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THE TRADING COSTS OF EARLY EARNINGS RELEASE: THE CASE OF HEWLETT-PACKARD COMPANY

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ABSTRACT

Hewlett-Packard Company scheduled to announce its 2014 second quarter earnings after the market closed on May 22, 2014. However, its second quarter earnings report was accidently released earlier than scheduled. The lower-than-expected revenue news dropped Hewlett-Packard's stock price by 5% within 6 minutes. The rare occurrence of an early earnings announcement during trading hours provides an opportunity to investigate the influence of early earnings release on trading costs of market participants. The results show that Hewlett-Packard's stock trading costs, measured by bid-ask spreads increased and its information asymmetry decreased after the early earnings release.

JEL: G14

KEYWORDS: Early Earnings Release, Trading Costs, Bid-Ask Spreads, Information Asymmetry

INTRODUCTION

Hewlett-Packard Company (symbol: HPQ) was expected to announce its earnings report for fiscal 2014 second quarter (Q2, ended on April 30, 2014) after the market closed on May 22, 2014. However, on May 22, 2014, HPQ's Q2 earnings results were accidently released about half an hour prior to 4:00 PM EDT. HPQ's Q2 revenue was $27.3 billion, 1% decline from the prior-year period and lower than Wall Street analysts' expectation of $27.41 billion (Chan, 5/22/2014, *Reuters*). Based on the minute-to-minute plots of HPQ's price per share on Figure 1 (shown in empirical results section), HPQ's price per share was still around $33 at 3:30 PM EDT on May 22, 2014. After the early release of less-than-expected revenue, HPQ's share price quickly dropped to $31.35, almost the lowest price of the day, at 3:36 PM EDT. That means the stock price of HPQ decreased by $1.65 (5%) within only 6 minutes. After 3:36 PM EDT, HPQ's price per share moved up a little and then fluctuated until 4:00 PM EDT, closing at $31.78.

Although its Q2 revenue missed the market's expectation, HPQ reported Q2 non-GAAP diluted net earnings per share (EPS) of $0.88, 1% up from the previous year period and same as analysts' consensus. In addition, HPQ announced plans to cut additional 11,000 to 16,000 jobs (Chan, 5/22/2014, *Reuters*; McGrath, 5/22/2014, *Forbes*). After the negative and positive news fully digested by investors overnight, HPQ's price per share opened at $32.31 on the next trading day, May 23, 2014, and then swiftly went up to $33.04 at 9:38 AM EDT, the similar price before earnings results were inadvertently released. It reached the highest point of $34.07 at 10:31 AM EDT and then moved between $33.5 and $34.05 throughout the rest of day; eventually it closed at $33.72 on May 23, 2014.

Since it is rare to see a large publicly traded company inadvertently releases its quarterly earnings report earlier than the schedule, the early earnings release during the trading hours provides us an opportunity to investigate its effect on the market microstructure. This research uses HPQ as a case study to examine changes of intraday transaction costs and information asymmetry before and after early earnings release during the trading hours of the announcement date. The remaining sections of this study are organized as follows. The literature review is presented on the next section. Following that, data and methodology are described and then the empirical results are shown. The conclusion is made lastly.

LITERATURE REVIEW

Previous studies about the components of the bid-ask spread, the determinants of the bid-ask spread, the intraday pattern of the bid-ask spread, and the effect of earnings announcement on information asymmetry and the bid-ask spread were documented in the literature. Copeland and Galai (1983) indicate two types of traders in the market, liquidity traders and informed traders. Liquidity traders trade to get immediacy and informed traders trade based on their special information. The market maker is expected to gain from liquidity traders but lose to informed traders. If the market maker sets a wider bid-ask spread, he or she will reduce the potential loss to informed traders, but will also reduce the expected gain from liquidity traders. Similarly, a narrower spread increases the expected gain from liquidity traders, but it also increases the potential loss to informed traders. The market maker sets the optimal bid-ask spread to maximize profits by weighing the trade-off relationship. They also show that price level and return variances positively affect the spreads but trading volume negatively affects the spreads.

McInish and Wood (1992) examine the intraday pattern of percentage bid-ask spreads and test the hypotheses for the determinants of spreads. They point out a reverse J-shape pattern for the intraday behavior of spreads. The spreads are highest at the beginning of a trading day and then gradually decline but go up before the end of a trading day. Spreads are directly related to the risk level but inversely related to the trading activity.

Lin, Sanger, and Booth (1995) investigate the association between components of the bid-ask spread and trade size for a sample of companies listed on NYSE. One of their findings is that the information asymmetry component is highest at the beginning of a trading day and lowest at the end of a trading day for all but the largest trades.

Krinsky and Lee (1996) research the behavior of the components of the bid-ask spread surrounding announcements of earnings during the sample period of January 1989 to December 1990. They find that adverse selection component of the bid-ask spread increases significantly before and following earnings releases, which indicate increased information asymmetry.

Bhattacharya, Desai, and Venkataraman (2013) study the relation between earnings quality and information asymmetry for a broad sample of NYSE and NASDAQ firms from 1998 to 2007. They demonstrate an inverse association between earnings quality and information asymmetry; poorer earnings quality is related to higher information asymmetry.

Chen (2014) examines the return volatility movements in S&P 500 spot index and index futures markets. One part of the research uses SPDR (the exchange traded fund (ETF) of S&P 500 index (symbol: SPY)) as the proxy to see the effect of volatility movements on bid-ask spreads. The result shows that quoted spread and percentage quoted spread are significantly greater when the market becomes more volatile.

DATA AND METHODOLOGY

Intraday trade and quote data (with time-stamp given to milliseconds) for HPQ on May 22, 2014 are from Tick Data company. The trading costs, measured by bid-ask spreads, are calculated as follows.

$$Quoted\ Dollar\ Spread = A_t - B_t \tag{1}$$

$$Percentage\ Quoted\ Spread = \left(A_t - B_t\right)/M_t \tag{2}$$

where B_t and A_t represent the national best bid and offer (NBBO), respectively, for HPQ at time t ; $M_t = (A_t+B_t)/2$, is the quoted midpoint for HPQ at time t.

$$Effective\ Dollar\ Spread = 2\times | P_t - M_t | \quad (3)$$

$$Percentage\ Effective\ Spread = 2\times | P_t - M_t | / M_t \quad (4)$$

where P_t is the price of trade occurred for HPQ at time t; $M_t = (A_t+B_t)/2$, is the quoted midpoint for HPQ at the time t trade occurs.

The quote with zero bid price or zero ask price or bid price > ask price is not considered for the NBBO. The way used to derive the NBBO follows Tick Data Technical Paper (2009) and Hasbrouck (2010). In addition, the NBBOs with locked or crossed quotes are excluded when calculating quoted dollar spreads and percentage quoted spreads. Trades associated with locked or crossed quotes are excluded when calculating effective dollar spreads and percentage effective spreads. The regular trading hours of stocks on a business day are from 9:30 AM EDT to 4:00 PM EDT, including 6 hours 30 minutes (390 minutes). This research divides 6 hours 30 minutes for HPQ on May 22, 2014 into intervals by every 30-minute, except for the last 30 minutes before the closing bell. Since HPQ's price per share quickly slides during the time period of 3:30 PM to 3:36 PM and trading volumes of this 6-minute critical period explode, the last 30 minutes (3:30 PM to 4:00 PM) are separated into two intervals, 3:30 PM to 3:36 PM (6-minute interval) and 3:36 PM to 4:00 PM (24-minute interval). Totally, 6 hours 30 minutes are divided into 14 intervals.

The average quoted dollar spread and average percentage quoted spread calculated for each interval are time-weighted average quoted dollar spread and time-weighted average percentage quoted spread. The average effective dollar spread and average percentage effective spread calculated for each interval include both volume-weighted and volume-unweighted (equally-weighted) average effective dollar spread and average percentage effective spread. Lin, Sanger, and Booth's (LSB) (1995) model for estimating the adverse selection component of the spread is used in this study as follow.

$$\Delta Q_{t+1} = \lambda z_t + e_{t+1} \quad (5)$$

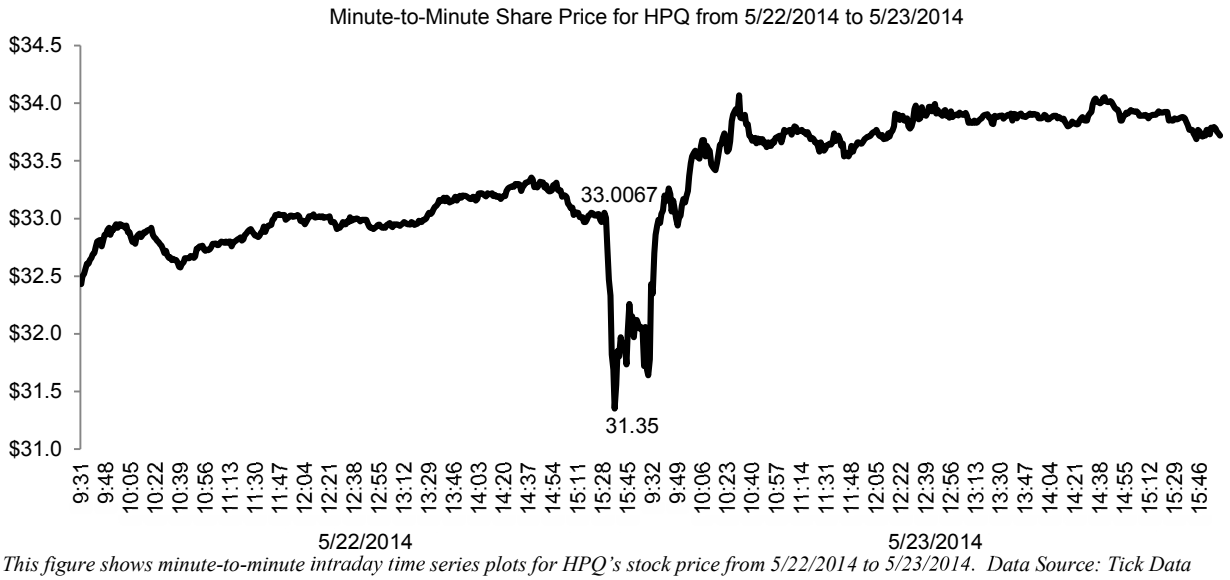
where $\Delta Q_{t+1} = Q_{t+1} - Q_t$; Q_t is the logarithm of quote midpoint at time t. ΔQ_{t+1} is the quote revision (change of quote midpoint). $z_t = P_t - Q_t$; P_t is the logarithm of trade price at time t. λ is the adverse selection component of the effective spread, reflecting the quote revision as a fraction of the effective spread. λ is estimated for HPQ in each time interval. Trades associated with locked or crossed quotes are excluded when estimating λ.

EMPIRICAL RESULTS

Figure 2 and Figure 3 show HPQ's time-weighted average quoted dollar spread and percentage quoted spread, respectively, for each interval on May 22, 2014. The spread is the highest at the beginning 30-minute interval of the day. This is consistent with the literature since the market reflects all information accumulated overnight and is more volatile at the beginning of the trading day. After that, the average quoted dollar spread (percentage quoted spread) goes down and stays around 1 cent (0.030% to 0.031%) until 3:30 PM. When earnings report is released about half a hour before the closing bell, HPQ's share price quickly slides from about $33 at 3:30 PM to $31.35 at 3:36 PM (shown on Figure 1), and the average quoted dollar spread (percentage quoted spread) goes up to 1.0537 cent (0.0327%) during the 6-minute (3:30 PM – 3:36 PM) pricing diving interval. As earnings results are released ahead of schedule, more traders know less-than-expected revenue news through HPQ's website and become informed traders. To

reduce the potenital loss to informed traders, the market maker is expected to increase the bid-ask spread. Consistent with the expectation, the average quoted dollar spread increases by 5.37% (from 1 cent to 1.0537 cent) during the short 6-minute (3:30 PM – 3:36 PM) interval.

Figure 1: Minute-to-Minute Share Price for HPQ from 5/22/2014 to 5/23/2014



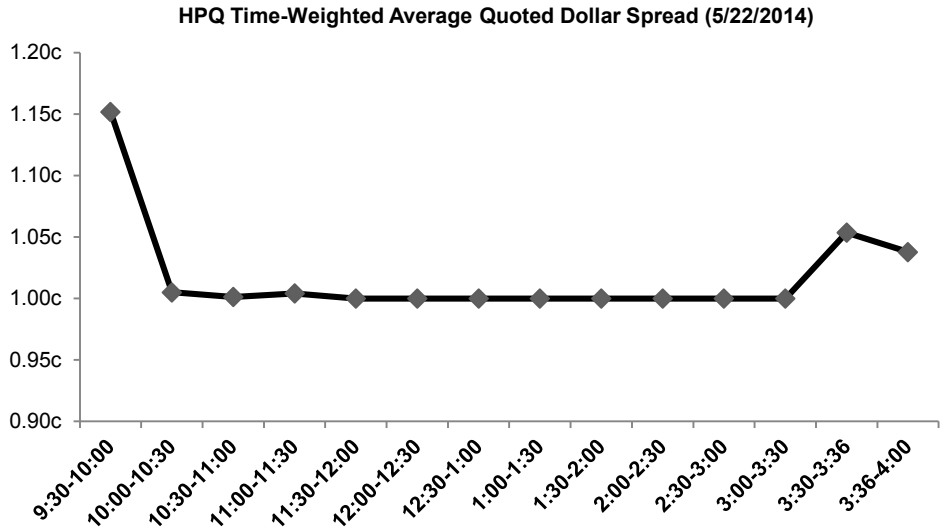
This figure shows minute-to-minute intraday time series plots for HPQ's stock price from 5/22/2014 to 5/23/2014. Data Source: Tick Data

The short 6-minute price diving period implies that investors do not have sufficient time to fully digest all of information on earnings report but intuitively sell the HPQ's shares to reflect the negative revenue news. After 6-minute interval, the market participants have a longer time to digest HPQ's Q2 earnings report and they do not fully treat it as negative news. HPQ's share price rebounds a little and then fluctuates. The average quoted dollar spread decreases a little to 1.0379 cent for the remaining 24 minutes (3:36 PM – 4:00 PM) before the market closed. The lower spread for the remaining 24-minute interval can be explained as the market maker becomes more informed since early release news is wider known so he or she reduces the spread to increase the expected gain from liquidity traders and worries less about the potential loss to informed traders.

HPQ's volume-weighted average effective dollar spread and percentage effective spread for each interval on May 22, 2014 are displayed on Figure 4 and Figure 5, respectively. The average effective dollar spread (average percentage effective spread) starts at 1.0267 cent (0.0314%) at the beginning 30-minute interval of the day and then moves down to between 0.80 cent and 0.95 cent (between 0.024% and 0.029%) until 3:00 PM.

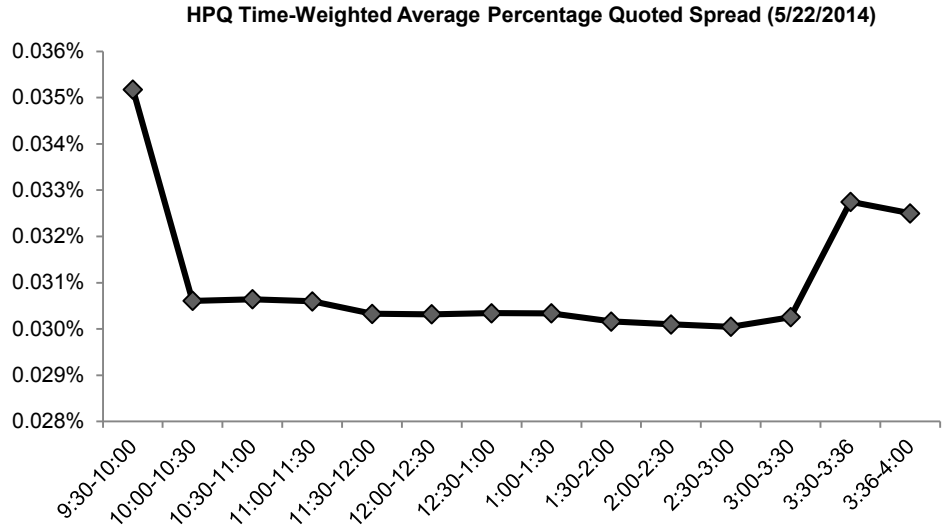
After 3:00 PM, trading volumes increase and trading costs rise. The volume-weighted average effective dollar spread (average percentage effective spread) jumps from 0.9143 cent (0.0275%) during 2:30 PM – 3:00 PM interval to 1.1764 cent (0.0356%) during 3:00 PM – 3:30 PM interval and then reaches the highest level of $1.2766 cent (0.0397%) during 6-minute (3:30 PM – 3:36 PM) price diving interval. The increase of the volume-weighted average effective dollar spread from 0.9143 cent during 2:30 PM – 3:00 PM interval to 1.1764 cent during 3:00 PM – 3:30 PM interval indicates 28.67% increase and the continued increase from 1.1764 cent during 3:00 PM – 3:30 PM interval to 1.2766 cent during 3:30 PM – 3:36 PM price diving interval indicates 8.52% increase.

Figure 2: HPQ's Time-Weighted Average Quoted Dollar Spread for Each Interval on 5/22/2014



This figure shows HPQ's time-weighted average quoted dollar spread for each interval on 5/22/2014. The vertical axis is the time-weighted average quoted dollar spread (c represents cent) and the horizontal axis is each time interval. NBBOs with locked or crossed quotes are excluded when calculating the time-weighted average quoted dollar spread for each time interval.

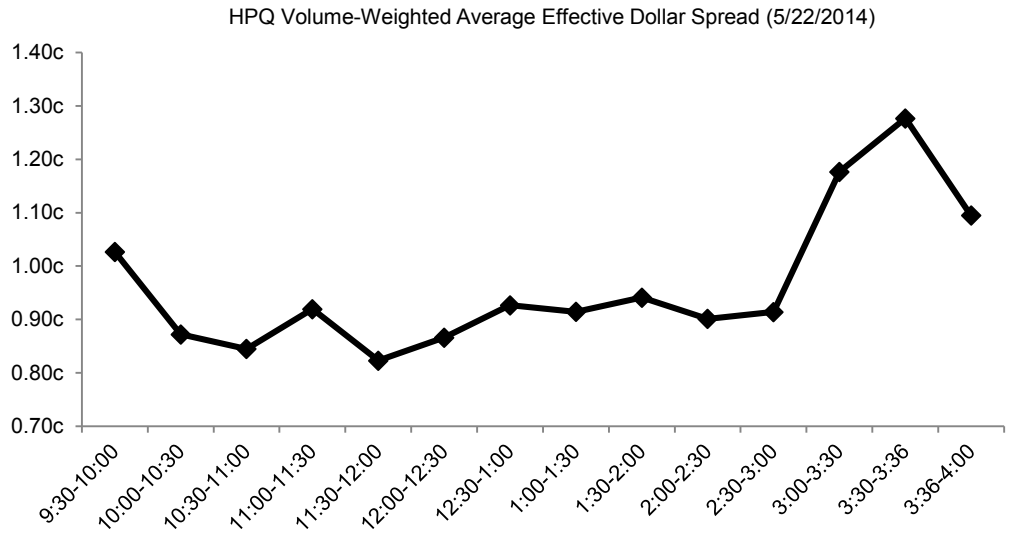
Figure 3: HPQ's Time-Weighted Average Percentage Quoted Spread for Each Interval on 5/22/2014



This figure shows HPQ's time-weighted average percentage quoted spread for each interval on 5/22/2014. The vertical axis is the time-weighted average percentage quoted spread and the horizontal axis is each time interval. NBBOs with locked or crossed quotes are excluded when calculating the time-weighted average percentage quoted spread for each time interval.

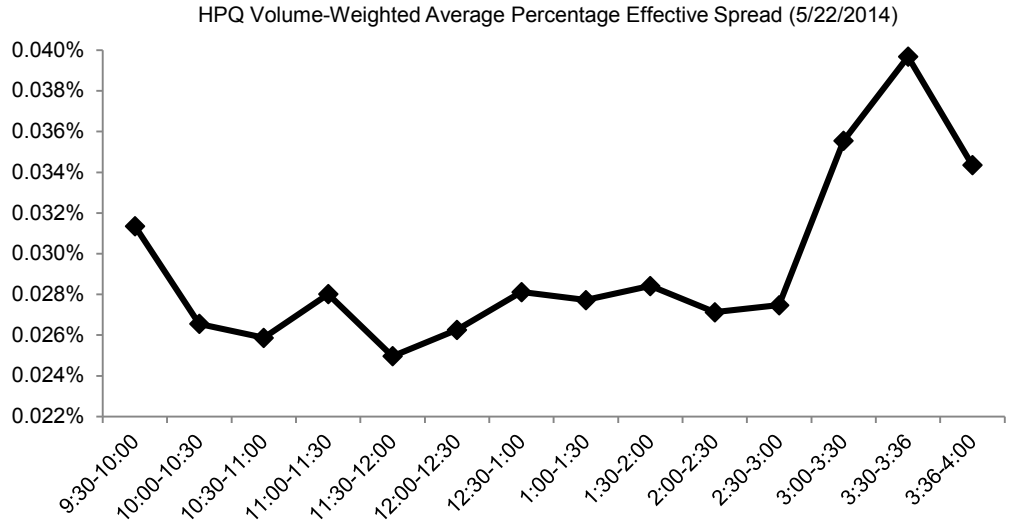
After 6-minute interval, the average effective dollar spread (average percentage effective spread) falls to 1.10 cent (0.034%) for the remaining 24-minute (3:36 PM – 4:00 PM) interval.

Figure 4: HPQ's Volume-Weighted Average Effective Dollar Spread for Each Interval on 5/22/2014



This figure shows HPQ's volume-weighted average effective dollar spread for each interval on 5/22/2014. The vertical axis is the volume-weighted average effective dollar spread (c represents cent) and the horizontal axis is each time interval. Trades associated with locked or crossed quotes are excluded when calculating the volume-weighted average effective dollar spread for each time interval.

Figure 5: HPQ's Volume-Weighted Average Percentage Effective Spread for Each Interval on 5/22/2014



This figure shows HPQ's volume-weighted average percentage effective spread for each interval on 5/22/2014. The vertical axis is the volume-weighted average percentage effective spread and the horizontal axis is each time interval. Trades associated with locked or crossed quotes are excluded when calculating the volume-weighted average percentage effective spread for each time interval.

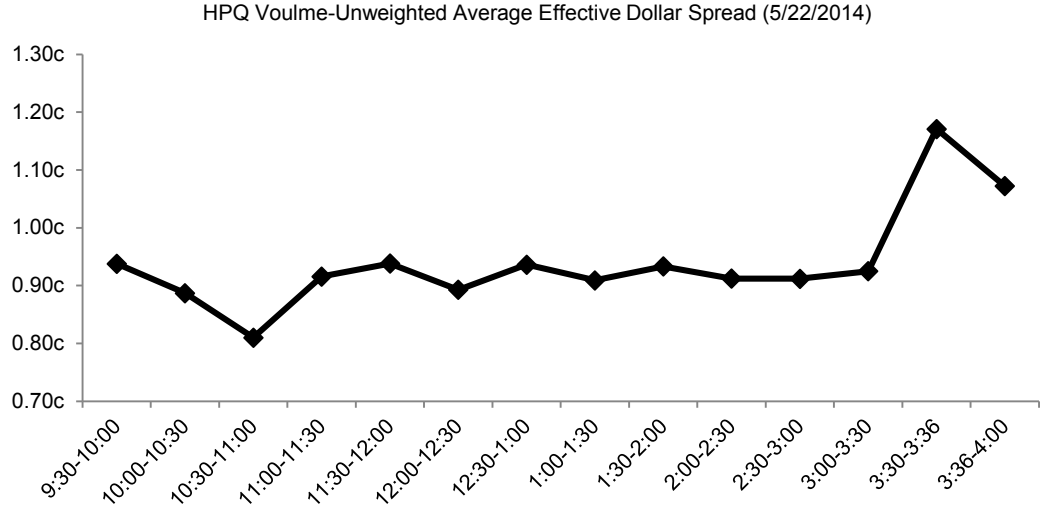
Although researchers generally calculate the volume-weighted effective spreads, HPQ's early earnings release instantly causes unusual large trading volumes, which may affect the results of calculating effective spreads. To isolate the effect of high trading volumes on the computation of effective spreads, the volume-unweighted (equally-weighted) average effective spreads are also calculated. Figure 6 and Figure 7 present HPQ's volume-unweighted average effective dollar spread and percentage effective spread for each interval on May 22, 2014, respectively.

The volume-unweighted average effective dollar spread (average percentage effective spread) begins at 0.9380 cent (0.0286%) and goes down to 0.8101 cent (0.0248%) and then goes up again, moving between 0.90 cent and 0.95 cent (between 0.027% and 0.029%). During the 6-minute (3:30 PM – 3:36 PM) price diving period, the volume-unweighted average effective dollar spread (average percentage effective spread) jumps up to 1.1709 cent (0.0364%). The increase of the volume-unweighted average effective dollar spread from 0.9250 cent during 3:00 PM – 3:30 PM interval to 1.1709 cent during 3:30 PM – 3:36 PM price diving interval indicates 26.58% increase.

After 6-minute interval, the volume-unweighted average effective dollar spread (average percentage effective spread) eventually drops to 1.0723 cent (0.0336%) for the remaining 24-minute (3:36 PM – 4:00 PM) interval.

The results of Figure 2, 4, and 6 reveal that during the 6-minute price diving interval (3:30 PM – 3:36 PM), HPQ's trading costs, measured by the time-weighted average quoted dollar spread, volume-weighted, and volume-unweighted average effective dollar spreads, increase by 5.37%, 8.52%, and 26.58%, respectively, from the prior 30-minute interval (3:00 PM – 3:30 PM).

Figure 6: HPQ's Volume-Unweighted Average Effective Dollar Spread for Each Interval on 5/22/2014

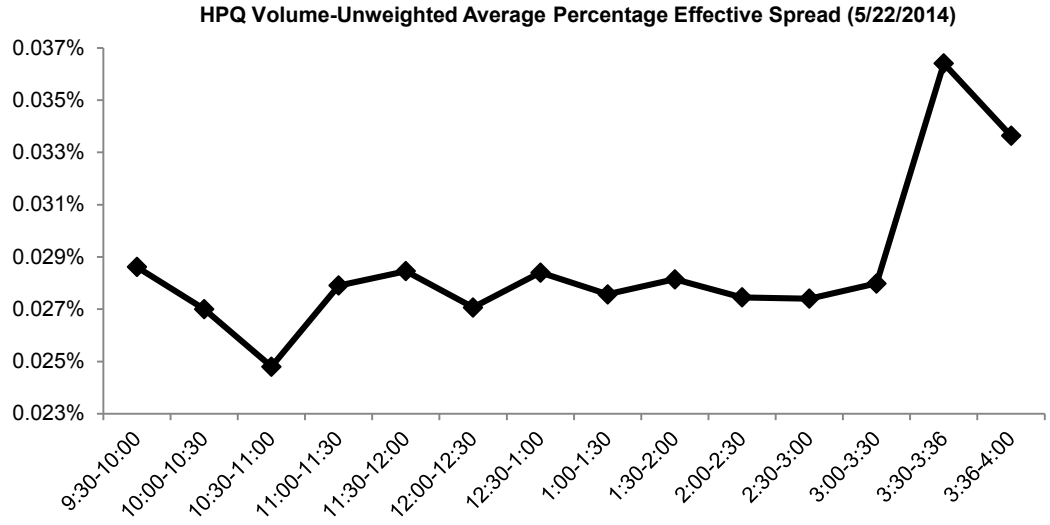


This figure shows HPQ's volume-unweighted average effective dollar spread for each interval on 5/22/2014. The vertical axis is the volume-unweighted average effective dollar spread (c represents cent) and the horizontal axis is each time interval. Trades associated with locked or crossed quotes are excluded when calculating the volume-unweighted average effective dollar spread for each time interval.

Figure 8 shows HPQ's adverse selection component of spread for each interval on May 22, 2014. The adverse selection component of spread is used to measure the information asymmetry. Based on Figure 8, the trend of adverse selection component is downward, which indicates that the information asymmetry is the highest at the beginning 30-minute interval of the day and then gradually moves down. It drops to the lowest level during the 6-minute price diving period and eventually moves up a little for the remaining 24-minute period. The result is consistent with the conjecture that the information asymmetry gradually goes down when the time approaches to HPQ's Q2 earnings release time and the information asymmetry reaches to the lowest level (0.0168) when earnings report is accidently released earlier and share price rapidly dives beginning 3:30 PM. After 3:36 PM, the market participants have a longer time to digest HPQ's Q2 earnings report; different opinions may arise and mix with the negative news. So, the information asymmetry increases (to 0.0339) for the remaining 24-minute interval. If the 6-minute price diving period and the last

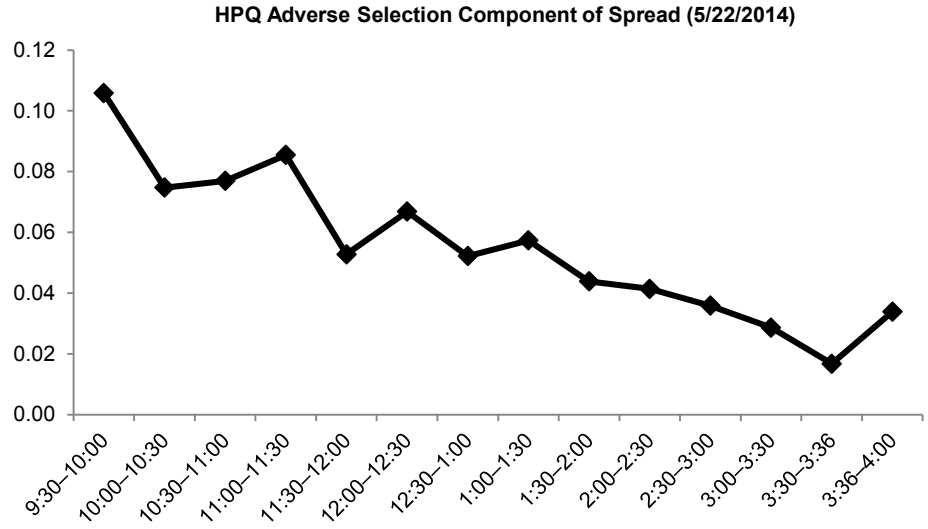
24-minute period are combined to one 30-minute interval, the adverse selection component for the last 30-minute interval (3:30 PM – 4:00 PM) is 0.0248, lower than 0.0287 of the previous 30-minute (3:00 PM – 3:30 PM) interval.

Figure 7: HPQ's Volume-Unweighted Average Percentage Effective Spread for Each Interval on 5/22/2014



This figure shows HPQ's volume-unweighted average percentage effective spread for each interval on 5/22/2014. The vertical axis is the volume-unweighted average percentage effective spread and the horizontal axis is each time interval. Trades associated with locked or crossed quotes are excluded when calculating the volume-unweighted average percentage effective spread for each time interval.

Figure 8: HPQ's Adverse Selection Component of Spread for Each Interval on 5/22/2014



This figure shows HPQ's adverse selection component of effective spread for each interval on 5/22/2014. The vertical axis is the adverse selection component of effective spread and the horizontal axis is each time interval. Lin , Sanger, and Booth's (1995) model for estimating the adverse selection component of effective spread is used and it is shown on equation (5) in data and methodology section. Trades associated with locked or crossed quotes are excluded when estimating the adverse selection component for each time interval.

The results of the important last-30-minute trading time on the announcement date can be summarized as follows. When HPQ's 2014 Q2 earnings report is inadvertently released prior to the closing bell on May

22, 2014, HPQ's stock price instantly slides 5% within 6 minutes to reflect the less-than-expected revenue news. During the 6-minute price diving interval (3:30 PM – 3:36 PM), HPQ's bid-ask spreads, measuring its trading costs increase, compared to the prior 30-minute interval (3:00 PM – 3:30 PM) and the adverse selection component of spread, measuring the information asymmetry declines to the lowest level of the day. After the 6-minute interval, HPQ's share price rebounds a little and then fluctuates since investors have a longer time to digest HPQ's Q2 earnings results and do not entirely treat them as negative results. For the remaining 24-minute interval (3:36 PM – 4:00 PM), HPQ's trading costs declines and information asymmetry rises relatively to the previous 6-minute price diving interval (3:30 PM – 3:36 PM).

CONCLUSION

Large publicly traded corporations mostly announce their quarterly earnings after the closing bell on the scheduled dates. The scarce occurrence of early 2014 Q2 earnings release on the announcement date for HPQ provides a chance of a case study to investigate the effect of early earnings release on intraday trading costs and information asymmetry for the market participants. Using the intraday trade and quote data for HPQ on the earnings release date, this study calculates HPQ's bid-ask spreads, measuring the trading costs and estimates the adverse selection component of spread, measuring information asymmetry for divided time intervals. The results show that HPQ's trading costs increase and its information asymmetry declines following early earnings release on the announcement day. The limitation of this research is that the results are only for the case of HPQ's 2014 Q2 early earnings release. This paper's results do not represent for the results of any other firms that also happen the situations of early quarterly earnings release. The future research may be pursued by including a larger sample of firms with similar events to examine how the events affect firms' trading costs on different (stock, bond, options) markets.

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DOES COMPANY GREEN SCORE AFFECT STOCK PRICE?

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Ilhan Meric, Rider University
Gulser Meric, Rowan University

ABSTRACT

Do investors reward green companies by paying a higher than the equilibrium price indicated by the capital-asset pricing models? Or do they penalize green companies by paying a less than the equilibrium price because going green and keeping green is costly and reduces company profits? In this study, we seek an answer to these questions by using the green scores published by Newsweek magazine for the S&P 500 companies in 2012. We use the parameters of the Fama-French three-factor capital-asset-pricing model as control variables in multivariate linear regressions to assess the impact of company green score on stock price. We use the event-study methodology to test our hypothesis with one-week, four-week, and ten-week event windows after the publication of the company green scores by Newsweek. Our findings indicate that a company's green score is not priced by the market and that the variation between companies in terms of their green scores cannot explain the variation between their stock returns.

JEL: D21, G12, G38, H20, M14

KEYWORDS: Green Score, Environmental Impact, Stock Price, Multivariate Linear Regression Analysis, Capital Asset Pricing Model, Fama and French's Three-Factor Asset-Pricing Model

INTRODUCTION

Sustainability has become an important topic among companies worldwide as they seek to both incorporate environmental and social impacts into their decision making framework and disclose the results of their efforts to stakeholders. These factors add to traditional economic considerations and now make up what some refer to as triple bottom line reporting. The 2012 Governance Accountability Institute Report indicates 53% of the Standard and Poor's 500 produced sustainability reports discussing in depth company efforts toward social, environmental, and economic developments in corporate performance. This percentage reflects a sharp increase from the previous year and reflects growing efforts to be both green and economically productive. An examination of these reports includes a variety of metrics used to show both how they measure sustainability and the goals and improvements in them over time. The inclusion of sustainability assurance reports, while less standardized and regulated than those required for financial reporting, shows an increasing effort to reflect the reliability of social and environmental data (Brockett and Rezaee, 2012).

The ability of analysts and other users of these reports to incorporate the relevant data into their decision making has been a question for some time. While the literature has dealt with sustainability from multiple perspectives such as corporate strategy and the impact of sustainability on financial performance, a growing body of literature now addresses the impact of sustainability on stock prices. The availability of sustainability rankings by *Newsweek* and others helps provide those interested in sustainability an additional capability of incorporating sustainability efforts and accomplishments in investment decisions.

This paper is organized as follows. In the following section, we present our review of previous literature on sustainability. In the next section, we discuss our data and methodology. In the section titled "Results," we present our empirical findings. Our conclusions are presented in the last section of the paper.

LITERATURE REVIEW

Pressures to address environmental concerns are of increasing importance to companies throughout the world. Amber and Lanoie (2008) address the many ways firms can address these potential issues in terms of related strategies to improve operating performance. Hopkins (2009) discusses the implications of sustainable practices to management, and Dixon-Fowler et al (2013) discuss factors such as reactive versus proactive environmental strategies and large versus small firms to issues addressed by Amber and Lanoie (2008). They find that going green has its benefits but that proactive environmental strategies do not appear to improve profitability. Their results also suggest small firms benefit from environmental performance at least as much as large firms. While the literature has at times provided support for those favoring more sustainable efforts (McPeak and Tooley, 2008), some reveal just the opposite (McPeak et al., 2010). Blazovich et al (2013) studied green firms utilizing *Newsweek* rankings and the relationship of green scores in financial performance. They found that a high green ranking was not significantly related to firm financial performance while noting that being green does not appear to negatively impact firm profitability. They also found mixed results regarding green scores and risk with "at best, being green is associated with lower risk, and at worse, being green does not negatively impact firm risk." Meric et al. (2012) studied the impact of 2010 *Newsweek* green scores of US companies and found company green scores and stock prices are negatively related. Their findings based upon a market model suggest that market incentives may be needed to encourage firms to embrace going and staying green.

The growing emphasis of companies to disclose their sustainable efforts through sustainability reports, the use of rankings such as those provided by *Newsweek*, sustainability indexes and broader based reporting, and the worldwide movement for improved standards of sustainability reporting including integrated reporting, show interest in sustainability. With more and more companies providing sustainability reports, the Global Reporting Initiative in its fourth iteration, *Newsweek's* continued coverage of sustainability rankings, and more companies providing full integrated reports that merge traditional financial reports with those involving environmental and social endeavors (triple bottom line reporting), the opportunity for better decision making involving sustainability data has never been greater. Brockett and Rezaee (2012) refer to an Ernst and Young/Green Biz Forum (2012) joint survey of about 270 respondents at leading companies reporting trends of increased sustainability reporting and an increase in the CFO's role in sustainability as well as more active engagement by employees as stakeholders in sustainable efforts. The survey suggests the growing use of outside ratings and rankings, and the importance of third-party assurance on sustainability information. The failure of that survey to include the *Newsweek* Green Rankings among its choices and the frequent write-in by respondents to recognize those rankings makes our focused study of the *Newsweek* rankings especially meaningful.

Research involving sustainability reporting shows some concern for uniformity and conformity. Sherman and DiGuilio (2010) studied the disclosures in sustainability reports and whether GRI (G3) guidelines helped improve reporting. While reporting level did not seem to increase, the number of core performance indicators rose. They noted the lack of objectivity especially in social indicators and the higher proportion of pharmaceutical companies opting for external verification of their sustainability reports. Guidry and Patten (2010) studied the market reaction to standalone sustainability reports including the quality of the reports. They found no significant reaction to the announcement of a first-time issuance of a report. In terms of quality they found that only high quality reports added value with lower quality ones decreasing value. *Newsweek* rankings and their ability to both acquire a full range of sustainability data and process it for users, makes it an appealing data source for those trying to incorporate sustainability in stock

selection. The following discussion explains the methodology utilized by *Newsweek* and why it lends itself to the type of regression analysis used in this study.

DATA AND METHODOLOGY

Newsweek ranks the 500 largest US publicly traded companies in terms of their green scores. This study utilizes their 2012 rankings. Company size is evaluated according to revenue, market capitalization, and number of employees. The green score is derived from three component scores: Environmental Impact Score (EIS), Environmental Management Score (EMS), and the Disclosure Score (DS), weighted at 45 percent, 45 percent, and 10 percent, respectively. All scores are out of a possible 100. The EIS data is compiled by Trucost. It is designed to provide "a comprehensive, quantitative, and standardized measurement of the overall environment of a company's global operations." Based on more than 700 metrics including greenhouse gases, solid-waste disposal, and other emissions that contribute to rain and smog, Trucost "uses publicly disclosed environmental data to evaluate company performance for each impact metric whenever possible, and uses a proprietary economic input-output model to calculate direct-company and supply chain impacts in cases where data is unavailable." (see http://www.newsweek.com/newsweek-green-rankings-2012-full-methodology.html).

EMS data is based on the analysis of company data tracked by Sustainalytics' Global Platform. It seeks to assess how a company manages its environmental performance through policies, programs, targets, and certifications. This assessment includes a focus on company operations, contractors and suppliers as well as products and services. Core indicators are supplemented by more than 40 sector-specific indicators addressing issues such as water use and hazardous-waste reduction. The company's research process includes an examination of both broad based databases and company documents along with stakeholder communications. All profiles are peer reviewed and verified. (see http://www.newsweek.com/newsweek-green-rankings-2012-full-methodology.html). The Disclosure scores (DS) used by *Newsweek* assess a company's environmental transparency. Data used by Trucost reflects "the proportion of environmental impacts a company is disclosing out of those relevant to its business operations," while that provided by Sustainalytics assesses the "breadth and quality of company environmental reporting, as determined by the level of involvement in key transparency initiatives." (see http://www.newsweek.com/newsweek-green-rankings-2012-full-methodology.html).

The Most Green and the Least Green U.S. Companies

Twenty companies with the highest and lowest green scores in *Newsweek's* 2012 ranking of 500 of the largest publicly traded U.S. companies are presented in Table 1. The Pearson correlation coefficients between *EIS* (Environmental Impact Score), *DS* (Disclosure Score), *EMS* (Environmental Management Score), and *TGS* (Total Green Score) are presented in Table 2. The figures in Table 2 indicate that *TGS* is most closely correlated with *EMS* and least closely correlated with *EIS*. *EIS* is negatively correlated with the other green measures *DS* and *EMS*. The green measures *DS* and *EMS* are highly positively correlated.

To study the effect of company green scores on stock returns, we use the following four multivariate linear regression models for three different event windows. Since the three different green measures and the total green score are closely correlated, we use them as an explanatory variable in four different regression models to avoid multicollinearity. In Models 1, 2, and 3, we study the effect of the three green measures on stock returns in three different event windows. In Model 4, we study the effect of the total company green score on stock returns in the same three event windows.

Table 1: 2012 Newsweek Green Rankings of 500 Largest Companies: 20 Companies with Highest and Lowest Green Scores

Rank	Company	Industry	Green Score
20 Highest Rated Companies			
1	IBM	Technology	82.9
2	Hewlett-Packard	Technology	78.5
3	Sprint-Nextel	Technology	77.5
4	Dell	Technology	77.1
5	CA Technologies	Technology	77.1
6	Nvidia	Technology	76.3
7	Intel	Technology	75.2
8	Accenture	Info Tech Services	74.7
9	Office Depot	Retailing	74.4
10	Staples	Retailing	74.4
11	EMC	Technology	73.6
12	Microsoft	Info Technology	73.5
13	Cognizant Tech	Info Technology	73.1
14	Hartford Financial	Financial	72.8
15	McGraw-Hill Media	Publishing	72.8
16	Manpower	Prof Services	72.8
17	Citigroup	Financial	72.7
18	Baxter	Healthcare	72.6
19	Cisco Systems	Technology	72.1
20	Motorola Solutions	Technology	71.8
20 Lowest Rated Companies			
481	Edison Int.	Utilities	34.2
482	Bunge	Food and Beverage	33.7
483	Mead Johnson Nutrition	Food and Beverage	33.6
484	PPL	Utilities	33.5
485	Ameren	Utilities	32.8
486	AES	Utilities	32.3
487	Allegheny Tech	Materials	31.9
488	Ameriprise Financial	Financial	30.9
489	Ralcorp Holdings	Food and Beverage	29.8
490	Tyson Foods	Food and Beverage	29.7
491	First Energy	Utilities	29.5
492	Archer-Daniels Midland	Food and Beverage	27.5
493	Peabody Energy	Energy	27.4
494	CONSOL Energy	Energy	26.3
495	Invesco	Financial	25.9
496	Monsanto	Materials	25.3
497	T.Rowe Price	Financial	25.0
498	CF Indust Holdings	Materials	24.3
499	Alpha Nat Resources	Energy	23.5
500	BlackRock	Financial	21.4

This table lists the top 20 companies with the highest green scores and the bottom 20 companies with the lowest green scores in the Newsweek list.

Table 2: Correlation Coefficients

	EIS	DS	EMS	TGS
EIS		-0.417	-0.109	0.612
DS	-0.417		0.566	0.303
EMS	-0.109	0.566		0.689
TGS	0.612	0.303	0.689	

This table shows the Pearson correlation coefficients between the green measures in the research sample. All correlation coefficients are statistically significant at the 1-percent level in the two-tailed tests. EIS = Environmental Impact Score DS = Disclosure Score EMS = Environmental Management Score TGS = Total Green Score

In the traditional capital-asset-pricing model (CAPM), beta is the main determinant of stock returns. Fama and French (1993, 1994) propose a three-factor capital-asset-pricing model in which, in addition to beta (β), firm size (*SZ*) and market-value-to-book-value ratio (*MB*) are also market risk measures and determinants of stock returns. Therefore, in our regressions we use these three determinants of stock returns in the Fama-French capital-asset-pricing model to control for the market risk.

1-Week Event Window:

Model 1:

$$1wRT_i = a_0 + a_1\beta_i + a_2SZ_i + a_3MB_i + a_4EIS_i + e_i \quad (1)$$

Model 2:

$$1wRT_i = b_0 + b_1\beta_i + b_2SZ_i + b_3MB_i + b_4DS_i + f_i \quad (2)$$

Model 3:

$$1wRT_i = c_0 + c_1\beta_i + c_2SZ_i + c_3MB_i + c_4EMS_i + g_i \quad (3)$$

Model 4:

$$1wRT_i = d_0 + d_1\beta_i + d_2SZ_i + d_3MB_i + d_4TGS_i + h_i \quad (4)$$

4-Weeeks Event Window:

Model 1:

$$4wRT_i = a_0 + a_1\beta_i + a_2SZ_i + a_3MB_i + a_4EIS_i + e_i \quad (5)$$

Model 2:

$$4wRT_i = b_0 + b_1\beta_i + b_2SZ_i + b_3MB_i + b_4DS_i + f_i \quad (6)$$

Model 3:

$$4wRT_i = c_0 + c_1\beta_i + c_2SZ_i + c_3MB_i + c_4EMS_i + g_i \quad (7)$$

Model 4:

$$4wRT_i = d_0 + d_1\beta_i + d_2SZ_i + d_3MB_i + d_4TGS_i + h_i \quad (8)$$

10-Weeeks Event Window:

Model 1:

$$10wRT_i = a_0 + a_1\beta_i + a_2SZ_i + a_3MB_i + a_4EIS_i + e_i \quad (9)$$

Model 2:

$$10wRT_i = b_0 + b_1\beta_i + b_2SZ_i + b_3MB_i + b_4DS_i + f_i \quad (10)$$

Model 3:

$$10wRT_i = c_0 + c_1\beta_i + c_2SZ_i + c_3MB_i + c_4EMS_i + g_i \quad (11)$$

Model 4:

$$10wRT_i = d_0 + d_1\beta_i + d_2SZ_i + d_3MB_i + d_4TGS_i + h_i \quad (12)$$

Where i = 1, 2, …, 460 are the companies in the research sample that met full data requirements. $1wRT_i$ are the stock returns for the one-week event window (10/19/2012-10/26/2012). $4wRT_i$ are the stock returns for the four-week event window (10/19/2012-11/16/2012). $10wRT_i$ are the stock returns for the ten-week event window (10/19/2012-12/31/2012). a_1, a_2, a_3, and a_4 are constants (intercept terms) in the regressions. e_i, f_i, g_i and h_i are the error terms in the regressions. β_i (beta), SZ_i (size), MB_i (market-to-book value) are the control variables in the regressions from the Fama-French capital-asset-pricing model. (see: Meric and Meric, 2011 and Wang et al., 2009 and 2011). EIS_i, DS_i, EMS_i, and TGS_i are the green measures used as explanatory variables in the regressions.

RESULTS

The regression results with Equations 1 through 12 are presented in Table 3. All twelve regressions in the three event windows are statistically significant.

Table 3: Regression Results

	Model 1	Model 2	Model 3	Model 4
One-Week Event Window				
Intercept	0.000	0.040	0.000	0.000
Beta (β)	-0.133***	-0.136***	-0.137***	-0.134***
Size (*SZ*)	-0.066	-0.071	-0.069	-0.061
Market-to-Book Ratio (*MB*)	-0.029	-0.027	-0.025	-0.029
EIS	-0.038			
DS		0.012		
EMS			0.009	
TGS				-0.024
Adjusted ^{R2}	0.026	0.025	0.025	0.026
F Value	3.087**	2.930**	2.930**	2.980**
Four-Week Event Window				
Intercept	0.000	0.000	0.000	0.000
Beta (β)	-0.005	-0.000	0.000	-0.005
Size (*SZ*)	-0.116***	-0.101**	-0.119***	-0.127***
Market-to-Book Ratio (*MB*)	-0.249***	-0.251***	-0.251***	-0.247***
EIS	0.060			
DS		-0.044		
EMS			0.017	
TGS				0.048
Adjusted ^{R2}	0.075	0.082	0.080	0.082
F Value	10.361***	10.120***	9.920***	10.160***
Ten-Week Event Window				
Intercept	0.000	0.000	0.000	0.000
Beta (β)	0.145***	0.146***	-0.141***	0.139***
Size (*SZ*)	-0.102**	-0.111**	-0.116**	-0.114**
Market-to-Book *(MB*)	-0.118***	-0.120***	-0.111**	-0.112**
EIS	0.004			
DS		0.030		
EMS			0.053	
TGS				0.043
Adjusted ^{R2}	0.031	0.040	0.042	0.041
F Value	4.618***	4.720***	4.930***	4.830***

*This table presents the regression results for equations 1 through 12 (regressions with the four model equations for each of the three event windows). *** and ** indicate that the regression coefficient of the variable is significant at the 1-percent and 5-percent levels, respectively.*

None of the green measures is significant in the regressions. This result indicates that investors did not respond to the publication of the green scores and that green score is not a determinant of stock returns. Some investors may not be aware of the *Newsweek* magazine green score publication. Some investors who may be aware of the publication may favor green companies. However, there may be some investors who may avoid investing in green companies because going green and keeping green is costly and can reduce company profitability. These two effects may tend to cancel one another. Beta is statistically significant for the one-week and ten-week event windows. However, it is not significant for the four-week event window. The sign of the regression coefficient of the variable is positive for the ten-week event window as postulated by the Capital Asset Pricing Model (CAPM) (i.e., firms with a higher beta receive higher returns. It appears that a longer event window period provides a better test for the CAPM.

As in the case of the CAPM, it appears that a longer event window period also provides a better empirical test for the Fama-French three factor capital asset pricing theory. The size variable (*SZ*) is not significant for the one-week event window. However, the regression coefficient of the variable is statistically significant with a negative sign for the four-week and ten-week event windows. This result implies that, because they are riskier, investors require higher returns from smaller firms as postulated by the Fama-

French three factor capital asset pricing model. As in the case of the size variable, the market-value-book-value (*MB*) is not significant for the one-week event window. However, the regression coefficient of the variable is statistically significant with a negative sign for the four-week and ten-week event windows. This result implies that, because they may be under financial distress, investors require higher returns from firms with a lower *MB* ratio as postulated by the Fama-French three factor capital-asset pricing model.

CONCLUSIONS

This paper has examined the impact on stock prices of green score information provided by *Newsweek's* 2012 Sustainability Rankings. Data for the 500 largest U.S. companies published in October, 2012 were considered based upon *Newsweek* disclosures for three different sustainability measures and an overall green score. The Fama-French three factor capital asset pricing model was used to evaluate stock market performance around one, four, and ten weeks event windows. In the Fama-French three factor asset pricing model, beta, size, and market-to-book ratio serve as the determinants of stock returns. Four regression models with each of these variables and one for each of the green score variables: *EIS* (Environment Impact Score), *EMS* (Environmental Management Score), *DS* (Disclosure Score), and *TGS* (Total Green Score) were used. All twelve regressions for the three event windows are statistically significant. However, none of the green measures is significant for any of the three event windows. This result contradicts the findings of a previous study which found green measures and stock prices to be significantly negatively correlated (see: Meric et al, 2012).

Beta is statistically significant for one and ten-week event windows but not for the four-week window. The positive sign of the regression coefficient in the ten-week window is consistent with the model's underpinnings that higher beta stocks have higher returns. Thus, the ten-week window, or longest of the three windows, is a better test for the CAPM. These results are also consistent with the Fama-French theoretical underpinnings since the sign of the size variable is not significant for the one-week window. This is in contrast to the four and ten-week event windows where a negative sign is statistically significant. This implies that because of higher risk, investors require higher returns for smaller firms. The market-value-to-book value (*MB*) regression coefficients indicate similar results, with only the four and ten-week windows being statistically significant with negative signs. The implication is that firms with a low MB ratio and possible higher financial distress require higher returns.

An important limitation of our study is that all investors may not be aware of *Newsweek's* sustainability rankings. Therefore, it may be difficult to capture the impact of the company green scores in this publication on stock prices with statistical tests. Our finding that none of the *Newsweek* sustainability measures is statistically significant may reflect that fact. Another limitation of our study is that *Newsweek's* sustainability rankings are published every year. These rankings might have had a significant impact on stock prices when they were first published but the effect may lessen gradually over time particularly in the case of companies ranked as green in the list every year. One last limitation of our study is that it is difficult to determine the optimal length of the event window. In some event studies the event window period can be relatively precise such as dividend or merger announcements, a stock market crash, etc. In our study, it is difficult to determine with any degree of precision how long it would take investors to be informed about *Newsweek's* sustainability rankings.

It is interesting to try to determine if company green scores have any impact on security prices (i.e., whether the market awards companies that go green with higher valuations or penalizes them with lower valuations because going green is costly and therefore can negatively affect company profitability). This study is one of the preliminary studies on this subject and more studies should be expected in the future. One possibility for future research is to use principal components analysis in an arbitrage pricing theory type model to assess the impact of company greenness on stock prices. Such a model would enable the

researcher to include all company specific variables into the model and perhaps be able to name one of the principal component factors as the green factor and test its statistical significance with factor scores. As a study topic, the effect of company greenness on investor decisions is quite suitable for a survey-type analysis. Therefore, future studies may attempt to further determine investors' attitudes toward green companies with survey questionnaires distributed to investors and others involved with the financial community. Our study focuses on the United States. Future research may also study the effect of company greenness on stock prices in European countries and in emerging markets for comparison.

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BIG DATA MANAGEMENT: RELATIONAL FRAMEWORK

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ABSTRACT

Volumes of available digital data have been significantly expanding over the past decade. Alongside the volume, diversity and complexity of digital data have also been growing. Contemporary devices and systems are capable of generating data vastly exceeding capabilities of organizations and conventional information technologies to process it. Big, diverse and complex data presents novel challenges for organizations—but also opportunities. Big data enables tackling longstanding complex problems that would otherwise be out of reach. It also opens new scientific and commercial possibilities that could not exist without availability of data. Organizations utilizing large volumes of diverse data, however, face unique challenges. The challenges range from technological and processing issues to business and management matters. Organizations need to adopt appropriate management strategy in order to satisfactorily deal with the issues arising from utilization of big data. This necessitates understanding of relationships between the aspects of data and their managerial consequences. We examine the essential characteristics of big data and explore pertinent managerial implications.

JEL: C8, C81, C82, C88, D7, D8, D81, M15

KEYWORDS: Big Data, Data Aspects, Processing Capabilities, Strategy, Actionable Knowledge, Information Technology Management, Management of Information Systems

INTRODUCTION

Organizations rely on a broad range of information and communication technologies. Large number of organizations would be unable to function without the computer and information technologies (Turban and Volonino, 2011). Information technologies play a prominent role in many knowledge-intensive organizations. They are often designated as the core assets (Alvesson, 2004). Knowledge workers largely depend on information systems and services deployed in organizations (Davenport, 2005). Essential business processes are implemented within internal information systems. Formerly pen-and-paper business processes have been transferred into electronic business processes. This transformation facilitates enhanced working efficiency and productivity. It also permits task automation and improves accessibility of information and resources (Wikoff, 2008).

Individual organizations pursued their own paths when adopting information technologies. There are, however, noticeable adoption patterns. Initially, organizations had separate strategies for building information technology infrastructures and capabilities. Dedicated information technology departments have been relatively absent. Shortage of trained professionals and insufficient experience with information technologies have been prevailing. There has been also notable lack of best practices. This has led to uncoordinated long-term strategy and planning (Butler and Murphy, 2007). Separate departments in organizations have been implementing their specific information infrastructures and systems (Papastathopoulou et al., 2007).

Strategic coordination, planning and deployment of information technologies have become desirable (Georgantzas and Katsamakas, 2010; Boar, 2000). Smooth transition to novel management of information technologies has been favored. Radical reengineering of deployed systems would be costly and could hinder operations in organizations. Hence, solutions that could effectively utilize existing technologies have been preferred. A viable solution, in a form of organizational portal, has been presented to address these issues (Collins, 2000).

The portals provide a single-point access to distributed systems and services in organizations (Oertel et al., 2010; Sullivan, 2004). They do not represent a radically new technology, but rather a beneficial merger of readily available technologies. Enabling technologies have been the standardized communication protocols, web specifications, and service-oriented architecture and design (Rosen et al., 2008). Portals feature web-based front-ends and database plus legacy technologies at back-ends. The interoperability between front-ends and back-ends is facilitated by service-oriented technologies. Deployment of portals effectively marked internalization of web-based technologies by organizations. Internet and World Wide Web have become external economic drivers. Generation and flow of digital data have been rapidly expanding. Data collection and utilization technologies have emerged—initially, as web data analytics utilizing data acquisition capabilities of web servers (Kaushik, 2009).

Internet and web technologies have allowed global interconnectivity and access of resources (Knight, 1998). Many resources have been digitalized. Digitalization of the formerly analog resources and media has been one of the first waves of digital data expansion. Another wave has brought forward a vast content produced by organizations and individuals (Krumm et al., 2008). Broad spectrum of content has notably contributed to diversity of digital data. Expanding content and services on the World Wide Web have attracted large numbers of users. Businesses have started tracking users and analyzing data about their interactions (Lackner et al., 2010). Data analysis has proven to provide suitable insights on system functions and users' interactions (Géczy et al., 2007 and 2008). This has fueled development in analytic and data acquisition technologies. The technologies extended to specialized hardware and software tools. However, the data growth significantly outpaced capabilities of systems to process it. And soon, big data problems have emerged.Due to novelty of big data issues, there is a scarcity of available studies addressing pertinent management issues. This work attempts to fill the gap by presenting a relational framework for managing big data challenges. The relational framework explores aspects of data and related management issues. It highlights several core managerial domains.

The manuscript is organized as follows. The literature review section is followed by the 'Big Data Problem Approach' section. It presents the relational perspective on challenges associated with big data. The next section, 'Relational Management Framework', introduces novel management framework for addressing big data challenges. Several high priority managerial domains are identified and concisely discussed. The presentation concludes with a concise summary of the essential points.

LITERATURE REVIEW

Data has become a currency of the information economy (St. Amant and Ulijn, 2009). Economic activities have been gradually evolving from production of goods, throughout provision of services, to extraction of value from information and data. Services have become the dominant economic activity of contemporary developed economies (Bryson et al., 2004). Information technologies and services have been rapidly expanding and gaining ground. Values of data and information have been rising and organizations have been realizing it (Lievesley et al., 1993). Extracting valuable information from data has become the target for increasing number of organizations. They have started collecting growing volumes of data and exploring various monetization opportunities. Data sales have become a viable revenue stream. However, organizations have been exploring further prospects not only in selling data, but also in analyzing it with the aim of improving their own operations.

Organizations have been strengthening their data collecting and processing capabilities (Davenport et al., 2007 and 2010). Expansion of data acquisition operations has led to rapid growth of data. Large data volumes demand significant computing power for processing. They also demand significant increases in storage capacity. Growing demands for processing, storage and management of big data have led to development of scalable and distributed technologies (Frischbier and Petrov, 2010). Hence, novel challenges have emerged—big data problems (Buhl et al, 2013; Hunter, 2013). Big data problems have arisen from the disproportionate growth between collected data and capabilities of organizations to process and manage it (Klein et al., 2013; Walsh et al., 2012). Data has been growing considerably faster than advances in processing technologies. Data volume has become just one of the growing number of factors affecting processing. Other factors, such as diversity and structure of data have also started significantly affect processing. Various aspects of big data have presented notable challenges.

Suitable deployments of analytic methods have become an important aspect influencing data acquisition, processing and management (Bernhardt, 2004). Numerous analytic methods have been developed and applied to meet the growing processing demands. Analytic methods and tools have become highly regarded for their capabilities to extract valuable information and actionable knowledge from data. The critics of big data and analytics argue that big data and its analysis without the context are inadequate. This argument has gained strength with the major failure of Google Flu Trends project (Lazer et al., 2014). The project has been considered a prime example of big data power—as a more useful indicator of flu than government statistics. However, it completely missed the largest swine flu pandemic.

Big Data Problem Approach

The big data problem has emerged relatively recently in organizations (Buhl et al, 2013; Hunter, 2013; Klein et al., 2013; Walsh et al., 2012). Digital revolution and information technologies have brought numerous benefits, but they also provided fertile grounds for emergence of big data issues. There are four factors notably contributing to big data problems: digitization of business processes and accompanying data, accumulation of extra data, extraction of actionable knowledge from data, and monetization of data.

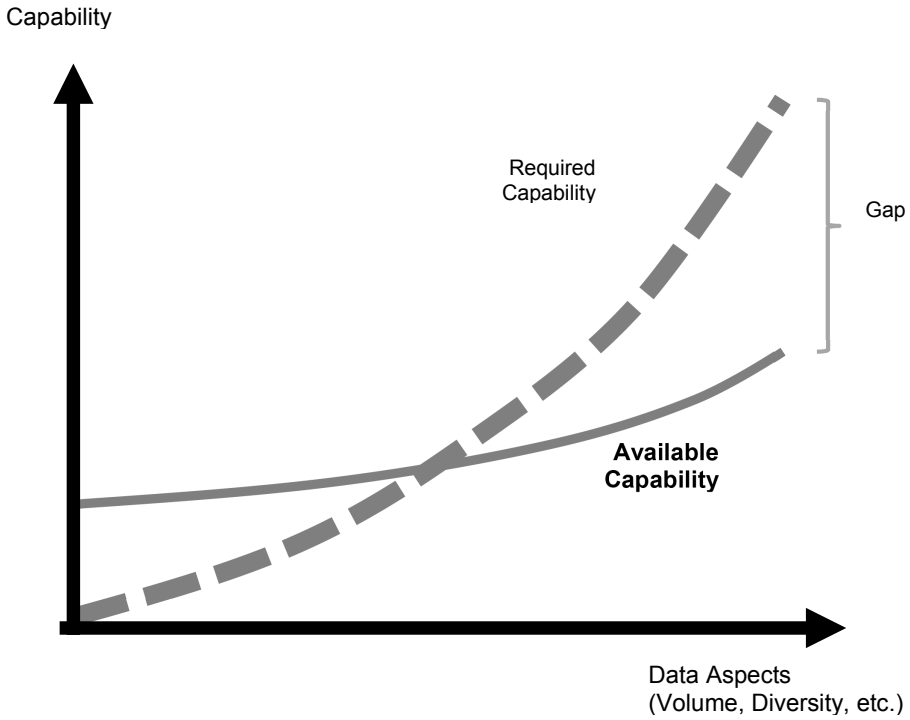
Digitization of business processes facilitated the transfer of formerly paper-based processes into computer oriented business processes, environments and platforms. Business processes have been reengineered to fit into organizational internal digital environments. Related business process data has also been digitized (Oertel et al., 2010). Digitization of business processes and data have accelerated innovation and enabled several levels of automation of business processes (Beydoun, 2013). It has enhanced operating efficiency of organizations. However, it also made organizations dependent on information technologies.

Acquisition of extra data by organizations has been progressing in conjunction with digitization of business processes. Acquired additional operational data has various beneficial uses (Géczy at al., 2011). For instance, technologies for collecting data about users' interactions with the digital environments have been implemented. Such data has enabled efficient usability monitoring of business processes and services. It improved targeting and planning of innovations of business processes, services and organizational portals. Organizations have been implementing various data collection technologies and acquiring growing volumes of data. Large volumes of operational data can be explored for gaining insights into functioning of organizations. Analytics have been deployed to discover opportunities for increasing operational efficiency and innovating business processes. Data analytics have also been employed to gain competitive advantage for organizations (Davenport et al., 2007 and 2010). Actionable knowledge extraction methods have been utilized for improving core competencies (Laursen and Thorlund, 2010). Extensive data acquired by organizations can be monetized. Organizations have been monetizing the data by selling it to external parties. This way, organizations have been establishing additional revenue streams. Some data can be sold directly with little or no extra processing. However, majority of the data requires processing before it is

sold. Sale oriented data processing largely consists of removing sensitive elements and then formatting remaining data to standardized or agreed-upon style.

Collection and processing of large data volumes by organizations have led to various challenges (Wigan and Clarke, 2013; Buhl et al, 2013; Klein et al., 2013; Hunter, 2013; Walsh et al., 2012). These challenges are commonly referred to as big data problems. Big data problems do not refer only to the issues originating from the size of data. Such perception has been propagated by information technology providers doing business in 'big data'. Understandably, it serves their marketing and business purposes. However, this would be a rather narrow perspective on big data challenges.

Figure 1: Illustration of the Relational Perspective on Big Data Problem in Organizations



Bigger data requires greater processing capabilities. Growing aspects of data, such as volume and diversity, necessitate growing storage requirements and computing power to process it. Demands on processing capabilities rise faster than various aspects of data. The problem of big data emerges from increasing gap between the available capabilities to process acquired data and the required capabilities given the existing processing methods.

We approach the big data problem from an enveloping perspective. The presented relational approach explores relationships between various aspects of data and its handling. In this way, the size of data is only one of the aspects. Significant advantage of the relational approach is that it is both encompassing and illuminating. It highlights interrelationships between the aspects of data and its management. The emergence of big data problems, from the relational viewpoint, is illustrated in Figure 1. Horizontal axis represents various aspects of data, such as diversity, volume, quality, etc. Vertical axis represents capabilities to manage the data and related issues; such as storage capabilities and processing power. The big data problem is expressed as a gap between required capabilities to manage data and organization's available capabilities. Presenting the big data problem as a relationship between the various aspects of data and capabilities to manage it has several benefits. It allows clear distinctions between data aspects and required management capabilities. Furthermore, it permits observations of relationships between various aspects of data and required capabilities to manage such data. This approach allows in-depth elucidation of both data and management aspects.

Organizations can focus on the specific issues related to their data and its management. They can accurately evaluate features in the respective domains. Relationships highlight the links between the aspects of data and its management requirements. This allows observing various effects between interconnected aspects. It enables managers to elucidate how changes in specific aspects of data affect management requirements. Working from such encompassing framework enables organizations to accurately model and optimize deployment of their resources. It also facilitates innovation and planning in both short and long terms.

Relational Management Framework

Relational perspective on the big data problem encompasses both data aspects and management domains. Collection, processing and retention of large data volumes present novel managerial challenges for organizations (Tallon, 2013). The challenges demand adoptions of new management approaches that may significantly depart from the methods organizations have been using (Malik, 2013). Transition to new management framework should proceed in a timely manner. Embracing new management methods brings forth transitional issues (Hamel, 2007). While it is desirable to transition as smoothly as possible, there are both expected and unexpected issues in any transition. Many issues can be managed by deploying information technology solutions supporting managerial and transitional aspects. However, such technologies require significant investments. While larger organizations can afford greater investments and faster adoption, smaller organizations may decide to transition more slowly.

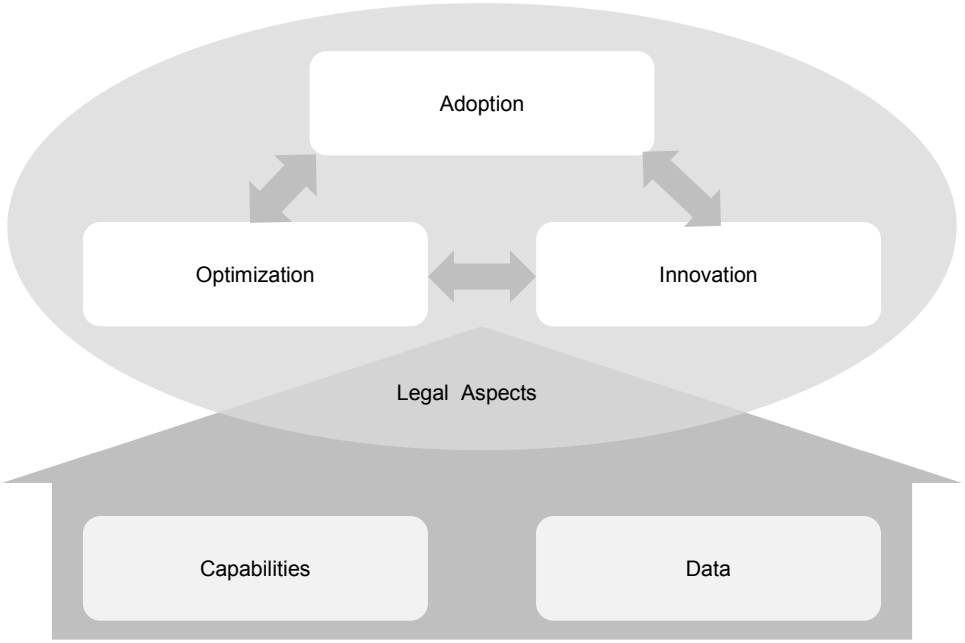
Conversely, small and medium size organizations that do not collect excessive data volumes may adopt available information technologies suiting their data volume and processing requirements. Various technologies are readily available from both commercial and free/open source vendors—making them highly cost-performance effective. Relational management framework draws from the presented relational perspective on the big data problems in organizations. This approach underscores the fact that various aspects of data affect various managerial domains. While aspects of data and its management are clearly distinguishable, they are interlinked through their influences. This enables elucidation of both individual features and their influences. The presented approach allows identification of managerial domains that play key roles in effective management of big data issues.

The pertinent managerial domains of the relational management framework arise from the interconnectedness of data aspects and relevant managerial activities. They are depicted in Figure 2. Four managerial domains are highlighted: adoption of data collection and processing methods and technologies, optimization of organizational resources with respect to big data issues, resolution of legal aspects related to acquisition and processing of sensitive data, and progressive innovation. It is important to note that the highlighted managerial domains focus on prioritization rather than completeness of the list. Different circumstances of each organization may result in a more extensive list of managerial domains.

Pertinent Managerial Domains

The pertinent managerial domains constitute the prioritized core of activities when managing big data. The presented four domains encompass the spectrum of activities ranging from the initial adoption of data acquisition technologies, throughout the processing of data and utilization of findings, to addressing the future trends and needs of organizations via innovation and reengineering. Attentiveness to the full spectrum of activities is beneficial for managers even if their organizations have already moved past the initial stages. Naturally, organizations that have deployed several technologies towards utilization of big data may be focused on later stage issues. However, several managerial issues in the earlier stages of deployments may resurface in later stages due to the connectedness of various aspects of data and its management.

Figure 2: Illustration of the Main Components of Relational Management Framework



Relational management framework builds on the novel interlinked perspective on the emerging big data challenges in organizations. The framework highlights several pertinent management domains that need to be suitably approached in order to efficiently address issues originating from data collection and processing. The pertinent management domains are adoption of data acquisition and processing technologies, optimization of available resources, innovation, and suitable management of legal issues arising from dealing with sensitive data.

Adoption

Orientation of organizations towards acquisition and utilization of extended data volumes is inevitably connected with adoption management. Big data processing and management requires proper communication infrastructure, suitable deployment of data collection technologies, and processing capabilities. These are the necessary precursors for efficient use of large data volumes. Communication infrastructures of organizations must be able to reliably sustain large volumes of data flows. Large internal data flows necessitate fast intranet connectivity, and external data flows fast internet connectivity. Internet connectivity is provided by external entities—internet service providers. External internet service providers and their services are generally independent of communication infrastructures within organizations. Hence, organizations must secure suitable services according to their external communication needs. However, intranet connectivity is under control of organizations. Legacy communication infrastructures are unsuitable for handling large data flows. They may require significant reengineering and upgrades. Proper management of infrastructure reengineering is a crucial task, since communication infrastructure is a backbone for data transmissions. Data collection technologies and processing capabilities are additional key factors in big data utilization. Benefits of big data adoption rely on quality of data and its processing. Deployed data collection technologies must provide data of desirable quality. Otherwise, no processing technologies and algorithms can provide beneficial outcomes. Analogously, having quality data without capabilities to process it is equally futile. Hence, it is necessary to maintain suitable balance between the collected data volumes, quality and processing capabilities.

Optimization; Beneficial deployment and utilization of big data technologies require adequate resources. Big data technologies are resource intensive—leading to various challenges in suitable resource management. Challenges arising from managing big data necessitate proper optimization of resources. Adoption of big data technologies affects human, financial and physical resources. Novel technologies

facilitating beneficial use of big data require personnel changes and retraining. Due to the relative novelty of big data technologies, the demand for qualified and experienced professionals significantly exceeds supply. Operation and utilization of data processing and analytic systems require well-trained professionals—ideally, with advanced degrees in data science or analytics. Unfortunately, data science programs have only recently been emerging at universities. It will take several years to produce sufficient number of qualified professionals. Presently, this gap is being filled with professionals trained in information and computer sciences, engineering, mathematics and physics. Another option for organizations is to train their own professionals. However, this takes time and investments. Physical resources such as storage, computing and communication equipment also require significant investments. Their deployment also takes time and is associated with high initial costs and adoption issues. Organizations may balance requirements for new resources with the utilization of the existing ones. Cloud computing technologies allow such balancing (Géczy et al., 2012). Existing organizational resources need to be well optimized in order to manage big data utilization at desirable pace and affordable costs.

Innovation: Maintaining competitive and strategic advantages for organizations requires continuous innovation. Utilization of big data incorporates deployment of technologies with varying lifespans. The longest lifespan is considered for communication infrastructures. Medium lifespan is assigned to hardware computing resources for data processing and storage. The shortest lifespan have software technologies used in data acquisition, analytics and actionable knowledge extraction. Timely innovation should account for lifespans of various technologies. Software technologies for data acquisition, analytics and knowledge extraction should undergo the most frequent innovations. Software technologies are based on algorithms. Better and more advanced algorithms are developed and implemented relatively frequently. It is difficult to maintain a pace with the rapid development in software and implementations of new algorithms. To navigate in the maze of software products and analytic systems, it is necessary to have clearly formulated analytic targets (Bernhardt, 2004). Proper determination of analytic targets facilitates decision making for required functionalities of various data collection, processing and analytic systems.

Legal Aspects: Organizations are required to comply with legal requirements regulating data acquisition, retention and use in the legislative regions of their business. The legal requirements vary depending on the legislative regions and sensitivity of data. Data sensitivity expresses the level and amount of sensitive information contained in collected or processed data, such as personally identifiable information, confidential or classified information. Handling of sensitive data, such as personally identifiable information, is regulated in many countries. Adopted laws and regulations control various aspects of data collection, processing, retention and exposure (Joseph and Johnson, 2013). Organizations collecting, storing or processing such data must meet the legal requirements stipulated in legislative regions where they operate. They must implement proper measures and management practices that are in accordance with the effective legislations. Managing compliance with legal requirements is important and necessitates knowledge of regional legal frameworks.

CONCLUSIONS

Contemporary digital data expansion is disproportional to the progress in data processing technologies. This has resulted in a situation where data is overly big, and organizations are facing challenges with processing and managing it. These newly emerging challenges with the aspects of growing data have been referred to as big data problems. The presented approach to the issues with big data management accentuates the relationships between the aspects of data and capabilities to manage and process it. While data volume aspect is important, several other aspects play substantial roles. The aspects of data have influence on managerial issues. Hence, the emerging big data problem is expressed as a gap between required and available capabilities of organizations to adequately deal with the aspects of collected data and related management issues. This relational formulation of the big data problem distinguishes both managerial and data aspects. However, it also underscores interrelated influences between them.

The relational management framework draws from the relational perspective on big data challenges. It encompasses a spectrum of managerial domains ranging from the initial transitional issues to innovations. The presented framework highlights several core managerial domains: adoption of data acquisition and processing technologies, optimization of organizational resources, progressive innovation, and compliance with legal requirements. These domains should be given high priority in managerial considerations and decisions. However, depending on organizational circumstances, there may be additional managerial domains requiring attention. Proper prioritization of additional managerial domains is equally dependent on organizational circumstances. Managers utilizing data oriented technologies in organizations should account for both the core and auxiliary domains. Big data oriented technologies and developments are relatively new and in emerging stages. Organizations with conservative perspective on utilization of novel information technologies may delay adoption of big data technologies until they reach a reasonable level of maturity. Factors determining suitability of various big data technologies for diverse organizations require further investigation.

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APPLICATION OF A MODEL OF HUMAN CAPITAL TO PROMOTE THE COMPETITIVENESS OF SMALL AND MEDIUM ENTERPRISES

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ABSTRACT

Many small firms fail. Nevertheless, the contribution and impact that small and medium enterprises (SMEs) account for in the economy and employment in Mexico are substantial. These firms require innovation, opportunities, as well as systems management and internal spaces that allow them to generate greater growth. This paper proposes an innovative tool for directors and partners of this category of companies that are visionaries and are willing to learn. We adopt and adapt in their organizations a creative approach, through the active participation of human capital that will catapult their competitiveness.

JEL: M, M0, M00, M12

KEYWORDS: Competitiveness, Human Capital, Innovation, SME

INTRODUCTION

This research establishes the central axis competitiveness of SMEs in the manufacturing sector, using creativity as a core part of human capital. We argue its contribution is to achieve essential changes that benefit the activities of the company in innovation to achieve goals. According to Méndez (2009), motivation theory (in which the needs of accomplishment prevail over the needs of belonging), is designed to motivate constantly at work to generate a commitment to the company thereby adding value.

Currently small and medium enterprises (SMEs) form the center of the economic system of Mexico. Over 95% of businesses are in this category; according to the National Institute of Statistics and Geography (INEGI 2010). These businesses provide for 57% of the workforce. According to the Ministry of Economy (SE, 2011) these businesses contribute 44% of national GDP.

The importance of SMEs lies not only in possessing characteristics that affect the country's economy, but in their advantages relatvie to large companies. These advantages include: a) being more effective in creating jobs; b) having greater potential for innovation; c) having greater flexibility and structural adjustment; d) having greater ability to adapt its products and services to the needs of consumers; e) representing a counterweight to monopolies, f) providing a buffer for strong employment changes (Rothwell, Sulivan and McLean, 2005). Despite the strengths of SMEs, their mortality rate is alarming. About 70% of SMEs created in Mexico close within a year (Office of the President, 2006). From trade liberalization, Mexican companies are exposed to a competitive environment characterized by the entry of new international competitors. For businesses no matter their size, possessing resources, market, industry or technological understanding of the new world order is essential. It is not sufficient to improve the old ways of operation and management. Success also requires incorporating elements that enable a sustainable future development and growth under the new social dynamic: "Innovation is the key" (Peters, 2005).

This research proposes a Model of Human Capital Competitiveness (MCCH), which supports employers (SMEs) and provide an opportunity to allow employees to participate in the development of the company. This particiption improves competitiveness and is done through innovation, membership with a commitment to get involved and supported participation in the company. This document is divided into 4 parts. The first provides a brief description of the problem to be examined and presents in detail the MCCH Model proposed for SMEs. In the second part, the estimation methodology is presented. The third section presents correlation results obtained for application of the Model between February and September 2013. Finally, the fourth part concludes the paper.

LITERATURE REVIEW

Competitiveness

We begin by clarifying, in a company framework, what is meant by competitiveness. The concept of competitiveness was established in the seventeenth century by theories of international trade supported by the major classical economists of the time. The essence of these theories focused mainly on economic aspects (Lombana and Rozas, 2008). The term competitiveness is used with a variety of shades in business, socio-economic and political-government media. Still, in different disciplines, competitiveness is understood as a capacity. The ability to produce is conceived as the fitness or suitability of a person or organization to do something. In this case, when we talk about competitiveness, it is to be fit to compete. It occurs when two or more people aspire to the same thing.

To deepen our understanding, we examine the definition of competitiveness by the Dictionary of the Spanish Language (2001). The following meandings are offered f. Competir.2 capacity. f. Rivalry for a single purpose. For present purposes we, the Encyclopedic Dictionary Ocean competitiveness describes the concept as "Rivalry between companies seeking greater profit in the same market" (Ocean Publishing, 2003). The Dictionary of Economics and Finance Eumed.net, points to the following sense of competitiveness. It is said that a company or industry is competitive when it is able to adequately compete in the market. [competitive edge], (Eumed.net., 2010). The same semantic catalog refers to the competitive sense which can adequately compete in a market without being at a disadvantage to others. This adjective applies equally to business, technical or products. [competitive]. So is a variation on the concept. Competitiveness is the ability of a company or country to achieve performance in the market relative to its competitors. Competitiveness depends on the relationship between the value and quantity of the product offered and to obtain the necessary inputs (productivity), and the productivity of the other bidders in the market. The concept of competitiveness can be applied to both a company and a country. (Gómez, 2005).

According to Morales and Pech (2000), the term competitiveness is applied to a company, an industry or a country. Even though it may be argued that the general idea of the concept is similar among scholars, it is not easy to find absolute agreement as to its definition. In fact, Porter (1980) recognizes that its meaning may be different when you talk about a company, a nation or even according to the specialty or approach that defines it. For Müller (1995, p. 138) it is the "set of skills and qualifications required for the exercise of jurisdiction." We add that competitiveness should result in a being or entity that has competitive advantage over its rivals.

Meanwhile, Porter (1995) states that competitiveness is determined by productivity and defined as the value of output produced by a unit of labor or capital. Productivity is based on the quality of products (which in turn depends on the price) and in production efficiency. On the other hand, competition occurs in specific industries, not all sectors of a country. Similarly, Ivancevich, Lorenzí, Skinner & Crosby, (1996), cite the following definition: National Competitiveness, insofar as one nation, under free and fair market is able to produce goods and services that can successfully overcome the test of international markets, maintaining

and even increasing real income of its citizens. Porter (1995), noted that competitiveness is determined by productivity, defined as the value of output produced by a unit of labor or capital. To talk about competitiveness, we should examine the company and the industry and identify factors that determine which companies create added value, how that value is sold in the market, and whether these factors really are sustainable in the medium and long term.

It is possible to see some consensus among researchers by pointing out that company competitiveness is determined by three factors relative to the country where the company (country effect or effect area) is located and the sector of operation (industry effects or industry effects) (Galan and Vecino, 1997). It is appropriate to indicate that the three effects described in the preceding paragraph have an additive character, so that the impact on the competitiveness is the sum of each of the effects (Salas, 1993).

Martinez (2010), in his article A Model of Corporate Competitiveness, demonstrates the validation of competitiveness through internal resources of the company. The goal is to achieve a competitive advantage by streamlining resources to achieve company goals. The term competitive ability, or fitness of a person or organization, implies systematically gaining a comparative advantages to other similar firms. This process enables the firm to achieve, sustain and improve a specific position in the socioeconomic environment. As is well known, competitiveness affects how to approach and develop any business initiative. The development necessarily requires changing attitudes in those who lead companies to move from a defensive posture to a more open, expansive and proactive approach. The comparative advantage of a company is its ability to incorporate policy resources, techniques, methods, processes, procedures, etc., of which competitors lack or that they possess to a lesser extent. This process allows generating profit and higher yields than those otherwise possible.

De la Fuente (2009), notes that a company will be very competitive if it is able to obtain a high yield because it uses resources more efficiently than its competitors. Higher yields allowing the firm to either get more quantity and/or quality of products or services, or have lower production costs per unit. When concepts, competence and competitiveness are used by organizations, it employs a strategic approach on the idea of achieving improved efficiency and effectiveness. A company can be competitive on several factors, which are specified in the same dissertation De la Fuente (2009). A company is competitive on price when it has the ability to offer their products at a price that allows them to cover production costs and earn a return on invested capital. However, in some markets, prices of products that compete with each other may vary. A company can have the ability to bring a product to market at a competitive price, due to factors other than price, such as quality, image, or logistics. In these types of markets, if the company can sell its products and achieve profitability, the company is competitive in other factors. Price competitiveness is important in standardized goods and services. Competitiveness in other factors is important in markets for goods and services that may be differentiated by aspects like quality. (De la Fuente, 2009).

Benefits can be classified into comparative advantages and competitive advantages. Comparative advantages arise from the possibility of lower costs for certain inputs, such as natural resources, labor or energy. Competitive advantages are based on production technology, knowledge and human capabilities. Competitive advantages are created by investing in human resources and technology, and the choice of technologies, markets and products. To be competitive the realization of two fundamental tasks are required: self-study and comparative analysis of those considered competitors. In the first task, you must perform a situational analysis. The situational analysis seeks critical self-analysis through an objective inventory to identify factors, characteristics and elements of the person or organization. This allows firms to display a unique advantages. As a second task, you must study the advantages of competitors. The advantages are elements that allow greater productivity relative to competitors. There seems to be consensus among both academics business practitioners, on the prominent role competion plays in a company's technological knowledge, along with its ability to generate innovations (Gómez, 2008).

Technological factors along with the ability to innovate is a critical source of competitive advantage (Suárez, 2001).

Innovation

We can not ignore the fact that, despite the large increase in studies addressing the role and nature of innovation, researchers have not yet reached a generally accepted definition of the concept. The word innovation is complex and somewhat confusing. However, some researchers ttempt to find a common denominator among many definitions, the concept of Zaltman (1973), Damanpour (1991), Nadler and Nadler (1994), Longenecker (2001). Oslo Manual (OECD) (2010) defines innovation as the introduction of a new or significantly improved product (good or service), process, marketing method or organizational method in the firm's internal practices, the organization of the workplace or external relations. This is a more limited assertion than proposed by Schumpeter, but in public politics it is often used as an analytical framework for reflection, analysis and formulation of policies. A number of scholars point out that this statement should be expanded to include organizational and service innovations Everett (2004), Minzberg (2000) and Miller (1999). Policy makers at all levels of government seek ways to understand the role of innovation in development of modern societies and frameworks on which to build their policies. They often start with products, processes, markets, resources and organizations. However, innovation is not only an economic phenomenon, but also a social phenomenon. Rogers (1983), in his book Diffusion of Innovations, discusses how they communicate, adopt and adapt innovations. In particular, the author distinguishes between an inventor, the individual who generates a new idea, and the innovator who spread the idea to those who implement it. Innovation is largely a matter of communication and other invention. In most cases innovation is perceived as a technological innovation.

Innovation is a competitive advantage that all actors should encourage: educational institutions, businesses and government agencies. This should be done not by decree, but through strategic plan generation and promoting innovation, convinced by the concept that competitive advantage is urgent. (Gonzalez, 2008). For many years the technology policy was under the umbrella of industrial policy or research and therefore education. When innovation policy emerged as a distinct field, the belief that innovation is derived naturally and without problems of scientific discovery, for example the linear model of innovation, was expanded. Acurdo with Gonzalez (2008), argue the current basis is developed from new frameworks such as institutional and evolutionary economics, theories of interactive learning, interactive innovation model or network and linking supply with demand. All these developments are the basis an innovation systems approach, which provide a conceptual framework for understanding the complexities of the innovation process, institutional arrangements that may affect the firm, and contribute to extend the sphere of creation of innovation policies.

Human Capital

The term human capital emerged during the Industrial Revolution, eighteenth century, as economists such as Adam Smith sketched the need to make a thorough study, not only of technical factors and production processes, but also of human resources in establishing the rules of functioning of a company or an economic system (Definitions ABC, 2013). However, human capital gradually achieved each of the areas of economic life. It was understood that he who has direct responsibility, with their skills, abilities, talents and limitations-running tasks, processes, and activities is responsible for the correct running of the organization. With the passage of time, and according to the humanist tradition, the human factor ceased to be considered a resource. This occurred because people, not individuals or entities, lease or sell their labor to the company. This perception is related to the irrefutable fact that the human being can not be reduced to numbers and quantifiable economic statistics or mathematical terms, but it must be especially understood as an entity individually rational, unique and unrepeatable nature.

The more added value held by the staff of an organization, ie, the better trained or prepared the human component is to perform the specific tasks that correspond to each of its members. Before proceeding, we repair the known idea that human capital refers to the heritage concept. A factory, company or institution esits in relation to the training of staff that serves. The human capital term represents the value of the total employees, including each and every one of its levels of an organization. It is based on their academic qualifications, knowledge, skills and abilities. The human capital of a company is without a doubt one of the most important elements when assessing the overall performance of the same.

This was not always so. In the late twentieth century, precisely in the 80's, almost all employers were more concerned with technology and reduced labor cost. This result was expected due to the high costs of acquiring new technology and maintenance that had to do with technical expertise. Added to this parts, which were scarce and expensive, caused problems for SME entrepreneurs who had to do without labor (human capital). It is no accident that many entrepreneurs came to understand that human capital is irreplaceable. The realization started the era of continuing education and training to motivate and achieve the desired results.

It is well known that new ideas emerge when people from different disciplines with thier experience and knowledge, collaborate in the process (De Bono, 2006). This theory, proposed by De Bono (2006), gives support to the research presented and through imaginary colors and hats, which tells us how the human mind works to generate new ideas. The hierarchy is used to record motivational factors for the benefit of all components of the organization. We note that it is easy to remember the function of each if the color and partnership recalls. It transpires that people need to have higher qualities to compete and to achieve. It is necessary to be creative every day in the activities performed continuously (Reeve, 2002).

Technical or Professional Training of Human Capital

The training of workers or employees is important. It is necessary to adjust the characteristics of each person in each office designated to make the company more functional and meaningful. For the purposes of our argument, we should not overlook that preparation of people in their working environment allows them more skills to generate better ideas, and create different ways to develop their work more efficiently. According to Nadler y Nadler (1994) there are three areas of activity in the development of human resources (HR): Training, Training and Development. These activities are defined as follows: Training is focused on improving the current or future performance of a person in his current job or workplace.

Development focuses on possible future performance in posts not yet appointed in the same organization or the market in general. Today's employers are seeking staff prepared skilled technicians, upper medium grade studies, preparation of undergraduate levels that are competitive workers, to meet new challenges and adapt quickly to change (Fayol, 1995). As a corollary of this arguement, we note that Human Capital, through their ideas, thoughts, innovations and creativity, is able to influence positive results of companies. It is the fundamental basis of these results, to generate profits and achieve goals. All these reasons require the assertion that the human factor is the the most valuable of the organization’s resources. Human capital development provides opportunities for each person in the firm (Conde, 1996).

The Theory of Human Capital as a new conception of labor input mainly developed by Roobins (1999). The essence of this theory is the basic idea of considering education and training of the organization as an investments by rational individuals, to increase production efficiency and income. The Human Capital Theory, using micro foundations, believes that the economic agent (individual) makes the decision to invest in their education (further education or not). The arbitrator or judge is the relationship between the benefits you will get in the future if it incurrs and the investment costs (for example, the opportunity cost of forgone salary to be studying and direct costs, cost of studies). The individual and firm will continue to explore whether the net present value of costs and benefits is positive (Robbins, 2004).

The Theory of Human Capital argues the economic agent is rational. The agent invests for himself. This investment is based on a calculation. Robbins (2004) contends this theory can distinguish between general training and specific training. The first was acquired in the education system as a student and aims to increase productivity or individuals. Those individuals increase the average and marginal productivity in the economy. Funding for this training is done by individuals, because usually companies have no incentive to finance that spending given that human capital has no collateral. Put another way, business owners do not have the certainty that if it incurrs the education cost that workers will use their acquired knowledge to the service of the company. Workers may leave the company to enforce their knowledge in another firm willing to reward them with better wages. Given this problem of asymmetric information, the acquisition of education at this level of training should be funded by the individual or by a government agency. Now, as to whether specific training makes sense in the case of a durable relationship between worker and employer, there are two possibilities: the entrepreneur finances the investment or costa are shared with the employee.

The Model of Human Capital Competitiveness

Businesses must create sustainable competitive advantages. One of these advantages is talent with the skills required to focus on customer satisfaction, self-improvement and continuous renewal. Fernández (2005), argues competencies arise from business strategy and can be measured. Competencies should be observable, aligned to strategy and generate competitive advantages. The challenge for Human Resource Managers is to understand the needs of their customers and to make a significant and tangible contribution to the business respond to your problems. These challenges and opportunities are specific. The Human Resorce Manager must change its role from operational support to become business partner. The management of human capital is to create and maintain competitive advantage. The willingness to invest into human capital performance is centered in order of importance. Firms desire commitment results in attitude (desire to belong), commitment based on loyalty (I belong) and programmatic commitment (but it will cost me belong). We can reaffirm that human capital is essential for the organization to achieve its goals.

The Model of Human Capital Competitiveness (MCCH), is a proven tool that supports entrepreneurs, especially the SMEs owners. These owners, in turn, can provide opportunities for employees to participate in development of the company through innovation, with a broad sense of belonging and commitment to get involved. With their active participation, not only occupationally speaking, they support the company competitiveness. The MCCH is intended to provide greater opportunity for people who provide services within the company, in any of the existing hierarchical levels, to contribute to the innovation process. This generates improvements that benefit the company. All people who develop an activity within an organization, enterprise or institution, should be creative and make improvements to and for the workplace, in which they provide their personal services. This, allows them to keep their own jobs and generate business opportunities for growth and opportunities for development within the same.

Human capital is the most valuable resource of the organization, it is constantly investing in training, whether provided by the employer or in a self-commitment to excel through education. It is therefore important to encourage, providing greater benefits and incentives to staff to provide ideas and to be creative in their work areas and rewarding performance. Most important is that the employer is satisfied with the staff working with him and has great potential to achieve organizational objectives. Within this framework, the proposed model is presented for consideration. Variables of innovation and organizational are used in subsequent research resources. Human capital acts as a fundamental part in the development of these. Figure 1 shows the Model for Human Capital Competiticeness MCCH.

Figure 1: Model of Human Capital Competitiveness

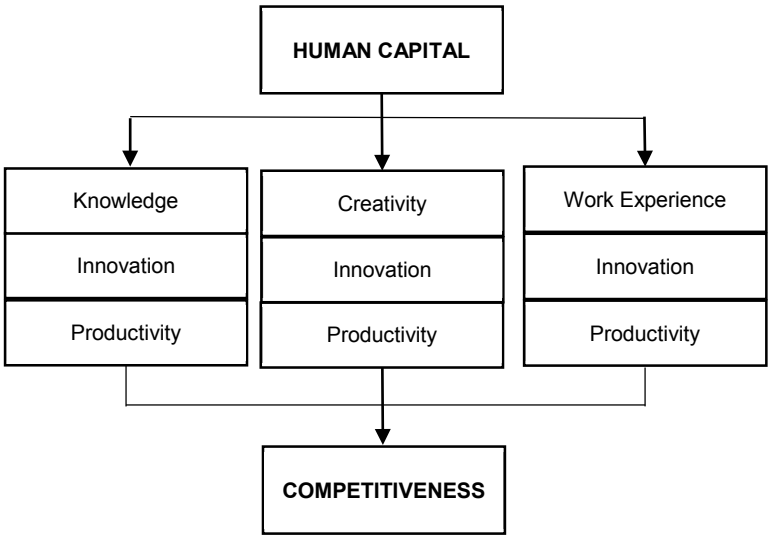

Figure 1 shows the Model for Human Capital Competiticeness MCCH. Source: Prepared

The model has four variables to consider. The most important variable is competitiveness, which indicates the results presented by SMEs in the market along with its scope and its survivability. The market contemplates Human Capital as the main independent variable. Its dimensions, knowledge, creativity and work experience reaches an optimal level of innovation, generating the appropriate technology for each company. Measurement, adjustment and implementation of the model allows distributed according to the availability of company resources. This process allows for the efficient development of the organization, and is achieved by increasing productivity. The creativity of human capital allows the firm to efficiently develop each of its activities, tasks, processes and tasks to improve the performance of SMEs companies

Limitations

The researchhas limitations. The first limitation is in the form of answering surveys. As many of the company staff members attributed not responding to lack of time. The second limitation is the lack of commitment by the employer to improve results because they viewed management as thinking of sales and profits, regardless of the capabilities of its staff. To overcome this situation requires providing greater diligence in all functional areas of the company, so that the opportunities for the company in the market are identified and involve all employees and changes through their proposals. It is employees who are in touch with reality. This entrepreneurial attitude also increase the sense of belonging of its employees to the organization. The third limitation is the distrust of the employer to use or seek new strategies or actions. Following Peter Drucker, "Where there is a successful business someone once made a courageous decision."

METHODOLOGY

The methodology used here is quantitative, non-experimental, cross-initiated research. It is exploratory and descriptive and concludes in a correlation analysis. The study focuses on the application of human capital to develop competitiveness, with the proposal of a model. We consider three diminsions of human capital (knowledge, creativity and work experience), that can generate greater innovation and increase productivity to enhance competitiveness. The method used was approached from a quantitative perspective, obtaining data through the instrument using a Likert scale with values 4-1 with an interpretation of strongly agree, to strongly disagree with subjective appearance. Data is bounded on the maximum score of each

variable for reasons of homogeneity of the set of variables. We transform the inputs to percentage scale, thereby not affecting the correlation analysis that is independent of scale. This process provides additional clarity in interpreting the data. The Likert scale consists of a set of items presented as statements to measure the reaction of the subject in three, five or seven categories for which subjects indicate their degree of agreement or disagreement (Castañeda, 1998). Overall the results of this study are based on a heterogeneous sample of a universe of 1,372 affordable units, the manufacturing sector. The sample consisted of 300 companies that were chosen by lot and have a number of options in all quadrants.

The present study was developed in the city of Celaya, Guanajuato, companies manufacturing SMEs. The development of this research was started in December 2012, with a review of the literature. In August 2013 a pilot study was conducted according to the needs of the study. In the months of September and October we conducted the survey to gather the information and analyze the reliability thereof. In November of the same year, the final instrument was developed, which was applied in December to validate the hypotheses.

For the final instrument a sample of participating companies was identified. The procedure was as follows: 1372 organizations of the total population were numbered and Microsoft Excell's random mathematical function was used. Among (1,372) total firms 300 were reandomly selected as the study sample companies according to the statistical formula for a finite binomial population, with a margin of error of 0.05% and a confidence level of 95% . Equation 1 shows the fomula used to estimate the sample size:

$$n = \frac{z^2_{\alpha/2} * (p * q)}{\frac{(N-1) * \varepsilon^2}{N} + \frac{z^2_{\alpha/2} * (p * q)}{N}} \qquad (1)$$

Table 1 shows the resulting computations. Importantly, the sample is close to the proportion given in the 2010 census which states that small businesses represent 92.2%, median 7.6%, as shown in Table 2. Data were obtained from the National Institute of Statistics, Geography (INEGI 2010) census data because in 2010, only preliminary data are not valid and still are made.

Table 1: Sample Size Determination

Universe	**Level Confidence**	**Error**	**Sample**
1372	95 %	0.05 %	300
Sample Size In Finite Normal Population			
N =	1372	n =300.29	
Error =	0.05		
alfa=	0.05		
$Z_{alfa/2}$ =	1.96		
P =	0.5		

Source: Murray (1997)

This research is submitted on a model of competitiveness of human capital (MCCH), which supports employers (SMEs) and allows the opportunity for employees to participate in the development of the company through innovation. Employees participate with a commitment of membership to be involved in each process and its participation underpin the company to be competitive. The motto is: unity is strength

to win, win. The authorial approach is to leave open the possibility of continuing on the same line of knowledge through new avenues, all without losing sight of improving the functioning of SMEs.

Table 2: Distribution of the Sample by Size of Organization

		Frequency	Percentage	Valid Percent	Cumulative Percentage
I earned	small	208	92.2	92.4	90.2
	medium	92	7.6	7.6	97.9
	Total	300	99.8	100.0	
omissions	system	1	0.2		
Total		300	100.0		

Source: Statistical Programme SPSS18

A measuring instrument for competitiveness as the dependent variable and human capital as an independent variable is developed. Within the proposed model we consider two independent variables to make it more meaningful, productivity and innovation. The instrument design began with an instrument pilot consisting of 15 items per factor and applied to a sample of 33 companies. The instrument performed an exploratory factor analysis to refine items of each factor and obtain the reliability index Cronbach's alpha for the final variables. The final instrument was applied to a sample of 300 companies. The results are described by means of descriptive statistics for each factor and for the total score of the instrument for testing hypotheses. I examine how independent factors correlate with the dependent factor. We also conducted a regression analysis to predict the degree of influence on the dependent variable by the independent variables taken together. All analyzes were conducted in December 2013 using SPSS18 program (Statistical Package for the Social Sciences, version 18, in Spanish). Regression analysis as part of validation has been recommended by Hernández, Fernandez and Baptista (2010), and is based on the notion of variance of common factors between components of a complex variable and the total validated.

Table 3 shows the Kaiser-Meyer-Olken and Bartlet Tests. The value for the Kaiser-Meyer-Olkin index was 0.912 indicating a good compact pattern correlations and rejected the possiblity that the correlation matrix for all item is singular (sphericity test, $p < 0.05$). Thus the data is suitable for factor analysis. Reliability was determined by calculating Cronbach's alpha coefficient. The method is used to achieve internal consistency measures in Hernandez *et al* (2006), instrument was made. The results show a score of 0.941 which represents reliability of 45 items, with a sample of 300 cases.

Table 3: Test KMO and Bartlett

Measure of Sampling Adequacy Kaiser-Meyer-Olkin.		0.912
Bartlett's test of sphericity	Chi-square approximate	5993.718
	Gl	990
	Sig.	.000

Source: Statistical Programme SPSS18

Table 4 shows a Pearson's Correlation analysis. Each variable is analyzed and shows the feasibility accepted, where we observe that there is a very high ratio of each.

Table 4: Correlation Factors

		Human Capital	Innovation	Productivity	Competitiveness
human Capital	Pearson Correlation	1	0.881**	0.552**	0.810**
	Sig. (bilateral)		0.000	0.000	0.000
	N		300	300	300
innovation	Pearson Correlation		1	0.633**	0.882**
	Sig. (bilateral)			0.000	0.000
	N			300	300
productivity	Pearson Correlation			1	0.729**
	Sig. (bilateral)				0.000
	N				300
competitiveness	Pearson Correlation				1

***. Correlation is significant at the 0.01 level (bilateral). Source: Statistical Programme SPSS18*

Table 5 shows correlation of the final instrument. The relationship between the competitiveness factor (dependent variable) with other factors (independent variables) shows all factors are significant ($p < 0.05$) and positive. Higher human capital factors, innovation and increased productivity imply a higher competitiveness factor. The strength of the relationships are good because they are greater than 0.70.

Table 5: Correlation of the Final Instrument, Analysis of Factors of Competitiveness, Human Capital Innovation and Productivity

		Human Capital	Innovation	Productivity
competitiveness	Pearson Correlation	0.810**	0.882**	0.729**
	Sig. (bilateral)	0.000	0.000	0.000
	N	300	300	300

***. Correlation is significant at the 0.01 level (bilateral). Source: Statistical Programme SPSS18*

To determine the influence of the independent variables taken together linear regression analysis was performed. The results are presented in Table 6. The linear regression model indicates that the factors: human capital, innovation, productivity explained 83% (R square) of the variable of competitiveness, the other 17% are other factors. Table 7 presents the associated analysis of variance. The results indicate that the model is significant $p < 0.05$.

Table 6 Linear Regression Model

Model Summary								
R	R2	R2 Corrected	Error Typ. Estimation	Statistical Change Change in R2	Change in F	gl1	gl2	Sig. Substitution F
0.912[a]	0.832	0.830	2.243	0.832	487.408	3	296	0.000

a. Predictors: (Constant), human capital, innovation, productivity Source: Statistical Programme SPSS18

Table 7: Analysis of variance

Anova[a]					
Model	Sum of Squares	Gl	Mean Square	F	Sig.
regression	7,356	3	2,452	487.4	0.000[b]
Residual	1,489	296	5.031		
Total	8,845	299			

a. Dependent variable: competitiveness b. Predictors: (Constant), human capital, innovation, productivity Source: Statistical Programme SPSS18

Table 8 shows the coefficients and significance for each factor, All the independent factors are significant $p < 0.05$. The linear regression model is as follows:

$$Competitiveness = 5{,}727 + 0.14\ (Human\ Capital) + 0.62\ (Innovation) + 0.24\ (Productivity) \quad (2)$$

Th results imply that if all factors remain constant human capital explains 14% of the variability of competitiveness, innovation explains 62% and productivity explains 24%.

Table 8: Test of Significance for the Analysis of Variance

Model	Coefficients		Coefficients	T	Sig.	Collinearity	
	B	Error típ.	Beta			Tolerance	FIV
(Constant)	-5.727	1.101		-5.200***	0.000		
human Capital	0.140	0.047	0.152	3.009***	0.003	0.223	4.486
Innovation	0.623	0.060	0.567	10.413***	0.000	0.192	5.210
productivity	0.244	0.026	0.286	9.284***	0.000	0.599	1.671

a. Dependent variable: competitiveness Source: Statistical Programme SPSS18

CONCLUSIONS

We conclude the most valuable resource within the business organization is the human factor. Businesses must create sustainable competitive advantages. One advantage that can be createed and that is difficult to copy by competitors is talent with the skills required to focus on customer satisfaction and self-improvement and continuous renewal. The Model of Human Capital Competitiveness (MCCH) developed here is a tool to support the company that allows firms to evolve and resized on a firm basis. It involves considering the capabilities of people who make up its human capital as an opportunity for the survival and subsequent expansion of SMEs. Our model allows the employer to provide SMEs guidance to help the company stay in business and open new opportunities.

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RECOGNITION

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PROSPECTS AND CHALLENGES OF BUSINESS TOURISM: A CASE OF MAURITIUS

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ABSTRACT

The study investigates the prospects of business tourism in the small island developing state of Mauritius. Mauritius is predominantly known as a beach holiday resort for hedonist tourist and limited attention has been provided to business tourism. Past studies have revealed that business tourism provides significant economic contributions, however little academic attention has been provided to business tourism in small islands. The research highlights the characteristics of business tourism in Mauritius with a focus on the Meetings, Incentives, Conferences and Exhibitions market. The study discusses the characteristics of business tourism emphasizing on its prospects and challenges as a tourism development strategy in Mauritius. A qualitative approach was adopted where key informants in the business tourism sector were interviewed to examine topic under scrutiny.

JEL: L83, O15, O24

KEYWORDS*:* Business Tourism, Events, Meetings, Incentives, Conferences, Mauritius

INTRODUCTION

Mauritius is a well-established beach resort in the Indian Ocean and strategically positioned at the intersection of Africa and Asia, at 855 km east of Madagascar (Bramer Asset Management, 2010) with a population of 1,3 million (CSO, 2011). However, Mauritius has not been performing at its peak for the past few years (AHRIM, 2012). This is due to the decline in the number of international tourists from European markets following the Euro zone crisis and the result of direct competitors such as Maldives, Seychelles and Sri Lanka (AHRIM, 2012). While Mauritius recorded a negligible increase in its number of international tourist arrivals in 2011 compared to 2010 (+3.2%), growth was higher in competing destinations, with +18% for Maldives, +11% for Seychelles and +31% for Sri Lanka. Therefore, to sustain its tourism industry as one of its major economic pillars, efforts need to be carried out to remain competitive.

On a global basis there is an unprecedented interest for business tourism in attractive and quality surroundings. As stated by the World Travel &Tourism Council (1999), to make Mauritius a strong brand, it should promote other tourism products like event tourism. Diversification of tourism has the potential to add value to a destination's product offering to attract tourists. However, it also represents a challenge for the local stakeholders on various fronts. This study was initiated to investigate a topic which is yet unexplored in small island destinations. The aims of this study are to examine the characteristics of the Meetings, Incentives, Conferences and Events (MICE) sector in Mauritius, its prospects to tourism industry and the challenges involved in MICE tourism. The next sections discuss the literature review followed by the methodology, results and discussion, and conclusion.

LITERATURE REVIEW

MICE: A Component of Business Tourism

Business tourism is a highly profitable segment of the tourism industry and consists of all trips related to the travel of employees or business interests (Haven-Tang *et al.*, 2007). It relates to meetings and conferences, incentives, exhibitions, trade fairs, incentive travel, events and corporate hospitality (BTP, 2005). The MICE industry has grown over the past decades. It is not only known as a service industry but also as one of the fastest growing sectors of the tourism industry (Dwyer & Forsyth, 1997; Hing *et al.*, 1998). This industry combines different sectors such as trade, transport, travel, leisure, accommodation, food and beverage, venues, information technology and finance. Described as a multifaceted industry (Dwyer & Mistilis, 2000), the MICE acronym consist of the meetings, incentives, conferences and exhibitions (Dwyer & Mistilis, 2000; Campiranon & Arcodia, 2008; Getz, 2008; McCartney, 2008; Rogerson, 2012; Gibson et al., 2012), which in most destinations fall under the umbrella of the events industry (Getz, 2008).

The UNWTO defines a *meeting* as a structured event which brings people collectively to argue a topic of common interest (UNWTO in CIC, 2011). Meetings can be held for commercial or non-commercial reasons but is mostly generated by the corporate sector as its high yielding, with millions of meetings held all over the world on a daily basis (Campiranon & Arcodia, 2008).What makes a meeting qualify as part of the tourism business is that it engages in some of the services of the tourism industry, and is generally held away from the location of the organization running it (Davidson, 1994). The terminology *meetings* can also be used to cover a wide spectrum of events such as conference and seminars not containing an exhibit component (Seekings & Farrer, 1999; Fenich, 2005).

Incentive travel is a universal management instrument that uses an outstanding travel experience to reward participants for improved levels of performance in support of the organizational goals (SITE, 2013). It can be defined as an all expenses paid travel (Rogers, 2003) which is used by organizations as a motivational factor to encourage the productivity and performance of its employees in meeting the desired goal of the organization in terms of sales and that of its business partners in terms of support (Campiranon & Arcodia, 2008). It targets business groups where the host destination promotes potential opportunities it has to offer to businesses in terms of discount prices and the buying power it offers to its corporate buyers. However, with the complex nature of this component of the MICE, it is becoming increasingly difficult for corporate clients to decide which destinations should be chosen for their 'incentive'.

Conferences are participatory meetings that are designed mainly for the purpose of discussion, finding and sharing information, solving problems and consultation. Conferences are usually limited in time and have specific objectives. Similar to what meetings are, conferences can be defined as (CIC, 2011) *an event involving 10 or more people for a minimum of four hours during one day or more, frequently held outside the company's own premises*. In most conferences, attendees have two main objectives, especially if they are attending conferences abroad. First that of attending the conference in itself and second that of making the most of the destination or venue in which the conference is being held.

Exhibitions bring suppliers of goods and services together with buyers, usually in a particular industry sector (Allen *et al.*, 2002:15). Exhibitions are also known as *expositions*, because they are intended to bring together different suppliers in an environment where they can display and promote their products or services to the attendees on the show floor. The main focus of these events is the business to business relationship (Fenich, 2005) for either promoting new products or gaining new clients (Jurisevic, 2002).

Prospects and Challenges

Business tourism brings several contributions to the tourism sector and the destination. The economic impacts of the MICE industry, especially that of events have been addressed by many researchers in the field (Gartell, 1991; Dwyer & Mistilis, 1999, 2000; Sherwood, 2005; Campiranon & Arcodia, 2008; Getz, 2008; McCartney, 2008; Ford, 2011; Li Ting & Zheng Gu, 2011; Gibson et al., 2012; Rogerson, 2012). MICE is characterized as having the *Three Highs – High growth potential, added values and beneficial innovation*. It also offers *Three Larges – large output, opportunities for employment and industry associations;* and *Three Advantages – advantages over industries in human resources, technological know- how and the efficient utilization of resources* (Janakiraman, 2012). Attendees of MICE activities are known as high spenders that meet the needs of yield driven tourism strategies (Braun, 1992). Business tourists spend more, not only on hotels and restaurants but even on leisure activities such as visits to retail and local attractions such as museums and theaters' (Clark, 2004). In fact they have been found to spend three times more than an average leisure tourist (Campiranon & Arcodia, 2008). This in return generates foreign exchanges and creates job opportunities (Dwyer & Mistilis, 1999; Bowdin *et al.*, 2001; Page, 2003).

Governments support the MICE industry because of its economic benefits (Dwyer & Mistilis, 1999; Dwyer *et al*., 2000). MICE tourism attracts invaluable business to a region and in return brings high returns to local economies, both directly and indirectly (Davidson, 1992; Bowdin *et al*., 2001; Lawrence and McCabe, 2001; Campiranon & Arcodia, 2008). The economic multiplying effect makes it a viable and lucrative industry. However, studies have shown that governments can also bring their support to the MICE sector through other ways such as treasury loans, investment incentives, tax concessions, training programs, and promotional and marketing campaigns (Dwyer &Mistilis, 1999). Countries like Singapore, Hong Kong and Indonesia have developed world class facilities due to government support in many ways (Dwyer &Mistilis, 1999). Furthermore, governments play important roles in promoting training and accreditation standards (Dwyer & Mistilis, 2000). However, the challenge for governments is that they are required to invest large sums of money which they would rather spend on their priority agenda item. The MICE sector is not always on the priority list of governments who prefer to inject funds into national services such as health.

The setting up of infrastructure required for MICE needs to be well-planned and executed so that positive attributes can benefit the destination (Ranchold, 2004). The planning and implementation of infrastructures such as transport, Information Technology (IT) and purpose built conference and exhibitions venues should be adequate to support the demand for MICE. For example, a total of 1197 exhibition halls worldwide have hosted no less than 30,700 exhibitions in 2010 alone attracting some 2.8 million exhibit companies and over 260 million visitors (UFI, 2011). The available space for holding exhibitions has been on the increase since 2006 with a forecast of an addition of 198 projects for venue building worldwide. The MICE sector is experiencing a rise in demand (Getz, 2008) and in order to supply adequately the industry, infrastructure development is essential.

Many destinations' economic and human resource progress is linked to opportunities in job creation and human resource development that the MICE industry offers (Hiller, 2000). This can also contribute to satisfy the sustainable development agenda of governments in terms of alleviating poverty while engaging locals in employment. Skills can be trained in three ways through MICE: skills for the service industry; marketing and in environmental management (Solberg & Preuss, 2005). These skills need to be put to good use so as to become or remain competitive in an industry that increasingly faces competition (McCartney, 2008). To remain competitive, the MICE industry needs to recognize people as a core asset (Weber & Ladkin, 2003). Skills in areas such as management and marketing have been seen to be on the scant side in regions such as Asia Pacific (Dwyer and Mistilis, 1999) but human resource developments in these areas have been well under way. Another concern in the MICE industry is employee retention as

organizations fail to recognize employees as *resources and not just part of the production process* (Hillier, 2000: 447). The tourism industry is highly labor intensive and demands a higher percentage of people to work at operations and front line levels. These same jobs are the key ingredient to quality service and improved service standards (Torraco & Swanson, 1995). The dynamism of the MICE industry offers a range of job opportunities that could contribute to the decrease of unemployment rate (Hobson, 1996). However, the industry needs to also develop a code of ethics to ensure that the industry conforms to labor laws (Dwyer &Mistilis, 1999).

METHODOLOGY

The study adopted a qualitative approach to primary data collection to explore the MICE industry in Mauritius. Face-to-face interviews were conducted with 5 Key Informants from the MICE sector including the Destination Marketing Organization, the Mauritius Tourism Promotion Authority (MTPA). The interview was semi-structured in nature and consisted of a list of pre-set questions by the researcher and further questions were asked during the interviews to probe into topics emerging from the responses. Interviews were conducted in the month of March 2013 and lasted for around 30 minutes. Secondary data was also used and consisted of analyzing information related to MICE on the website of the MTPA.

RESULTS AND DISCUSSION

Case of Mauritius

Mauritius is placing special interest on business tourism as a component of the tourism industry while promoting itself as a high profile destination. The interviews reveal that the MICE product is targeted at international tourists and the trend for the average length of stay for MICE tourism is 3 nights including 1 Gala dinner and 1 day trip. The most attractive MICE segment for Mauritius is incentive travels as they can bring significant economic revenues given that they are high spenders who require up-market products and services. Thus, the destination needs to propose exclusive packages which no one has experienced before and constantly surpass itself to create a *waow* factor or unique experience, mixing business and pleasure (Davidson, 2003). The delegates of MICE represent a typology of tourist that destinations covet as they represent high quality visitors because of their high spending powers (Campiranon and Arcodia, 2008). This spending power contribute to the economic impact that is derived from those attending events in the MICE sector as they spend on hotels, restaurants, retail, attractions (Clark, 2004) and other services. It is also acknowledged that business tourists pay more as the leisure tourists for the same facility, because business travel often need better quality services or extra specialist facilities, compared to leisure tourists (Swarbrooke and Horner, 2001). However, respondents noted that with the global economic crisis, budgets tend to be more restricted.

To be competitive business tourism destinations, the later need to possess appealing characteristics for hosted buyers who are generally intermediaries or corporate organizations involved in organizing incentive travels, conferences, meetings or events. Mauritius is perceived to be well-positioned in the MICE market and a respondent emphasized that *MICE tourism in Mauritius is not amateur and we are used to the specificities of the industry which requires attention paid to details, long-term planning and several components of industry plan and work together.* A MICE event requires the successful collaboration of various suppliers such as example, IT, audiovisuals, décor, entertainment, attractions, transport, accommodation, food & drink, and the provision of infrastructure and support services. For a country aspiring to become a destination for events and conferences, these elements must be present (Shone, 1998).

Mauritius is promoted as an exclusive destination with a set of key attributes which makes it competitive business tourism with a unique selling proposition. The destination possesses a high class image,

hospitality of local inhabitants, service quality in hotels, creativity of human capital to provide unique experiences for hosted buyers, luxurious accommodation, fine gastronomy, mix of cultures, high class conference amenities, varied coastal and inland activities, state-of-the-art telecommunications infrastructure, safety and security and value for money which are also promoted on the website of the Destination Marketing Organization, the Mauritius Tourism Promotion Authority (MTPA), www.mtpa.mu, the national organization under the aegis of the Ministry of Tourism and Leisure responsible for promoting Mauritius abroad as a tourism destination. Mauritius is identified as a MICE-friendly destination and the website states that Mauritius:

> *possesses all the key ingredients that are required for successful meetings, incentives, conferences and events. The quality and variety of accommodation, the attention to detail in service delivery, state-of-the-art conferencing venues, and the vast number of additional activities on offer all guarantee genuine value for money*.

However, on the MTPA's website, the MICE market is referred to as the Meetings, Incentives, Conferences and *Events*. Events has replaced the traditional terminology *exhibitions* since destination marketers and travel intermediaries perceive that the latter is not considered appropriate as international MICE tourism tends to be characterized by events rather than exhibitions which is perceived by the international travel business market as an obsolete terminology at destination level. The MTPA works in close collaboration with local hotels and destination management companies to promote the MICE tourism product to an attendance of major outbound markets with international hosted buyers in international fairs. The two main MICE international fairs which Mauritius participate in are the Incentive Travel and Meetings Association (ITMA) and the IMEX (the worldwide exhibition for incentive travel, meetings and events).

As compared to other exclusive beach-resort, competitors in the region such as the Seychelles and Maldives, Mauritius has well-developed infrastructure as well as ease of access to inland sites which makes it a suitable option for MICE markets. As opposed to Mauritius, other small islands in the region are characterized by limited levels of development in terms of infrastructure to host large events such large conference venues, a lack of hotel clusters to accommodate delegates for major events, limited road infrastructure connecting strategic locations and limited logistics for example in terms of large vehicle fleet necessary for transporting tourist groups simultaneously. Given that Mauritius is a bilingual country (French and English speaking), it has no difficulty in providing professional translators who are essential in hosting such events. A respondent also stated that delegates often travel with their spouses and the hotels in Mauritius provide a variety of in-house activities for the former as well as ease of access to sites of interest outside the hotels.

Despite being a small island, Mauritius has adequate capacity to meet the infrastructure and logistics requirements for hosted buyers. Moreover, the country benefits from the only state of the art conference venue in the Indian Ocean, namely the Swami Vivekananda International Convention Centre which can hold 3,500 individuals. It is located around 15 minutes from the capital city, Port-Louis and around 45 minutes from major clusters of hotels in the North and the West coast. For very large events, delegates are accommodated in hotels located mainly on the north and west coasts of the island and are then transported to the conference centre. However, in Mauritius, there is no one stop shop to accommodate the full spectrum of services for large events, hence needing the collaboration of outsourced suppliers which triggers the multiplier effect in the economy. On the other hand, individual hotels may hold their own meetings and conference as many of them have comprehensive facilities including leisure, restaurants, conference and banquet facilities for around 300-600 individuals and can thus easily hold meetings and conferences within a single location.

Developing a good supply of air travel to meet the demand of the MICE industry is of crucial importance. Hosted buyers consider a host destination that not only is found in an attractive setting, but one that is easily accessible. To facilitate access and increase the number of international tourists arrivals, a state of the art airport is under construction at a costs of Rs 11 billion (385 million USD) and should be operational by April 2013 with the provision to accommodate 4.5 million passenger traffic per year which is doubling the figure of the existing airport. The main markets for MICE in Mauritius are Europe mainly France, UK and Germany, and South Africa. It is important to note that MICE tourism is a global market. For example, a pharmaceutical company may have its headquarters in London but different branches all over the world. Hosting an incentive travel in Mauritius would thus entail that the group will consists of employees from different parts of the world. Despite being a long haul destination for Europe its main MICE market, Mauritius has daily flights from Europe and other destinations, thus access is not perceived as a barrier although South Africa remains an important market due to its proximity to Mauritius. MICE consumers would moreover use local transportation systems to move from one area to the other and in such cases conditions of roads need to be improved.

MICE tourism is highly valued as a catalyst to develop attractions, image and branding at the destination (Priporas, 2005; Getz, 2008; McCartney, 2008) thus creating opportunities for Mauritius to diversify its tourism product as it has long promoted itself only on its exclusive beach resort attributes. The MICE sector has therefore become an important focus for established markets, building on the need to identify and strengthen the strategies that lead to competitiveness (Weber & Ladkin, 2003). In order not to lose out on the opportunities, business destinations like Mauritius need to incorporate the development of the MICE sector in its Tourism Master Plan with particular attention on how it should be developed taking into consideration sustainability issues as this type of tourism requires hosting a large number of tourists and the development of mega infrastructures. Moreover, there is a lack of statistics on the MICE market in Mauritius and respondents interviewed stated that MICE may have already contributed to around 100 000 international tourists annually. The government needs to provide support to gather statistical information on the industry so that there is a better analysis of demand in relation to supply for better forecasting. Poor industry information can increase the risk of poor products and services leading to hosted buyers losing interest in the destination.

In Mauritius a large section of the private sector, namely three to five star hotels have invested in the provision of conference centers as an added product to their resorts. They are thus able to host banquets and conferences for groups. In these cases much of the activities occur within the hotel premises, with usually an organized day trip outside the hotel. In some cases, conference attendees hire taxis for visits to places of interest such as the Capital city. However, much of the services associated with the MICE trip are consumed within the hotel. Moreover, MICE tourism contributes greatly to the up-market hotel industry, airline companies, tour operators and other suppliers of products and services related to events. However, attendees are often mostly clustered in large resorts resulting in these powerful organizations receiving much of the benefits as well as airline companies and established destination management companies. Thus, the challenge is to ensure that benefits of tourism reach the segment of Small and Medium Tourism Enterprises (SMTE) which may represent 95 per cent of tourism sector (Rogerson, 2012). Although respondents mentioned that MICE tourism contributes to SMTEs such as the local craft market, it is only to a negligible extent since MICE travel is consumed over an average of three nights leaving little room for outside consumption. It is thus important to broaden economic opportunities for locals through the provision of supply chain linkages to incorporate local suppliers to enhance inclusive development (Scheyvens, 2011). Similarly, Mitchell and Ashley (2010) emphasize that linkages with local suppliers can be a successful way in which tourism businesses can contribute to local development by incorporating small suppliers into corporate supply chains.

MICE require a panel of people which could lead to an increase in employment. To cater for the needs of the demanding nature of customers that the MICE industry attracts, there is a need for destination to have

people with the right skills and drive to work for this industry. Hosted buyers are experienced consumers of MICE tourism and if unsatisfied will not purchase the Mauritian MICE product.

As mentioned earlier, skills in areas such a management and marketing have been well developed in regions such as Asia Pacific (Dwyer &Mistilis, 1999) and in Mauritius, human resource development in these areas have also been well under way. A concerning issue is the retention of employees working in the highly labor intensive tourism sector in Mauritius. The MICE industry demands a higher percentage of people to work at operational and front-line levels and in the case of Mauritius, front line jobs are not well remunerated. It cannot be stressed enough that these same jobs are the key ingredient to quality service and improved service standards (Torraco & Swanson, 1995) for a memorable experience and the possibility of customer retention. There may be various plans to develop new programs either internally, or at national level through Universities, but if the industry itself shows poor management and reward of its human resources, the industry is directly to suffer. There is a growing concern to revise the wages offered, amongst other motivational sources, for the MICE industry and the tourism industry in general otherwise Mauritius may find itself with serious human resource shortages in the tourism sector. Mauritians are looking beyond the local horizons for better job prospects. This brain drain has considerably impacted upon employee turnover figures in the tourism sector where the cruise industry is enticing the hotel employees with higher pay packages and long breaks thus draining the talents of the Mauritian tourism industry.

MICE bring delegates from different countries to the destination and this can create strong positive word of mouth. Mauritius is also in constant contact with the press. For example, Mauritius organizes familiarization trips and press trips to maintain contact with press and for publicity purposes. The destination also holds in-house training with hosted buyers to market the MICE tourism product. Moreover, to obtain greater visibility for MICE tourism, sometimes co-branding efforts are organized with hosted buyers as well as product launching in the destination which reinforces the marketing efforts. Apart from enhancing the image of the destination, MICE can also have other social benefits such as events can be a trigger for Mauritians to revive their culture and show solidarity. In essence, events can become an opportunity to improve social relationships, for strengthening abilities to understand one another and for community well-being (Kurtzman and Zauhar, 1997).

CONCLUSION

The study was undertaken to investigate business tourism which is yet explored in Mauritius. The aim of this study was to elaborate on the characteristics of business tourism and to investigate the prospects and challenges of business tourism in Mauritius. This paper has identified that business tourism consists predominantly of the MICE market, however, at the destination marketing level, there is more focus on Events as a component of MICE rather than the traditional Exhibitions component. The study revealed that MICE tourism has several prospects in Mauritius. The island has numerous quality hotels with high standard services to accommodate business tourists as well as facilities to hosts events, conferences, meetings and incentives. However, the conditions of other infrastructure such as roads should be improved. Although no official figures regarding the contributions of MICE was available at the time the research was conducted, this type of tourism has the potential to generate economic benefits. However, it is uncertain to which extent it is indeed contributing to the well-being of the different strata of the community. Given that this type of tourism tends to be consumed over a few days within restricted settings, it creates few opportunities for the tourists to venture out of the establish circuits, thus resulting in a lack of economic and social linkages with locals. MICE tourism has the potential to generate employment, however, the tourism sector in Mauritius is going through a crisis as many experienced tourism staff have quit their job to work in the cruise sector for financial reasons. Moreover, although there is the potential for further development in business tourism in Mauritius, caution needs to be exercised with regards to the type of infrastructure to be developed taking into consideration the

destination's small and fragile environment while at the same time maintaining it small exotic island cachet which is its core tourism asset. Moreover, business tourism and its future development should be integrated in the tourism strategic plans taking into consideration how it should be developed in the sustainable tourism development context. To further comprehend the contributions of business tourism in Mauritius, future research could investigate the extent to which it has contributed to the different spheres of the destination community.

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LET'S TALK PERFORMANCE! SOME HINTS

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ABSTRACT

This paper presents five key aspects of organizational performance: the relationship with the environment, the consistency with the objectives and the set out strategy, the importance of the human element, the effectiveness and efficiency concern, and the contribution of TQM as a guarantee of compliance. We highlight the predominant place for these objectives within the organization. This is sometimes done by highlighting expected performance levels and other times as a tool through which performance measurements rule on the level of assurance and compliance of organizational functioning. This implies a strong mastery of organizational processes and adaptability as a tool to leverage of growth and development.

JEL: M00, M10

KEYWORDS: Organizational Performance, Measurement, Compliance, Adaptability

INTRODUCTION

Numerous points of view and conceptions have been developed based on theorists and practitioners from the early management (A. Smith, 1776, H. Fayol, 1949, F. W. Taylor, 1911, M. Weber, 1947, G. E. Mayo, 1949), A. Maslow, 1943 and others). Based on these theories the company as an organization tends to converge the views as progress stimulates and business development and growth advance. Indeed, taking globalization into consideration, the technological progress, the increased trivialization of information, the markets complexity and turbulences and the resulting requirements demonstrate there can be no design or definition of the company and its functioning as an organization out of that complex setting. Some new concepts have emerged to help us better define today's organization and its new preoccupations. In this new era, organizational success is closely linked to learning and knowledge development, sustainability, continuous improvement, adaptability and other factors. All these elements are enriched by compliance maintaining and supporting spirit which is quantified and monitored by performance measuring. In fact, resource scarcity, amplified by the current situation of economies worldwide, leaves no choice for companies but to ensure continuous monitoring and assessing of consumptions and achievements regarding realistic and detailed forecasts to continually keep informed about realized performance levels.

This attention given to performance allows the organization to have the information needed about the correspondence or deviation of its functioning over a given perspective. It is an entirely new managerial approach, according to Ashkenas et al. (1998), which implies an expected transition. The authors state that sustainable success in the medium and long term comes from the ability of an organization to leverage its resources in a changing economic environment. For the authors, the reason many organizations fail to switch from short term cost management to long term sustainability through resources leverage is that the form of management required for the latter is very different from what most people have experienced so far. Rowden (2001) mentions that under highly turbulent and unpredictable business conditions, the ability of an organization to learn as it goes is the only true source of competitive advantage. It is the functioning mastery supported by performance measuring that allows organizations to adapt to changes and develop

their learning approach. Pettigrew and Whipp (1991) notes, that competitive performance is linked to the ability of the company to adapt to major changes in the environment and thus, by implication, to its level of learning. This allows organizations better survive in a constantly changing world Schein (1993). Vecchio and Appelbaum (1995) observed the essential role expected from management about this issue. They noted that high performance is based on the implementation of solutions to problems so that management has a deliberate action that ensures the achievement of the objective. According to the authors, thanks to this mechanism, organizations manage performance by means of support and stimulation that enable empowerment and accountability at the right levels. This enriches the idea of learning mentioned above. Senge (1990) goes further into this perspective by stating that, in the future there will be two stages of companies: the losers, dying slowly or suddenly, and learning-based organizations that have the ability to learn and react faster than their competitors in a fluid market.

This paper highlights the prominence of performance as a highly recommended concern for any business to ensure its survival and prosperity in the long term. But also as excellent leverage of the organizational functioning mastery on which depend several future achievements. We proceed with a literature review presenting five components that we consider fundamental as far as organizational performance in general is concerned. We present them as hints enabling the search for compliance tracks, adequacy, and organizations' vital adaptability. These components include: the relationship with the environment, the consistency with the objectives and the set out strategy, the importance of the human element, the effectiveness and efficiency concern, and the contribution of TQM as a guarantee of compliance. And we will try to make some conclusions in the light of those aspects.

LITERATURE REVIEW

The Relationship with the Environment

The company's environment continuously reveals a wide range of reflections on possible links relevant to be identified and understood. The usual designing of any business influences and is influenced by its environment. Some of the more surprising connections between the firm and environment tend to combine environment characteristics with the innermost functions of the business. This leads to a possible formula to describe the concept of performance.

Neely (1999) shows the reasons behind increasing interest given to contemporary performance measuring that can be summarized in: the changing nature of work; the increasing competition; specific improvement initiatives; the national and international quality awards; changing organizational roles; changing external demands; and the power of information technology. These implications of economic progress that take into account environment specificities are no longer a luxury that only a few companies are able to take advantage of. Today, these specifics are at the heart of the conception of any organization.

The relationship between organizational performance and the external environment starts by highlighting this set of fluctuations and turbulences closely related to the generic term change. This change obliges the company to reorganize itself internally, on a small scale, to improve its ability to adapt. This allows it to realize desired performance levels. In this sense, Ledford et al. (1989) discuss the concept of large-scale organizational change and performance). They define it as the change made in the character of an organization that significantly affects its performance. According to Porras and Silvers (1991), it is a way to better adapt the organization to its environment or to create future environments. When this change takes place in the environment and is matched as correspondent and compliant with the skills of the organization, the latter could better be able to realize a positive step forward regarding in its adaptability abilities which give their fruits in terms of performance. Haveman (1992) shares that when changes taking place are related to organizational skills, financial performance is then improved in organizations.

Authors including Armstrong and Baron (1998) and Kennerly and Neely (2002) examined measures adopted when dealing with performance. They note that performance management practices including measurement systems must be continually reviewed and modified to better suite and meet the requirements and the changing circumstances of each organization.

Cyert and March (1963) place more emphasis to the environment as an essential element to consider in the context of the interpretation of the realized performance levels. They discuss it as part of the feedback performance theory. They begin by focusing their attention on how the organization adapts to its external environment. They emphasize the decisions of strategic importance such as price, quantity and resources allocation. They pay attention also internally to highlight the intra-organizational decision-making as a key component. Thus, they develop their thoughts by stating that the organization interacts with the environment through the performance feedback process. For them, the environment provides feedback on the performance objectives set by the organization, and it is up to managers to use this feedback to their performance process control and decision making.

These reflections make us think about how any organization must remain attentive to the environment as an external source of information that must continuously be compared to the various internal sources from the company's functioning. It is this form of comparative analysis that informs the organization about its compliance, correspondence and complicity with its external environment and therefore informs about the performance levels achieved consequently.

Moreover, Peters and Waterman (1982) were quick to point out that the most competitive firms are those most likely to listen to their environment in general, but first and foremost, to their customers' needs. In this sense, Belkasseh and Lemtaoui (2014) highlight the importance of an intelligence system installed to continuously monitor the environment and even anticipate it to better adapt to it. They advocate the adoption of an information monitoring system able to capture changes in the environment. This allows the company to have the maximum amount of information from which only the most relevant and reliable will be retained by the intelligence system mentioned which, after their collection and careful analysis, will enrich the decision making process.

Jackson (1998) also pushes the interests of gathering information to a more developed use. He noted that this information can still be used to enrich other information in more developed systems to stimulate human reasoning namely the Expert Systems. The latter have indeed much to bring to the consolidation and the exponential development of performance levels.

However, Kaish and Gilad (1991) warn organizations that keeping in perspective what belongs to the classic features of the external environment as the latter remains a source of profitability inter alia. They note that the development of monitoring activities, when companies realize sufficient profitability, makes managers focus more on management internally. They abandon the search for new opportunities when they have reached a level of satisfactory performance.

The Consistency with the Objectives and the Set out Strategy

Another interesting aspect related to performance in the organization is ensuring sustained adequacy with the objectives of the organization that allow its strategy to be implemented the way it should be. This puts organizational performance at the heart of strategic management and accounting disciplines (Venkatraman and Ramanujam, 1986). Performance measuring, in that way, acts as a communication interface supporting and consolidating the dialectical relationship between the strategic and operational level. On one hand, one cannot speak of performance evaluation without reference to preset objectives based on realistic forecasts and calculated goals. Moreover, these budgeted data are components used in the formula for calculating performance levels. On the other hand, these calculations inform strategic management of the ongoing

operational level. By doing so, the organization would be able to ask the right questions about overruns or withdrawals achievements compared to budgeted previsions. It can develop the reasoning by questioning the realism of the strategic objectives formulated.

Overall this strategy-implementation relationship, where the performance measure is a crucial element, is a critical point for many organizations as noted many authors like Pryor et al. (2007), Egelhoff (1993) and Sterling (2003). They consider this a major drawback that can place organizations in an inferior position. Indeed, Pryor et al. (2007) argue that an ineffective implementation may cripple the company. Performance levels below expectations, on one hand, can indicate failure in assessing implementation capacities of the organization (prior to the final formulation of the strategy). No one can implementation of a strategy for which he does not have the needed means. On the other hand, may question the whole process of implementation in the organization. Some have the operational capacity to implement the strategy but do not ensure the adequate operational functioning. Egelhoff (1993) and Sterling (2003) join that reasoning and give a possible explanation for the inability of firms to execute their strategies. For them, it would be due to the lack of attention given to the organization's implementation capacities. The compliance degree of implementation efforts indicated that performance indicators communicate, according to Bigler (2001). This is emerging as one of the critical sources of sustainable advantage in the twenty first century.

Other authors like Ataman et al. (2008), Chimhanzi and Morgan (2005), Kostova and Roth (2002) and Nutt (1998) attempted to decorticate the concept of strategy implementing to better be understood by organizations. They indicate that results of strategy implementation refer to internal outcomes (e.g. Adoption by employees of behaviors in consistency with strategy) and are external to the organization (e.g. Achieve the brand image expected in clients' perception).

Other authors such as Argyris and Schon (1978) and Kim (1993) introduce a potential cure for organizations to enhance their capacity to fulfill their expectations. The cure is organizational learning. According to the authors, it includes two major types of learning processes. The first is to do a better job of matching organizational actions to intentions (e.g. Correcting ineffective activities "single-loop learning"). The second is to improve organization knowledge (e.g. questioning and updating the standards, practices, underlying assumptions and beliefs already accepted in the organization "double-loop learning"). Atkinson et al. (1997) argued that contemporary performance measuring is characterized by giving the same degree of importance to the organization's goals and objectives as to the processes and other drivers of success.

Stiffler (2006) traces the basic philosophy and logic related to what has been mentioned above under the Organizational Performance management framework. It consists, according to him, on setting strategic objectives of the various entities that constitute the organization (business units, departments and production lines), budgeting, measurement entities according to objectives and budgets, reporting the results and using the information to determine how the different parts of the organization are performing. A logical thinking that Letza (1996) share absolutely. For this author, the main function of performance measurement in a strategic context is to bring the control means to achieve the required objectives and fulfill the mission and strategy. Many other authors such as Drucker (1954), Ansoff (1965), Hofer and Schendel (1978), Schendel and Hofer (1979) and Andrews (1987) share this perspective. They note that a fundamental aspect of management study is to understand the goals and objectives of the organization and the processes used to measure their performance. What is more, with an individualizing approach to cases, Herving (1999) states that there are no measures that could be applied to all companies. Each company must select performance measures related to its objectives, vision and strategy at the highest level.

The Importance of the Human Element

It took time before researchers realized the relevance of highlighting the human element at the center of any design-action relationship within the company (G.E. Mayo, 1949, A. Maslow, 1943, F.I. Herzberg

,1971 & 1987), and D. McGregor, 1960). The predominant role of women and men within the company is increasingly amplified by awareness of the existence of some aspects that continually complement our conception of the process of wealth creation. It includes the value concept and the new modes and elements promoting its creation namely corporate culture, the importance of its maintenance, its use in the service of the successful organizational functioning, and knowledge. On the other hand we describe a new type of capital to be enhanced and developed continuously in an organization. Mayo (2010) shares this belief noting that today's organizations are based on knowledge and value is driven more by humans than by any other factor.

Concerning the relationship of this social approach with performance, Chowdhury (2010) concluded that performance of an organization is determined by the performance of its employees. He added that knowledge is one of the most important factors in the success of a business. For him, if knowledge capitals increase, sales will increase as well. The author calls on organizations to measure the return on talent as well as the return on investment using the following formula: ROT= knowledge generated and applied / investment in talent. Ashkenas et al. (1998) argue that the basis of leverage is to have the ability to learn, share and deploy knowledge to transcend administrative barriers.

Moreover, the corporate culture that banishes barriers to bring together all shared norms and values in which everyone who has a talent in an organization can recognize, identify himself in and thus contribute to build the social consensus, Vecchio and Appelbaum (1995) argue sustainable success organizations improve their performance by making an agreement or consensus in which managers and employees work together to achieve mutually agreed upon performance goals.

In the same line of thinking, Kotter and Heskett (1992) review the relationship between culture and performance and realize that strong cultures have a moderate relationship with economic performance in the long term. Adaptive cultures financially outperform non-adaptive cultures. This refers back to a very interesting point. Of the factors enabling today's company to achieve this expected level of performance the recognition of adaptive spirit seems to be vital. To reach this, the company must take into account the different aspects of change sometimes as an external data from the environment and sometimes as an internal site undertaken to survive. This elucidates the essence of the performance measurement definition: that of calibrating a real state to the corresponding budgeted state. Burke and Litwin (1992) note that to mobilize change in organizations, we need first to identify behavior related to the desired state (including practices and management structure that fit the best the mission and strategy, and also systems that reinforce the desired culture) and then focus efforts on changing these behaviors.

The steps of performance measurement is examined by Hoque (2010) who considers measurement a fundamental part of any organization, belonging to the private or public sector. To connect his statements with human performance within organization, the author notes that performance measures are used to evaluate not only organizational performance but managerial performance as well. The author advocates quantifying the latter by key performance indicators that aligned to the business strategy, the working environment and employee's motivation.

According to Meyer and Gupta (1994), these measures would tend to lose their relevance and ability to differentiate between good and poor performance as long as the performance targets are achieved or that the behavior no longer reflects performance measurements targets. Hence organizations need to pay close and regular attention to its social aspect. Otherwise, some managers would be satisfied only with a participatory approach. Simon (1991) suggests that for the majority of employees, to identify to some extent with their employers organizational goals, helps them perform their tasks despite the fact that they are not constantly monitored. Wisner (2010) would not be completely agree. Wisner cites the case of financial performance indicating that the level of the latter in the organization follows the decisions of its managers and employees. That is to say that employees must contribute to the regular monitoring of operational

performance indicators. The latter should be, according to the author, aligned with daily decisions, rather than a high level of financial measures that are reported monthly or quarterly.

The Effectiveness and Efficiency Concern

Within an organization, the combination of effectiveness and efficiency is important because it represents two basic aspects of performance measurement. Each term calls a set of elements within the organization from a deep and detailed review of its operations. Mouzas (2006) asserts that efficiency and effectiveness are key terms used in evaluating the performance of organizations. Secondly, Drucker (1977) specifies what the two aforementioned aspects are about globally. He stated that efficiency is "doing things right." Effectiveness is "doing the right things." This distinction opens the debate on all conceivable events taking place within an organization and, consequently, conditions all its functioning. Indeed, every element of functioning has a purpose, that of contributing to the achievement of a particular goal. And also has a process of realization which is of a real preoccupation, especially regarding the permanent concern of optimization. For Hannan and Freeman (1977), "effectiveness" is used as a term referring to achieving the goal, while "efficiency" is used as a term for reducing expenses in this effort.

The measurement aspect begins to take shape where Waggoner et al. (1999) report that in general, the performance measurement can be seen as a process of quantifying the efficiency and effectiveness of determined actions and decisions. Dalton and Dalton (1988) and Naschold (1994) highlight the elements enabling the calculation of the difference occurring as a reference informing on the realized performance. They argue, efficiency describes the relationship between inputs and outputs while effectiveness is used to describe the relationship between outputs and desired outcomes. Mouzas (2006) and Asmild et al. (2007) insist there is complementarity of the inclusion of the two aspects determining performance. They judge that performance of an organization should be evaluated simultaneously both in terms of efficiency in the resource use process and in terms of effectiveness in achieving the set objectives. Ho and Zhu (2004) and Ho (2007) assert it clearly and directly. They note that the measure of performance is entirely derived as a product of the measures of efficiency and effectiveness, thus neglecting one of these elements provides an incomplete picture of the true performance of an organization.

Other authors such as Cohen (1992), Dess and Robinson (1984) and Barnard (1938) emphasize an existing nuance between effectiveness and efficiency. Overall, efficiency would be an "organizational" concern that gets all its objectivity from the process based technical functioning and the operational mode of the organization. Whereas efficiency, has a more subjective and complex side to contain and control. Cohen (1992), first notes that the definition of performance and its measurement can vary and begins with paying attention to effectiveness. In its closest sense, performance and effectiveness are synonymous as long as they are based on achieving objectives. Measuring objectives comes to compare the results with those originally established. He then discusses the relevance of the efficiency concern. He argues that in its broadest sense, performance becomes goals realization with the optimization of the methods in the best conditions of satisfaction. The author then deduces three components of performance measurement, namely, effectiveness on the one hand and efficiency on the other hand combined with satisfaction.

Barnard (1938) is more direct in dealing with this point. He presents organizational effectiveness as the achievement of organizational goals and efficiency as the degree of satisfaction of individual motives. The duo effectiveness-efficiency is not immune to all those organizational aspects that are particularly easy to define and understand but rather difficult and complex to implement. Nohria and Berkley (1998) agree that the manager's job is not to seek novelty but to ensure that the company gets results, Nutt (2003) understands that to budget a set of objectives and ensure their implementation is a hard nut to crack. The author notes that this inability to reconcile the expectations and reality is a common trap where decision makers fall. He continued by stating that these decision makers contract for performance gains and intensive development activities are then planned. But the outcome fails to show substantial results.

The Contribution of TQM as a Guarantee of Compliance

Considered a full-fledged organization mode, total quality management tends to be an excellent guarantee of compliance. It is better perhaps because more than any other management mode sensitive to measuring performance in a sustained and pervasive way, it does so first in the organization functioning internally, and second in everything that belongs to the external environment that affects the organization. Modeled on performance measurement, quality measurement is defined by Gogue (1997) as getting numbers and quality indicators expressing the degree of conformity of products and services with customer requirements. These remain the center of attention in any organization implementing a quality management system. When fully responding to them, the company ensures its business prosperity.

Moreover, this customer focus gathers the agreement and support of all the seminal work on the subject, including Crosby (1979, 1996), Deming (1982, 1986), Feigenbaum (1951, 1961, 1991), Ishikawa (1985) and Juran (1951, 1962, 1974, 1988, 1989, 1992). This is the basic strategy where TQM advocates the presence of a leadership in order to promote the adhesion of all individuals forming the social system of the organization. Samson and Terziovski (1999) fully support this statement by saying that leadership, people management and customer focus are the strongest meaningful indicators which best predict operating performance. That performance is earned and developed within a systemic approach framework. The latter conceives the organization as a set of elements interacting with each other and with the external environment. On this point, Hackman and Wageman (1995) state that one of the basic principles of applying a quality management system is to keep in mind that the TQM practices function as an interdependent system which, combined with other organizational assets, generates competitive advantage.

Deming (1986) and Dobbins et al. (1991) point out the importance of the system rather than the individual as a critical factor in determining performance. This systemic view of the organization calls for a second form of design to better decorticate the organizational system and detect better ways to improve performance levels. It includes the process approach where the entire operation is analyzed continuously consolidating all activities and processes followed and all the procedures undertaken by the working groups by activities Belkasseh and Lemtaoui (2014). This analysis and sensitivity to performance measurement is supported within a quality management system by statistical processes control methods as stated by Wisner (2010). These systems and processes are closely related to TQM. The author highlights these methods as useful to help managers assess whether or not their processes and products comply with specifications designed. By doing so, organizations are then able to improve productivity and reduce waste.

These design and analysis efforts make that within a TQM implementation, a set of data is generated to communicate organizational functioning and claims therefore a sine qua non confrontation with forecasts. TQM highlights information arising from the operational side or from the external environment. They are fundamental to the deduction of performance levels from factual and reliable information on which depend all decisions taken in order either to prevent or to correct. Shores (1992) notes that information derived from the analysis of change must be used to change the process responsible to boost continuous improvement.

In a useful and pragmatic way, TQM emphasizes the importance given to the relationships the organization has with its suppliers as partners whose role is decisive as far as organizational performance upstream and downstream is concerned. In this sense Swinehart and Green (1995) call producers to work with suppliers over the long term to eliminate defects of all outputs and ensure that they provide inputs that meet the requirements of end users. The spirit of conformity on which TQM is based, is the essence of sustained performance measurement and it's maintaining effort over time. It is crowned by the concept of continuous improvement. It is a process which, according to Mann (1992) and Shetty (1987) is an effectiveness and efficiency optimization exercise. This is accomplished by improving process control and strengthening internal mechanisms to better respond to changing customer requests. This process accelerates, according

to Kotler (1994), Tillery and Rutledge (1991) and Zairi (1998), when performance is measured and benchmarked against the best in the world. As a result, productivity, performance and efficiency can then increase.

A PATH FORWARD

This article not only presents some hints to be considered by the organizations when dealing with performance. It also has a purely scientific vocation. Indeed, and in order to highlight existing discrepancies, the linking of performance measurement to predefined standards in the 5 points stated above challenges us touse the scientific approach. This is highly apparent when there is matter of a claimed impact on performance enhancing.

Concretely, contributions in Organizations' Management are rich and varied. Once a design of new modes and management techniques takes shape, the debate about them is opened. Many questions arise as to the nature of these new contributions, their strategic importance, the possible ways of their implementation or the weight of organizational change they entail. The very purpose of the adoption of those given management configurations should consequently be expressed.

It would be natural, for any researcher to spread all conceivable arguments as to the appropriateness of adopting a way of management what he defend. To do this, studying the impact on performance remains a relevant way to shed light on a possible added value to the organizational functioning. Along any study, two questions are likely to arise: 1- Would the researcher attempt to study the impact of the implementation of a given management system on performance (organizational, financial, individual, environmental...)? If so, then the study should be conducted on the basis of the starting standards in terms of the organizational, financial or individual state desired after implementation. In this way, we would consider the measurement of the impact on performance in its basic definition which is a kind of calculating the difference between a present situation A and a desired situation B. For instance, one of the key conclusions that could result from such a study is that the implementation of that given management mode would enable the organization to achieve its preset objectives.

Otherwise, the second question would be: 2- Shall the researcher study the impact of the implementation of a particular management system on performance indicators? In this case, he would study only the impact on the development of performance indicators after the adoption of a management method from an organizational side (financial, personal or environmental). The difference between the two approaches seems subtle but it finds its full meaning in the context of a sound scientific contribution.

CONCLUDING COMMENTS

Through this literature review, we identify the relevance of measurement and sustainable performance monitoring within the organization. It occurs in an active way within the relationship undertaken by the company with its changing environment where the latter is considered both a source of information in the form of feedback (that should find its echo at "the objectives set" side) and as a permanent challenge of enhancing adaptability of organizational functioning through its organizational skills. The mastery of this process is a competitive advantage with a high added value.

Performance has also a role to play in the triangle of strategy formulation, setting related objectives, and operational implementation. Measured performance is both a hint providing information about the level of compliance of the organizational functioning to forecasts and a purpose end in itself. Indeed, by budgeting a set of data within a realistic and detailed configuration, management is defining performance levels to reach.

Performance management doesn't neglect the importance of the human element within the organization. It is the individuals' efforts that lead to expected performance levels. The challenge for management is to bring together all these efforts around the achievement of predetermined objectives through a strong corporate culture. The latter promotes empowerment and accountability and requires a healthy communication with enough openness and transparency especially when it comes to the performance side. Effectiveness and efficiency explains the basics of performance measurement as a set of indicators or an excellent tool to examine all processes conditioning the company's functioning. On the other hand, it invites managers to continually look forward to highlighting the real value of their decisions and actions within the organization.

Finally, we were able to present TQM as a management mode very conscious about organizational performance within the frame of compliance and continuous improvement methods. In fact, TQM shows this through its eight basic principles listed by the ISO 9001 standard: customer focus, involvement of people, leadership, system approach to management, process approach, factual approach to decision making, mutually benefic relationships with suppliers and continuous improvement.

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TECHNOLOGY AND BUSINESS PERFORMANCE: TRAVEL AGENCY CASE

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CASE DESCRIPTION

This case presents a didactic tool for students that incorporates elements of analysis and decision-making in relation to the implementation, use and management of technology. This technology is applied to the performance improvement of a virtual travel agency. The student is presents information relating to the firm's business history, key characters in decision-making, evolution and innovation factors that led to organic growth in the midst of a highly competitive environment. The case raises dilemmas for the student concerning the generation of competitive advantage strategies. Students may suggest alternative courses of action and may assume a posture of consultant to the firm. The case is recommended for business undergraduate students, requiring knowledge of management and marketing. The case can be developed in two one-hour classes and requires a presentation of results and discussion at the end of the class.

JEL: M14, M15, M31

KEYWORDS: Business Performance, Innovation, Strategy, Technology

CASE INFORMATION

In recent years the Mexican Great Day Travel Company has excelled in the national and international market in the segment of online vacation package sales. Complex processes of innovation are reflected in its growth in the market. Constant innovations in marketing tourist services occur in a context of high competition.

The paradigm shift in tourism services marketing is associated with four categories recognized by the World Tourism Organization (UNWTO), (2009). These categories are: hospitality, leisure & entertainment industry, industry of travel and transportation. Further development in the new design and marketing processes are evident in Europe and the United States. Major tourism managers and large emitters of tourist flows are involved. We note that Mexican firms inserted in global competition through innovation, propose improved ways of meeting the needs of consumers, with a clear market focus.

Great Day Travel, is a Mexican company with 29 years of experience. The company was established in 1984 in Cancun, Quintana Roo by engineer Fabián Mercado. The concept was to offer receptive travel agency services. At inception, the dominant market model was foreign owned agencies dominated by large airlines and hotel consortia. A few years later, driven by the growth in demand and available technology, global pioneers in online travel marketing appeared. The creation of this marketing channel, coupled with a strong philosophy of service to the customer, resulted in growth in sales of the firm. This growth is expected to increase each year in a sustained manner, driven by the philosophy of innovation proposed by their managers and employees.

Evolution is in client served. Great Day Travel, has more than 60 million annual visits, which come primarily from Mexico with nearly 80%, 11% in South America and 9% of the rest of the world.

The administration of Lic Juan Villareal can be credited to an strategy of international market development, which has boosted the sales of the firm and has introduced democratization of tourism in Mexico. Under Lic. Villareal administration sales and employment have grown exponentially exceeding international companies such as despegar.com, Orbitz and Travelocity.

A number of factors have contributed to Great Day Travel's growth in recent years. Diverse capacities of the firm contribute to implementation of activities focused on creating opportunities for travel and entertainment accessible to national and foreign tourists, maintaining customer loyalty, the need for strategic alliances that add value and essence of the company developed and potentiated by the DNA of innovation in his team. Great Day developed innovative capabilities that allow it to achieve a position in the international market by significantly displacing competition.

This case begins with historical information relating to the history of the travel agency, through its origin, its founders and evolution of the business and technology. The case is accompanied by a series of questions seeking to encourage reflection by the student. The third section includes teaching notes which include suggested answers to the questions.

GREAT DAY TRAVEL

Great Day Travel started in 1984. Since that time the company has implemented important changes which are noticeable in the size of the organization, the number of employees (currently hovering around the 1600), its share of the market and total sales. A review of company history is necessary to understand its evolution driven by innovative capabilities based on the idea of providing consumer quality, exceeding expectations and applying technology for the benefit of all stakeholders in the tourism process.

The firm, currently with 29 years in business, was born in the city of Cancun, Quintana Roo. They were encouraged by the tourist boom in the region. Engineer Fabián Mercado created Great Day. The idea was to offer diving courses for tourists, an interest that developed while the young engineer was taking time between the end of his studies and an intended working life linked in the chemical industry.

Without initial capital or a business plan, Mr. Mercado started a personal project named Great Day. The origin of the name is interesting. As part of a scuba diving instruction experience he surprised a couple of American tourists who wanted to visit Tulum and the surroundings, with a personalized experience. The tourists were more than satisfied with the experience. Greeting him goodbye they said "This has been the Great Day of our stay." This comment resulted in creation of the name Great Day Travel.

The evolution of incorporation in the business of transportation was an important evolution. In those years connectivity to the destination was dependent on air transport. Nautical monopoly and scarce availability of inland transportation occurred and were controlled in those days by a few tour operators, DMC (Destination Management Company). The offering of transportation was limited, and represented a big opportunity. The founder created a concept of private transportation by limousine from the airport to any hotel or destination in the region. They offered tours in Cancun with two units only. At this time, (1984-1985) the socio-economic level of tourists who were visiting the destination was high. Visitors were characterized by being from the United States, mainly the East Coast and Canada. They were also characterized by high levels of education. Within a few months, the luxury shuttle fleet grew to 7 units and specialized according to the needs of customers.

A couple years after starting, and already concentrated in the tourist business, the company ventured into hotel administration. This was done by signing a deal with GD Real Hotels, which operated 40 condominiums.

In 1997, and after years of accumulating experience and relationships in the tourism industry, the company acquired the hotel Costa Real. This hotel emphasized service to the customer. The hotel generated networks of cooperation in the tourism industry that produce an occupancy rate of the hosting Centre above 90% and maintained this occupation rate in subsequent years.. This occupancy rate was the highest in the area. The hotel pioneered the operation model called all inclusive. This model considers the comfort of the guest and provides an experience free of complex decisions, focusing on total hedonism.

The success of the GD Group continues with the opening of another hotel, this one in Playa del Carmen, Quintana Roo, called Porto Real. This second hotel used the same model of operation. Next the company opened a hotel in Cancun. The company opened a new hotel development, which is called Royal Caribbean. The facilities opened at the beginning of 1998 and was operated only five years. After five years it was sold to the Spaniard Riu hotels.

The accelerated growth of the Riviera Maya, particularly the city of Playa del Carmen generated interest of the Group. They proposed operation of a hotel based on the concept of all-inclusive luxury to cater to a more sophisticated market segment, predominantly European, who did not have similar offerings in the vicinity. At the same time, through a leasing program, the company began operating another center of lodging in Playa del Carmen, called Real del Carmen. They obtained a contract of operation for ten years, during which Great Day aimed to diversify in terms of the business model to provide offerings to budget-oriented travelers. Great Day, through its Great Resorts division, operated 5 hotels with Grand Touring categories, five-star and four-star including 1721 Hotel rooms in total.

Ground transportation, hotel operation and DMC and online travel agencies are part of the activities of Great Day Travel. The operation the travel agency online migrated from a travel agency working with tour operator wholesalers. The company worked with great capability in negotiations with suppliers of tourist services and great customer focus. This was accompanied by a marketing channel design based on international trends and marketing approach.

If you want to explore travel possibilities both domestically and abroad and are used to the internet, chances are that consulting any Western search engine leads you to the Great Day Travel page. This occurs from a strategy of positioning in search engines known as SEO (Search Engine Optimization) that it has been instrumental in the evolution of the firm over time.

Being pioneers in marketing tourism through internet services, involved dealing with multiple problems. There was resistance of services suppliers associated with the business. As an example, the company developed a sales portal for online airfare, lodging, rental car and entertainment destinations including tours to the nearby attractions. This was most innovative in 1993. But, there were no conditions to make payments securely through banks, which could not engage online commerce.

To activate channel marketing in line with security, the engineering market is given the task of directing an investigation that articulate the perceptions of customers in terms of security of transactions on the internet. They were assigned the job of offering a dynamic and secure portal that would work as a promotional and commercial tool. The tool would provide an absolute guarantee of safety in terms of the management of user information.

The company was able to locate, at the University of California in Los Angeles (UCLA), data encryption software allowing it to carry out commercial transactions with the highest standards of quality. The program was purchased for 17,000 US dollar and since then remains in operation controlled entirely by the firm.

As time passed technology took on an increasingly important role in Great Day, creating an internal area responsible for the research and development of processes associated with the technologies of information, expert systems, connectivity and systems that would permanently mark the direction of the firm. Technology matured with the concept called internally "3 T: technology, tariff and traffic." This concept implies a buttress business model in cutting-edge technology generated at home to make its website visible and visited, competitive discounted rates generated on the basis of bargaining power, volume purchasing and traffic. This strategy was reinforced with advertising by mass media in recent years.

With technology as the axis of growth and a central strategy, the firm migrates its business model from a traditional responsive agency to an online agency. The concept of "Integrated tourist service" was developed. This concept aimed at comprehensive care of the client via a tourist content integration platform, proposing solutions to the traveler and best rates available to choose between multiple airlines Hotels and tourist services. It highlights the design of a booking engine which is internally referred to as MATRIX, and which is the result of the collaboration of experts in designing systems with collaborators in areas of marketing, finance, customer service and management.

Great Day Travel relations with strategic business partners is enhanced by the style of the firm established. The win-win style, gave operators and travel agencies a platform for integration of services, multiple channels of marketing, advertising and promotion, a multichannel marketing tool and most importantly, with the credibility and support of customers, well-known actors and authorities from the sector.

Since the beginning of formal operations of Great Day Travel, partnerships and business relationships have been a priority for development and growth. The company first established trade relations with hotel operators and airlines, subsequently changing its business model and breaking out as a wholesaler. They engaged in relationships with travel agencies not only in Mexico but in other countries in the region.

As growth accelerated in operations, the company established agreements to promote destinations beginning with Puebla, Mexico. The process involved establishing a marketing strategy for the destination supported by a strong campaign in media, partnerships with airlines, hotels and local tour operators. This involved increasing use of the B2B strategy called e-travelsolution.

The strategy of activation of destinations or collaborative integration (co'ops as commonly known in the tourism industry) included, in addition to Puebla, the destinations of Cancun, Cozumel, Mazatlan, Veracruz and other domestic destinations. This allowed the company to anticipate demand in 2010 from and to South America from countries like Brazil, Chile, Argentina and Colombia due to improved exchange rate or proximity of event such as World Cup, Gold Cup and Olympic Games to be held in Brazil in the year 2014, 2015 and 2016, respectively.

The South American market is very attractive. The Mexican Caribbean generates large flows to their destinations. But, the market was attended by local firms such as HotelDo. Great Day Travel set a commercial approach to operate with them and ends bought the company together with the Clickhotels brand. With a dominant presence in Brazil, Argentina and Chile, this represented the best chance of entry into the South American market. The incorporation immediately added a wide range of hotel, near 6,000 hotels in all Latin America, new airlines and local operators established in the Southern Cone.

This opportunity for expansion in the South American market implied a move in their technology, knowledge and experience to new offices in Sao Paulo and Buenos Aires, injecting Great Day philosophy attached personnel.

Partnerships with local governments motivates new relations with the federal Governments, in this case with the Ministry of tourism of Mexico, (SECTUR) where from the year 2011, Great Day operates its portal www.visitméxico.com, articulating the same strategy of partnership and marketing of destinations. Since its origins, Great Day Travel places emphasis on the use of marketing tools to support the business processes of the firm. It incorporates new forms to communicate with its clients and the general public. It launched a new nation-wide repositioning campaign and new forms of payment. These new campaigns seek to build the company customer base.

To operate the campaign, he hired digital agency CROSSMEDIA, who proposed cartoons, creating memorable characters, messages using multi-segment strategy, with a focus on payment facilities. The campaign used TV, magazines on board, press, and banners on web sites such as MSN, Google, Tripadvisor, daily national circulation, social networks and outdoor advertising.Customer satisfaction is a priority for the company, so it implemented systems of monitoring, 24 hours, customer service channels. This occurred by operating 24 hours to assist in the processes of purchase of online travel, chat or via e-mail, and intelligence system markets to underpin decision-making based on always-current market information. Research and development of new services works hand with customer needs, market trends and the potential of the firm to combine products and services, innovative and customizable, by the strategy called dynamic packaging. This strategy allowed the customer the possibility of combinations and changes it considered necessary in relation to flights, hotels, ground transportation or tours.

As already mentioned, Good Day was the first to offer credit card payments via the Internet. But they have expanded their forms of payment in response to the needs of customers by introducing the ability to pay with two credit cards. They also introduced a system of payments, which is to collect a partial payment in cash and part by one credit card. Cash payments via convenience stores were also introduced. After a detailed study of risks, it the system was tested and a program called CrediGreatDay was approved. In this system, once the credit history of a client was evaluated, the firm gives the financing.

Partial payments are offered from 3 to 18 months interest-free. To address the traditional market, 120 kiosks were installed in malls nationwide for reservations and travel sale, offering between 9 and 18 months to pay credit. This modality has grown 8% offer another payment alternative. Great Day Travel has been designated a Best Place to Work and ESR, because they are committed to internal customers. Interestingly, the use of print media within their offices is not permitted.

QUESTIONS

1. After the review of historical performance, and a careful analysis of the evolution of the company, consider the administrative decisions used in Great Day Travel to respond to an identifiable pattern.
2. Are there signs of professionalization of management in Great Day Travel from the appointment of the CEO? Justify your answer.
3. Virtual travel agency being a technological platform is the choice for generating technology in house. An alternative is to research and buy an external platform. What recommendation would you propose as an external consultant to the senior management of Great Day Travel to generate a sustainable competitive advantage?

4. Emphasis for the security of electronic transactions has generated confidence in customers. Discuss Strategic proposals which could allow Great Day Travel to communicate the security and functionality of your engine MATRIX?
5. Based on the history of partnerships undertaken so far, would you recommend strategic actions for the internationalization of the firm in the next few years?
6. Provides a final recommendation to the directors of the company from the perspective of an external consultant.

TECHNOLOGY AND BUSINESS PERFORMANCE: CASE CANCUN TRAVEL AGENCY.

TEACHING NOTES

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CASE DESCRIPTION

This case presents a didactic tool for students that incorporates elements of analysis and decision-making in relation to the implementation, use and management of technology. This technology is applied to the performance improvement of a virtual travel agency. The student is presents information relating to the firm's business history, key characters in decision-making, evolution and innovation factors that led to organic growth in the midst of a highly competitive environment. The case raises dilemmas for the student concerning the generation of competitive advantage strategies. Students may suggest alternative courses of action and may assume a posture of consultant to the firm. The case is recommended for business undergraduate students, requiring knowledge of management and marketing. The case can be developed in two one-hour classes and requires a presentation of results and discussion at the end of the class.

GENERAL COMMENTS

This case is intended to generate reflection on the importance of decision making in an organization governed by the innovation and which plays in a highly competitive sector and global. The information presented has been supplemented with data favoring a framework of qualitative and quantitative analysis within the team, seeking to generate discussion and consensus on the proposals of business strategies. Students have the freedom to made proposals provided they present a justification and it is derived from an analysis and discussion.

QUESTIONS

Question 1: After the review of historical performance, and a careful analysis of the evolution of the company, consider the administrative decisions used in Great Day Travel to respond to an identifiable pattern.

Solution 1: Although there are efforts identified to professionalize the operation of the company from its origins, scientific administration is important until the transfer of the leadership from the founding CEO. Order and control in internal processes and construction of an administrative support structure would result in organizational strengthening. Management by objectives, internal entrepreneurship and leadership are influences in the management of this company from Peter Drucker.

Question 1: Are there signs of professionalization of management in Great Day Travel from the appointment of the CEO? Justify your answer.

Solution 2: One candidate is to divide the initial basic functions of the company. On one hand establishing formal relations to institutionalize the entrepreneurship and creative capacity of its founder, Mr. Fabian is desirable. The recommendation is to market using his vision for the future to promote growth in market share and generation of new products. On the other hand the administration of the company is professional-oriented on performance management by objectives and the strengthening organizational capabilities needed to shore up management and control.

Question 3: Virtual travel agency being a technological platform is the choice for generating technology in house. An alternative is to research and buy an external platform. What recommendation would you propose as an external consultant to the senior management of Great Day Travel to generate a sustainable competitive advantage?

Solution 3: An cost-benefit analysis might be applied to the issue. Because of changing markets and sensitive information, it is recommended to keep the agility of manufacturing at home through a department of research, development and innovation that generates the virtual travel agency operation support systems. This allows rapid adjustments, maintaining the system flexibility to ensure the security of transactions and makes it possible to be able to offer technology services to other companies and governments with the knowledge generated.

Question 4: Emphasis for the security of electronic transactions has generated confidence in customers. Discuss Strategic proposals which could allow Great Day Travel to communicate the security and functionality of your engine MATRIX?

Solution 4: Communication will be oriented to position engine as highly efficient and secure through a campaign of recommendations from satisfied customers. Social networks and portals that document customer satisfaction are recommended. The company should seek legitimacy for the satisfaction of clients and seek to certify them externally.

Question 5: Based on the history of partnerships undertaken so far, would you recommend strategic actions for the internationalization of the firm in the next few years?

Solution 5: Students might recommended the mergers and acquisitions of local companies, empowering them with the knowledge, experience and technology of Great Day Travel and giving them internal and external customer service philosophies. Additionally negotiate with suppliers of tourism services to generate sustainable competitive advantages in the long run.

Question 6: Provide a final recommendation to the directors of the company from the perspective of an external consultant.

Solution 6: Students might recommend consolidation and maturity of the previous business model to international expansion, mainly to Europe. They might recommend developing emerging markets of tourism through the model of business GDT.

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BIOGRAFÍA

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INVESTMENT IN TORREFACTION VERSUS TRADITIONAL PELLET PLANTS

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CASE DESCRIPTION

This case requires students to identify the best pellet mill project available by having them analyze a number of different factors including net present value and internal rate of return. Students are given information about the pellet mills themselves, and a number of different costs to help with their analysis. Students must determine which factors are more conclusive when deciding on a project and weigh the options to eventually decide which one will be a better investment. Students may make another plant plan, different from the two described if they think it will be a better investment. This case is appropriate for junior and senior level students, as well as masters level students. Students should have some knowledge of accounting and finance principles. Students may work individually or in teams to complete this project. This case should require about 4-8 hours of outside work and about an hour of in-class discussion.

JEL: G30

KEYWORDS: Pellets, Torrefaction, Capital Budgeting

CASE INFORMATION

With rising energy prices running into more stringent environmental regulations, many European consumers and companies are turning to wood pellets to either replace or supplement fossil fuel usage (Hogan, Otterstedt, Morin, Wilde, 2012). The pellets are made from compressed biomass, most often waste wood (trimmings and scrap), and are used as a form of wood fuel. They are most like coal, being a solid, but are completely carbon neutral when sourced from forests that are sustainably managed. The process of producing these pellets depends on whether hardwood or softwood is being used and whether the mill is using a tradition process or the newer torrefaction method. Various production techniques exist to deal with the different types of woods, and, in most areas, there are not many major differences in the finished product (Houck, Clark, Christensen, 2009). If the pellets are torrefied, the end product is almost identical, regardless of whether hardwood or softwood is used. Another advantage to using wood pellets is that they are accessible to almost all markets because they are so easily transportable (Deloitte, 2008).

Traditional pellets contain around half the energy per kilogram of coal and can be co-fired in coal plants up to 10% of the fuel content. The traditional method of producing pellets is cheaper, has a lower startup cost, and has a greater output of pellets per ton of raw materials. There are residential uses for traditional pellets in replacements for wood burning stoves and heaters. They do not, however, have the ability to replace nearly as much power generating coal as the torrefied product does. Torrefied pellets can be used in an existing coal plants for as much as 70% of the fuel with little modification to the existing plant (Dutta, 2011). Torrefaction is a new method of producing pellets in which the wood is cooked at high temperatures while deprived of oxygen before it is compressed (Eyer, 2012). This produces finished pellets which are much denser and in turn have approximately the same qualities of coal, in terms of energy, density, and

material characteristics. Some of the plant designs can partially supply their own thermal input by burning off the gaseous by-products of the torrefaction process in order to heat the reactor for the process while running. There are also changes under way to convert coal plants, which would otherwise be shuttered due to carbon output, to run solely on pellet and biomass.

The disadvantages of the torrefaction process are that about 10% of the wood's energy is wasted in the conversion. More equipment is required on top of the equipment already needed for traditional pellets, although torrefied wood is generally less wearing on the processing equipment (Koppejan, Sokhansanj, Melin, Madrali, 2012). Currently, torrefied pellets are classified as charcoal under the International Maritime Dangerous Goods Code, rather than a wood product, this has the effect of limiting the ability to ship these pellet in bulk as is common for traditional wood pellets. Wood pellets also have high transportation costs and usually will only use round wood and waste wood supplied within a 50 mile radius (Wilson, 2010). This could cause problems if the supply area for one company interferes with the supply area of another. We have two projects to choose from: the Piney Woods Pellets, who propose building a plant which produces traditional wood pellets, or the Port Pellets, who propose building a plant which produces torrefied pellets. For traditional and torrefied pellets, the distribution between raw materials and production costs and delivery costs to port is about equal but the cost to produce torrefied pellets is significantly higher. The average traditional pellet mill sells about 150,000 tons per year with a production cost before taxes of about $19.2 million in the first year, while torrefied pellet mills sell about 150,000 tons per year with a production cost of about $20.5 million before taxes.

Torrefied pellets, however, can be sold for up to 16% more than traditional pellets. The median price for traditional pellets in 2014 is about $160 per ton, giving Piney Woods Pellets revenues of $24 million, while torrefied pellets can sell for $190 per ton, giving Port Pellets revenues of $28.5 million. We assume there is an annual tax rate of 25%. The breakout of costs for Piney Woods Pellets to produce traditional pellets includes four parts: harvesting, transportation, depreciation and production costs. There is an initial investment is $25 million, which includes the cost of land, building, and equipment. Harvesting is the gathering of raw materials from land, which includes repairs and maintenance, diesel fuel, lube, large parts, insurance premium, and other costs (Qian, McDow, 2013). Harvesting accounts for about $5 million of the overall cost. Transportation is the cost it takes to transport the raw materials from where they were harvested to the pellet mill. Since Piney Woods Pellets will be in an area that is surrounded by woods and there are no other companies in the supply area, the transportation cost only accounts for about $1.5 million. Depreciation costs are calculated using the initial investment of $25 million divided over a 5 year useful life using the straight line depreciation method. It is calculated to be $5 million per year.

The production cost consists of variable costs, which include energy and labor costs, fixed costs, and delivery of finished goods to the port. Energy costs are $1.5 million; labor costs are $3 million; and fixed costs are $1.5 million. Since Piney Woods Pellets is so far from the nearest port, delivery to the port is $1.7 million. Using the 25% tax rate, taxes are calculated to be $1.2 million for the first year. This gives Piney Woods Pellets a net income of $3.6 million for year one. See Appendix A for the forecasted results of operations for year one of the project. Port Pellets proposes producing torrefied pellets and is very close to the delivery port, causing delivery costs to the port to be lower, but further away from densely wooded areas, causing transportation costs to be higher, therefore, the breakout is slightly different. Harvesting costs are the same $5 million but transportation of raw materials to the pellet mill is now $3.5 million because Port Pellets is not as close to wooded areas. The depreciation cost is also calculated using the initial investment, but, since torrefied plants require more machinery, the initial investment is $32 million, which includes the cost of land, building, and equipment. Depreciation is calculated to be $6.4 million per year. The production costs are also allocated differently because there is no delivery cost to the port, torrefied plants require more energy, and labor is more expensive in the area. The energy cost is $2.2 million; the labor cost is $3.5 million; and the fixed cost is $2 million. Taxes are also calculated with a 25% tax rate, which equals $1.475 million for the first year of production. This gives Port Pellets a net

income of $4.425 million for year one. For a summary of the comparative income statement for both Piney Woods Pellets and Port Pellets for the first year of operations, refer to the table below.

Forecasted Results of Operations ($ in 1,000s)

	Piney Woods Pellets	Port Pellets
Revenues	$24,000	$28,500
Harvesting	$5,000	$5,000
Transportation cost	$1,500	$3,500
Depreciation	$5,000	$6,400
Energy Cost	$1,500	$2,200
Labor Cost	$3,000	$3,500
Fixed Cost	$1,500	$2,000
Delivery Cost to Port	$1,700	$ -
Taxes	$1,200	$1,475
Net Income	$3,600	$4,425
Cash Flow	$8,600	$10,825

This table shows the estimated comparative income statements and cash flows for Piney Woods Pellets, producing traditional pellets, and Port Pellets, producing torrefied pellets, for the first year of operations. Revenues are calculated using the respective prices of traditional and torrefied pellets multiplied by the estimated number of units sold. Taxes are calculated based on a 25% tax rate.

We assume in this case that there is a constant inflation rate of 3% per year over a five year period. This will cause all of the expenses and revenues for both Piney Woods Pellets and Port Pellets to increase by 3% each year of operation. The net present value of the projects represents how much the cash flows over time are worth. The internal rate of return (IRR) however represents the rate of return used in capital budgeting to measure and compare the profitability of investments. Because IRR is a rate quantity, it is an indicator of the efficiency, quality, or yield of an investment. This is in contrast with the net present value, which is an indicator of the value or magnitude of an investment. Nathan P. Velazquez, the manager of Piney Woods Pellets, believes that net present value is a more reliable way to determine which investment to make, while Ivan R. Rodriguez, the manager of Port Pellets, believes that the internal rate of return is a more reliable approach. The payback period refers to the period of time required to earn back the funds expended in an investment. Payback period is good to consider when making a decision because it shows the investor how fast they will recover their original cost, but it should not be the only consideration. The profitability index is the ratio of net present value to initial investment of a project. It allows the investor to quantify the amount of value created per dollar invested. The rationale behind using the profitability index to influence decisions is that it gives a clear description of whether or not the project will be profitable.

QUESTIONS

1. Calculate the Net Present Value for each project described and determine which project appears more valuable based on this calculation.

2. Calculate the Internal Rate of Return for each project and determine which project appears more valuable based on this calculation.

3. Which manager is using the most appropriate method for determining which project to choose from and why?

4. Calculate the payback period and the profitability index for each project. Explain what significance these values have in relation to the decision at hand.

5. Are there any other options that should be considered when choosing a project? There are no barriers preventing Piney Woods Pellets or Port Pellets from producing either traditional or torrefied pellets.

6. If there are other options considered, make the same calculations (NPV, IRR, payback period, profitability index) and compare the new options to the two already presented. For Piney Woods Pellets to produce torrefied pellets or for Port Pellets to produce traditional pellets, we can assume that harvesting, transportation, labor, fixed cost, and delivery cost will remain constant. For either plant to produce torrefied pellets or for either plant to produce traditional pellets, the initial investment, energy cost, and depreciation will be the same.

7. Which project should investors choose and which values or ratios had a higher priority in your decision?

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TEACHING NOTES

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CASE DESCRIPTION

This case requires students to identify the best pellet mill project available by having them analyze a number of different factors including net present value and internal rate of return. Students are given information about the pellet mills themselves, and a number of different costs to help with their analysis. Students must determine which factors are more conclusive when deciding on a project and weigh the options to eventually decide which one will be a better investment. Students may make another plant plan, different from the two described if they think it will be a better investment. This case is appropriate for junior and senior level students, as well as masters level students. Students should have some knowledge of accounting and finance principles. Students may work individually or in teams to complete this project. This case should require about 4-8 hours of outside work and about an hour of in-class discussion.

GENERAL COMMENTS

This case requires students to accurately analyze financial information and make a decision based on this information about which investment is better. Furthermore, students must consider any other possibilities for an investment, aside from the two presented in this case, and determine if their alternative would be a safer investment. There are a number of factors to consider, including net profit, net present value, internal rate of return, payback period, etc. Students must understand and analyze each of these values and decide which values or rates better show the investor which project to choose. This is the type of challenge that managers and executives will be faced with on a regular basis, so it is important for students to understand the decision making process. While students should provide visual aids to present their solution to this case study, visual aids are not provided here. The following provides a sample solution to this case study. There is no one correct solution since the case is open-ended; therefore student's solutions will probably differ from what is presented here. The solutions presented are based on the assumption that the student will choose neither of the projects presented, but instead determine their own project idea. The numbers presented are based on educated assumptions related to the numbers presented in the case.

QUESTIONS

Question 1: Calculate the Net Present Value for each project described and determine which project appears more valuable based on this calculation.

Solution 1: To calculate net present value, students must use the 3% inflation rate to estimate the future cash flows for all five years of each project. This can be done with an excel spreadsheet shown below.

Table 1: Piney Woods Pellets Revenues and Expenses Producing Traditional Pellets ($ In 1,000s)

Year	0	1	2	3	4	5
Revenues		$24,000.00	$24,750.00	$25,500.00	$26,250.00	$27,000.00
Harvesting		$5,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00
Transportation cost		$1,500.00	$1,545.00	$1,591.35	$1,639.09	$1,688.26
Depreciation		$5,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00
Energy Cost		$1,500.00	$1,545.00	$1,591.35	$1,639.09	$1,688.26
Labor Cost		$3,000.00	$3,090.00	$3,182.70	$3,278.18	$3,376.53
Fixed Cost		$1,500.00	$1,500.00	$1,500.00	$1,500.00	$1,500.00
Delivery Cost to Port		$1,700.00	$1,751.00	$1,803.53	$1,857.64	$1,913.36
Taxes		$1,200.00	$1,329.75	$1,457.77	$1,584.00	$1,708.40
Net Income		$3,600.00	$3,989.25	$4,373.30	$4,752.00	$5,125.19
Cash Flow	-$25,000.00	$8,600.00	$8,989.25	$9,373.30	$9,752.00	$10,125.19

This table shows the estimated revenues, expenses, and cash flows for the first five years of operations for Piney Woods Pellets, producing traditional pellets. Revenues are based on a price of $160 (increasing 3% each year) and sales of 150,000 per year. Harvesting, depreciation, and fixed costs remain constant, while all other expenses increase 3% each year. The initial investment of $25 million includes the cost of land, building, and equipment.

Table 2: Port Pellets Revenues and Expenses Producing Torrefied Pellets ($ In 1,000s)

Year	0	1	2	3	4	5
Revenues		$28,500.00	$29,400.00	$30,300.00	$31,200.00	$32,100.00
Harvesting		$5,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00
Transportation cost		$3,500.00	$3,605.00	$3,713.15	$3,824.54	$3,939.28
Depreciation		$6,400.00	$6,400.00	$6,400.00	$6,400.00	$6,400.00
Energy Cost		$2,200.00	$2,266.00	$2,333.98	$2,404.00	$2,476.12
Labor Cost		$3,500.00	$3,605.00	$3,713.15	$3,824.54	$3,939.28
Fixed Cost		$2,000.00	$2,000.00	$2,000.00	$2,000.00	$2,000.00
Delivery Cost to Port		$0.00	$0.00	$0.00	$0.00	$0.00
Taxes		$1,475.00	$1,631.00	$1,784.93	$1,936.73	$2,086.33
Net Income		$4,425.00	$4,893.00	$5,354.79	$5,810.18	$6,258.99
Cash Flow	-$32,000.00	$10,825.00	$11,293.00	$11,754.79	$12,210.18	$12,658.99

This table shows the estimated revenues, expenses, and cash flows for the first five years of operations for Port Pellets, producing torrefied pellets. Revenues are based on a price of $190 (increasing 3% each year) and sales of 150,000 per year. Harvesting, depreciation, and fixed costs remain constant, while all other expenses increase 3% each year. The initial investment of $32 million includes the cost of land, building, and equipment.

Revenues are calculated by increasing the price of the pellets 3% each year (rounded to the nearest dollar) and multiplying it by the expected sales of 150 units per year (in 1,000s). Harvesting, depreciation, and fixed costs will not be affected by inflation. The initial investments for Piney Woods Pellets and Port Pellets of $25 million and $32 million respectively are based on the estimated cost of land, buildings, equipment, and any other costs incurred to begin operations. After the future cash flows are calculated, the Excel "NPV" function can be used to find the net present value of each project. Net present value is $7,623.32 for Piney Woods Pellets and $8,929.91 for Port Pellets (in 1,000s). Based on this value alone, Port Pellets would be the better investment because the net present value is higher.

Question 2: Calculate the Internal Rate of Return for each project and determine which project appears more valuable based on this calculation.

Solution 2: To calculate the internal rate of return, students will again use the projected future cash flows, calculated in Question 1. This value can also be calculated easily using the "IRR" function in Microsoft Excel. Internal rate of return is 25% for Piney Woods Pellets and 24% for Port Pellets. Based on this rate alone, Piney Woods Pellets is the better investment.

Question 3: Which manager is using the most appropriate method for determining which project to choose from and why?

Solution 3: To determine which investment is better, several values must be considered. Nathan P. Velazquez of Piney Woods Pellets believes that the net present value is a better indicator of which investment to make. The net present value for Piney Woods Pellets is $7.62 million while the net present value for Port Pellets is $8.93 million. This shows that after the five year period, the cash flows of Port Pellets will have a higher value. If this is the only value considered, the investor would choose Port Pellets. An investor must keep in mind, though, that net present value does not scale the value for the size of the initial investments. Ivan R. Rodriguez of Port Pellets, however, believes that the internal rate of return is a better indicator of which project to choose. The internal rate of return for Piney Woods Pellets and Port Pellets is 25% and 24% respectively. This shows that Piney Woods Pellets has a higher rate of return than Port Pellets and the investor should choose Piney Woods Pellets. Neither of these values should be used as the only deciding factor when determining which project to choose. The net present value gives valuable information because it shows the value over time of the project's cash flows. The internal rate of return also gives valuable information because it shows a percentage rate of how much return the investor will gain on their investment. The two should both be considered when making a decision.

Question 4: Calculate the payback period and the profitability index for each project. Explain what significance these values have in relation to the decision at hand.

Solution 4: To calculate the payback period for each investment, students must determine, in years, how long it will take for the cash flows of the project to equal the initial investment. For Piney Woods Pellets, the initial investment will be paid back in the third year of operations. It only takes a fraction of the year to equal the initial investment; therefore the payback period is 2.79 years. The payback period for Port Pellets is calculated in the same manner, and equals 2.84 years.

The profitability index is calculated by dividing the net present value by the initial investment to show how much return will be gained per dollar invested. Piney Woods Pellets has a profitability index of 30%, while Port Pellets has a profitability index of 28%. Based on this value, the investor should favor Piney Woods Pellets because the profitability index is higher, showing that it has more profit per dollar initially spent.

Question 5: Are there any other options that should be considered when choosing a project? There are no barriers preventing Piney Woods Pellets or Port Pellets from producing either traditional or torrefied pellets.

Solution 5: When analyzing the two options presented, it is important to notice that there are two other options that are not described here. Piney Woods Pellets could produce torrefied pellets, and Port Pellets could produce traditional pellets. To analyze these additional options, a number of estimations and calculations must be made. For Piney Woods Pellets to produce torrefied pellets, we can assume that certain costs would be equal, regardless of whether the plant is producing traditional or torrefied pellets. These costs include the harvesting cost ($5 million), transportation cost ($1.5 million), labor cost ($3 million), fixed cost ($1.5 million), and delivery cost to port ($1.7 million). The cost breakout for these particular costs would also be the same for Port Pellets to produce traditional pellets. These costs include harvesting cost ($5 million), transportation cost ($3 million), labor cost ($3.5 million), fixed cost ($2 million), and delivery cost to port ($0). The initial investment would change from the options presented in the case because torrefied pellets require more machinery. The initial investments are $32 million for Piney Woods Pellets and $25 million for Port Pellets. This would change the annual depreciation expense as well, making it $6.4 million for Piney Woods Pellets and $5 million for Port Pellets, using the same straight line depreciation over five years. Revenues would also change from the original amounts because torrefied pellets sell for $190 while traditional pellets sell for $160. Revenues are calculated to be $28.5 million for Piney Woods Pellets and $24 million for Port Pellets. The energy cost for Piney Woods Pellets would now

be $2.2 million while the energy cost for Port Pellets is now $1.5 million. The following table shows (in 1,000s) a projected income statement for the first year of operations for these two options.

Table 3: Forecasted Results of Operations ($ In 1,000s)

	Piney Woods Pellets	Port Pellets
Revenues	$28,500	$24,00
Harvesting	$5,000	$5,000
Transportation cost	$1,500	$3,500
Depreciation	$6,400	$5.000
Energy Cost	$1,500	$2,200
Labor Cost	$3,000	$3,500
Fixed Cost	$1,500	$2,000
Delivery Cost to Port	$1,700	$-
Taxes	$1,800	$875
Net Income	$5,400	$2,625
Cash Flow	$11,800	$7,625

This table shows the estimated comparative income statements and cash flows for Piney Woods Pellets, producing torrefied pellets, and Port Pellets, producing traditional pellets, for the first year of operations. Revenues are calculated using the respective prices of traditional and torrefied pellets multiplied by the estimated number of units sold. Taxes are calculated based on a 25% tax rate.

We will again assume that there is a constant inflation rate of 3% per year over a five year period and a tax rate of 25%. This will cause all of the expenses and revenues for both Piney Woods Pellets and Port Pellets to increase by 3% each year. For Piney Woods Pellets, the net present value is now $12.5 million while the net present value for Port Pellets is now $4.1 million. The internal rate of return for Piney Woods Pellets is now 28% while the internal rate of return for Port Pellets is now 19%. The payback period for Piney Woods Pellets and Port Pellets is calculated to be 2.62 years and 3.12 years, respectively. Comparing both of these options to each other and to the two options presented in the case, it is clear that producing torrefied pellets at Piney Woods Pellets is the best investment of the four. This project has a significantly higher net present value and internal rate of return, while also having an ideal payback period. All things considered, this is the best possible option.

Question 6: If there are other options considered, make the same calculations (NPV, IRR, payback period, profitability index) and compare the new options to the two already presented. For Piney Woods Pellets to produce torrefied pellets or for Port Pellets to produce traditional pellets, we can assume that harvesting, transportation, labor, fixed cost, and delivery cost will remain constant. For either plant to produce torrefied pellets or for either plant to produce traditional pellets, the initial investment, energy cost, and depreciation will be the same.

Solution 6: To calculate the net present value of the two extra options explored, students will again need to find the projected cash flows for all five years of the project using the same 3% inflation rate. The future cash flows are as follows.

Table 4: Piney Woods Pellets Revenues and Expenses Producing Torrefied Pellets ($ In 1,000s)

Year	0	1	2	3	4	5
Revenues		$28,500.00	$29,400.00	$30,300.00	$31,200.00	$32,100.00
Harvesting		$5,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00
Transportation cost		$1,500.00	$1,545.00	$1,591.35	$1,639.09	$1,688.26
Depreciation		$6,400.00	$6,400.00	$6,400.00	$6,400.00	$6,400.00
Energy Cost		$2,200.00	$2,266.00	$2,333.98	$2,404.00	$2,476.12
Labor Cost		$3,000.00	$3,090.00	$3,182.70	$3,278.18	$3,376.53
Fixed Cost		$1,500.00	$1,500.00	$1,500.00	$1,500.00	$1,500.00
Delivery Cost to Port		$1,700.00	$1,751.00	$1,803.53	$1,857.64	$1,913.36
Taxes		$1,800.00	$1,962.00	$2,122.11	$2,280.27	$2,436.43
Net Income		$5,400.00	$5,886.00	$6,366.33	$6,840.82	$7,309.29
Cash Flow	-$32,000.00	$11,800.00	$12,286.00	$12,766.33	$13,240.82	$13,709.29

This table shows the estimated revenues, expenses, and cash flows for the first five years of operations for Port Pellets, producing torrefied pellets. Revenues are based on a price of $190 (increasing 3% each year) and sales of 150,000 per year. Harvesting, depreciation, and fixed costs remain constant, while all other expenses increase 3% each year. The initial investment of $32 million includes the cost of land, building, and equipment.

Table 5: Port Pellets Revenues and Expenses Producing Traditional Pellets ($ In 1,000s)

Year	0	1	2	3	4	5
Revenues		$24,000.00	$24,750.00	$25,500.00	$26,250.00	$27,000.00
Harvesting		$5,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00
Transportation cost		$3,500.00	$3,605.00	$3,713.15	$3,824.54	$3,939.28
Depreciation		$5,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00
Energy Cost		$1,500.00	$1,545.00	$1,591.35	$1,639.09	$1,688.26
Labor Cost		$3,500.00	$3,605.00	$3,713.15	$3,824.54	$3,939.28
Fixed Cost		$2,000.00	$2,000.00	$2,000.00	$2,000.00	$2,000.00
Delivery Cost to Port		$0.00	$0.00	$0.00	$0.00	$0.00
Taxes		$875.00	$998.75	$1,120.59	$1,240.46	$1,358.29
Net Income		$2,625.00	$2,996.25	$3,361.76	$3,721.37	$4,074.88
Cash Flow	-$25,000.00	$7,625.00	$7,996.25	$8,361.76	$8,721.37	$9,074.88

This table shows the estimated revenues, expenses, and cash flows for the first five years of operations for Port Pellets, producing torrefied pellets. Revenues are based on a price of $190 (increasing 3% each year) and sales of 150,000 per year. Harvesting, depreciation, and fixed costs remain constant, while all other expenses increase 3% each year. The initial investment of $32 million includes the cost of land, building, and equipment.

Net present value is the calculated to be $12,473.62 for Piney Woods Pellets and $4,079.60 for Port Pellets. Comparing these values to the two options presented in the case, Piney Woods Pellets producing torrefied pellets is clearly the best investment of the four. The internal rate of return for Piney Woods Pellets and Port Pellets is calculated to be 28% and 19% respectively. Based on these rates, Piney Woods Pellets is again the best investment. The payback period for Piney Woods Pellets producing torrefied pellets is 2.62 years, and the payback period for Port Pellets producing traditional pellets is 3.12 years. Between the four options, Piney Woods Pellets producing torrefied pellets is the superior option, but all of the payback periods are relatively close together. This gives the payback period a lower priority when making the overall decision. The profitability index, however, was very significantly different between the four options. For Piney Woods Pellets to produce torrefied pellets, the profitability index is 39% while it is only 16% for Port Pellets to produce traditional pellets.

Question 7: Which project should investors choose and which values or ratios had a higher priority in your decision?

Solution 7: To determine which project to choose from, students must analyze the results of their calculations and determine which calculations are more appropriate to use when making these decisions. A summary of the findings is shown below.

Table 6: Results and Comparison of the Four Potential Projects

		NPV ($ In 1,000s)	IRR	Profitability Index	Payback Period (In Years)
Piney Woods Pellets	Traditional	7,632.32	25%	30%	2.79
	Torrefied	12,473.62	28%	39%	2.62
Port Pellets	Traditional	4,079.60	19%	16%	3.12
	Torrefied	8,929.91	24%	28%	2.84

The table shows the net present value, internal rate of return, profitability index, and payback period for all four of the project options. The results of each project have been compared and the shaded region represents the optimal investment based on each value or rate. Piney Woods Pellets is clearly the ideal project since it has the best results in every category.

Since the net present value of Piney Woods Pellets producing torrefied pellets is significantly higher than the other three options, we should place the highest value on this project. The internal rate of return and profitability index are also significantly higher for Piney Woods Pellets producing torrefied pellets, therefore we will again place a higher value on this project. The payback period is only significantly different for Port Pellets producing traditional pellets; therefore we will place the lowest value on this project. The other three projects' payback periods are within two months of each other, therefore this value is not indicative of which project to choose. Overall, Piney Woods Pellets producing torrefied pellets is the best option for investors to choose.

BIOGRAPHY

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BUSINESS STRATEGY AND THE ENVIRONMENT: TESCO PLC'S DECLINING FINANCIAL PERFORMANCE AND UNDERLYING ISSUES

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CASE DESCRIPTION

The case presents a teaching tool which requires students to: 1) analyze the financial performance of Tesco Plc over the last four years; 2) compare Tesco's market position with key competitors; 3) identify and evaluate Tesco's business strategy; 4) evaluate the causes of Tesco's decline in performance; 5) develop recommendations to address declining performance; 6) identify and evaluate the Human Resource strategic role in addressing and supporting performance. The case is suitable for a business strategy or human resource strategy class. The case is appropriate for use at the undergraduate or masters level. Students should have some familiarity with business and human resource management strategy before being assigned to the case. Students might be assigned to work individually or in teams on the project. Individuals or groups may be required to present their research to the class for discussion and comment. Six to ten hours outside of class should be required to complete the case study exercise. Classroom discussion should be between two to three hours.

JEL: L81, L21

KEYWORDS: Retail Trade, Financial Performance, Business Strategy, Human Resource Management Strategy

CASE INFORMATION

The Grocery Retail Sector

The United Kingdom (UK) supermarket industry is dominated by the 'big four' supermarkets including Tesco, ASDA, Sainsbury's and Morrisons. Together, they accounted for over 75% of retail grocery sales in the UK in 2013 (Grocery News, 2014). The high-end supermarkets, Waitrose and Marks and Spencer and discounters, Aldi and Lidl are making significant shifts in market share, facilitated by their clear brand image, focus on the target customer and transparent business strategy.

Tesco Plc

Tesco began trading in 1919 when Jack Cohen started selling surplus groceries from a stall in the East End of London. The Tesco brand first launched in 1924 when Cohen bought a shipment of tea from a Mr T. E Stockwell. The initials and letters were combined to form Tes-co and in 1929 Mr Cohen opened the first Tesco store in Burnt Oak, North London. Tesco became a private limited company in 1932. In 1947 Tesco Stores (Holdings) Ltd floated on the stock exchange with a share price of 25p. In 1968 Tesco opened its first 'superstore' in Crawley, West Sussex. In 1974 Tesco opened its first petrol stations, and would become the UK's largest independent petrol retailer. By 1979 total sales exceeded £1bn, and within three years sales had doubled to more than £2bn. In 1987 Tesco successfully completed a hostile takeover of supermarket

rival Hillards for £220m. In 1992, the company launched is slogan 'every little helps', followed by the Tesco Value range in 1993. The Tesco Clubcard scheme launched in 1995 and in 1995 Tesco became the UK's biggest retailer. Tesco overtook rival Sainsbury's as the UK's largest food retailer. In 1996 Tesco introduced 24-hour retail trading in stores. Tesco expanded overseas in Poland, the Czech Republic, and Slovakia. In 1997 Tesco appointed Sir Terry Leahy as Chief Executive Officer. Leahy began his career with Tesco as a marketing executive in 1979. Leahy was previously appointed to the board in 1992. Tesco.com was launched in 2000 and the supermarket continued to expand its range of products, which now includes clothes, electricals and personal finance products. In 2004 Tesco entered the broadband market. In 2006, Tesco announced plans to open stores in the US under the name 'Fresh and Easy' and funded by existing resources. By 2006 Tesco operated in 12 countries (see Table 1).

Table 1: Tesco Market Presence

Market	Number of Stores/Customers Per Week	Date of Entry and Trading Formats
UK	3,378 stores/ 38 million customers	1929 – full range of formats
Customer Insight Sector Dunnhumby	350 million people in 28 countries	1989
Hungary	200+	1995 – full range of formats
India	Franchise agreement	2008 signed a franchise agreement with Trent Ltd, part of the Tata group, to supply Star Bazaar with exclusive access to Tesco retail expertise.
Ireland	146	1997 – full range of formats
Malaysia	49+	2002 - hypermarkets
Poland	450+ stores / 5 million customers	1996 – full range for formats
Slovakia	150+	1996 – full range of formats
Thailand	1,700+ stores / 12 million customers	1998 – full range of formats
Turkey	190 / 1.3 million customers	2003 – full range of formats
Financial Sector - Tesco Bank	7 million customers access products	1997 - Offer a range of personal banking products, principally - mortgages, credit cards, personal loans, savings.
Czech Republic	300+	1996 – full range of formats

This shows Tesco Plc's market presence, number of stores and customers per week in each country including the date of entry and different trading formats. The first column shows the country or sector. The second column shows the number of stores in each country and customers per week where the data is available. The third column show the date of entry to each country or sector, including different trading formats.

Tesco now has five store formats: Extra stores which are large out of town hypermarket stores, Superstores and Tesco Convenience stores, split into Metro stores and Express stores (See Table 2). In addition to this, Tesco owns 12 Homeplus stores (non-food), 722 'One Stop' convenience stores and 34 Dobbies Garden Centres. Tesco now operates a variety of trading formats, designed for different shopping patterns.

In 2007 Tesco launched 'Fresh and Easy' in the US, California, Nevada and Arizona, at the same time the country was about to enter recession and the subprime mortgage crisis, massively impacting consumer shopping habits, shifting sharply towards price sensitivity (Hsu, 2012). The small-format stores, modelled on the UK format, with self-service checkouts. Tesco intended to open 1,000 stores with projected breakeven by 2009. However, by 2009 only 199 stores had opened in northern California (Goodwin, 2009). By 2012 Tesco had pulled out of the US market, writing off £1.2 billion. Customers complained about small portion sizes and short expiry dates. The traditional conservative customers failed to warm to the idea of self-service checkouts. US customers were also confused about brand positioning. Fresh & Easy stores were smaller than many of the US supermarkets. The customer expectation was that Tesco would focus on

the basics: essential food and grocery items and low price points. Instead Fresh & Easy opened in upper working-class areas, products and marketing seemed to be aimed at more affluent shoppers.
Table 2: Store Format and Shopping Patterns

Store Format	Number of Stores in the UK	Shopping Patterns
Hypermarket	247	Customers wishing to shop a range of categories, food and non-food, alongside additional services such as coffee shops and restaurants.
Superstore	482	Customers' main, weekly, food and grocery shopping. Family's needs can be met in one convenient time-saving trip.
Metro	195	Offers the choice and value of the superstore for workers and residents in town centres.
Express	1672	The Express petrol forecourt and convenience store format serves customers wishing to purchase little and often.
Homeplus	12	Customers wishing to shop a non-food range.

This show the range of store formats, the number of stores in the United Kingdom within each format and the shopping patterns associated with each store format.

In 2008 Tesco bought a number of Somerfield stores on remote islands in Scotland, giving Tesco a presence in every single postcode area in the country, with the exception of Harrogate in North Yorkshire. In 2009 Tesco Bank was launched as a joint venture with Royal Bank of Scotland to create Tesco Finance. In this period of time, Tesco grew the hypermarket format and continued to invest heavily in land procurement, amassing a huge land bank. According to the Guardian, Tesco has land and buildings stored in the land bank, large enough to build 15,000 homes. Tesco store 310 separate sites in England, Scotland and Wales vacant of Tesco stores, the majority of which is undeveloped. The Competition Commission inquiry found no evidence that the land holdings of the major supermarkets impacted on competition.

In 2010, Tesco has announced that its CEO, Sir Terry Leahy, was due to step down in March 2011 after 14 years, leading the UK's biggest supermarket Group. During his leadership period, he oversaw the acquisition and launch of supermarket chains in Poland, Turkey, Thailand, Japan and the US, moved Tesco into mobile phones, banking, and developed marketing intelligence database that is its Clubcard loyalty scheme. Leahy's focus was three-fold: 1) the customer; 2) reaching the number one spot in UK grocery retailing; 3) identifying and developing new long-term growth in non-food, service and international expansion (Sefton, 2010).

Leahy was replaced by Philip Clarke, previously ran Tesco's European and Asian operations and IT. Clarke worked for Tesco for his whole career, following graduation at University. Soon after, Clarke announced £1bn of new investment in stores to develop a new concept within the hypermarket format. Since Clarke's appointment, the grocery retail sector has seen a marked change in consumer shopping habits, caused by the economic downturn and modern lifestyle. Over the last two years, shoppers have switched from the large weekly shop to a convenience model, choosing to stop off at their local stores on the way home from work rather than visit a supermarket. There are a number of specific reasons for the change in shopping patterns: the qualities of the supermarket have now been brought to the local store; consumers are more conscious about food waste as the economy and pockets are squeezed and are therefore opting to do mini-shops; consumer are less responsive to large-scale food promotions on 'unhealthy products' and fresh products on 'buy one get on free' offers which cause waste; consumers use convenience stores for 'top-up' shops to supplement online orders. Data from the Association of Convenience Stores (ACS) shows that 59% of all shoppers visit convenience stores more than once a week.

The majority of the major food retailers have plans to increase the number of their convenience stores, including Waitrose and Aldi. According to the Institute of Grocery Distribution (IGD), the convenience stores market is worth £35.6bn, about a fifth of the total food and grocery market. By April 2018, this is

estimated to have risen 30%. The company with the most convenience stores in Britain is Premier, which is owned by the wholesaler Booker and has 2,800 sites, while Bestway has 2,600, Spar 2,400, the Co-operative Group 1,800 and Costcutter 1,700.

The last two have seen a significant decline in Tesco's performance. In 2013, Tesco reported its first drop in profits for 20 years. Tesco's sales are falling faster than any of the main competitors. Morrisons saw a drop in sales of 1.8%, Sainsbury's 3.1%. ASDA saw a rise in sales of 1%. Tesco's are losing market share to upmarket rival Waitrose and discounts Lidl and Aldi. Market share has dropped from 30.1% in 2013 to 28.8% in 2014. Waitrose experienced an increase in sales by 6.8%, Lidl 18.1% and Aldi 27.3%. The retailer's position in the middle of being squeezed both ends – the premium and discount ends of gaining market share.

During 2014 a series of sackings and departures followed, resulting in Laurie Mcllwee (Finance Director) stepping down (Quinn, 2014). Clarke was the only executive left on the board with retail experience. In July 2014 it was announced that Clarke would be stepping down, replaced by Dave Lewis from Unilever. This would be the first time an external CEO would be a helm of the business in over 90 years. In 2014, a whistleblower alerted the new CEO, Lewis, to a shortfall of £263m in the retailer's expected half-year profit (Warner, 2014). The shortfall was caused by Tesco booking income from deals with suppliers earlier than it should at the same time as pushing back costs. Tesco is currently being investigated by the Financial Conduct Authority (FCA) and the Serious Fraud Office (SFO). Four executives have been suspended, including the UK Chief Executive Chris Bush. The company hired Deloitte and its legal firm Freshfields to investigate the cause of the shortfall.

Lewis is now attempting to reverse Tesco's falling sales (Ruddick, Marlow and Rushton, 2014). To try to boost staff morale among the company's 300,000 workers in the UK, Lewis has launched a program called 'Feet on the Floor' that requires staff in Tesco's offices, including the executives, to work in stores once a fortnight (Rickard Straus, 2014).

QUESTIONS

1. What is the Tesco share price history from 2010 to 2014? Identify key fluctuations in the share price and what events might explain the fluctuations?
2. What is the market share trend from 2013 – 2014 across the retail grocery sector? Identify factors which might explain the trends?
3. Where does the majority of Tesco's revenue and profits come from? What do you believe to be at the root of Tesco's decline in financial performance?
4. Has Tesco's business strategy changed in the last three years when new leaders have taken position, and if so, how?
5. How can issues relating to poor financial performance be addressed?
6. What is role of the human resource management function in turning Tesco's performance around?

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BUSINESS STRATEGY AND THE ENVIRONMENT: TESCO PLC'S DECLINING FINANCIAL PERFORMANCE AND UNDERLYING ISSUES

TEACHING NOTES

Julie Haddock-Millar, Middlesex University
Chris Rigby, Middlesex University

CASE DESCRIPTION

The case presents a teaching tool which requires students to: 1) analyze the financial performance of Tesco Plc over the last four years; 2) compare Tesco's market position with key competitors; 3) identify and evaluate Tesco's business strategy; 4) evaluate the causes of Tesco's decline in performance; 5) develop recommendations to address declining performance; 6) identify and evaluate the Human Resource strategic role in addressing and supporting performance. The case is suitable for a business strategy or human resource strategy class. The case is appropriate for use at the undergraduate or masters level. Students should have some familiarity with business and human resource management strategy before being assigned to the case. Students might be assigned to work individually or in teams on the project. Individuals or groups may be required to present their research to the class for discussion and comment. Six to ten hours outside of class should be required to complete the case study exercise. Classroom discussion should be between two to three hours.

GENERAL COMMENTS

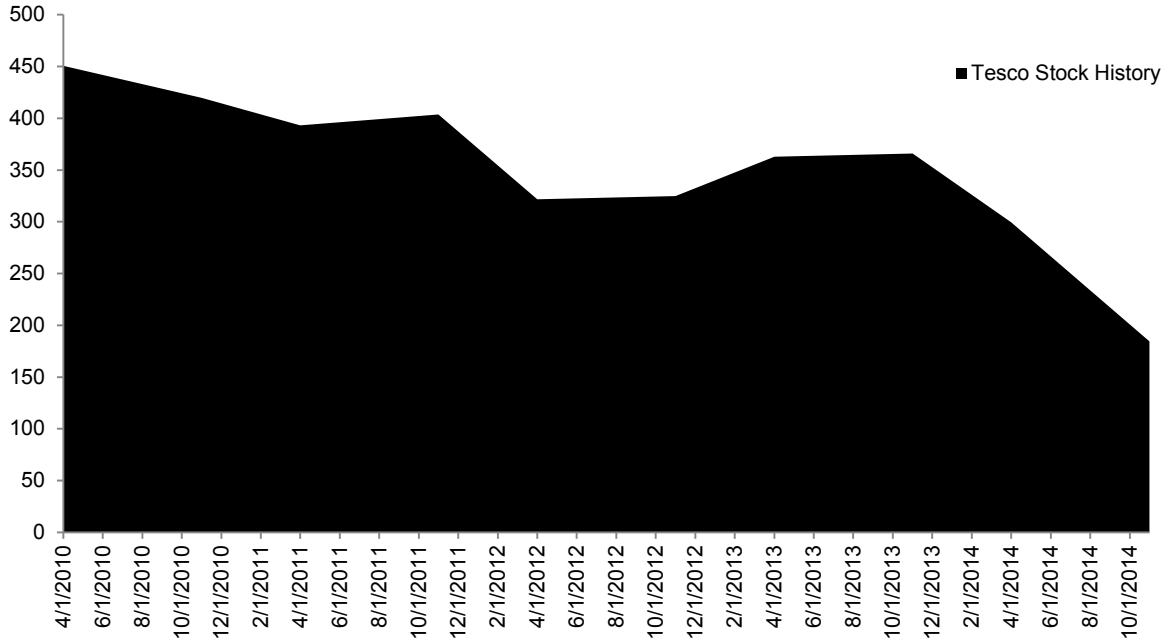
This case requires students to use research skills, analytical, evaluative and synoptic skills. It requires students to research information for a variety of sources, including, *inter alia*, company and business websites, journals articles and text books. The students then need to make decisions about what they believe to be the key drivers of business performance, weighing up and considering numerous factors. The case study requires students to think about the relationship between business and human resource management strategy and the functional areas of the business. The subject of alignment is not explicitly mentioned, albeit the implicit expectation is that students will refer to the importance of alignment in their discussion.

QUESTIONS

Question 1: What is the Tesco share price history from 2010 to 2014? Identify key fluctuations in the share price and what events might explain the fluctuations?

Solution 1: The share price history can be obtained via a number of different websites, including Tesco Plc. The share price history from 2010 to 2014 can be seen in Figure 1. Overall, the trend is consistently downwards, falling from £450.70 on April 23rd 2010 to £184.45 on November 7th, 2014. In 2013, Tesco reported its first drop in profits for 20 years. At this point, Tesco's sales were falling faster than any of the main competitors. This resulted in a drop in share value of 20% to £363.00. Following the announcement of the accounting practices under investigation in 2014, the share dropped again to £184.45.

Figure 1: Tesco Plc Share Price History 2010 – 2014



This shows Tesco Plc share price history from 2014-2014. The vertical axis shows the share price in pounds (£), the horizontal axis shows the period of time in quarterly increments.

Question 2: What is the market share trend from 2013 – 2014 across the retail grocery sector? Identify factors which might explain the trends?

Solution 2: The market share trends show the growth in premium brands (Waitrose) and discounters (Aldi and Lidl). The 'middle' market grocery retailers (Tesco Plc, Sainsbury's) have lost market share primarily to polar opposites (see Figures 2 and 3). German discounters Aldi and Lidl have seen the most significant movement in market share, increasing year-on-year by 27.3% and 18.1% respectively.

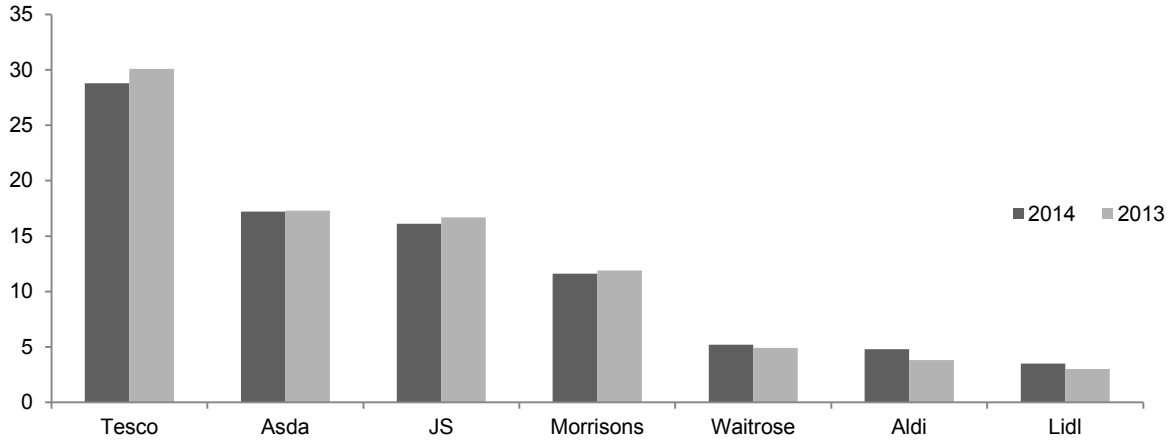
The case study description notes "*The grocery retail sector has seen a marked change in consumer shopping habits, caused by the economic downturn and modern lifestyle. Over the last two years, shoppers have switched from the large weekly shop to a convenience model, choosing to stop off at their local stores on the way home from work rather than visit a supermarket*." Alongside this, price conscious consumers are choosing to shop at the discounters, taking advantage of the cheaper prices. The prices are facilitated by lower cost models, less capital expenditure and a reduced range of products which enables up to 50% discounts on equivalent products in Tesco, Sainsbury's and ASDA. Aldi and Lidl stock a high quantity of own brand products which enables them to compete on price. In the UK, Aldi has won the Supermarket of the Year by Which? for two years in a row (2012/13), and in 2013 Aldi won the Grocer of the Year Award. Consumers that want to shop for high quality ranges will go to supermarkets like Waitrose and Marks and Spencer, known for quality and service. All of these factors have influenced the trend which shows that the retailers that sit in the 'middle ground' are losing their stronghold in the UK retail grocery business.

Figure 2: Market Share Data Oct 2014 vs Oct 2013

Grocery Retailer	October 2014 Market Share	October 2013 Market Share	% Change
Tesco	28.8%	30.1%	(3.6%)
Asda	17.2%	17.3%	1.0%
J Sainsburys	16.1%	16.7%	(3.1%)
Morrisons	11.6%	11.9%	(1.8%)
Waitrose	5.2%	4.9%	6.8%
Aldi	4.8%	3.8%	27.3%
Lidl	3.5%	3.0%	18.1%

This shows the market share between 2013 and 2014 of the seven largest grocery retailers in the United Kingdom (UK). The first column shows the retailer, the second column displays the market share in 2014. The third column shows the market share in 2013. The fourth column shows the percentage change between 2013 and 2014.

Figure 3: Retail Grocery Market Share Fluctuations 2013-2014



This shows the market share fluctuations between 2013 and 2014 of the seven largest grocery retailers in the United Kingdom (UK). Tesco Plc has had the most significant movement downwards, losing market share to Waitrose, Aldi and Lidl.

Question 3: Where does the majority of Tesco's revenue and profits come from? What do you believe to be at the root of Tesco's decline in financial performance?

Solution 3: Despite Tesco's growth internationally, the lion share of the business still comes from the UK. Figures 4, 5, 6 and 7 chart Tesco's performance over the last three years. Between 2011 and 2012 (see Figures 6 and 7) UK sales were over £47 billion, followed by £48 billion in 2012/13. Over the same period, the trading profit was over £2.4 billion (2011/12) and £2.2 billion (2012/13). The sales performance in the UK was similar in 2013/14 at over £48 billion. Trading profit saw a downturn of 3.6% year-on-year at just over £2.1 billion. Tesco's interim performance in 2014 indicates sharp fall in trading profit of 55.9%. The Asian and European markets have proved volatile over the three year period. In comparison to the UK market, the Asian market accounts for approximately 15% of group sales and 27% of group trading profit. The European market accounts for 18% of group sales and 10.8% of group trading profit.

There are a number of reasons for Tesco's decline in financial performance, including external forces driving down sales and profit and internal strategic business decisions. The UK market is underperforming, driven by the economic downturn, increasing fuel prices, growing strength of the high-end brands and discounters. During Clarke's time at CEO, Tesco launched a significant capital expenditure program to re-model hypermarkets to become destination shops, introducing Giraffe restaurants, coffee shops, buying into to 49% ownership of Harris and Hoole and Euphorium bakeries (BBC News Business, 2013). The business strategy behind the introduction of extended services was to encourage customers to visit destination shops, utilizing additional facilities such as dining out. However, the tide was turning in 2012/13

as more and more consumers switched to high street shopping, more regular convenience store shops and retail supermarkets operating a discount price focused business model.

Figure 4: Tesco 2014 Interim Performance Results

	Group			UK	Asia	Europe	Bank
	TY £m	LY £m	Growth %	TY £m	TY £m	TY £m	TY £m
Sales (inc. VAT)	34012	35582	(4.4%)	23566	5078	4847	521
Sales Growth %				(2.6%)	(8.4)	(9.3%)	4.6%
UK LFL (exc. Petrol)				(4.6%)			
Revenue (exc.VAT)	30473	31914	(4.5%)	21031	4766	4155	521
Revenue Growth %				(2.8%)	(8.4%)	(9.3%)	4.6%
Trading Profit	937	1588	(41.0%)	499	260	76	102
Trading Profit Growth %				(55.9%)	(17.2%)	38.2%	15.9%

This shows Tesco Plc's interim financial performance. The first column lists the performance areas. The data includes the company group performance. This is broken down into United Kingdom, Asia, Europe and Tesco bank is columns five to eight.

Figure 5: Tesco 2013/14 Full Year Results

	Group			UK	Asia	Europe	Bank
	TY £m	LY £m	Growth %	TY £m	TY £m	TY £m	TY £m
Sales (inc. VAT)	70894	70712	0.3%	48177	10947	10767	1003
Sales Growth %				(0.1%)	2.7%	(0.4%)	(1.8)
UK LFL (exc. Petrol)				(1.3%)			
Revenue (exc.VAT)	63557	63406	0.2%	43057	10276	9221	1003
Revenue Growth %				(0.1%)	2.6%	(0.6%)	(1.8%)
Trading Profit	3315	3525	(6.0%)	2191	692	238	194
Trading Profit Growth %				(3.6%)	(5.6%)	(27.7%)	1.6%

This shows Tesco Plc's full year results in 2013/14. The first column lists the performance areas. The second, third and fourth columns presents the group results, including the current year results, previous year results and percentage change in performance.

Figure 6: Tesco 2012/13 Full Year Results

	Group			UK	Asia	Europe	Bank
	TY £m	LY £m	Growth %	TY £m	TY £m	TY £m	TY £m
Sales (inc. VAT)	72363	71402	1.3%	48216	12317	10809	1021
Sales Growth %				1.8%	5.9%	(4.9%)	(2.2%)
UK LFL (exc. Petrol)				(0.3%)			
Revenue (exc.VAT)	64826	63916	1.4%	43088	11443	9274	1021
Revenue Growth %				2.0%	6.0%	(5.6%)	(2.2%)
Trading Profit	4353	3969	(13.0%)	2272	661	329	191
Trading Profit Growth %				(8.3%)	(10.3%)	(37.8%)	(15.1%)

This shows Tesco Plc's full year results in 2012/13. The first column lists the performance areas. The second, third and fourth columns presents the group results, including the current year results, previous year results and percentage change in performance.

Table 7: Tesco 2011/12 Full Year Results

	Group			UK	Asia	Europe	US	Bank
	TY £m	LY £m	Growth %	TY £m	TY £m	TY £m	TY £m	TY £m
Sales (inc. VAT)	72035	67074	7.4%	47355	11627	11371	638	1044
Sales Growth %				6.2%	10.5%	7.7%	27.1%	13.6%
UK LFL (exc. Petrol)				0.0%				
Revenue (exc.VAT)	64539	60455	6.8%	42248	10793	9826	628	1044
Revenue Growth %				5.3%	10.5%	7.93%	26.9%	13.6%
Trading Profit	3761	3714	1.3%	2480	737	529	(153)	168
Trading Profit Growth %				(1.0%)	21.8%	0.4%	17.7%	(36.4%)

This shows Tesco Plc's full year results in 2011/12. The first column lists the performance areas. The second, third and fourth columns presents the group results, including the current year results, previous year results and percentage change in performance.

Question 4: Has Tesco's business strategy changed in the last three years when new leaders have taken position, and if so, how?

Solution 4: There have been two new Chief Executive Officers since Sir Terry Leahy's departure in 2011. First Phillip Clarke took over, followed by Dave Lewis in 2014. During Leahy's time, Tesco pursued an international growth strategy, entering new markets such as Tesco banking and customer insight and significant investment in land and property throughout the UK. During the time, Tesco developed a 'broad church' product strategy, developing a Value range and finest range and introducing a vast array of non-food items. This leads to the questions: can a grocery retailer be all things to all people? Following Leahy's departure, Clarke took over. Clarke pursued a strategy of investment in hypermarket superstores, destination shops. Arguably Clarke has too little time to demonstrate his potential as CEO as the decision to invest in out of town destination shops was seen as a fundamental mistake. Clarke was quickly replaced by Lewis, an 'outsider' from Unilever. Lewis has been measured in his response, explaining that he will take time to survey the business and understand what the underlying issues are in relation to poor performance. Lewis's immediate concerns are governance and auditing, with the announcement of an investigation by the Financial Conduct Authority and the Serious Fraud Office (Warner, 2014). However, he immediately recognized the need to be 'customer-centric', focusing on the target customer market (This Money, 2014).

Question 5: How can issues relating to poor financial performance be addressed?

Solution 5: Tesco's previous CEO, Sir Terry Leahy recently commented: the company had *"focused too much on what it isn't, rather than remembering what it is ... w*hat it is, is a very big brand in the centre of the market, and clearly if you're weak in the centre you can get attacked from all sides … but if you're strong in the centre and doing what you do well, it's a good place to be – you can attract customers from all parts of the market." (The Guardian, 2014). Strategic models that take an external perspective and internal perspective are useful in defining strategic approach and market position. Porter's (1998) competitive analysis is probably the most widely used model for strategic analysis, identifying five fundamental forces which provide insight into the relationships and dynamics of the industry. This external perspective can see the ease of substitution in the retail grocery market and change in consumer trends which demand a more responsive strategic approach.

Management Today (2014) reported three strategic responses to turnaround the current performance issues:

1. Identify the target customer
   "Tesco's major strategic problem is that it is currently unclear about who it should target – the supermarket is caught somewhere between the more upmarket offer of Sainsbury's and Waitrose and the discounters Aldi and Lidl. These discount rivals have put intense pressure on the UK's major supermarkets in the last few years, and critics say Clarke failed to cut prices early enough to compete with the German discount brands."

2. Brand identity
   "In recent years, Tesco has been confused about its brand management and identity ... Tesco's proposition, particularly in pricing, is muddled and confused ... Tesco doesn't necessarily need to have the lowest prices to recover – instead its pricing needs more clarity, predictability and transparency."

3. Management strategy
   Tesco has experienced significant changes in leadership and management. During 2014 a series of sackings and departures followed, resulting in Laurie Mcllwee (Finance Director) stepping down (Quinn, 2014). Clarke was the only executive left on the board with retail experience.

What is clear is that the organization needs to look internally to understand what the brand is in 2014, what is wants to be in the future and establish a clear market position. Alongside this, the leadership and management team need to fully understand the market forces and how these shape the environment and business. Where will future market growth come from? What will be the future cash cow? Where are the rising stars and to what extent will these grow further? (Henderson, 1969).

Question 6: What is role of the human resource management function in turning Tesco's performance around?

Solution 6: Over the last ten to twenty years the role of human resource management (HRM) in the wider business has shifted significantly. We now see language such as strategic partner and change agent (Ulrich, 1997), synergists (Caldwell, 2001) and HR leader (Ulrich and Brockbank, 2005). The language and roles types signal a move away from 'traditional' personnel roles to a more pro-active, strategic role where HR can make a real contribution to the organization. From the perspective of Ulrich (1997) HR needs to focus on activities which support the strategic direction of the business, including strategic planning and scanning the environment. In Ulrich and Brockbank's (2005) later model, the idea that HR plays a key role in corporate governance and acting as the organization's conscious is introduced.

Lewis is in a position where corporate governance and accounting practices are at the very forefront of his review of Tesco. Here. HR can play a key role in working with functional areas to ensure corporate responsibility is at the heart of the business, ensuring the business operates in a responsible, sustainable, accountable and transparent way (CIPD, 2014). It is important to restore competence, integrity and confidence within all stakeholder groups.

Lewis has demonstrated the importance in focusing on the UK market with his new 'Feet on the Floor' initiative, seeing all head office personnel working in stores on a fortnightly basis to re-engage with the core business and get to grips with the business at the frontline (The Guardian, 2014). Lewis has also discussed the need to invest resources into to UK supermarkets in order to improve service levels and stock availability. Alongside this, the capital expenditure on hypermarket superstores has stalled, shifting the strategic focus away from the destination shop to the core offer. HR can engage with the resource and capability agenda, aligning the organizational strategy with the HR strategy, policies and practices to facilitate capacity and capability, particularly across the core business.

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