interview protocols was to assess whether data collected from the lower level staff were in line with that of the senior managers.

DATA ANALYSIS

Thematic analysis was used for data analysis. The data was first transcribed after which coding was done according individual responses. The next activity was categorisation or classification of the coded information to reduce the large data. Pattern matching from similarities and differences in words, phrases and sentences followed. The results were translated into numerical data as Bowen (2005) indicated that numerical data has a place in qualitative study and should be included where appropriate. In the same vein Miles and Huberman (1984) indicated that qualitative data with the aid of numbers is good method of data analysis.

DISCUSSIONS AND IMPLICATIONS

This section discusses outcomes of conflict among media employees followed by the individual cases in each media house studied. List of outcomes among employees that emerged from the data analysis included stress, frustration, depression, unhappiness and dissatisfaction, not on talking terms with colleagues, marred relationships, hostile behaviours, insecurity, underperformance, fear of losing jobs, loss of trust and positive outcomes such as enhancement of idea sharing, unity, activeness and alertness.

Outcome of Workplace Conflict among Employees of the Media

Respondents from all media houses (Metro TV, NTC, WPL, GCGL and OML) except GBC said they go through stress, frustration and depression due to conflict whereas 57% and 29% of respondents from NTC and WPL respectively indicated that they become unhappy and dissatisfied. A total of 33% each from Metro TV and OML, 30% from GBC and 14% from NTC respectively had their relationships destroyed hence became unfriendly to one another. At GBC, 20% of the respondents were not on talking terms, with 50% reported to have underperformed. All the respondents from GCGL and 17% from Metro TV experienced positive outcomes while 14% from WPL felt insecure and 33% from OML feared losing their jobs. At Metro TV, 50% of the respondents said conflict makes them stressed up, frustrated and depressed while 33% exhibited hostile behaviours due to marred relationships with friends, colleagues and supervisors; meanwhile 17% on the contrary indicated a positive outcome that the aftermath of conflict enhances sharing of ideas. Some respondents remarked that:

> *"Conflicts influence negatively or positively, negatively it weighs you down, people have personal grudge; positive because it builds you to correct mistakes and move on.....it affects the job because when one is not talking to you, you may be uncomfortable and may leave the job eventually".*

According to one producer:

> *"It affects the job because when I am not talking to a colleague or subordinate, I can't call him/her and if he/she does not come it is his own cup of tea but it affects my work as a producer".*

Consistent with the studies of Ayoko et al. (2003) and Buss (2009), investigations at Metro TV revealed negative outcomes such as stress, frustration, depression, bitterness, pain, hatred and hostile behaviours as the key outcomes of conflict at the workplace. Contrastingly however, a respondent indicated that conflict has some positive implications where conflicting parties are able to interact well and share ideas after the conflict is resolved. This outcome confirms the findings of Aminu and Marfo (2010) who observed that workplace conflicts stimulate interest, curiosity, motivation, feedback and spurs change. Similarly, Rahim (2001) indicated that conflict at the workplace enhances group performance while Jehn and Bendersky (2003) pointed out that workplace conflict enhances creativity by motivating people to solve problems that might otherwise go unattended to.

However, there were different outcomes found in New Times Corporation (NTC) where 57% of the respondents expressed that they experienced dissatisfaction due to poor conditions of service which trigger emotional and social behaviours such as unhappiness, shouting and insults, less creativity and not talking to one another. A respondent indicated that relationship with some friends and superiors has been destroyed due to conflict, two also thought conflict make them depressed, frustrated and stressed out. One management member reported:

> *"It takes good business environment conflict free to encourage creativity and encourage people to exhibit their talents".*

These revelations give indication that employees suffer from conflicts in the Ghanaian media. It is therefore imperative for management to handle conflict issues with care and urgency in order to minimise some of the negative consequences since conflict is unavoidable and cannot entirely be prevented.

The outcomes of conflict at the workplace was not different in Western Publications Limited(WPL) where majority (57%) of the respondents reported that as a result of workplace conflict they are emotionally affected by way of depression, low morale, frustration and confusion when executing their tasks. However, 29% admitted that they become unhappy and dissatisfied, whereas, 14% indicated fear of losing their jobs. Some respondents expressing their feelings recounted:

> *"Sometimes you are depressed and confused; you don't know what to do.....when it happens like that it can affect your morale.....you get sad and you are full of errors..... so you are not able to think right.....sometimes you feel frustrated".*

Some respondents also remarked:

> *"You don't know the next line of action. In this country there is something we call job security because you don't have any place to go.....you don't know the decision they are going to take about you.....you don't know their next line of action".*

Findings further revealed that employees are adversely and emotionally affected by workplace conflicts. These unwelcome emotional outbursts lead to dissatisfaction and decline in productivity because anytime employees are dissatisfied, it has a toll on their work and they exhibit negative behaviours such as increase in absenteeism, idleness, and lateness become rampant and people do whatever they feel (Ayoko et. al., 2003; Buss, 2009; Riaz & Junaid, 2011).

Moreover, 50% of the participants in Ghana Broadcasting Corporation (GBC) revealed that they become unproductive (underperform) as a result of conflict. This was attributed to the fact that conflict situations build in them sentiments like bitterness, timidity, withdrawal, frustration, anger and disillusionment leading to non-productivity. Besides, while a total of 30% got their relationships with friends and colleagues strained, 20% reported that conflicts result in disrespectfulness, not talking to or greeting one another.

A local union boss reported that:

> *"Conflict brings apathy and makes people disillusioned; not knowing what to do because they feel not appreciated so they accept whatever goes on and let it be. It brings down productivity.....they don't want to show up their zeal so it brings down productivity. It affects the individual interest and you will be timid in your work, some get angry and withdraw".*

A senior manager expressing her feelings said:

> *".....you thought you are doing your line of duty but you realise the person has stopped greeting.....and some become snobbish".*

Interestingly data from GCGL found all the six respondents reporting positive outcomes of conflicts at the workplace. They revealed that conflict makes them become active, alert and improve on their relationship with colleagues as well as build unity amongst colleagues when it is resolved.
One respondent reported:

> *"I will describe it as having positive influence on the work that we do. It makes all of us sit up. We don't take conflict so serious, we just exchange words and its okay; within 2 to 3 seconds we are laughing again because we have to work for a common goal".*

This is consistent with the study of Aminu and Marfo (2010) and Afful-Broni (2012) who disagree with the school of thought that workplace conflict comes with no good hence ought to be avoided. Among the positives of conflicts enumerated by the authors include stimulation of interest, curiosity, feedback, motivation, tension relief and change catalyst. Respondents seem to understand each other and also understand the fact that conflict is inevitable wherever people interact so they do not allow conflict situations to affect them anyway. Although disagreements and misunderstandings arise they are able to resolve them immediately after they happen and they move on with their work knowing that their being there is for the progress of work.

Most respondents from OML also reported that conflict had negative outcomes among employees. Interestingly, whilst a total of 33% of the respondents acknowledged that conflict makes them upset, frustrated and high in emotions, another 33% admitted to being hostile to co-workers, with the remaining 33% indicating loss of trust among colleagues. This reflects in a remark of an administrative officer who offered that:

> *"Conflict makes people upset, frustrated and highly emotional".*

Employees' Change in Attitude Towards Work

This section looks at the investigations made into the extent to which workplace conflict influences the attitude of employees towards work. Findings indicated that respondents in all the study organisations experienced decrease in commitment towards work as a result of conflict. Half of the respondents from Metro TV reported a significant reduction in their commitment towards work while four (57%) and seven (70%) from NTC and GBC respectively also experienced same. Similarly, two (33%) respondents from GCGL, five (71%) from WPL and three (50%) from OML also expressed declining tendencies in their commitment towards work. Following conflicts, some other respondents do not cooperate with co-workers. Indeed, an employee each from Metro TV (17%), NTC (14%) and GBC (10%) had such experiences whereas two respondents from WPL also reported a significant decrease in cooperation with others. Interestingly, respondents from OML and GCGL reported no such experiences.

Similarly, decrease in output and performance was experienced by employees from Metro TV, NTC and GBC with respondent each representing 17% and 14% respectively in Metro TV and NTC and two

(20%) in GBC touching on the same change. Respondents from GCGL, WPL and OML did not speak on this decrease. Some respondents from Metro TV, NTC and GCGL were rather positively influenced by conflicts but this was predominantly seen in GCGL with four or 67% of respondents speaking on the positive influence. Other attitudinal changes notably laziness and the likes were also re-counted.

It was revealed at Metro TV that half of the respondents become less committed towards work due to conflicts. According to them, this is usually experienced in attitudes such feet dragging, not going the extra mile, not giving out the best performance, playing delay tactics, not obeying instructions and exhibiting some apathetic and lackadaisical attitudes. Whereas 17% of the respondents spoke about decline in cooperation, another 17% indicated decline in performance. Remarkably, a respondent offered that conflict has a positive side where it gives people the opportunity to talk over the conflict situations and correct mistakes that trigger such occurrences. In essence, a supervisor and a subordinate respectively noted:

> *"People will put on lackadaisical attitudes but I don't mind.....they drag their feet during emergencies.....a programme that needs to be covered at 8am, they go at 10am".*
> *"At first I used to go the extreme but I realised that it's worth nothing so I decided to do what I can, my commitment to the work has reduced".*

These findings support the study conducted by the Harvard Business School (2009) which found that as a result of workplace conflict, employees' commitment, performance, effort towards work and time at work decreases. It is also in line with the distributive justice theory (Bartos &Wehr, 2002) which propounds that people feel unjustly treated if their reward is not proportional to their investment made into their jobs. Commitment to work is therefore crucial for the survival and profit making for organisations desirous to succeed in any competitive business environment.

At New Times Corporation, the major changes toward work mentioned by 4 (57%) respondents were decrease in commitment with 29% and 14% respectively citing lowered output and decrease in cooperation. These were expressed by workers through dragging of feet, doing things anyhow, not observing standards, putting up argumentative and quarrelsome behaviours and not bothering to take initiatives to enhance performance. A management member explained:

> *"You don't see them trying to exert themselves, trying to do something, not going the extra mile, not trying to do excellent work because they feel the supervisor or those who should approve of their work are dead against them and won't see anything good in what they do so maybe it is not worth going extra mile".*

This finding shows that conflict at the workplace coerce employees to become less committed, less cooperative and less productive. This affirms the study of Werner et al (2012) who established that conflict significantly wanes productivity and decreases cooperation, with Rahim (2001) also emphasising that conflict results in diminishing of workgroup commitment.

In the case of WPL, 5 of the 7 respondents representing 71% revealed that conflict permits them to experience and engage in decreased commitment towards work where it is expressed in negative attitudes such as loss of enthusiasm and zeal towards work, reduction in initiative towards work, refusal to observe timelines and failure to keep valuable information to one's self. The other 29% similarly ascribed the decreased cooperation to conflicts. In fact, an administrative officer and a journalist respectively remarked:

> *"On the work you can decide not to share your views. Whatever they say you should do, you do it the way they want if it does not work out they will find out later and they will come back".*
> *"The zeal that I will use to write the story with someone's angle will not be same as the one I will use if I were using my own angle".*

Consequently, it seems employees, both journalists and non-journalists are restricted in taking initiatives in performing their duties; they are to tow certain directions as directed by 'the boss'; hence they are perhaps restrained from using their imaginative and novel ideas in doing anything. They are thus compelled to accept the norm of the house. One journalist therefore avowed:

> *"this is a house style, every media house has its style so you have to agree with the style before you can work here and when you go to other places too they have their style, when you can't work with the house style then you don't go there at all so sometimes you just have to understand that it is either you can do it or you go".*

Investigations at GBC discovered that majority (70%) of the respondents decayed in commitment towards work while 10% found it difficult to cooperate with other people when in conflict; with 20% admitting that they underperformed (reduction in output) when in conflict. One junior staff recounted:

> *"If you work in an organisation where you expect that your effort should be appreciated and you are given your best and it is not appreciated, in a different way it affects your productivity, you change your attitude towards work because you feel whatever you do is not appreciated".*

A senior manager recounted:

> *"In all cases conflicts influence the individuals involved and the job.....timelines and specific assignments are necessary but they don't cooperate…. instead of them to be on the move with their equipment, they drag their feet and the job is delayed. We are to carry out jobs within specific periods once it delays then that assignment is bound to fail".*

The findings indicate that conflict in the media adversely influences employees' attitude towards work. The story at GBC was not different as they also experienced negative changes such as decline commitment and cooperation towards work, leading to low performance or decrease in output. While this outcome supports the findings of Werner et al (2012) that output and cooperation of employees decrease when there is conflict at the workplace, the findings are inconsistent with that of De Dreu (2008) who contended and rendered support for the view that workplace conflict is beneficial to the organisation. Indeed, 67%of the participants from GCGL Newsroom reported that their attitudes toward work are positive during conflict situations. For them, they do not allow conflict to persist; it is resolved as soon as it occurs. This suggests that they do not see conflict as a bad entity; rather they embrace it and derive the good it offers. According to them, they learn from conflict situations and learn to do the right thing, correct their mistakes and improve their performance thus becoming proactive in handling work issues. However, 33% from departments other than the Newsroom reported feeling of hesitation towards work when they are in conflict with management and/or colleagues.

Some respondents in the Newsroom reported:

> *"The news room is an interesting place; the minute you see us angry, arguing over something the next minute, we are laughing together. It is just the job, anything that will make the job go on".*
> *"We interact with each other but you know the Newsroom….the work is stressful and time bound. If you need something; you want it at a particular time and if you are not getting it then you turn to explode, that does not mean that there is conflict. After that you see us laughing. The most important thing is to get the work done".*
> *"Sometimes we do in-house sit down; we don't work until our demands and requests are attended to".*

This illustrates that attitudes of journalists toward work do not change negatively while the commitment of other employees towards work decreases. This contrasts many empirical studies including Harvard Business School (2009) that conflict produces decrease in work effort, decrease in time at work, decrease in work quality, decline in performance, loss of work time worrying about the conflict and decline in commitment towards work. Similarly, the finding is inconsistent with the report by CIPD (2008) that depending on the country, employees spend 0.9 hours and 3.3 hours a week dealing with conflict instead of concentrating on their work. Although it may seem surprising that attitudes of journalists at GCGL do not change towards work even in conflict, it is important to state that casual observation during data collection revealed that they were very united and relationship among them was seen to be very cordial hence seem not to allow conflict to affect their performance. This harmony and cordiality could be the reasons why attitudes towards work are same even in conflict situations.

CONCLUSION

The study brought to bear interesting revelation that attitude of workers towards work is not always negatively influenced by conflicts. These employees appear not to allow themselves to be overridden by the destructive nature of conflict. Instead, they make use of the inherent good to improve their work because they believe that their presence is essentially for the progress of work. Another refreshing revelation was commitment towards work which ran through all the media organisations regardless of being private, state-owned, print or electronic. Other attitudinal changes that came out were decrease in cooperation and decrease in output by employees in GBC, NTC, WPL and Metro TV and ineffectiveness and inefficiencies especially at OML consequently affecting productivity. Whereas some employees experienced negative emotional feelings such as stress, frustration, depression, others record hostile behaviours as a result of marred relationships, with others being unhappy and dissatisfied hence underperformed. Despite these negative outcomes, some of the respondents largely from GCGL experienced positive outcomes such as enhancement and of sharing of ideas and opinions about work tasks and unity among themselves.Given the kind of influence that conflict has on employee work attitudes and the organisation, it is not far from right to conclude that workplace conflicts are more destructive than constructive. Management must never downplay the impact of conflict hence must always make available adequate resources, commitment, organisational will and effective resolution mechanisms in curtailing such phenomenon. Since there are always conflicting views at the workplace and organisations, the efficiency of such resolution mechanisms must be strengthened with combine efforts to fighting the spread of deadly conflicts.

RECOMMENDATIONS

Based on the ubiquitous and destructive nature of conflict, it may be helpful for organisations to adopt proactive rather than reactive tendencies in resolving them. This could significantly prevent both the employees and the organisations from attaining such heights where conflicts may escalate into undesirable outcomes such as stress, depression, and decline in commitment among others. Since conflicts may be fueled by personality traits, it is imperative for organizations to incorporate conflict resolution mechanisms into placing workers on the job. For growth and increased productivity, there is the need for organizations to limit the impasse and standoffs associated with conflicts. Working groups must be encouraged to work to promote trust and healthy communication among themselves. For future studies, larger and nationwide surveys and longitudinal studies of workplace conflict and other facets of human resource management such as selection and placement among prospective employees, merger and organisational change among others may prove worthwhile.

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