REVIEW of BUSINESS & FINANCE STUDIES

VOLUME 9 **NUMBER 1** **2018**

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Review of Business & Finance Studies
Vol. 9, No. 1, 2018, pp. 1-11
ISSN: 2150-3338 (print)
ISSN: 2156-8081 (online)

IBFR
www.theIBFR.com

AN EVALUATION OF RISK AND RETURN PERFORMANCE MEASURE ALTERNATIVES: EVIDENCE FROM REAL ESTATE MUTUAL FUNDS

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ABSTRACT

This paper examines the appropriate measure of performance for real estate mutual funds. Several popular performance measures including Sharpe, Treynor and Sortino measures are evaluated. The results demonstrate that the Sharpe index outperforms the other two alternatives. In order to consider these various methods as consistent, a certain degree of agreement in rankings between the measurements should exist. The concordance correlation coefficient (CCC) is an index that assesses the strength of agreement between rankings and it has been widely applied in situations in which ranking measurements are made. This research aims to explore the consistency of the risk-adjusted performance between the Sharpe index, the Treynor index, and the Sortino ratio. Mutual funds within the Real Estate sector are analyzed using the CCC to determine if the various rankings of the three different risk/return measurements are significantly different. This analysis is an attempt to determine which measure of risk-adjusted returns may be a better indicator of overall performance based on ex-post data. The data considered extends for a ten-year period from 2007 to 2016 and results suggest that the Sharpe Ratio outperforms the Treynor index and the Sortino ratio in determining the risk-adjusted performance of real estate mutual funds.

JEL: G10, G11, G17

KEYWORDS: Real Estate, Mutual Funds, Morningstar, Risk-Adjusted Return

INTRODUCTION

The Sharpe index, first proposed by William F. Sharpe, calculates the difference between average returns earned by a mutual fund as a percentage, and the risk-free rate. This difference is then divided by the standard deviation of the average returns and indicates the excess returns that are earned per unit of volatility. The Treynor index, on the other hand, calculates the same excess returns is divided by the relevant market risk (β) of the mutual fund in question [see Treynor (1962, 1966] and Korajczyk (1999)]. Hence, the higher the Treynor index, the greater the "excess return" generated by the mutual fund.

In the early 1980s, Dr. Frank Sortino had undertaken research to come up with an improved measure for risk-adjusted returns. The Sortino ratio [see Sortino and van der Meer (1991), Sortino and Price (1994) and Sortino and Forsey (1996)] is a variation of the Sharpe index, in that it uses only the negative portion of the standard deviation as the measure for volatility. By using only the downside volatility, the Sortino ratio argues that the investor should only be concerned with downside "risk" and pay little attention to upside volatility.

Investors who invest in mutual funds today and would like to include the real estate asset may consider real estate mutual funds in their portfolios. Investors today have a plethora of mutual funds to select from. At the end of 2015, there were over 15,000 mutual funds in the United States with combined assets of $18.1

trillion, according to the Investment Company Institute (ICI), a trade association of U.S. investment companies. In mid-2016, 44.4 percent of US households owned shares of mutual funds or other US-registered investment companies—including exchange-traded funds, closed-end funds, and unit investment trusts—representing an estimated 55.9 million households and 95.8 million investors. The investor who is interested in real estate mutual funds also has a considerable selection with over two thousand reported on the Morningstar© database.

This paper examines the appropriate measure of performance for real estate mutual funds. This study focuses on real estate mutual funds since it has been reported that the unique risk characteristics of real estate funds provide portfolio diversification for adding such assets in a diversified equity portfolio. The analysis covers real estate mutual funds data from the Morningstar© database over the ten-year period from June, 2008 to June, 2017. Three popular performance measures including Sharpe, Treynor and Sortino indexes are evaluated. Previous studies have compared various mutual fund performance measures using empirical techniques such as rank order correlation, mean-variance simulation and differential equation approach.

In any evaluation in which returns are subject to risk adjusted measurements, consistency in ranking between the methods used to obtain these measurements are important. The purpose of this research is to determine whether there are significant statistical differences in ranking methods between the Sharpe index, the Treynor index, and the Sortino ratio. This study contributes to the existing literature by employing a novel empirical technique called the concordance correlation coefficient (CCC) [see Lin (1989)]. The CCC index assesses the strength of agreement between rankings and it has been widely applied in situations in which ranking measurements are made. Using the concordance correlation coefficient (CCC), a determination is made if the three measurement indexes are statistically different from one another in their rankings. Second, given any significant differences in the rankings of the three indexes, the average returns for the top five and top ten mutual funds within each of the risk-adjusted categories are compared to determine if there are significant statistical differences between the various rankings. The results demonstrate that the Sharpe index outperforms the other two alternatives. The findings are consistent with earlier research work that the classic Sharpe ratio is an appropriate performance measure for mutual funds.

The remainder of this paper is organized as follows: The next section provides a review of relevant literature. The paper then describes the data and research design, followed by discussion of the results of the empirical analysis. The final section is the conclusion.

LITERATURE REVIEW

The Sharpe Index [Sharpe (1966, 1994)] has become one of the most widely used methods for calculating risk-adjusted return. The Sharpe Index, however, can be inaccurate when applied to portfolios or assets, including mutual funds that do not have a normal distribution of expected returns. Many assets have a high degree of kurtosis (i.e. fat tails') or negative skewness in a distribution. The Sharp ratio also tends to fail when analyzing portfolios with significant non-linear risks, such as options, warrants, and in some cases mutual funds. Alternative risk-adjusted return methods have emerged over the years, including the Treynor Index [see Treynor (1962, 1965)] and the Sortino Ratio [see Sortino and van der Meer (1991), Sortino and Price (1994) and Sortino and Forsey (1996)] which are used in this study. The Sharpe ratio uses the standard deviation of returns in the denominator as its proxy of total portfolio risk, which assumes that returns are normally distributed. Past studies have documented that returns on financial assets may not be normally distributed and thus, the Sharpe ratio may not be an adequate performance measure.

Like the Sharpe index, the fundamental premise behind the Treynor Index is that investment performance of the portfolio has to be adjusted for risk, in order to convey an accurate picture of overall performance for the individual mutual fund. The index attempts to measure how successful an investment (mutual fund) is in providing investors return, with consideration for the investment's inherent level of systematic risk only. The Treynor index is dependent upon beta – that is, the sensitivity of the portfolio in relation to movements in the market – to judge risk. The Treynor index is based on the premise that the systematic risk inherent to the entire market (as represented by beta) must be penalized, because diversification cannot remove it. When the value of the Treynor index is high, it is an indication that an investor has generated high returns per unit of the market risks taken.

The Treynor index however does not include any value gained for superior management gains. It is simply a ranking criterion. A list of portfolios ranked based on the Treynor index is useful only when the portfolios are actually sub-portfolios within the context of a larger, fully diversified portfolio. Otherwise, portfolios with varying total risk, but identical systematic risk or beta risk, will be ranked the same.

Another weakness of the Treynor index is its use of ex-post beta data. Investments will inevitably perform differently in the future than they did in the past. For example, a mutual fund carrying a beta of 2 will not likely be twice as volatile as the market forever. By the same token, a portfolio can't be expected to generate 12% returns over the next decade because it generated 12% returns over the last 10 years.

While the Sharpe index considers both upside and downside risks (total return volatility), the Sortino ratio essentially ignores the upside volatility and reflects the negative portion of the total risk. The Sortino ratio is a variation of the Sharpe index, in that it uses only the negative portion of the standard deviation as the measure for volatility. By using only the downside volatility, the Sortino ratio argues that the investor should only be concerned with downside "risk" and pay little attention to upside volatility. It has been claimed that the Sortino ratio may be more robust in performance measure than the Sharpe index since most risk-adverse investors are more concerned about downside risk or return volatility in a down market [see Sortino and Van der Meer (1991), Sortino and Price (1994) and Sortino and Forsey (1996)].

While studies such as Stutzer (2000), Farinelli et al. (2008), Zakamouline and Koekebakker (2009) and Pekar, Cickova and Brezina (2016) focus on improving existing performance measures, other work examines which of the existing performance measures are more appropriate in the evaluation of mutual funds. The research work of Meyer and Rasche (1992) illustrates that the Sharpe index is an adequate performance measure given that certain conditions regarding investor risk tolerance and expected rates of return are satisfied. Eling and Schuhmacher (2007), Eling (2008) and Schuhmacher and Eling (2012) apply rank-order correlation technique and other similar empirical approaches to determine the efficacy of various performance measures and contend that the widely known Sharpe index is the appropriate risk-adjusted measure.

This study focuses on determining the most appropriate risk/return measures for real estate mutual funds. It has been reported that the unique risk characteristics of real estate funds provide portfolio diversification for adding such assets in a diversified equity portfolio. Kuhle (1987), Grissom et al. (1987), Georgiev et al. (2003), Chen et al (2005) and Lee (2010) illustrate how real estate investments provide risk reduction in a mix-asset portfolio and/or enhance the completeness of the financial market. Utilizing more dynamic financial econometric techniques, Chaudhry et al. (2010), Fei et al. (2010) and Lee (2014) further support the diversification benefits documented in earlier studies. Moreover, recent studies examine portfolio diversification benefits of real estate investments following the financial crisis of 2008. Lizieri (2013) and Luchtenberg and Seiler (2014) contend that real estate investments provide significant diversification benefits even during substantial market declines in both the stock market and the real estate market.

DATA AND METHODOLOGY

This study considers the risk/return characteristics of real estate mutual funds within the Morningstar© Mutual Fund database. The Sharpe ratio, Treynor ratio and Sortino ratio are reported by Morningstar© on a monthly basis (i.e., at the end of the month). The ratios are calculated with 3-year, 5-year, 10-year and 15-year trailing data. A sample of the top forty mutual funds that represented at least ten years of return data were selected for the study. The study is based on the most recent 10 years of data from June 2008 through June 2017. The real estate mutual funds are then ranked according to three different risk/return methods (Sharpe, Treynor, and Sortino indexes). The rankings for the three different risk/return ranking methods appears in Exhibit A of the Appendix.

The research design begins with the set of data that appear in Exhibit A of the Appendix. A total of the top forty mutual funds were identified from a list of 73 from the Morningstar mutual fund data base domestic real estate sector funds. These top forty were selected to provide enough data to ensure a robust statistical analysis. These funds were selected from the top performing five and four-star funds. The Concordance Correlation Coefficient (CCC) can be accurate with as little as 10 observations. A list of forty mutual funds would supply a significant data sample to work with in this analysis.

Next, the Sharpe, Treynor, and Sortino index values were collected for each mutual fund in the data base and the funds were then ranked according to each index. These three tables are presented in the Appendix.

The Sharpe Index

The Sharpe Index is best defined by the following equation (1):

$$S = \left(\frac{R_p - R_f}{\sigma_p}\right) \tag{1}$$

where:
S = the Sharpe Index
R_p = return of the individual mutual fund
R_f = return on the risk-free rate (90-day T-bills)
σ_p = the standard deviation of returns for the individual mutual fund

The Sharpe index (1) can help explain whether a portfolio's excess returns are due to smart investment decisions or a result of too much risk. The Sharpe index can be used to compare the risk-adjusted returns of mutual funds. Since one portfolio or fund can enjoy higher returns than its peers, these returns are only a good investment if they do not come with an excess of additional risk. The greater a portfolio's Sharpe ratio, the better its risk-adjusted performance.

The Treynor Index

The Treynor index is best defined by equation (2):

$$T_A = \frac{R_a - R_f}{\beta_a} \tag{2}$$

where:
T_A = the Treynor Index
R_a = the return on the individual mutual fund
R_f = return on the risk-free rate (90-day T-bills)
β_a = the beta or measure of volatility of the mutual fund in relation to a market index such as the S&P 500

In essence, the Treynor index (2) is a risk-adjusted measurement of a return, based on systematic or beta risk. All mutual funds in this study were ranked using the Treynor index and those rankings appear in Table B of the Appendix.

The Sortino Ratio

The mutual funds in our sample were also ranked according to the Sortino ratio or index. The Sortino ratio is the asset's excess rate of return (i.e., the difference between the asset's return and the risk-free rate), divided by the asset's downside deviation/risk. The Sortino Ratio is defined by equation 3.

$$Sortino\ Ratio = \frac{Rp - Rf}{\sigma dp} \tag{3}$$

where:

R_p = the return on the individual mutual fund
R_f = return on the risk-free rate (90 day T-bills)
σdp = the downside deviation of the mutual fund

The Concordance Correlation Coefficient (CCC)

The concordance correlation coefficient (CCC) presented by Lin (1989), is used for measuring ***agreement*** between discrete variables X and Y (assuming both approximately normally distributed), and is calculated as follows:

$$CCC = \frac{2S_{XY}}{S_{XX} + S_{YY} + (\bar{X} - \bar{Y})^2} \tag{4}$$

Similar to the Pearson correlation coefficient, the concordance correlation satisfies $-1 \leq CCC \leq +1$. A value of CCC equal to +1 corresponds to perfect agreement. A value of $CCC = -1$ corresponds to perfect negative agreement, and a value of $CCC = 0$ corresponds to no agreement. The sample estimate, CCC, is an estimate of the population concordance correlation coefficient:

$$\rho_c = \frac{2\sigma_{XY}}{\sigma_{XX} + \sigma_{YY} + (\mu X - \mu Y)^2} \tag{5}$$

This study uses the concordance correlation coefficient (CCC) to assess whether there is significant agreement between the Sharpe Index and the Treynor index, or the Sortino ratio when the measurements are used to rank the risk-adjusted performance of Real Estate Mutual Funds (REMFs).

RESEARCH RESULTS

The concordance correlation coefficient (CCC) was first used to compare the ranking of the three various methods used for risk-adjusted returns. Table 1 presents the various values of the CCC for each of the paired Risk-Return measures. Notice that the highest CCC value is between the Sharpe Index and the Sortino ratio. However, even this calculated value does not represent a very strong relationship between the Sharpe Index rankings and those rankings of the Sortino Ratio. The CCC values for the other two paired measures is relatively insignificant statistically suggesting that there is a different ranking order of the Mutual Fund performance measures. These calculations suggest that the rankings among the three measurements is not highly correlated.

Table 1: Calculated Concordance Correlation Coefficients (CCCs) Among the Three Risk-Return Measures

	Sharpe Index	Treynor Index	Sortino Ratio
Sharpe Index	-	0.0089	0.3457
Treynor Index	-	-	0.0128

This table indicates that the CCC values for the paired ranking methods is low and of little significance statistically. The highest value calculated was 0.3457 between the Sharpe Index and the Sortino Ratio

The performance rankings for the top forty real estate mutual funds are presented in the Appendix as Table A, B, and C. Tables A, B and C show the results of the Sharpe, Treynor and Sortino analysis, respectively. Notice that the rankings do in fact vary depending upon which risk-adjusted technique is used. Notice for example, that the Fidelity Real Estate Income Fund is ranked number one under the Sharpe index method. However, the same fund in ranked number 12 under the Treynor index method and number 12 under the Sortino ratio criteria. There are significant ranking differences among the entire mutual fund data set based on the different index used.

Once the rankings were calculated, and the CCC values reported, the question as to which ranking method would yield the best results among the real estate mutual funds was considered. Based on the rankings of the three methods, a total return was calculated for the top five and then the top ten mutual funds ranked according to each of the indexes. Table 2 presents the performance totals for the top five and ten mutual funds within each of the three indexes reported.

Furthermore, the performance measures and 10-year trailing annualized rate of returns for each of the top forty real estate mutual funds are presented in the Tables in the Appendix. The results suggest that the returns are not driven by outliers. In fact, Sharpe index is the performance measure that systematically identifies the real estate mutual funds with the highest rate of returns across the sample. The findings are supported by the overall total performance analysis presented in Table 2.

Table 2: Overall Total Performance Based on the Top Five and Ten Highest Return Mutual Funds per Ranking Method

	Top 5 Funds Total Return	Top 10 Funds Total Return
Sharpe Index	**31.44%**	**58.32%**
Treynor Index	23.69%	44.69%
Sortino Ratio	23.50%	44.69%

This Table indicates that in comparing the total aggregate performance of the top 5 and top 10 mutual funds in the Real Estate category. The data indicates that using the Sharpe Index results in the highest performing mutual funds.

The results of Table 2 would suggest that the Sharpe Index is the best measure to use in ranking the overall performance of the mutual funds listed in this data set. Based on the Sharpe Index, the top five mutual funds had an aggregate return for the last ten years of 31.44%. This is significantly more that the Treynor Index of 23.69% and the Sortino Ratio of 23.50% for the same time period.

The Sharpe Index also was the measure which outperformed the other two when measuring total returns for the top ten mutual funds. The Sharpe Index total return for the top ten ranked funds yielded a total of 58.32%. This value was significantly higher than the Treynor Index and the Sortino Ratio, which had the same mutual funds ranked in the top ten. These two rankings yielded a total return of 44.69% for both. The results indicate the superiority of the Sharpe ratio in determining the top performing real estate mutual funds. The finding are consistent with several prominent studies [see for example Eling (2008) and Schuhmacher and Eling (2012)] that contend the efficacy of the Sharpe index as a mutual fund performance measure.

CONCLUSIONS

This study aims to determine which measure of risk-adjusted returns may be a better indicator of overall investment performance based on ex-post data over a ten-year period from June 2008 to June 2017. The Sharpe, Treynor, and Sortino index values obtained from the Morningstar© Mutual Fund data base are commonly used by investors to assess the risk and return performance of mutual funds. The three index values for forty real estate mutual funds are analyzed and ranked following the concordance correlation coefficient (CCC) approach. The results indicate that the Shape ratio performs better than the Treynor index and Sortino ratio in identifying the top performing real estate mutual funds. The findings are consistent in the sample of the top five as well as the top ten funds. Thus, the finding supports the use of Sharpe Ratio in performance evaluation of real estate mutual funds. Future study should extend the analysis across other mutual fund sub-sectors to see whether it yields similar results. This would shed additional light on the importance of identifying the appropriate risk-return measure for mutual fund investments.

APPENDIX

Table A: Sharpe Index Rankings (June 2008-June 2017)

Fund Name	Return	Sharpe
Fidelity® Real Estate Income	6.46	0.62
REMS Real Estate Value Opportunity Instl	7.17	0.39
Sterling Capital Stratton Rl Estt Instl	5.94	0.35
Cohen & Steers Real Estate Securities Fund, Inc. Class Institutional	6.12	0.34
Principal Real Estate Securities Fund	5.75	0.34
REMS Real Estate Income 50/50 Fund Class Platform Shares	4.30	0.34
Cohen & Steers Real Estate Securities Fund, Inc. Class Institutional	5.78	0.33
AMG Managers Center Square Real Estate N	5.67	0.33
Nuveen Real Estate Securities I	5.62	0.33
Principal Real Estate Securities R5	5.51	0.33
Phocas Real Estate Fund	5.51	0.32
Principal Real Estate Securities R4	5.38	0.32
Nuveen Real Estate Securities A	5.36	0.32
Principal Real Estate Securities A	5.28	0.32
Principal Real Estate Securities J	5.25	0.32
Cohen & Steers Institutional Realty Shares	5.23	0.31
principal Real Estate Securities R3	5.19	0.31
Cohen & Steers Real Estate Securities Fund, Inc. Class C	5.11	0.31
Nuveen Real Estate Securities R3	5.11	0.31
Cohen & Steers Institutional Realty Shares	5.00	0.30
principal Real Estate Securities R2	4.99	0.30
Vanguard REIT Index I admiral	4.94	0.30
Principal Real Estate Securities Fund R-1 Class	4.86	0.30
Vitrus Duff & Phelps Real Estate Secs I	4.63	0.29
Investco Real Estate R5	4.56	0.29
DFA Real Estate Securities I	4.5	0.28
Principal Real Estate Securities C	4.47	0.28
Columbia Real Estate Equity Z	4.52	0.28
TIAA-CREF Real Estate Sec Instl	4.44	0.28
Ivy Advantus Real Estate Securities I	4.29	0.28
Columbia Real Estate Equity A	4.27	0.28
Investco Real Estate A	4.12	0.27
Investco Real Estate Investor	4.11	0.27
TIAA-CREF Real Estate Sec Retire	4.2	0.27
Ivy Advantus Real Estate Securities Y	4.06	0.27
TIAA-CREF Real Estate Sec Retail	4.17	0.27
Investco Real Estate R	3.86	0.26

A sample of the top forty mutual funds that represented at least ten years of return data were reported here. The real estate mutual funds are then ranked according to the Sharpe risk/return method. All returns are annualized rate of returns.

Table B: Treynor Index Rankings (June 2008-June 2017)

Fund Name	Return	Treynor
REMS Real Estate Value Opportunity Instl	7.17	5.96
Ivy Advantus Real Estate Securities I	4.29	2.62
Investco Real Estate R	3.86	3.24
TIAA-CREF Real Estate Sec Retail	4.17	3.32
TIAA-CREF Real Estate Sec Retire	4.2	3.35
Ivy Advantus Real Estate Securities Y	4.06	3.40
Investco Real Estate Investor	4.11	3.49
Investco Real Estate A	4.12	3.50
TIAA-CREF Real Estate Sec Instl	4.44	3.56
Columbia Real Estate Equity A	4.27	3.61
DFA Real Estate Securities I	4.5	3.63
Fidelity® Real Estate Investment Port	4.66	3.65
Vitrus Duff & Phelps Real Estate Secs I	4.63	3.84
Columbia Real Estate Equity Z	4.52	3.85
Principal Real Estate Securities C	4.47	3.88
Investco Real Estate R5	4.56	3.92
Vanguard REIT Index Iadmiral	4.94	4.04
Vanguard REIT Index Institutional	4.97	4.07
Cohen & Steers Institutional Realty Shares	5.00	4.10
Principal Real Estate Securities Fund R-1 Class	4.86	4.27
Cohen & Steers Institutional Realty Shares	5.23	4.32
Nuveen Real Estate Securities R3	5.11	4.34
principal Real Estate Securities R2	4.99	4.40
Nuveen Real Estate Securities A	5.36	4.59
principal Real Estate Securities R3	5.19	4.59
Principal Real Estate Securities J	5.25	4.65
Principal Real Estate Securities A	5.28	4.67
Phocas Real Estate Fund	5.51	4.74
AMG Managers Center Square Real Estate N	5.67	4.75
Principal Real Estate Securities R4	5.38	4.78
Nuveen Real Estate Securities I	5.62	4.84
Cohen & Steers Real Estate Securities Fund, Inc. Class Institutional	5.78	4.85
Principal Real Estate Securities R5	5.51	4.90
Principal Real Estate Securities Fund	5.75	5.14
Cohen & Steers Real Estate Securities Fund, Inc. Class Institutional	6.12	5.16
REMS Real Estate Income 50/50 Fund Class Platform Shares	4.30	5.43
Sterling Capital Stratton Rl Estt Instl	5.94	5.61
Fidelity® Real Estate Income	6.46	13.25

A sample of the top forty mutual funds that represented at least ten years of return data were reported here. The real estate mutual funds are then ranked according to the Treynor risk/return method. All returns are annualized rate of returns.

Table C: Sortino Index Rankings (June 2008-June 2017)

Fund Name	Return	Sortino
REMS Real Estate Value Opportunity Instl	7.17	0.57
Investco Real Estate R	3.86	0.36
Ivy Advantus Real Estate Securities Y	4.06	0.37
Ivy Advantus Real Estate Securities I	4.29	0.38
Investco Real Estate A	4.12	0.38
Investco Real Estate Investor	4.11	0.38
TIAA-CREF Real Estate Sec Retire	4.2	0.38
TIAA-CREF Real Estate Sec Retail	4.17	0.38
TIAA-CREF Real Estate Sec Instl	4.44	0.39
Columbia Real Estate Equity A	4.27	0.39
Investco Real Estate R5	4.56	0.40
DFA Real Estate Securities I	4.5	0.40
Principal Real Estate Securities C	4.47	0.40
Columbia Real Estate Equity Z	4.52	0.40
Fidelity® Real Estate Investment Port	4.66	0.41
Vitrus Duff & Phelps Real Estate Secs I	4.63	0.41
Vanguard REIT Index Institutional	4.97	0.42
Vanguard REIT Index Iadmiral	4.94	0.42
Principal Real Estate Securities Fund R-1 Class	4.86	0.42
Eaton Vance Real Estate I	4.85	.42
Cohen & Steers Real Estate Securities Fund, Inc. Class C	5.11	0.43
Nuveen Real Estate Securities R3	5.11	0.43
Cohen & Steers Institutional Realty Shares	5.00	0.43
principal Real Estate Securities R2	4.99	0.43
Principal Real Estate Securities J	5.25	0.44
Cohen & Steers Institutional Realty Shares	5.23	0.44
principal Real Estate Securities R3	5.19	0.44
Principal Real Estate Securities R4	5.38	0.45
Nuveen Real Estate Securities A	5.36	0.45
Principal Real Estate Securities A	5.28	0.45
AMG Managers CenterSquare Real Estate N	5.67	0.46
Nuveen Real Estate Securities I	5.62	0.46
Principal Real Estate Securities R5	5.51	0.46
Phocas Real Estate Fund	5.51	0.46
REMS Real Estate Income 50/50 Fund Class Platform Shares	4.30	0.46
Cohen & Steers Real Estate Securities Fund, Inc. Class Institutional	5.78	0.47
Principal Real Estate Securities Fund	5.75	0.47
Cohen & Steers Real Estate Securities Fund, Inc. Class Institutional	6.12	0.49
Sterling Capital Stratton Rl Estt Instl	5.94	0.49
Fidelity® Real Estate Income	6.46	0.85

A sample of the top forty mutual funds that represented at least ten years of return data were reported here. The real estate mutual funds are then ranked according to the Sortino risk/return method. All returns are annualized rate of returns.

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ACKNOWLEDGEMENT

We would like to thank the journal editors, Terrance Jalbert and Mercedes Jalbert and two anonymous referees for their valuable comments. Any errors are our own.

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Review of Business & Finance Studies
Vol. 9, No. 1, 2018, pp. 13-30
ISSN: 2150-3338 (print)
ISSN: 2156-8081 (online)

www.theIBFR.com

CHALLENGES FOR MANAGING BUSINESS WITH 21ST CENTURY TECHNOLOGY

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ABSTRACT

Businesses in the 21st Century are facing a new world that includes having to decide what technology they need to adopt from Artificial Intelligence (AI), Big Data, to robots, drones and 3D printers, as well as create a workforce that includes part-time and contract employees, plus full-time employees who want a purpose in their work. As companies replace humans with robots to increase efficiencies as well as use AI algorithms to crunch Big Data, the workflow and processes must be restructured to accommodate technology, and employees must be trained to use it. Employee engagement must be supported to ensure employees are making decisions to support company goals and values in a technologically-assisted environment. According to research, cognitive abilities, complex problem solving, and social skills will be necessary in work environments where machine thinking and human thinking will become interdependent. Scenario thinking will provide the insight into how new technologies or demands of workforce might affect an organization's structure based on its future goals; thus, allowing it to adopt technology that will serve its purpose. It will help the organization focus on using technology to solve problems and accomplish its goals while considering possible ethical issues.

JEL: M14

KEYWORDS: Technology Changes, Management Changes, Workforce Changes, Internet of Things, Artificial Intelligence, Ethics, Big Data, Corporate Social Responsibility

INTRODUCTION

Businesses in the 21st Century are facing two interconnected challenges: technology that is changing the structure and performance of the organization and a workforce that is changing how and why it wants to work. They must consider how and if to adopt new technologies like Internet of Things, artificial intelligence (AI), and Big Data, including renting space on IBM's Watson. They must consider how 3D printers, autonomous cars, nanotechnology, and drones, could change the supply chain and the nature of their competition. They must restructure operations and performance management as they outsource functions that have previously been internal. They must adjust not only to having robots do work previously done by humans, but create an effective and efficient work environment that includes full-time employees, part-time and contract employees, many of whom are demanding a sense of purpose in their work. In the midst of this changing environment, businesses must still meet the needs of consumers and other stakeholders, many of whom require a commitment to social responsibility.

Organizations must adapt to the needs of the modern workforce. New and emerging technologies are transforming the way work is done. Manyika et al. (2015) estimate that the Internet of Things "could have an annual economic impact of \$3.9 trillion to \$11.1 trillion by 2025 across many different settings, including factories, cities, retail environments, and the human body. At the top end, that level of value—including the consumer surplus—would be equivalent to about 11 percent of the world economy" (p. 23). The Triple Pundit: People, Planet, Profit (2015) noted "In about 4-5 years, there will be 50 billion 'things' connected to the Internet of Things. GE estimates that convergence of machines, data, and analytics will become a $200 billion global industry over the next three years" (para. 1). While flexibility is not a reality for all workers, many want it to be. Overall, organizations have a pressing need to become more agile and collaborative. Underlying all of this is an evolving employee attitude about what a job should be. Employees know what is important to them and are not going to settle for less. They want their work to have meaning and purpose. They want to use their talents and strengths to do what they do best every day. They want to learn and develop. They want their job to fit their lives. And they're willing to look for a company whose mission and culture reflect and reinforce their values (Gallup, 2017, para. 1).

According to a 2015 McKinsey Quarterly report, research showed that "currently demonstrated technologies could automate 45% of the activities people are paid to perform and 60% of all occupations could see 30 percent or more of their constituent activities automated" (Manyika et al, 2015). In order to take advantage of new technologies and remain competitive, businesses must analyze their organizational structure in the light of their purpose and vision to identify if, where, and when technologies can improve production. Organizations must make decisions that include evaluating future economic, political, and environmental issues, so that the global environment that produces supplies and products is considered. For example, adding robots to factories much slower in the United States than in other countries because businesses would have been accused of destroying American jobs. It was not until 2009 that U.S. businesses started adopting technologies that replaced many of the employees they let go during the recession of 2008. The May 2017 Job Openings and Labor Turnover Survey reported that job openings are the highest they have been since 2000 (DeSilver, 2017, para. 1). This may be because workers are not interesting in working full-time or in the jobs that are open, but this may also mean that robots will be used to fill the need. Scenario thinking is one process that provides new insight into how new technologies or new demands of workforce might affect the work and profit generation of business.

Once it has been decided that new technologies can improve productivity, the work process must be analyzed and restructured. For example, if Big Data analytics are adopted, employees must be retrained to insure the quality and accuracy of the data that is analyzed as well as analyze the results. This may transfer some decision making to a lower level in the organizational structure. Programs must be developed to educate employees to the benefits of adopting new technology; they must see the technology as allowing them to do more of what engages them in their jobs, not as stealing their jobs. This can lead to fulfilling employees' demands for purpose and value in their work since it will require a focus on supporting the goals and values of the business.

> We know that big shifts are coming. Yet it's impossible to fully imagine the impact they will have on competing, business, and society. But this we do now: by working in concert, humans and cognitive systems have the potential to dramatically improve and accelerate outcomes that matter to us and make life on earth more sustainable. This alliance of human and machines offers the promise of progress on a massive scale. (Kelly & Hamm, 2013, p. 139)

Schwab (2016) noted twenty-one tipping points that would occur by 2025 identified in a survey of company executives and experts by the World Economic Forum identified in a survey that included the first 3D printed liver transplant and first printed car in production, "30% of all corporate audits performed by artificial intelligence," "10% of cars on U.S. roads being driverless," "the first AI machine on a corporate board," "block chain being used by a government to collect taxes," and the "first city of 50,000 with no traffic lights" (p. 26).

This paper will provide examples of the literature that is available in the areas of technology and worker requirements. It will then explore the various technologies that are changing the way organizations do their work and produce results. Changes in the needs and demands of the future workforce will be analyzed in relationship to new technologies. The paper will describe how organizations must restructure themselves to use new technology and a new workforce, and provide a vignette of a business owner who must make decisions about both.

LITERATURE REVIEW

Most academic research on either new technology or managing an organization using new technology is from the last century or the early part of this century, and thus is outdated, given the rapidly changing world.

Technology

The research for the impact of changing technology is in two areas. First, authors who are in the technology field or in the journalism field write about the current and future applications of technologies, and the ethical issues that are confronting new uses for technology (Aquino, 2012; Brynjolfsson & McAfee, 2014; Ford, 2015; Kelly, 2016; Kelly & Hamm, 2013; Kilham, 2014; Lohr, 2015; Mayer-Schönberger & Cukier, 2013; O'Neil, 2016). Applying Artificial Intelligence produces programs for 3D printers that can now use many materials, from plastics to metals to make objects. Companies can make their own parts when needed rather than ordering from a supplier and storing in a warehouse. Individuals can produce specialized products that can be ordered on the Web. Applying Big Data analytic programs to provide specific information from huge databases allows computers to write accurate stories about sports and weather without human intervention (Aquino, 2012).

Second, the current applications and companies using technologies are found in reports by McKinsey&Company, which issues new reports regularly on the uses of technology as well as issues and problems (Mayhew, Saleh, & Williams, 2016: Manyika et al, 2015; Patel, Shangkuan, & Thomas, 2017;). The Internet of Things (IoT) is creating Big Data available to support systems that work with little human management (Chui, Löffler, & Roberts, 2010; Manyika, 2017). The World Economic Forum (2009, 2015, 2016) provides research on the changes in the global environment and workforce, including by country. The International Federation of Robotics (2016) provides information on the movement of robots from laboratory to factory floor. Other sources of up-to-date information are news publications like the Wall Street Journal, The Economist, and Fortune.

Technology is making it more economically feasible to automate many processes. Marr (2016) describes how forty-five companies use Big Data. In late 2015, Wal-Mart cut 7,000 back-office jobs in its stores, and it recently announced that it would cut nearly 1,000 corporate jobs, by January 31, 2017 (Nassauer, 2017). Marshall Brain, author of *Robotic Nation*, wrote, "by 2013 there will be 1.2 million industrial robots working worldwide—that's one robot for every 5,000 people" (as cited in Aquino, 2012, para. 1). The International Federation of Robotics (IFR) says there will be 2.6 million industrial robots globally by 2019.

Effects of a Changing Workforce

Research shows that what employees want from work is undergoing major shifts that will greatly affect how work is managed (Clifton, 2011; Gallup, 2013, 2015, 2017). Businesses are increasingly outsourcing major functions to other firms, and many are hiring contract workers so that they have control over how many employees they need on staff at any one time (World Economic Forum, 2016) This dovetails with research that says employees are choosing to work part-time (CONE Communications, 2015; Green, 2015). Brynjolfsson & McAfee (2014) describe a growing peer economy in which people can do meaningful work as individuals. Green (2015) describes The Freelancers Union, which provides services for freelancers and part-time employees who do contract work for companies as well as work in the peer economy. Technology is changing the landscape in which workers can do meaningful work.

New requirements for workers (The Elephant in the Truck, 2017) as well as the changes that technology are bringing are converging to create new forms of production and organization. The core skills needed in all industries will increasingly focus on cognitive abilities, complex problem solving, and social skills (Schwab, 2016; World Economic Forum, 2016). Kelly and Hamm (2013) maintain that machine thinking will not replace human thinking, but together they will produce new products. One skill required for complex problem solving is scenario thinking. Asking "What if?" is an easy method of considering new situations on the horizon before they come too close for a reasoned response (Lohr, 2015; Wilburn & Wilburn, 2011). Using existing global scenarios for 2025 and 2030 (National Intelligence Council, 2008; World Economic Forum, 2009, 2016; Shell International Limited, 2005, 2011) can help businesses identify the changes that could happen that would have the most serious impact on their viability, and write scenarios for them. The 21st century will be one of transformation, but since that transformation is based on technology, it will develop at unanticipated speeds into uncharted waters.

FIRST CHALLENGE: TECHNOLOGY

Artificial Intelligence, Big Data, and the Internet of Things

Artificial intelligence (AI), or machine learning, uses huge amounts of data, called Big Data, collected by the Internet of Things (IoT) to create the robots that pack goods, cut noodles, cook hamburgers, tutor children, and counsel people with emotional problems run by systems like IBM's Watson, as well as self-driving cars and drones.

> . . . the physical world itself is becoming a type of information system. In what's called the Internet of Things, sensors and actuators embedded in physical objects—from roadways to pacemakers—are linked through wired and wireless networks, often using the same Internet Protocol (IP) that connects the Internet. These networks churn out huge volumes of data that flow to computers for analysis. When objects can both sense the environment and communicate, they become tools for understanding complexity and responding to it swiftly. What's revolutionary in all this is that these physical information systems are now beginning to be deployed, and some of them even work largely without human intervention. (Chui, Löffler, & Roberts, 2010, para. 2)

Network Narrative Science uses AI to create self-contained sequences of actions called algorithms to process the data and create meaning. These algorithms then write stories for baseball and softball coverage because it is cheaper than hiring humans (Aquino, 2012).

Mayer-Schönberger and Cukier (2013) defined Big Data as "things one can do at a large scale that cannot be done at a smaller one, to extract new insights or create new forms of value, in ways that change markets, organizations, the relationship between citizens and governments, and more" (p. 6). One of their examples is the telescope in New Mexico used for the Sloan Digital Sky Survey that collected more data in a few weeks than had been discovered up to that point in astronomy. Google and Yahoo created processing technologies that can collect and make sense of huge quantities of data. David Ferrucci, who led the team to develop Watson's ability to beat the reigning human winner of Jeopardy! states that the future of artificial intelligence

> requires a closer working partnership between data and the animating ideas of cause and effect—theories, hypotheses, mental models of the word, the "why" of things. Technical advances are making the symbiotic relationship increasingly practical. "The data informs the model," he says, "and then you have that back-and-forth cycle of improvement." (as cited in Lohr, 2015, p. 115)

Early in its career, Watson answered Wonder Woman when asked to name the first female astronaut. Once its algorithm had been changed to separate fact from fiction, it named Valentina Tereshkova of the Soviet

Union in 1983. "The cognitive chips [second generation design called TrueNorth] and Watson are complementary technologies. For the sake of simplicity, you can think of them as the right brain and the left brain of the era of cognitive systems. Watson, the left brain, focuses on language and analytical thinking. The cognitive ships address senses and pattern recognition. Over the coming years, IBM scientists hope to meld the Watson and TrueNorth capabilities together to create a holistic computing intelligence" (Kelly & Hamm, 2013, p. 84).

Artificial intelligence (AI) allows 3D printers to take a sketch in two dimensions and print it as a three-dimensional object, which can be anything from a toy or knick-knack to an airplane wing or a building block for a home. General Electric's Leap jet engine is

> going to incorporate a fuel nozzle produced entirely through additive manufacturing. The process, properly known as 3-D printing, involves building up layers of material (in this case alloyed metals) according to precise digital plans. . . . The benefit of additive manufactured parts has already been proven on other models. (Zaleski, as cited in Schwab, 2016, p. 163)

<u>Robots</u>

The International Federation of Robotics (2016) stated that

> The number of industrial robots deployed worldwide will increase to around 2.6 million units by 2019. That's about one million units more than in the record-breaking year of 2015. Broken down according to sectors, around 70 percent of industrial robots are currently at work in the automotive, electrical/electronics, and metal and machinery industry segments. (para. 2)

Kilman (2014) predicts that in the near future, every worker will have an AI computer or a robot as his or her partner. Aquino (2012) wrote that there were nine jobs that humans might lose to robots: pharmacists, lawyers and paralegals, drivers, astronauts, store clerks, soldiers, babysitters, rescuers, sportswriters, and other reporters. Schwab (2016) cited a study by Frey and Osborn in 2013 as identifying jobs that were most prone to automation: telemarketers; tax preparers; insurance appraisers for auto damage, umpires, referees and other sports officials, legal secretaries; hosts and hostesses in restaurants, lounges and coffee shops; real estate brokers; farm labor contractors; secretaries and administrative assistances except, legal, medical and executive; couriers and messengers. The study identified as least prone to automation: mental health and substance abuse social workers; choreographers; physicians and surgeons; psychologists; human resources managers; computer systems analysist; anthropologists and archeologists; marine engineers; and naval architects, sales managers and chief executives (p. 39).

The first indications of these changes are already apparent. A Japanese retailer has a robot that babysits children while their parents shop. A Japanese restauranteur, who caters and sells noodles for the lunch crowd, has a robot that cuts the noodles. Since he only needs it for three hours a day, the $2,000 price tag was much cheaper than hiring a person, even part-time (Tobe, 2016). Aquino (2012) described an automated, robotics-controlled pharmacy at two UCSF hospitals launched in 2015 and nurses at UCSF Medical Center using "barcode readers to scan the medication at patients' bedsides, verifying it is the correct dosage for the patient" (para. 9). Ford (2015) proposed that new category of medical professionals could solve the problem of a decreasing number of family practice physicians; they would examine patients and enter the information into a diagnostic and treatment system that has access to all of the latest Big Data to determine a course of treatment.

SECOND CHALLENGE: A CHANGING EMPLOYEE BASE

Changing Structure of Economy

"Advances in artificial intelligence, machine learning, and natural user interfaces (e.g., voice recognition) are making it possible to automate knowledge-worker tasks that have long been regarded as impossible or impractical for machines to perform" (World Economic Forum, 2016, p. 7). The World Economic Forum's *The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution* in January 2016 found that 44% of respondents thought that the changing nature of work was a top trend. As mentioned earlier Aquino (2012) and Schwab (2016) list many jobs that will move to robots or AI. However, the economy is changing in additional ways that will create a new workforce structure for businesses. Contractors and part-time employees who work only as needed now do many jobs (Weber, 2017). "Organizations are likely to have an ever-smaller pool of core full-time employees for fixed functions, backed up by colleagues in other countries and external consultants and contractors for specific projects" (World Economic Forum, 2016, p. 6).

In September of 2015, the Bureau of Labor Statistics reported that more than 20 million Americans were working less than 35 hours a week and that there had been an increase in Americans who said they worked part-time for 'other non-economic reasons.' This category "Refers to persons who usually work part time for non-economic reasons such as childcare problems, family or personal obligations, school or training, retirement or Social Security limits on earnings, and other reasons" (United States Department of Labor, 2015, para. 1). The numbers in this category have increased 12% since 2007. However, survey data has also said more people are choosing not to work full time because they want to have time to pursue their passions (Green, 2015).

Green (2015) quotes Deloitte's chief talent officer, Mike Preston, as predicting, "as much as 40 percent of the U.S. workforce may be part-timers by 2020" (para. 24). Some corporations like Deloitte are developing paths for part-timers, such as Deloitte Open Talent to identify workers who want to work part-time and provide networking opportunities for them. Eleven percent of Deloitte's 70,000 workers now work part-time by choice (Green, 2015).

Brynjolfsson and McAfee (2014) identified a growing peer economy in which people can do meaningful work by serving one another, such as with Uber, Lyft, TaskRabbit, and Airbnb. "With peer-to-peer platforms, companies and individuals can do things that previously required large-scale organizations. In some cases, the talent and resources that companies can connect to, through activities such as crowdsourcing, may become more important than the in-house resources they own" (World Economic Forum, 2016, p. 7). A sharing economy is being built. "In crowdfunding the audience funds the work. . . . Kiva turned microfinancing into peer-to-peer lending" (Kelly, 2016, p. 158). These growing opportunities may convince more to become part-time by choice, especially once regulations have been codified. The Web has made it possible for people to create and sell things on the Internet, or to run blogs that viewers subscribe to that focus on food or pets or travel. Additionally, there are organizations to help part-timers. The Freelancers Union coordinates health insurance, dental, retirement plans, and other services for its 263,000 members who are freelancers and part-time employees not employed by a traditional company.

A PATH FORWARD

Employee Engagement: Managers

The structure of business has been a pyramid structure with layers of managers between workers and senior leaders. Employees in most businesses were full-time and located in the same place. Managers organized the work tasks around a 40-hour workweek. It was easy to schedule meetings, and oversee performance.

It was also easy to have events that that connected employees' individual performance to the organizational goals and mission and provided employees connect with each other and their leaders. Even when people worked remotely from home, they could be required to work one day a week in the office so all employees could collaborate with others and be briefed on organizational news. Now both organization and communication is difficult with employees who work remotely and/or part-time.

This creates a new environment for managers who are still responsible for meeting their production and performance goals but have less control over many of the workers who perform the tasks. Additionally, even full-time workers do not work in the same location as the manager, as technologies like co-working spaces and teleconferencing allow remote working from not only employees located globally, but also whose employer is located in their own zip code. Although IBM has decided that collaboration and innovation is not enhanced by employees who are working remotely and is following Yahoo in pulling self-directed teams back to the office (Simons, 2017), many companies allow working remotely. However, Gallup (2013) found that workers who spend only 20% of their time working remotely are the most engaged. "These employees likely enjoy an ideal balance of both worlds—the opportunities for collaboration and camaraderie with coworkers at the office and the relative sense of freedom that comes from working remotely" (p. 28).

Managers must be able not only to work with this diverse group of employees but must be ready to provide them the training they need to deal with the changing workplace. *The World Economic Forum 2016 Future of Jobs Survey* predicts that there will be changes in core skills needed in all industries; for example, cognitive abilities, complex problem solving, and social skills will become more significant to the future work environment. Employees will not only have to understand how technology is providing them data with which to solve problems to make decisions, they will need to be able to use communication and negotiation skills for their interactions with contractors and others outside the core business. These skills will certainly help ensure that the necessary work is being accomplished by a myriad of types of workers, but it also requires that there be continuous opportunities to develop current skills and learn new ones.

Add to this the fact that the manager is responsible for helping employees navigate their work processes working side-by-side with robots or using AI for the data they work with. "This isn't about replacing human thinking with machine thinking. Rather, in the area of cognitive systems, humans and machines will collaborate to produce better results, each bringing their own superior skills to the partnership" (Kelly & Hamm, 2013, p. 7). This may mean that an employee who has been pulling inventory from shelves and packing boxes learns to teach a robot to pick inventory, while he or she takes on more duties of shipping. A marketing employee may need to learn to use Big Data to find out details about his or her customers' needs instead of using surveys and one-on-one communication, but this may mean that employee will need to communicate more with operations about how customers' needs are changing so that the business is ready to meet them.

Managers must also help employees understand that robots and AI are not replacing them but taking the drudgery tasks out of the employee's job and creating increased efficiency and effectiveness. They must help them see how Big Data can provide better information about the customers than was possible in the past, thus making the business more effective in meeting customer needs. If employees perceive robots as helpers, a manager must be prepared to see employees anthropomorphize them, which may mean the employees complain the robots are being overworked or mistreated. Minsoo Kang, a University of Missouri-St. Louis humanities professor, says "people are typically ambivalent about coexisting with machines, but naming robots could be a sign of kinship or comfort" (as cited in Ramsey, 2015, A1).

Experience with robots in some industries has shown that naming the robots or having robots that have faces and facial responses builds trust. Robots at Tesla are named after X-Men because they do superhuman feats. Nissan's employees name the robots after characters in movies. At a Ford plant, Baby Zilla moves the body of a truck out of the body shop while working next to Godzilla that lifts the entire vehicle and moves it from one moving assembly platform to the next. Employees can understand why robots add value and efficiencies to the process (Ramsey, 2015). Spiegel (2013) describes USC's Ellie, a counseling robot (with face and soothing voice, of course) and the finding that that some people feel safer telling their problems to a robot than to a human who might judge them. On the other hand, businesses must know in advance which human jobs will be replaced in the near future, in order to either move the human to another job or prepare the human for a lay-off.

Robots can work 24/7, but people cannot. If the robots are running 24/7, then humans will need to monitor them. Those humans will be small in number and may not have a supervisor who can make decisions; thus, they will need to understand how to make decisions and communicate them to operations as well as work as a team with those who monitor the robots on the other shifts. New types of productivity measures will need to be developed for these human workers.

Employee Engagement: Organizations

The Gallup Q^{12} survey, based on thousands of interviews to identify the elements that demonstrated employee engagement, has been administered to more than 25 million employees in 195 countries and 70 languages since the late 1990s (Gallup, 2013). Gallup's research has shown that employee engagement is highly correlated to business outcomes such as profitability, productivity, and customer satisfaction. Engaged employees:

> Cooperate to build an organization, institution, or agency, and they are behind everything good that happens there. These employees are involved in, enthusiastic about, and committed to their work. They know the scope of their jobs and look for new and better ways to achieve outcomes. They are 100% psychologically committed to their work. And, they are the only people in an organization who create new customers. (Gallup, 2013, p. 21)

According to the research discussed earlier, people in the 21st century want their work to have purpose. In order to be interested in working for an organization, these people want it to have more than a business purpose, they want it to have a community purpose and be responsible for the environment. The 2015 Cone Communications Millennial Corporate Social Responsibility (CSR) Study reported that at least three-fourths of Millennials were likely to "consider a company's CSR commitment when deciding where to work," and "more than one-half were willing to take a pay cut to work for a socially responsible company" (p. 2). However, a recent survey by the United Kingdom's Charities Aid Foundation's (CAF) Public Perceptions of Corporate Giving report "revealed that 61% of British adults believe that CSR is merely a PR exercise and 73% believe that businesses should be more open about their corporate donation efforts" (Givey, 2016, para. 1). Rather than simply donating to causes, "over a third (36%) said their organization should be doing more. Amongst millennials–those aged 18-34–the level of disappointment rose to a staggering 44% who felt this way" (Givey, 2016, para. 10). Nearly all companies have Corporate Social Responsibility initiatives today, but it is important to employees who can actively support these initiatives by using their talents and skills. Home Depot and Lowes allow employees paid time off to work on local Habitat for Humanity projects, to help clean up after a storm, or to help the city to rehab an apartment building as a homeless shelter. An accounting firm's employees may increase psychological commitment when the CSR project is helping people from lower socio-economic groups complete their income tax returns or helping a nonprofit set up its accounting system. A tech firm's employees may use their skills for a good purpose when they set up computer systems for nonprofits using hardware and software donated by the firm or help governments mine Big Data to identify how building inspectors need to prioritize their inspections for overcrowding or fire hazards. Employees also support adopting sustainability goals like decreasing water use or recycling 100% of waste of programs in which they can actively participate.

As the competition for skilled and talented workers intensifies, organizations have an opportunity to hone their attraction and retention strategies so they can more effectively recruit and keep sought-after candidates (Gallup, 2017, para. 1**)**. Engaged employees are needed if humans are to work with robots rather than see them as enemies. It will require increased communication to coordinate the handoff of tasks and projects from one employee to another and to encourage collaboration. Teamwork and problem-solving skills are increasingly important but more difficult to develop and measure, especially in a scattered workforce. However, this means that talents in decision making are defined as "solve the many complex issues and problems inherent in the role by thinking ahead, planning for contingencies, balancing competing interests, and taking an analytical approach" (Gallup, 2015, p. 15), and developing relationships, which requires building "a positive, engaging work environment where their teams create strong relationships with one another and with clients" (Gallup, 2015, p. 15) are more important than ever.

<u>Ethical Decision Making Using AI and Big Data</u>

"Technology is a tool for modeling what-if decisions, using the digital says that not only can a company dig down into digital replica of the physical world to peer into the future to make more accurate predictions and better decisions" (Lohr, 2015, p. 63). Organizations must decide how they will use Big Data for decision-making and then develop guidelines and processes for using it. They must define the parameters for those developing algorithms, and set policies for how employees can use the data from algorithms, particularly for marketing. Lohr (2015) quoted Rothschild when he was with Facebook: "It's not about the size of the data. It's about being able to collect and then steer the organization based on the metrics you really most value in the long run" (p. 91).

Mayhew, Saleh, and Williams (2015) presented steps for making sure that technology works for your purpose, and provides what you need for making decisions, rather than simply being gathered because the technology delivered it. One requirement is to know what question the data is to answer; this might be how to increase revenue or efficiencies or decrease errors. Another is to continually have a feedback loop that demonstrates the data is accurate and still providing answers. Accuracy of the data supplied by Big Data is also important to monitor, as the data Google used to predict the number of flu cases demonstrated. Google was more accurate than the Center for Disease Control in flue prediction for three years, but then in 2012, it predicted much higher numbers of cases than actually happened. Its algorithm was based on queries about flu symptoms, which had worked for previous years because people queried the Web when they had symptoms. However, in 2012, the news media predicted a bad flu season and people queried the Web for information to be prepared, even though they had no symptoms (Mayer-Schönberger & Cukier, 2013). Humans still have to evaluate the results of algorithms and the data collected and analyzed. Some algorithms produce incorrect information because they are not complete, or they become outdated in terms of the data being used. Policies for how and how often accuracy is measured must be established.

O'Neil (2016) cautions about the dangers inherent in algorithms that can create models that are opaque and produce discriminatory results. Acxiom is a supplier to businesses of consumer information; it culls its data on people "credit agencies as well as public records such as electoral rolls, marriage and birth registers, consumer surveys, and from thousands of other businesses and organizations that collect data on their customers and service users" (Marr, 2016, p. 106). Unless customers "opt out" at the right moment, it passes that information to anyone who buys it.

> If we want to bring out the big guns, we might consider moving toward the European model, which stipulates that any data collected must be approved by the user, as an opt-in. It also prohibits the reuse of data for other purposes. The opt-in condition is all too often bypassed by having the user click on an inscrutable legal box. But the "non-reusable" clause is very strong: it makes it illegal to sell user data." (O'Neil, 2016, p. 214)

Lohr (2015) describes the incorrect information about himself in Acxiom's database that he attributes to algorithms that made the wrong correlations: one 'listed interest' for him was Christian families, apparently because his two children attend a Catholic school, since he has no other information on his religion anywhere on the Web. Acxiom did not respond readily when asked to make changes that were damagingly incorrect. It has no ethics policy itself; its company Web page on ethics puts the onus of ethical use on the buyer of the data: "To protect your customers and your brand, it's crucial to implement ethical data practices to ensure data collection and use is legal, just, and fair" (Acxiom, 2017, para 1).

There are other issues of privacy that are still of concern since the law is not keeping up with how Big Data is used. Predictive analytics uses algorithms to foresee possible events or changes. For example, Target, using data on women who purchased cribs and diapers as a strong probability that they gave birth, then searched the women's purchases for the prior nine months. It then searched for women who were buying those products, assumed they were pregnant, and sent coupons to them as targeted advertising. It created a public problem when news went public about a father who complained his high school daughter had received a coupon for a product aimed at a pregnant woman, which he thought was not only an invasion of privacy but also an error (Mayer-Schönberger & Cukier, 2013). Target apologized, but it then turned out that the company's data was correct, and it was not an error. The European Union is currently deciding new rules for targeted advertising as an invasion of privacy.

> Discrimination, as a legal concept, focuses on the treatment of people in groups, by ethnicity, gender or age. Big-data methods make it possible to assemble people by interests and characteristics that are far more detailed than traditional demographics. The technology also affords the opportunity to discriminate in another way—among people down to the individual level. (Lohr, 2015, p. 192)

There are other, more serious, possibilities for discrimination, since algorithms can search for people whose data searches indicate possible health conditions, which would allow a company to target them with an ad for medication. A health insurer might take those people out of the population that received its advertising. Lohr (2015) cites Alex Pentland of MIT Media Lab: "You have a right to possess your data, to control how it is used, and to destroy or distribute it as you see fit" (p. 204). Pentland describes personal data as "like modern money—digital packets that move around the planet, traveling rapidly but needed to be controlled" (Lohr, 2015, p. 204). In 2014, the Obama administration recommended that consumers should have control over their own data, and "the focus of regulation should be mainly on the use of data rather than on its collection. Europe favors stronger limits on data collection" (Lohr, 2015, p. 204).

There must be collaboration between those who write the algorithms and gather the data and those who use it for predictive analysis or marketing. One such collaboration is IBM's WatsonPath, used for medical diagnoses, which shows "the doctor a graphic picture of the program's step-by-step progression to the suggested diagnosis. This approach is what some call "algorithmic accountability" (Lohr, 2015, p. 204).

> Big Data processes codify the past. They do not invent the future. Doing that requires moral imagination, and that's something only humans can provide. We have to explicitly embed better values into our algorithms, creating Big Data models that follow our ethical lead. Sometimes that will mean putting fairness ahead of profit. (O'Neil, 2016, p. 204)

Scenario thinking is a process through which an organization can consider the possible ethics issues in the future of a decision today. Porter (1985) and Schwartz (1991) focus on scenarios being stories of possible future outcomes that help people learn what to consider when making decisions for the future, but they are not predictions. Schwartz (1991) quotes an old Arab proverb that says, "He who predicts the future lies even if he tells the truth" and goes on to say, "Rather, scenarios are vehicles for helping people learn. Unlike traditional business forecasting or market research, they present alternative images; they do not merely extrapolate trends of the present" (p. 6). Scenarios are narratives that describe the possible futures that would positively or negatively affect the strategic decisions made today. "The time horizon for scenarios must be short enough to create scenarios that are probable, but long enough for us to imagine that important changes with an impact on the future business can take place" (Lingren & Bandhold, 2003, p. 53).

There are existing global scenarios for 2025 and 2030 published by the U.S. National Intelligence Council (NIC) (2008), the World Economic Forum (2009, 2016), and Shell International Limited (2005, 2011). They can be used by anyone, but they are particularly important to those doing business globally. They focus on the global economy driven by technology, political power, the power of tribes and religion, and the rising power of developing nations. They are updated as events change their possible trends. They can help businesses identify how the environment might change that would make a decision currently being considered unwise. Additionally, organizations can tap research such as that of McKinsey & Company that conducts surveys that ask executives about forces in the global economy. For example, in 2010, its research team identified five forces that would be the strongest and provide the best opportunities for companies: The Great Rebalancing; The Productivity Imperative; The Global Grid; Pricing the Planet; and The Market State (Bisson, Stephenson, & Viguerie, 2010).

In the introduction to Global Trends 2025: A Transformed World by the U.S. National Intelligence Council (NIC), C. Thomas Fingar, Chairman, National Intelligence Council, said:

> By examining a small number of variables that we judge probably will have a disproportionate influence on future events and possibilities, the study seeks to help readers to recognize signposts indicating where events are headed and to identify opportunities for policy intervention to change or lock in the trajectories of specific developments. Among the messages we hope to convey are: "If you like where events seem to be headed, you may want to take timely action to preserve their positive trajectory. If you do not like where they appear to be going, you will have to develop and implement policies to change their trajectory." (National Intelligence Council, 2008, para. 2)

Creating a mini-scenario that addresses adopting a new technology would show the necessary changes in required job skills, which would allow managers to evaluate the cost of hiring those skills compared to buying the technology. This might lead to an evaluation of the ability of the current workers to learn the new skills, and the availability of training, for example. It would also identify how to track the technology to know when a version would be outdated

Asking "What if?" is an easy method of considering new situations on the horizon before they come too close for a reasoned response (Wilburn & Wilburn, 2011). Asking, "What if this happened? How would my business be impacted?" of a new technology could help identify a path for adopting it when the time was right. Asking "What if?" certain changes might happen in the economy or in technology can also identify issues that need to be addressed now. For example, asking "What if the data becomes inaccurate?" might have allowed Google to pay more attention to the individual data points it was collecting for its algorithm and what new data points might come into play on flu predictions. This would also allow ethical questions to be addressed: What if actions based on data ignore privacy rights? What if inaccurate data causes discrimination? Then stories can be written to consider different possibilities for any of the trends to help make decisions, and the stories can be shared with employees, so they can help watch for changes in their areas of work and expertise.

> Whereas the short-term impact of AI depends on who controls it, the long-term impact depends on whether it can be controlled at all. . . . All of users should ask ourselves what we can do now to improve the chances of reaping the benefits and avoiding the risks. (Russell, Tegmark, & Wilczek as cited in Schwab, 2016, p. 98)

SCENARIOS FOR MATT

A peek at what a business owner named Matt is dealing with in change may demonstrate the enormity of how the role of organizing and managing a business must change and how asking What if? can help him make decisions. Matt owns a local delivery company; he has been in business for twenty years and delivers in a fifty-mile radius. He managed his drivers and their schedules with a computer program that told him what shipments were ready for delivery and where they were to go by when. Shipments were loaded on trucks according to delivery area. Drivers were grouped by delivery areas. By delivering in the same areas, drivers learned the roads and areas of congestion. They avoided school locations during morning and afternoon rush; they knew where roadway or building construction was happening. This practice had led to greater efficiencies, since he heard from his drivers only if they had problems.

Then came Global Positioning System (GPS) and Google Map, which could identify not only efficient, but also safe routes, and then apps like Waze and INRIX® came along to show the most efficient, even though different, routes at various times of day, based on traffic congestion or accidents. The routes avoided streets with traffic lights at every intersection and avoided left turns across traffic. The apps also provided instant information to the drivers so they could change the route if there was a traffic tie-up. Matt decided he needed to automate his trucks with the new technology because he was sure it would speed deliveries. He could offer same day delivery, increase his customer satisfaction, and perhaps add customers. He installed the technology and brought a person in to train his drivers on using it. Some drivers grumbled that they were giving up their autonomy and decision-making to technology, but they started using the technology. In the next two months, three drivers had accidents because they were consulting the technology. He then mandated that they pull over to the shoulder to use the technology. However, the next month, most deliveries, especially during peak times, took more time than they did before, as drivers stopped to consult the technology and then drove streets with which they were not familiar, which meant they had to consult the technology even more often. Upon reflection, Matt realized he did not use the technology to solve a problem, since his customers were not complaining, but he had created problems by adopting it, and did not meet his goal of speedier delivery.

The next time Matt considered implementing a new technology, he used a What If? Model. He had decided many years ago to buy only one brand of delivery truck so that he would achieve more efficiency in maintenance and repairs, but they were all at least ten years old now. Recently, an automotive company had offered him software that would use data analytics to identify when routine maintenance should be done on certain parts depending on type of travel, such as stop and go or high speed. The trucks would also be fitted with monitors tied to the software that would alert to possible failure of a part. In such a case, the truck could be returned to the facility before it was stranded on the road and towed at significant expense.

Matt decided to check his records to see if he had a problem that technology would solve. He found ten incidents of trucks breaking down that required sending another truck to unload the contents to make deliveries, and paying a tow truck to take the truck to the repair shop. He then checked his customer logs and found customer complaints had spiked during those breakdowns because deliveries were late, sometimes by 24 hours. Further analysis indicated two customers had switched to another delivery service because they had deliveries delayed two of the ten times trucks broke down.

However, thinking back on his earlier experience with the apps, he was concerned that his drivers might not pay attention to the monitors, or they might not analyze what the information meant. If they simply pulled over whenever the monitor indicated a problem, even if it was one that the book said could allow 100 miles of driving under 50 mph before replacing. He would still have broken trucks on the side of the road. If a truck really did need to be stopped, he would need a process for transferring the packages and notifying customers just as he always had. Perhaps customers could be provided real-time information about the new delivery time. Perhaps he should keep one truck available at all times for such transfer until he had data on how often the technology required a truck to stop. However, the issue of training and decision making still loomed large given his past experience. Drivers would have to be trained on what the notifications meant; he had been told that some problems might require immediate engine shutdown, but others would simply require maintenance within 200 miles or driving at slower speed. The drivers would need the autonomy to act on the data they were receiving, rather than checking in to see how to respond. He also needed to check out his legal responsibility of the technology identified a problem, but the driver did not take the proper measures and an accident cause injury or death. Matt decided he would ask the company for names of firms that had implemented the technology for at least a year so he could talk to them about their experiences.

One of Matt's competitors had installed robots for moving packages from entry points in the warehouse to delivery trucks, or in some cases, to temporary storage in the warehouse. Matt asked What if? about adding robots and realized his current for employees to do the tasks would not make robots economically feasible at the current price. However, he had eight of his current employees talking about retirement, and he had realized that he needed to be sure his older employees were still capable of the heavy lifting required. He was already having trouble hiring full-time employees to work in the warehouse. He had interviewed someone recently, but the person only wanted to work part-time because he was working with his wife to start an online business making custom jewelry. What if this was a trend? It would mean managing part-time employees and scheduling would be more difficult, especially for peak times. He had always had a low turnover rate, which was one of the reasons for his profitability, but he would have to keep an eye on the potential pool of future employees and their needs. Matt decided to watch the price of the robots he would need so he could determine how many experienced people he would need to lose to justify bringing in the robots. He would still have to hire technicians to operate the robots.

Another technology Matt read about that he thought could improve his business was 3D printing. He read that there were programs that could print basic truck parts. His trucks were past any warranty periods and repairs were costly, especially since the parts were not readily available. There were programs for those parts that were inexpensive, and one machine would turn a photo of a part into a program for printing. With a 3D printer, a new part could be made and the old one replaced quickly, sometimes within an hour. This would mean he would no longer need a huge room to store spare parts, but he would need space for working on the trucks since currently they were sent to a repair shop. On the negative side, this change would mean one employee who managed the spare parts inventory would need other tasks. Matt did not think he would be able to learn to operate the 3D printer, so unless he could find other work for him, the person would have no job, and he would have to hire someone to use the 3D printer. Another issue was whether the 3D printer would be able to print what he needed and in order to shift most maintenance in house. Matt decided to look at his records for his maintenance costs, including the costs of parts before making a decision.

In his research on 3D printers, Matt discovered that UPS had started using its 3D printers to actually print products for customers for "prototypes or one-of-a-kind items" using a customers' CAD files or parts needed during manufacturing assembly and testing (The UPS Store, 2015). What if that became more prevalent? Would new 3D printing companies pop up that would help customers either print from their own CAD file or create their own file from a two-dimensional drawing. What would that do to his business? Would his customers find it more efficient and less expensive to simply make products that they were buying from stores and he was delivering? What if he could make some of the products with his 3D printer? He definitely would be able to make some equipment parts that one customer ordered in bulk. Since he would not be using his 3D printer 24/7 to make parts, offering as a service could defray the cost. Since 3D printers' price depended on the materials they used and the size of what they could print, tipping his toe in this technological water could help create new business. With the possibility of autonomous trucks and drones making the last-mile deliveries, and Uber and Lyft considering delivery services, Matt needed to pay attention to the future viability of his delivery service by making decisions based on What if? scenarios.

CONCLUSION

According to many industry observers, we are today on the cusp of a Fourth Industrial Revolution. Developments in previously disjointed fields such as artificial intelligence and machine learning, robotics, nanotechnology, 3D printing and genetics and biotechnology are all building on and amplifying one another. . . . Overall, there is a modestly positive outlook for employment across most industries, with jobs growth expected in several sectors. However, it is also clear that this need for more talent in certain job categories is accompanied by high skills instability across all job categories. Combined together, net job growth and skills instability result in most businesses currently facing major recruitment challenges and talent shortages, a pattern already evident in the results and set to get worse over the next five years. . . . The question, then, is how business, government and individuals will react to these developments. To prevent a worst-case scenario—technological change accompanied by talent shortages, mass unemployment and growing inequality—reskilling and upskilling of today's workers will be critical. (World Economic Forum, 2016, p. v)

Jim Clifton (2011), Chairman of Gallup, believes that what people all over the world want are good jobs. The organization of business must support development of engaged workers that will create these good jobs. "The computers will be crunching data, while humans do the higher-level thinking—supplying the conceptual ideas, rules, and judgement that guide the automated data analysis and prediction" (Lohr, 2015, p. 117). Businesses will have to have structures that promote communication across all functions as well as processes to manage a workplace of robots, part-time employees, and employees working remotely, with strong communication and problem-solving skills. Because they will be training employees to do the analytical thinking, they need to hire people who have the motivation to learn and who will stay with the firm, given the significant costs of continually replacing full-time employees. Gallup's (2015) research shows that "People who use their strengths every day are six times more likely to be engaged on the job" and "7.8% more productive" and those who receive strengths feedback on have turnover rates that are 14.9% lower than those for employees who do not" (p. 43).

> The uncertainties around the pace and extent of technological change are enormous. Some fear a future of mass unemployment. Others are sanguine that people will have time to adapt. Companies have to want to adopt new technologies, after all, and regulators may impede their take-up. What is not in doubt is the need for new and more efficient ways to develop and add workplace skills. (The Elephant in the Truck, 2017, p. 16)

Processes will need to be in place to help employees learn what they do best and to convince employees that technology will free up more time to do what they do best. At the same time, managers will need to help employees understand that they must learn new skills when technology replaces their jobs completely. Artificial Intelligence and Big Data will provide better information on which to make better decisions, but it will also produce so much information, that the organization must be able to define the information necessary for production and managing the company, and the questions that the information needs to answer, much of which will take collaboration between management and employees.

The technological and workforce changes affecting organizations today are disruptive. Organizations must reconsider how they manage and optimize performance using technology, just as the how, when, and where people work is shifting. Decisions on what to prepare for the future workplace and workforce withstand the winds of change in the 21st century when scenario thinking is used and the question "What if?" is asked every time there is information about a new technology or a new use for existing technologies. Failure to do so will mean organizations will struggle to attract and keep great employees and managers.

> In a memo to IBM managers on April 25, 1960, CEO Thomas Watson Jr. addressed head-on the issue of "thinking machines." He wrote 'Computers will never rob man of his initiative or replace

> the need for his creating thinking. By freeing man from the more menial or repetitive forms of thinking, computers will actually increase the opportunities for the full use of human reason. Only human beings can think imaginatively and creatively in the fullest sense of these words." (Kelly & Hamm, 2013, p. 138)

Kelly (2016) reminds us that we will become interdependent with the machines we create in order to solve our problems. Organizations must recognize what that interdependence might look like so that they make decisions about adopting technology that will help them navigate their success in the future.

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Review of Business & Finance Studies
Vol. 9, No. 1, 2018, pp. 31-38
ISSN: 2150-3338 (print)
ISSN: 2156-8081 (online)

www.theIBFR.com

DYNAMIC ASSISTANCE TO SMALL BUSINESSES FROM THE GOVERNMENT OF EL SALVADOR

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ABSTRACT

The purpose of this article was to indicate the dynamic and systematic assistance small Salvadoran businesses receive from the Government of the Republic of El Salvador, expose the discrepancies that still exist among small business organizations, and demonstrate the corrective and developmental actions such enterprises receive from their national government in order to reduce and eliminate such discrepancies.

JEL: M16, M20

KEYWORDS: Central American Common Market, CONAPYME, DICA, Large Businesses, Medium-Size Businesses, Micro and Small Business Enterprises (MYPES) Ministry of Economics, Republic of El Salvador, Universidad Centroamericana

INTRODUCTION

The present author in this article presented the dynamic and systematic assistance provided by the Government of the Republic of El Salvador to small business enterprises, exposed the discrepancies that still exist among small business organizations in that Central American nation, and demonstrated the corrective and developmental support these private firms receive from the Salvadoran Government in order to reduce and eliminate such discrepancies.

The Republic of El Salvador is located on the Pacific coast of Central America and is the smallest Spanish-speaking nation in the American Hemisphere with a population of slightly over 8,000,000 inhabitants. It was a part of the Spanish Empire in the Americas and won its independence in 1821 with the rest of the Central American nations. The country has gone through difficult times in its history, including a civil war in the second part of the previous century that caused heavy socioeconomic damages.

The economy of El Salvador started with the exportation of coffee and remained an agricultural exporter for a long time until the 1960s during which time industrialization started to gain ground in order for the country to enter into the Central American Common Market. A very important element in the economy are the relatively large sums of remittances Salvadoran expatriates send to their families and friends at home (Castillo-Ponce, Torres -Preciado and Manzanares-Rivera, 2009). El Salvador has gone through three economic models which are the exportation of agricultural products and natural resources, industrialization for replacing imports for domestic consumption, and during the last thirty years the intensive exportation of products manufactured domestically. The latter economic model is also depicted by the element of trans-nationalization of the economy (Bull, 2013). The same model has also been based on the privatization of government organizations, deregulations, and the control of protectionism (Moodie, 2010).

Practically all the Salvadoran literature commensurate to the topic of this article is based on valid and accurate government publications. Academic national and international publications are dedicated to macroeconomics with emphasis on how the Salvadoran Government assists the overall economic development of the country with strong international subsidies mainly in the financial sector, indirect imports to El Salvador and direct exports to advanced nations in North America and the European Union (Nudelsman, 2013). Many of those publications pivot around the constant problems the Salvadoran Government faces in order to reach an acceptable level of macroeconomic development (Housmann and Rodrik, 2005).

This peer-reviewed academic article has provided information pertinent to the government assistance small business enterprises receive in El Salvador from their government and will strengthen the limited academic literature that is available today. It will also encourage Latin Americanist and non-Latin Americanist authors to conduct similar research in El Salvador, the rest of the Central American states, and in South America with emphasis on government assistance to small businesses.

In 2015 10% of the small business enterprises used new processes, methodologies and instruments in their production system and for 2019 the Government of El Salvador projects that the percentage will be increased to 80% (Plan Estratégico De Conapyme: 2015-2019, 2015). In reference to management development, the same source indicated that it had a 50% success factor in 2015 and expects a 100% goal in 2019 (Política Nacional para el Desarrollo de la Micro y Pequeña Empresa, 2015).

The subsequent sections of this work include the Literature Review that described, analyzed and evaluated the current literature in the field; Data and Methodology dedicated to primary and secondary data collected and the methodology used; Results and Discussion that exposed the results of the research and provided a brief discussion about them; Concluding Statements; and References in English and Spanish.

LITERATURE REVIEW

Micro and Small Business Enterprises (MYPES)

The Ministry of Economics of El Salvador classifies the private enterprises in the country as large (grandes) with approximately 420 enterprises; medium sized (medianas) that include 2000 commercial and 570 industrial firms; micro businesses (microempresas) that are composed of 2,300 industrial and 7,000 commercial firms; and small businesses (pequeñas empresses) which includes 2,000 industrial and 6,000 commercial enterprises (Ley de Fomento, Protección y Desarrollo, 2014).

Micro and small businesses (MYPES) constitute the majority of the private enterprises and perform most of the economic activities in the nation's economy (Medina, W., Manager, Mypes Industriales, Ministry of Economics. Personal interview in San Salvador, El Salvador, July 5, 2016). Microbusinesses have from one to ten persons and annual sales up to $482.00; small businesses have from 11 to 50 persons and annual sales from $482.00 to $4,817.00 (Plan Estratégico De Conapyme: 2015-2019, 2015).

Similar criteria for classifying small business enterprises exist in all countries in Latin America (Hausmann and Rodrik, 2005). The large number of small enterprises is one of the major causes for the slow economic development in El Salvador and all Latin America due to their diseconomies of scale (Theodore, 2015). Underemployment is a strong characteristic in Salvadoran economy; from 2007 to 2015 underemployment fluctuated from 4.9% to 5.8%; unemployment ranged from 5.7% to 5.8% during the same period (*Estudio económico de América Latina y Carible, 2015*. Anexos Estadísticos, 2016)

The Government Act 598 of 2012 clearly specifies the responsibility of the Salvadoran Government in assisting the private sector in the areas needed through the Ministry of Economics which has been making every effort to provide support to the MYPES and to monitor the process of such support by coordinating, consulting, and assisting the implementation of correct management practices in production, marketing and sales, finance and accounting and human resources in the organizations under discussion (Política Nacional de Fomento, Diversificación y Transformación Productiva en El Salvador, 2014). The present author, through his interviews with officials of the Ministry of Economics, detected that such officials responsible for interacting and assisting the MYPES have adequate and commensurate education, are knowledgeable of their tasks, and have the required experience.

The Dirección de Innovación y Calidad (DICA) is an agency of the Ministry of Economics whose function is to assist not only the MYPES but all small and medium sized businesses (PYMES) in developing themselves and attaining economies of scale (Esquema de Programas y Proyectos de la Dirección de Innovación y Calidad, 2014). Emphasis has been placed upon the development of small and medium industrial enterprises without neglecting the non-industrial ones (Política Industrial: 2011-2015, 2010).

In reference to the MYPES, the government established another important agency, the Comisión Nacional de Micro y Pequeña Empresa or CONAMYPE --the Commission of Micro and Small Businesses (Ley de Fomento Protección y Desarrollo, 2015). CONAMYPE is focusing upon the following areas of development of the MYPES: Customers, marketing and sales; planning, organizing, directing, and controlling; the development of the human resources; leadership; the effective, efficient and timely use of the business resources; aiding MYPES in receiving financing; the creation of a legal status for the MYPES; responsibility and obligation to pay taxes; necessity to participate in marketing activities and meetings; and assistance in overall entrepreneurial and organizational development (Producción Mas Limpia, 2015).

A highly important publication provides detailed information for PYMES in the areas of finance, taxation and accounting. It demonstrates step by step all the activities owners of such enterprises have to execute in the areas of accounting, finance, and taxation (Elias, 2013).

Finally, CONAMYPE is instilling upon the owners, managers, and employees of the MYPES the elements of integrity, innovation, solidarity, cooperation, excellence, equity, and responsibility (Programa De Apoyo A Inversión Productiva, 2014). Emphasis is also placed upon the elevation of the status of women in businesses and the practices of competition, innovation, and technology (Política Nacional para el Desarrollo de la Micro y Pequeña Empresa, 2015).

The Ministry of Economics has contracted with universities in the country to provide education and training to the owners, managers, and employees of the MYPES and to all small and medium sized private enterprises in general.

Most of the educational and training assistance comes from the well-known Universidad Centroamericana (UCA), Department of Business Administration. The present writer conducted interviews with administrators and professors in UCA who are responsible for educating and training the human element of the MYPES and all PYMES. Such persons are well-educated, have the necessary experience and responsibility, and are dedicated to the developmental process of the enterprises they are assisting. Assistance is given in the commensurate and related areas of education and training in human and non-human areas, such as production, marketing and sales, finance and accounting and human resources that include the ownership, management, and employees of small business organizations in the country (Campos, E., Head, Department of Small Businesses, Universidad Centroamericana, San Salvador, El Salvador. Personal Interview on July 2, 2016).

Current Problems Among the Mypes

There are several problems that still prevail among the MYPES, such as strong limitations in managerial knowledge; ability and skills; education; and experience among the owners and managers. Additionally, there is limited innovation and technological knowledge, as well as limited responsibility toward customers. Finally, the responsibility to pay taxes does not exist (Lima, F., Director, Desarrollo Productivo, CONAMYPE. Personal interview in San Salvador, El Salvador July 3, 2016).

Identical comments were expressed by high officials in the Ministry of Economics who also added the absence of civic and business responsibility on the part of the owners and managers. In other words, there is limited customer and market orientation (Nostas, E., Director, Mypes Industriales, Ministry of Economics. Personal interview in San Salvador, El Salvador, July 1, 2016).

Similar concerns were expressed by professors who are providing commensurate and related education and training to MYPES; they indicated that there is also a strong absence of long term planning, responsibility, and accountability toward the consumer (Pocasangre, G., Professor, Small Businesses, Universidad Centroamericana, San Salvador, El Salvador. Personal Interview on July 6, 2016).

The original precipitants of the above-cited deficiencies in small business enterprises in El Salvador which are presented in this work exist because El Salvador did not inherit an industrial economy from Spain during the colonial period and has not developed a full-scale industrial economy to this date in which small business organizations are forced by necessity to develop themselves in order to be competitive domestically and internationally (Desarrollo de Mercados, 2015). The culture of small businesses still remains backward as is the case in all PYMES in all Latin America. The owners and managers of MYPES, and MYPES in general, have not shown serious interest for the development of their enterprises, but consider them as a source of income for daily and short-term revenues (Theodore, 2009).

Areas of Urgent Concentration of Assistance

The areas where MYPES need urgent attention are the provision of incentives for development, formalization of operations, development of human resources, long term planning/strategy, social and business responsibility, payments of taxes, making PYMES a legal entity, and the creation of the feeling of business security (Lima, F., Director, Desarrollo Productivo, CONAMYPE. Personal interview in San Salvador, El Salvador, July 3, 2016).

It was also noted that deficiencies exist in the areas of product information, management and marketing training, and the knowledge and ability to borrow money under correct and acceptable conditions (Ruano. E., Manager, Mypes Industriales, Ministry of Economics. Personal interview in San Salvador, El Salvador, July 1, 2016). Similar opinions were also expressed on the part of UCA professors who added that there are problems with the absence of the ability, courtesy, and gesture of accepting the exchange and/or return of purchased products by the customers (Melara, C., Assistant Director, Small Businesses, Universidad Centroamericana, San Salvador, El Salvador. Personal Interview on July 2, 2016).

According to the opinion of the present author, it is imperative that the Ministry of Economics, with the assistance of UCA and the other educational institutions that participate in the teaching and training of the human element of the MYPES, and the PYMES in general, make every effort to change the backward culture of the ownership, management, and employees to a modern and dynamic one in order for such enterprises to attain a continuous organizational development modus operandi and to operate under long-term strategies (Theodore, 2011). The present author discussed with the above-cited government officials, professors, and administrators the possibility of creating mergers of capable small business organizations under discussion in order to create large ones with higher and stronger factors of production (Theodore, 2009).

DATA AND METHODOLOGY

For the purpose of this article, the author collected secondary materials published by Salvadoran and foreign sources on government assistance to small business enterprises in the Republic of El Salvador. The primary data were collected through a number of lengthy personal interviews with key persons in the Salvadoran Government and UCA who have been clearly acknowledged in this article.

RESULTS AND DISCUSSIONS

Private enterprises in the Republic of El Salvador are classified as large (grandes) with approximately 420 enterprises; medium sized (medianas) that include 2000 commercial and 570 industrial firms; micro businesses (microempresas) that are composed of 2,300 industrial and 7,000 commercial firms; and small businesses (pequeñas empresses) which includes 2,000 industrial and 6,000 commercial enterprises. Micro and small businesses (MYPES) constitute the majority of the private enterprises and perform most of the economic activities in the nation's economy

Small and medium-sized private enterprises have been chronically underdeveloped. For this reason, dynamic and systematic assistance to such organizations is received from the Government of the Republic of El Salvador in the areas of technology, information and communication, human resources, management, marketing, finance, production, and strategy and development (Hausman, 2005). The above-cited assistance is moving slowly, mainly due to the culture of the owners, managers, and employees of the enterprises, but visible progress is being made.

The Government of El Salvador, through the agencies it has established for assisting small business enterprises, supports the overall development of small industrial and non-industrial business enterprises in coordinating and providing consulting services in the areas of production and operations, marketing and sales, finance, accounting and taxation, and human resources in order for such enterprises to attain the necessary economies of scale.

Additional areas of government support in small business enterprises are in organizational and managerial innovation; integrity; solidarity and cooperation; excellence; equity, and responsibility; planning, organizing, staffing, leading and controlling the organizational activities; the effective, efficient and timely use of business resources; aiding in receiving financial assistance and attaining legal status, such as the corporate form of business; the responsibility and obligation to pay taxes; participate in overall business activities; and assisting the continuous entrepreneurial development.

Emphasis is also placed upon the elevation of the status of women in businesses and the elements of competition, innovation, and technology. Finally, the Ministry of Economics has contracted institutions of higher learning to provide commensurate and related education and training to owners, managers and employees of the enterprises under discussion.

The problems that still remain extant are strong limitations in managerial knowledge, ability and skills, and education and experience among the owners and managers. There is limited innovation and technological knowledge, as well as limited responsibility toward customers, the lack of accountability and responsibility to pay taxes and the strong absence of long term planning.

The areas where the enterprises under discussion need urgent attention are the provision of incentives for development, formalization of operations, development of human resources, long term planning/strategy, social and business responsibility, payments of taxes, making small businesses a legal entity, and the creation of the feeling of business security

It was also noted that deficiencies exist in the areas of product information, management and marketing training, and the knowledge and ability to borrow money under correct and acceptable conditions. There are also problems with the absence of the ability, courtesy, and gesture of accepting the exchange and/or return of purchased products by the customers.

CONCLUDING COMMENTS

The author presented the dynamic and systematic assistance provided by the Government of the Republic of El Salvador to small business enterprises, exposed the existing discrepancies that still exist among small business organizations in the country, and demonstrated the corrective and developmental actions such private firms receive from their national government in order to reduce and eliminate such discrepancies.

The primary findings depict the continuous efforts of the Salvadoran Government in providing assistance in all the functional units (production, marketing/sales, finance and human resources) of small business operations, the progress that has been taking place, and the problems/difficulties that are still extant in the small business enterprises in that nation.

The author had a number of lengthy personal interactions in form of interviews with government officials in the Ministry of Economics and educators for the purpose of collecting primary data. Medina, W., Manager, Mypes Industriales, Ministry of Economics, made a lengthy presentation to the author about the nature and operations of small business enterprises in the country. Lima, F., Director, Desarrollo Productivo, CONAMYPE, in his long conversation with the author indicated that small enterprises almost totally avoid paying taxes, have no accounting systems, and no customer and social responsibility and the assistance such organizations receive in correcting such discrepancies. Nostas, E., Director, Mypes Industriales, Ministry of Economics presented the fact that small businesses have no market orientation, short and long-term planning, and customer responsibility and and also emphasized the commensurate and related education and training their owners and managers receive to correct such problems. Ruano. E., Manager, Mypes Industriales, Ministry of Economics, spoke about the deficiencies that exist in the areas of product information, management and marketing training, and the knowledge and ability to borrow money under correct and acceptable conditions. He strongly emphasized the support such enterprises receive from the government in order to correct such discrepancies.

Pocasangre, G., Professor of Small Businesses, Universidad Centroamericana, presented the various commensurate and related educational and training programs offered in management, organization, marketing, finance, accounting and human resources for the benefit of owners, managers and employees of small businesses. Melara, C., Director, Small Businesses, Universidad Centroamericana, spoke about the absence of the ability, courtesy, and gesture of accepting the exchange and/or return of purchased products by the customers among small business enterprises and the courses they offer in marketing, sales and customer relations to correct such deficiencies.

The most evident limitation in this work is the absence of academic literature on the government assistance to small business organizations by the Government of El Salvador because national and international research has been pivoting around the macroeconomic development of El Salvador that starts with mainly financial foreign assistance received by the Salvadoran Government. Such assistance is allocated into areas selected by the leadership of that nation which usually centers around the additional development of exports (mainly agricultural and to a lesser degree industrial) and around large enterprises that are owned and operated by influential and wealthy persons in the country.

General and specific government publications on government assistance to small business enterprises are helpful and can be used as an infrastructure for academic researchers to produce academic articles and books which will expose the element of small business enterprises in El Salvador, the problems such organizations face, the proposed solutions to eliminate such problems, and the dynamic assistance the national government provides to all small business organizations in the country.

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BIOGRAPHY

John Theodore is the holder of a Ph.D. degree in Administration and Latin American Studies from the University of Kansas; a Ph.D. in Management from the Aristotelian University in Greece, European Union; and a D.B.A. in International Business from the University of South Africa. He has been teaching and consulting for five decades, domestically and internationally. He is a visiting professor in various foreign universities and has consulted, taught and lectured in a number of Latin American universities, colleges and private organizations for several decades. He started his research on the economy and the private business organizations in El Salvador and the rest of the Central American and South American states in the 1970s and revisited Central and South America systematically to continue such studies to the present decade. John Theodore is the president of JDT Management Consultants in Clearwater, Florida, specializing in management, organization, strategy, international business, human resources, organizational development, and educational administration. He is a certified management consultant (CMC) certified by the Institute of Management Consultants in Washington, D.C. He has published three books and a large number of peer-reviewed articles in the areas of organization, management, and international business.

Review of Business & Finance Studies
Vol. 9, No. 1, 2018, pp. 39-51
ISSN: 2150-3338 (print)
ISSN: 2156-8081 (online)

www.theIBFR.com

A CASE STUDY IN FRAUD PREVENTION: CHARLENE CORLEY

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ABSTRACT

This case study discusses fraud, and illustrates several preventive and detective fraud methodologies as they apply to a historical case study (United States of America vs. Charlene Corley). Criminal fraud cases have emerged with greater frequency over time, which has resulted in improved detection methodologies; such as Embedded Audit Modules and Benford's Law, and preventive methods, such as budgetary controls. These methodologies are discussed and analyzed in great detail in this paper, and may be implemented by companies to ensure compliance with internal control policies developed by regulatory agencies.

JEL: M40, M42

KEYWORDS: Benford's Law, Audit, Fraud, US vs. Charlene Corley, Budgetary Controls, Embedded Audit Modules, Detection Controls, Preventive Controls

INTRODUCTION

This case study illustrates a real fraudulent case known as Charlene Corley, which was perpetrated against the US government at a cost of over $20 million. Part 1 of the paper provides an overview of the case, and an introduction to fraud. In part 2, several methodologies are introduced and explained in detail, which are aimed at preventing and detecting fraud , and include; Embedded Audit Modules, Benford's law and Budgetary Controls. In part 3, questions are addressed relating to this case study which can be assigned in a relevant accounting class. Part 4 is the conclusion section which summarizes the key points of this paper. This case study can be used at both, the undergraduate as well as the graduate accounting curriculum in an Internal Auditing class, Auditing and Assurance class, an Accounting Capstone course as well as an Accounting Forensic course.

CASE DESCRIPTION

Case Overview

Fraud and errors in accounting dates back to the 13th century where Europe became a monetary economy and began to develop bookkeeping. Luca Pacioli had developed the Double-entry Bookkeeping system in the late 14th century which led to more in-depth and accurate transaction recording. Since it was developed, today we are continuously improving this system, but as we improve it, recurring problems appear through a diverse volume of cases (Lee, 1977).

According to Jim Powell, author of America's First Great Champion for Liberty and Peace, historical fraudulent schemes date back to the time of Philip Ford in the 1700's; At the time Philip Ford embezzled large sums from the profitable estates owned by William Penn by means of getting Penn to sign a deed that would then transfer Pennsylvania to Mr. Ford. This scheme resembles patterns that still happen today and have led to an increase in accounting fraud throughout the years (Powell, 1995).

Darlene and Charlene Corley were twin sisters from Lexington, South Carolina. Charlene worked at the South Carolina budget and control board while Darlene was a school teacher. In 1991 they both decided to open up their own small hardware store C&D Distributers. C&D Distributors LLC, was a registered government contractor with the Department of Defense which supplied hardware components, plumbing fixtures, electronic equipment and various other items to various military installations worldwide. In 1993 they began distributing hardware to the military; AKA the Department of Defense.

In July of 2000, there was an accounting error in the shipping costs which had been paid. They received five thousand dollars and at first weren't sure from where it came from but as soon as they figured it out that it was due to a loophole in the Department of Defense's automated payment system, they leveraged the situation. The Department of Defense had been using a system that had been automatically accepting shipping expenditures, it is known as the Defense Finance & Accounting Service (DFAS). It is the payment service center of the Department of Defense based in Columbus, Ohio and controls invoices submitted by government contractors for shipping costs paid electronically by DFAS. The sisters found out about this system and were able to charge any amount they wanted for shipping and the Department of Defense would pay for it. They were submitting bids and inflated shipping costs for those items. At this time the military was at war, supplying our soldiers as fast as they could, approving all costs that were needed; as in this case for bolts and screws. Shipping charges of tens of thousands of dollars eventually increased into hundreds of thousands of dollars. In all, they submitted almost seventy-two million dollars in fraudulent shipping costs and a little over twenty million were paid. With their lucrative scheme they bought several beach houses, matching Mercedes cars, and took lavish vacations. They even opened a Nestle Toll House franchise called, Dough and Cookie LLC.

The scheme was uncovered when the sisters sent two invoices for the same contract. The system "kicked it out" which lead to further review and discovery that the shipping charge for two lock washers that were nineteen cents each was nearly a million dollars. At that time, when both Charlene and Darlene Corley realized the Department of Defense found out about their scheme, the sisters tried to mend the situation by paying back four and a half million dollars, sending the message that they will repay their debts. Investigators came to see Darlene, where she asked them to let her gather her thoughts and papers and to return the following day. However, Darlene chose instead to commit suicide. Charlene, left to defend herself, stated that her sister had been in charge of the entire operation. However, it was noted that "Charlene Corley was the president of the company, she was the managing partner and she was the designated contact for the Department of Defense." Hence this case concluded that Charlene was actually in charge. On August 16th of 2007, Charlene Corley pleaded guilty for wire fraud and money laundering. It was looked at as an anti-American crime, taking money away from our soldiers and our country. It ended with Charlene being sentenced to six and a half years in prison.

"Fighting fraud has become an escalating war. Even those firms with the most advanced tools and processes to detect and prevent fraud feel like they are falling behind. The technical advancement and globalization of fraud will continue to provide new challenges to a firm's ability to manage fraud" (Ness, 2009). It is clear that numerous firms have faced instances of accounting fraud since the 13th century and this highlights the need for Embedded Audit Modules and Benford's Law as representative detection tools, and budgetary controls to prevent fraud before- the-fact. In summary, the main question is: what particular methods might have been implemented to prevent fraud like the one in the Charlene Corley Case?

CASE INFORMATION

Fraud Preventive and Detective Methodologies

A: Embedded Audit Modules

Fraud has become prevalent in society (Morey, 2010). One methodology that is used in this escalating war involves Embedded Audit Modules, which is a topic in embedded controls inserted into a system. These types of controls can be helpful to organizations by reducing costs, making response times quicker, avoiding unnecessary business exposures and making multiple tasks more efficient (Turner, 2009). "By continuously monitoring core business processes, via embedded controls and mathematical modeling, you may locate material errors in real-time/run-time, strengthen the control environment, and manage down business risks" (Kneer). These points of embedded controls are impressive elements that can be used for fraud prevention today with the application of their quick response time.

"Embedded controls, designed to prevent and detect fraud can be automatically reported in real time leveraging a predetermined work flow for investigation and remediation" (Simon, 2011). Having embedded controls may have impacted on the criminal act involved in the Charlene Corley case. Even though embedded controls were used to detect and prevent fraud in the Corley Case they were developed only enough in this case to prevent the situation from escalating. In this case, shipping costs were paid without any indication that fraudulent actions were in the making. In the case hearing, the judge had said "Miss Corley was stealing from the Department of Defense during a nine-year time period, and the majority of that time period this country was at war… And, as you know, the Department of Defense's mission is to protect this country, to preserve our national security. We had soldiers in Iraq and Afghanistan risking their lives for the Department of Defense and to preserve our freedom in this country and she was stealing $21 million from that agency." This clearly implies that embedded controls require improvements, especially given this time when everyone was very concentrated in the war and was not able to give their full attention to the charges being processed.

A particular embedded control segment mainly relevant to the Corley case is Embedded Audit Modules (EAM). "EAMs are software applications embedded in host systems or linked to host systems to externally monitor such systems. EAMs are applications that continuously monitor flows of transactions, identify transactions that match certain pre-determined integrity constraints and, in the event of a constraint violation, alert the auditor and copy the transaction data to a file" (Roger, 2005). Since EAMs are continuously monitoring flows of transactions they make for a valuable auditing tool. "Early examples of EAMs were implemented in proprietary accounting information systems and production systems" (Roger, 2005). In the Corley case the Department of Defense used the aforementioned DFAS which automatically accepted shipping costs. This system could have been strengthened by employing Embedded Audit Modules which would have connected with the system to help externally monitor the enduring course of transactions.

EAMs have certain characteristics including “an end-user environment that allows the auditor to establish a set of queries to test transaction integrity constraints either from a pre-defined suite of queries, the modification of the attributes of pre-defined queries, or by the creation of new queries by the construction of simple scripts” (Kuhn, 2010). EAMs also permit the recording of transaction details which can then be reported electronically if a violation or query is observed (Roger, 2005) In the DFAS system there could have been EAM queries to allow some form of notification of violations that may be uncovered in the transaction that the system otherwise accepts as customary.

In an article by Daniel Draz, “According to the Institute of Internal Auditors (IIA), "responsibility for the system of internal control within a typical organization is a shared responsibility among all the executives, with leadership normally provided by the CFO" ”(Draz, 2011). This informs that a segregation of duties should be assigned, to monitor from time to time the processes of the system being used by the Department of Defense. Moreover, “An effective notification system operates over a central server, delivers event messaging to predefined employees in "real time," as the event occurs, and is sent directly to the employees and their smart devices. This level of event notification ensures that the people who need to know about an incident are made aware in a timely manner and fosters immediate and unified response as required” (Draz, 2011). This is a system that could have helped prevent fraud during the arising active transactions in the Corley case.

In addition to improving on creating more queries in a company’s system and creating Embedded Audit Modules, another factor that is included in the embedded control process is the point of segregating duties. Draz’s article states that, “One way to strengthen internal controls is by improving the communication process”. Another point made was to “include communication to employees regarding increased awareness, correct handling processes and policy adherence. It may simply be that employees performed as expected under the circumstances but there were insufficient internal control policies in place to guide their behavior. Lessons learned here will strengthen internal controls through the creation of new ones. “Since communication is such a large issue in embedded controls there shouldn’t be one person or system to have sole authority over all transactions without appropriate sign off processes and differing levels of management approval.” Draz emphasizes that “a lack of proper segregation of duty in company policies are most often the root cause of many fraud and theft events in companies without strong internal controls in this area.” Having more people overlooking activities thought out a business can help detect fraud more easily at the time of the act, which could’ve been used in the time of the Corley case when the DFAS system had total authorization.

Embedded Audit Modules may have prevented the fraud in this case by having alerts sent that notify users of violations being attempted to be processed in certain transactions. With these internal controls there might also have been a segregation of duties to ensure that no specific individual can control both the recording function and the procedures relative to processing the transaction. The DFAS system did both of these on its own without any other sources to overlook its processes. Besides using Embedded Audit Modules and other internal controls, another form of a detective control is Benford’s law.

B: Benford’s Law

In 1938 Frank Benford analyzed the digit patterns of 20 data sets with a total of 20,229 records. His results showed that 30.6 percent of the numbers had a 1 as the first digit, 18.5 percent of the numbers had a 2 as the first digit, with the 9 being the first digit only 4.7 percent of the time. The first digit of a number is the leftmost digit and any minus sign or decimal point is ignored Zero is never a first digit and so the first digit of both 2,214 and 0.0025 are a 2. Benford then noticed the logarithmic pattern in the actual digit frequencies, and derived the formulae for the expected frequencies of the digits in tabulated data. These are shown in Table 1. The expected proportions for the first, second, third, and fourth digits are shown in Table 1. From Table 1 it can be seen that as one moves from left to right, the expectation is that the digits tend towards being evenly.

Benford noted that his probability law was derived from "events" through the medium of their descriptive numbers and that it was not a law of numbers in themselves. In other words, the expected proportions are not a consequence of the number system itself.

Research papers have highlighted a number of data sets related to financial data that conformed to Benford's Law. In 1996, Mark Nigrini had shown that the digit frequencies of the interest received amounts on 91,022 tax returns for 1985, and 78,640 tax returns for 1988, had a close conformity to Benford's Law. The dollar amounts of 30,084 invoices approved for payment by a NYSE-listed oil company analyzed in 1997 (Nigrini and Mittermaier), and 36,515 invoices were approved for payments by a software company (analyzed in 2000 by Drake and Nigrini) that had also conformed to Benford's Law. In 2005, Nigrini analyzed the revenue numbers from 4,792 quarterly earnings releases in 2001 and 4,196 quarterly earnings releases in 2002. The first digits of the revenue numbers conformed to Benford's Law. However, the second digits showed a pattern (excess second digit 0s and a shortage of second digit 9s) that was consistent with rounding up of revenue numbers around psychological reference points (such as $200 million). These papers (and other unpublished studies) show that as a general rule that financial data within and across companies conforms reasonably well to Benford's Law (Nigrini, 1996).

Table 1: Benford's Law: Expected Digital Frequencies

Position in Number Digit	1st	2nd	3rd	4th
0		0.11968	0.10178	0.10018
1	0.30103	0.11389	0.10138	0.10014
2	0.17609	0.10882	0.10097	0.10010
3	0.12494	0.10433	0.10057	0.10006
4	0.09691	0.10031	.10018	0.10002
5	0.07918	0.09668	0.09979	0.09998
6	0.06695	0.09337	0.09940	0.09994
7	0.05799	0.09035	0.09902	0.09990
8	0.05115	0.08757	0.09864	0.09986
9	0.04576	0.08500	0.09827	0.09982

The number 312 has three digits, with a 3 as the first digit, 1 as the second digit, and a 2 as the third digit. The table indicates that under Benford's Law the expected proportion of numbers with a first digit 3 is 0.12494 and the expected proportion of numbers with a third digit 2 is 0.10097 (Nigrini,1996).

In Mark Nigrini's article "I've Got Your Number," he states "Benford's Law is quite counterintuitive; people do not naturally assume that some digits occur more frequently." This is seen in the Corley case when the Department of Defense didn't check their statements; they could have used this method in order to detect a large amount of 9's. Benford's Law would have detected that an amount of this magnitude had never before been wired to that account number, as the test was designed to detect data errors (Nigrini,1999). This would have been a perfect method to be used around November of 2003 for detecting the beginning of this scheme.

"Benford's analysis tests for fraudulent transactions based on whether digits appear in certain places in numbers in the expected proportion" (Durtschi,2004). This is first shown in the Corley case when there was a large cluster of transactions with shipping costs beginning with first-digit of four. Throughout the increase in transactions the proportions of the cost of the items and shipping costs grew larger and larger, till the point where the proportion grew to a nineteen cent lock- washer was charged over nine hundred thousand dollars for shipping expenditures.

Benford's Law is a great detective method for fraud prevention with its straightforward use of detecting data anomalies. This method would have been a good choice in the Corley case by means of detecting a large repetition of number that go in opposition to the parameter distribution of Benford's Law. Using this quick method could have potentially saved the military millions of dollars that could have been used to supply our soldiers.

The case document states that "the bottom line is that Miss Corley made choices, nine years of choices, and today she must be held accountable for those choices." The opinion here is that if Benford's Law had been used it would've detected these nine years of anomalies from occurring. Alternatively, if the Department of Defense applied this approach, it might have lessened the severity of the charges in the end. The next section proposes another approach, based on preventive control.

C: Budgetary Controls

A budget is defined as a formal written statement of management's plans for a specified future time period, expressed in financial terms. According to Wiley's Managerial Accounting book it is explained that a budget, "provides a basis for performance appraisal (variance analysis). A budget is basically a yardstick against which actual performance is measured and assessed. Control is provided by comparisons of actual results against the budget plan. Departures from the budget can then be investigated and the reasons for the differences can be divided into controllable and non-controllable factors" (Weygandt, 2011)

In an article about budgetary controls, the budget evaluation process was described as, "During the year the management accountant will prepare statements, as quickly as possible after each operating period, in our example, each quarter and setting out the actual operating costs against the budgeted costs. This statement will calculate the difference between the 'budgeted' and the 'actual' cost, which is called the 'variance'" (Carter, 1997).

The benefits of budgeting involve: planning ahead by formalizing goals on a recurring basis, creating definite objectives for evaluating performance at each level of responsibility, constructing the budget to act as an early warning system for potential problems before they get out of hand, using it to facilitate the coordination of activities within a business, build correlated goals of each segment of the company objectives which leads to an improvement in management awareness and to motivating personnel by applying a sense of achievement for acquired money saving goals. All these concerns represent points that could have been used during the time of the Corley case. The Department of Defense could have used a budget in order to achieve all these benefits. "The audit logic in this example is check for significant variances in the purchase price against the standard prices in a particular period" (Roger,2005). This check against variances and standard prices could've been seen if a budget had been established in the DFAS system which controlled shipping expenditures it would have been easier to notice the large variance beforehand, preventing any other transactions from occurring before someone would verify historical recordings in the budget.

A cash budget is a specific type of budget limiting cash for a certain goal. It is thought of as a cash plan for a defined period of time. It summarizes monthly receipts and payments. Hence, it highlights monthly surpluses and deficits of actual cash. Its main uses are: to maintain control over a firm's cash requirements, e.g. stock and debtors; to enable a firm to take precautionary measures and arrange in advance for investment and loan facilities whenever cash surpluses or deficits arises; to show the feasibility of management's plans in cash terms; to illustrate the financial impact of changes in management policy, e.g. change of credit terms offered to customers" (Roger, 2005).

Creating a budget might have prevented this scheme from developing. A budget for shipping would most likely have exceeded allocations after the first few fraudulent transactions and would have been noticed within the first year of this case. Budgeting, as a method for corporations to track and control all different types of expenditures being used frequently all through business activities, may have positive implications on situations such as the Corley case.

CLASS QUESTIONS

Question 1: What mistakes did the federal government make in the Corley case and what could they do in the future to ensure that this does not occur again?

Question 2: Do you think the penalties imposed on Charlene were sufficient, too strong or not sufficient enough? In your answer compare the penalties imposed in this case with other similar high profile cases, such as Bernie Madoff.

Question 3: What could the sisters have done to limit the chance of getting caught in their scheme?

Question 4: If you are an auditor and/or an investigator, what type of evidence would you want to gather to support your case against the sisters?

Question 5: Describe several "red flags" exhibited by the sisters which represent indicators of fraud behavior?

Question 6: Suppose that the authorities examined the following 10 invoices received from the sisters:

Number	Invoice Number
1	456
2	512
3	745
4	988
5	2,566
6	4,690
7	6,623
8	7,890
9	8,221
10	9,988

Using Benford's Law, is there evidence of fraud from the examination of these invoices?

CONCLUSION

In summary, the methods discussed above might have provided both preventive and proactive approaches to addressing fraudulent activities such as those present in the Corley case. Embedded Audit Modules may establish fraud, for tasks done on an everyday basis in a company, by indicating any abnormal variances. This is an easy way for auditors and managers of a company to identify any red flags raised in the system. Companies might require there to be segregation among all duties being made to ensure better reliability.

Benford's is another impressive method that is cost efficient as well as time efficient, that can be used whenever checking quarterly reports for any business. By knowing this theory, any business owner can check that their financial statements follow the ruled first-digit distribution. It is a great method because it tells a person what the proportion of the first-digit numbers in a random set of numbers should look like before even calculating them yourself, it gives us a predetermined view of a business's financial statement. Companies can use this and correlate it using the Chi-squared test or other tests to set a range of variance that the proportions in Benford's Law could exceed.

Companies might "maintain budgets and review them monthly, investigating all major variances." Companies can accomplish this by using budgeting/ software can help eliminate one of the causes of fraud which includes manipulation of spreadsheets. One option would be to use the exception reporting in the software known as Calxa, to highlight large variances and then investigate the causes of them (Calxa.com). Budgets are overall a great method and inexpensive for all businesses to use as a foundation for preventing fraud before the fact.

In the hearing Corley was told that "people will remember for years to come the woman from Lexington who got a million dollars for shipping a 19-cent washer." This is the main issue she will have to think about, as regret, for the rest of her life. This could have been prevented before it escalated to that point, where she charged almost a million dollars shipping. Embedded Audit Modules, Benford's Law and budgets could have all prevented the fraudulent activity of Charlene Corley from intensifying the sum.

In conclusion, each company might use at least one detective and preventive control in their business in order to have some underlying basis of fraud prevention. Corporations can determine what method might be best; either underlines embedded controls like the Embedded Audit Modules and Benford's Law or embedded controls with creating budgets. An emphasis on the role of audits can be established to speculate any variances in costs throughout all aspects; creating a foundation approximating how much is okay to be spent of all expenditures. These procedures can save corporations a substantial amount of money if used for establishing detective and preventive controls, comparatively to the costs associated with fraud. It had been noted, by Calxa (budget software producer), "Businesses who do not take preventative actions could be exposed to a greater risk" (Calxa.com). Businesses of any sort can get damaged for bountiful sums of money from schemes like the Corley case.

RECOMMENDED ANSWERS TO QUESTIONS

Question 1: What mistakes did the federal government make in the Corley case, and what could they do in the future to ensure that this does not occur again?

Solution 1: The government had no internal controls in place to safeguard against fraud scenarios similar to this. Interestingly, this occurred for approximately one decade. There were no duties of authorizing the purchase order, and there was no review of the software program in place, the purchases, payments and recordkeeping with respect to their business dealings with the sisters. Further, if the government has an internal audit staff and/or external auditors, negligence could possibly have been charged against them. Although management is responsible for fraud prevention and detection, supporting teams including the internal audit team is responsible to recommend procedures to accomplish these goals, and the external auditors are responsible to assess, evaluate and test whether the entity has procedures in place which will prevent fraud.

Going forward, internal control procedures have to be instituted by this governmental entity which will be adequate to prevent fraud. Further, these procedures need to be communicated to employees, tested to see that the controls are being followed, and reviewed to check the continued effectiveness of such controls. Lastly, proper segregation of duties of such control processes has to be instituted. Although fraud prevention is never full-proof, control procedures are the best defense, and legally required post Sarbanes-Oxley in many cases.

Question 2: Do you think the penalties imposed on Charlene were sufficient, too strong or not sufficient enough?
In your answer compare the penalties imposed in this case with other similar high profile cases, such as Bernie Madoff.

Solution 2: The penalties for fraud are really two-tiered in nature, and depend on the period of conviction. Prior to 2002(2001 and before), fraud penalties were lax and it was quite uncommon for jail sentence for the convicted defendant. Post Sarbanes-Oxley (2002 and later) sentences have been strict and in many cases excessive. Sarbanes-Oxley regulation has instituted new penalties to fraud participants resulting in greater, longer, and stiffer penalties. The following are examples of high profile fraud cases post 2002 and the imposed jail sentences:

1- Bernie Madoff—150 years for a Ponzi scheme that caused investors to lose billions of dollars.
2- Mr. Petters— 50 years for a Ponzi scheme that caused investors to lose 3.65 billions of dollars.
3- Richard A. Harkless— 100 years for a Ponzi scheme that caused investors to lose $39 million.
4- Mark Drier— 20 years for defrauding hedge funds with phony investments that caused loses of $400 million.
5- Sholem Weiss— 845 years his role of the closure of a life insurance company that caused loses to over 25,000 policyholders.

Given that the conviction of Charlene occurred post 2002, which cost the government over 20 million dollars in losses over a ten-year period, a 6-year sentence does not seem sufficient for this case.

Question 3: What could the sisters have done to limit the chance of getting caught in their scheme?

Solution 3: The sisters could have done a number of things to limit their chances of getting caught. First, they could have stopped this behavior "while they were ahead", and possibly get away with their fraudulent acts. Second, they could have closed their existing corporation on a yearly basis, and open and operate a new entity every year. Lastly, they made the mistake of submitting two invoices for the same transaction—which eventually ended their fraudulent schemer; a careful approach to their billing practices could possibly have continued their scheme. Note that an audit by the government at any point in time would probably have caught this scheme.

Question 4: If you are an auditor and/or an investigator, what type of evidence would you want to gather to support your case against the sisters?

Solution 4: As an investigator, the key to this case against the sisters would be: (1) to prove that they committed fraud, (2) repossess all of their assets, and (3) evaluate the possibility of other criminal acts the sisters may have committed.

Fraud is an intentional act and not accidental. Establishing this intention (i.e. fraud) is the key. As such, one would gather the following evidence:

1. To prove fraud (i.e. intention)
    A- Their pattern was not a one-time event, and was committed over a period of 9 years. This establishes intentional and non-accidental behavior.
    B- The invoices billed to the government.
    C- The checks paid by the government; which will include the bank statements showing all deposits made by the sisters.
    D- The admittance that Charlene wanted to return $4.5 million upon getting caught—depicts intention to defraud.

2. To repossess assets owned by the sisters:
    E- A listing of all the assets the sisters owned so they can be repossessed by the government.
3. Evaluation of the possibility of other crimes committedly the sisters.
    F- Finally, a review on the possibility of other criminal acts being committed. As an example, did they declare this income and pay the associated tax? If not, tax evasion charges can follow.

Question 5: Describe several "red flags" exhibited by the sisters which represent indicators of fraud behavior?

Solution 5: Research and practice has shown that fraud committers exhibit a form of behavior, known as "red flags". These red flags are often used to identify fraud. Some red flag indicators exhibited in this case are: a change in lifestyle for the better, which is often exaggerated from the previous life style. As an example, the sisters bought Mercedes, fancy, super expensive residential and summer homes, purchased business franchises, and exhibited other related forms of exorbitant changes. These red flag behaviors often associate one with fraudulent/theft commitment.

Question 6: Suppose that the authorities examined the following 10 invoices received from the sisters:

Number	Invoice Number
1	456
2	512
3	745
4	988
5	2,566
6	4,690
7	6,623
8	7,890
9	8,221
10	9,988

Using Benford's Law, is there evidence of fraud from the examination of these invoices?

Solution 6: The examination of the 10 invoices applying Benford's law, clearly leads to a high probability of fraud. Benford's law establishes a first integer as 1, in approximately 30% of the cases/time. In these 10 invoices, none begins with the number 1. We would expect that 3 of the invoices would begin with 1; which is clearly materially different from 0. As such, Belford's law would indicate a high probability of fraud occurrence from the above 10 presented invoices.

Note that this should be the first step of the investigation of the possibility of fraud occurrence, as it is quite possible that a low number of integers beginning with the number 1 does not result in fraud; whereas an expected incidence of integers beginning with number 1 can result in a fraudulent scheme. As such, this test should be performed as an analytical review procedure-ARP- (ratio type analysis to see whether material deviations occur from the expected output), and followed up with more relevant and reliable evidence, if, and when needed. This type of testing is efficient in that it entails a simple mathematical calculation, and as such, is highly recommended as a testing platform in the examination of fraud.

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ACKNOWLEDGEMENT

We would like to thank Mark Nigrini, faculty at West Virginia University and author of *Benford's Law*, for sending us some documents related to the Charlene Corley case, and for his insights on the controls that would have prevented and detected the scheme.

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Review of Business & Finance Studies
Vol. 9, No. 1, 2018, pp. 53-76
ISSN: 2150-3338 (print)
ISSN: 2156-8081 (online)

www.theIBFR.com

EUROPEAN STATE-BUILDING: NATIONAL SELF-DETERMINATION VS. POLITICAL ECONOMIC STABILIZATION IN THE EUROPEAN UNION'S COMMON SECURITY AND DEFENSE POLICY

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ABSTRACT

The goal of this paper is to critique European integration noting political psychological dynamics relative to current policy trends that shape the EU's effectiveness as a peace strategy. EU capabilities for conflict prevention include opportunities it offers to procure national security and prosperity for established states. The EU enjoys an advantage in competition with Moscow for influence in southeastern Europe. The EU is a multinational political entity that effectively projects an image of not being under the national dominance of a particular member state, i.e. Germany. The EU's institutional policy-making complexity and authority dispersion suppress perceptual patterns suspecting it as a vehicle for neo-colonial projection of the power of a member state or coalition of states. The EU's conditionality for loans to address the sovereign debt crisis is thus less prone to be seen as erasing the national sovereignty of a debtor state through capitulation to particular national dominance. A challenge lies in the EU's perceived relationship with the US. Moscow's prevailing view of the EU assumes it to be a vehicle for expansion of Euro-Atlantic influence at the expense of Russian national security. It intensifies suspicion of pro-Euro-Atlantic nationalities existing also as national minorities and in diaspora in Europe and in North America. The EU's emphasis on state building and stabilization through economic development is problematic because of resistance to sovereign national self-determination for these national minorities.

JEL: F02, F5, P3

KEYWORDS: Nationalism, European Union, Russia

INTRODUCTION

Eastern European national minorities and diasporas are vulnerable to stereotyping as surrogates for a state perceived as having regional imperialist or hegemonic intentions. These irredenta and diaspora of a parent state risk being stereotyped as advocates of secession to escape their current condition as national minorities. They may seek to secede, possibly to join a larger neighboring patron state as part of the latter's irredentist agenda. Another suspected agenda may be to create a nation-state out of a former Soviet state whose sovereignty Moscow may still contest, e.g. Ukraine. Kapitonenko asserts that the European Union lacks a "hard security" strategy component in its Eastern Partnership Project (EaP), the former Soviet state targets of the broader European Neighborhood Policy. Russia's response has been to reinforce so-called frozen conflicts by supporting separatists within these states. The absence of an overall EU strategy towards Russia undercuts formulation of a hard security component to the EaP (2016, 14). The analysis disputes the claim that the EU has no such strategy. One de facto exists based upon vested Cold War era bureaucratic and economic vested interests, to which the EU's Common Security and Defense Policy (CSDP) and EaP are subordinate (Bechev, 2011 427). It reflects the bureaucratic incrementalism assumed in realism, i.e. international actors act as if the optimization of power and influence is their primary policy motivation (Keohane 2009, 370-71). The EU is founded upon these Cold War-era vested interests.

The Euro-Atlantic approach to minority policy is subordinate to state stabilization and state building. It does not place primary emphasis on self-determination as a human right when self-determination requires redrawing state borders. It is evident today in the Catalonia crisis but it has been the overriding political strategic imperative since the collapse of eastern European communism. The North Atlantic alliance opposed the creation of new sovereignties in the Balkans until nationalistic local actors created political facts to which leading NATO members acquiesced. Nevertheless, stabilization, while primary, is not the only EU objective; so is expanding North Atlantic hegemony. In this case, the Greek Catholic minority in western Ukraine is supportive of rollback of Moscow given its salient and intense antipathy to Moscow's influence in Ukraine. The exceptional suppression of Ukrainian Greek Catholicism was evidence of the perceived threat that it contributed to fortifying Ukrainian nationalism as a challenge to Moscow's authority. The Soviet authorities went beyond repression to formally abolish the Ukrainian Catholic church immediately after the Second World War (Pukenis, 2014, 87). With the requisite Stalinist façade of voluntary choice, it was forcibly absorbed into the Russian Orthodox Church in 1946 (Gallaro, 2013, 67). "At the time of the liquidation of the Greek Catholic Church by the Soviet authorities in 1945-46, the Church was closely linked to the Ukrainian national movement" (Plokhy, 1995, 851).

In early 1995, Ukrainian President Leonid Kuchma reportedly requested to the papal nuncio that the Vatican assist Ukraine's efforts "in integrating into Europe" (Plohky, 1995, 863-64). The community of Ukrainian Greek Catholic believers is relatively small, perhaps only 5 million worldwide, concentrated in western Ukraine (Ibid.). The total population of Ukraine is 45 million. Yet, the political influence of the Ukrainian Greek Catholic Church is disproportionate to its numerical size, given that western Ukraine is also the epicenter of Ukrainian nationalism. After the Second World War, the Ukrainian "Greek Catholic Church was persecuted and could only exist in secrecy. During this period, it operated mainly in the diaspora abroad" (Solik, Filakovsky and Baar, 2017, 138 fn. 33). Russian Foreign Minister Sergei Lavrov implicitly confirmed Moscow's perception of Ukrainian Greek Catholicism's innate role in militant Ukrainian nationalism. Lavrov in a 2015 interview justified Russia's annexation of Crimea. He alleged that after the 2014 overthrow of Ukrainian President Viktor Yanukovych, militant Ukrainian nationalist rhetoric included expulsion of the Russophile population because "[T]hey would never go to the Greek Catholic Church, or speak and think in Ukrainian and praise Bandera" (Lavrov, 2015, para. 119). Stepan Bandera, a mid-twentieth century Ukrainian militant nationalist leader who alternately collaborated with the invading Germans, is often portrayed in Russian mass media as a Nazi henchman. Bandera was the son a Ukrainian Greek Catholic priest (Narvselius 2012, 481). The European Parliament condemned outgoing Ukrainian President Viktor Yevtushenko's 2010 proclamation of Bandera as a "National Hero of Ukraine" for violating the spirit of "European values" ("European Parliament Resolution," 2010, para. 20). Pope Francis and Russian Orthodox Patriarch Kirill issued a 30-point statement to conclude the first ever meeting between the leaders of these two churches on February 12, 2016 in Havana, Cuba. Point 27 implies that the Orthodox citizens of Ukraine should not fear the intentions of the Greek Catholic Church:

> *"27. It is our hope that the schism between the Orthodox faithful in Ukraine may be overcome through existing canonical norms, that all the Orthodox Christians of Ukraine may live in peace and harmony, and that the Catholic communities in the country may contribute to this, in such a way that our Christian brotherhood may become increasingly evident" (emphasis BD) ("Joint Declaration" 2016).*

The Ukrainian Orthodox community since the USSR's disintegration divided into the Ukrainian Orthodox Church subordinate to the Russian patriarch, the Ukraine Orthodox Autocephalous Church tracing its roots to 1921 briefly-independent Ukraine, and the Ukrainian Orthodox Church of the Kyivan Patriarchate that broke with the UOC and then the UOAC in the mid-1990s. To maintain calm relations, the Vatican has emphasized its refraining from proselytizing in Russia, rather "reviving" "ethnic" parishes that the Soviet authorities had oppressed (Filatov and Vorontsova, 2000, 81).

The Vatican is a sovereign state subject of international law. As a state sensitive to nationalist public opinion in emerging Russia (and China) it engages in diplomatic bargaining. The Roman Catholic Church has been mild in its response to the Ukrainian crisis including the Russian acquisition of Crimea (Vukicevic, 2015, 74). The Vatican's caution contrasts with the Pope John Paul II's strong support for the late 1989 legalization of the Ukrainian Greek Catholic church by the Soviet authorities (Plokhy, 1995, 852). The paper first presents a theoretical framework for analyzing the intensifying competition for influence between Moscow and EU-NATO in Eastern Europe. It then applies it to highlight how national Catholic groups and minorities enjoy political opportunities and dangers. Their political opportunities stem partly from their association with the Roman Catholic Church as a cultural representation of Western Europe, politically represented by Euro-Atlantic structures. Their dangers stem from their vulnerability to suspicions of disloyalty on behalf Euro-Atlantic opposition to Moscow's influence. The paper then critiques the EU's CSDP as it has been applied to southeastern Europe since the end of the Cold War, followed by concluding comments.

LITERATURE REVIEW

The Complexity of Social Comparisons

According to Cottam and Cottam, the four central propositions of social identity theory are the following: 1) maintaining a positive self-image is a striving of people; 2) a person's identity and self-image receives contributions from membership in groups; 3) by comparing their own group with other groups, people evaluate their own groups; 4) a positive comparison of a person's own group with other groups significantly determines this person's self-concept and hence gives it a positive social identity (2001, 90). Cottam and Cottam note that individuals have several alternatives available to them if they evaluate their group's position as negative in relation to other relevant groups. Their evaluation of their own group must satisfy two prerequisites in order to spark them to action. Firstly, they must see their own group in positive terms. People often accept inferior status or unfair treatment on an individual level, and on a group level, they may accept inferiority when their self-image of their own group is negative. In terms of identifying and recognizing alternatives to their inferior situation, such groups will be cognitively unable to do so. If they feel that their group's status is just and this status satisfies them, then conflict with higher-status groups will be unlikely to occur. The social context partially creates the specific nature of the comparison. When the community addresses high intensity issues in the political system, then political-group identifications will become highly salient and influential on behavior. At other times, political identities will be dormant and do not influence behavior.

Secondly, the comparisons must be in terms of relevant group comparisons. If one's own group does not view the comparison group as similar, meaning, not as a relevant comparison group, then a group will accept inferiority and disadvantage. The acceptance of inferiority is perplexing but not inexplicable and the "colonial-imperial" relationship would characterize the operative cognitive images in these political circumstances. Maintaining a form of positive self-image is not impossible in this context, despite the presence of a negative evaluation of one's own group (2001, 91). Cottam and Cottam note that once an actor makes a social comparison and finds the comparison to be unsatisfactory, the actor generally has three alternative strategies. One strategy is social mobility: they can sometimes abandon their group and join the one which they perceive to be superior. In societies in which groups are permeable, this strategy is possible. This alternative results in individual instead of collective action and it requires an individual belief in social mobility. Examples are prevalent in the US, where we see that classes are permeable but races are not in most cases. For the selection of this strategy to occur, the salience of group identity is crucial. People are less likely to pursue this alternative when a) they have a strong emotional investment in a group; b) they perceive the group as a whole to suffer from some disadvantage.

Social creativity strategies are another approach to relative disadvantage as a result of an unfavorable social comparison. In social creativity strategies, people a) choose different comparative dimensions. For example, they may change comparison of wealth to comparison of political power. Or, they may b) change the comparison group. For example, rather than comparing themselves to long-term citizens, members of an immigrant group might instead compare themselves to other immigrant groups. They may also c) redefine the basis of comparison from negative to positive. For example, racial minorities may come to view their own cultural heritage and customs positively. With regard to their own group, each of the above three social creativity approaches will enhance the positive assessment (Cottam and Cottam, 2001, 91).

Finally, Cottam and Cottam note that social competition is yet another approach to addressing relative disadvantage resulting from a negative social comparison. It can lead to a questioning of the existing political conditions as the prevailing view emerges that existing group social relations are essentially zero-sum. It can therefore lead to development of severe political conflict. These conflicts can include rebellions and secession movements. People's subjective perceptions of the nature of the relations between groups will heavily influence the way in which people strive for or maintain positive social identity. Particularly important is how stable and legitimate, i.e. how secure, the outcomes of intergroup comparison are perceived to be. With regard to provoking social competition, unfavorable group comparisons are not sufficient. Identifying achievable alternatives to the existing relationship must also be feasible by group members. Factors which contribute to the identification of alternatives include the following: 1) the perception of the illegitimacy and injustice of status differences; 2) the perception of the instability of the status system. Both 1 and 2 are necessary, and when they occur, then the comparisons become "insecure." Enhancement of group self-image, with an increase in the salience of group membership, leading to an increase in mutual ethnocentrism flows from this awareness of alternatives. Prevailing perceptions that a relationship is just and legitimate and that the status quo is stable can change due to the impact of political events and trends. The historical disintegration of colonial-imperial relationships demonstrates this pattern. In response to an unacceptable comparison, through social creativity and social competition strategies the identity of a group among its members becomes necessarily stronger and more distinct (Ibid., 92-93).

Opportunities for individual and national community social mobility and social creativity should ideally increase through integration in the European Union. The relative success in projecting the European Union as a community that is not a cloak for a particular national European imperial project is an essential prerequisite. Various Eurosceptic national political parties claim that the EU is in fact a cloak in effect for German neocolonialism due to the economic predominance of Germany. The role of the German economy as the foundational base for the Eurozone risks reinforcing the persuasiveness of this claim. The question is how pervasive, salient and intense is this perception among and within the different national constituencies of EU public opinion. Clearly, some violent individual actors in Greece do perceive Germany and their supposed Greek collaborators in this manner (Kitsantonis, 2017). The cooperative behavior of the Athens government with the European Central Bank-European Commission-International Monetary Fund so-called troika indicates this perception does not today prevail.

Following the start of the global financial crisis in 2008, at least one prominent analyst publicly expressed his doubts regarding the survival of the Eurozone (Brittan, 2010). German willingness to devote the resources necessary to keep sovereign debt crisis countries particularly Greece within the Eurozone show the centrality of Germany's role. The Eurozone's survival indicates that politically prevailing perceptions in focal polities of the crisis, i.e. Greece, Portugal, Spain and Ireland, do not perceive their relationship with Germany as insecure. The extent of German national polity influence, concomitantly with perceived German intentions have not led to prevailing inferences of an implicit but real German neo-colonialist project (Rupnik, 2016, 83). The vaunted complexity and convolution of EU policy making processes allegedly contribute to the so-called EU democratic deficit (Kanter, 2017b).

Yet, this same perceived complexity serves to shape prevailing EU general and particular national perceptions to accept EU oversight in the Greek national policy making process. EU political controls over German economic resources appear to suffice significantly to undermine collective perceptions of threat of German neo-colonialism. Greek, as well as Portuguese, Spanish, and Irish polity tolerance of EU influence over their policy making processes are much higher than would be the case otherwise. This EU democratic deficit due to its policy making process complexity and authority dispersal may be the price for obviating arousal of traditional nationalist stereotypical perceptions of the intentions of others. Paradoxically this daunting policy making complexity may in fact be a key to the success of the EU integration project; it avoids provoking latent nationalist sentiments. The democratic deficit derives from a lack of EU perceived transparency because of a perceived lack of democratic accountability of EU officials. The question is from where does this perception of transparency and democratic accountability derive in nation state polities. This analysis points to the tendency of the national public to equate the government apparatus at the pinnacle of the democratic nation state as representing the sovereign national demos (Cottam and Cottam, 2001, 2). A critical Marxist observer regarding claims of democracy may argue that the widespread perception of a democratic deficit should exist in a nation state such as the US, France or Germany. Nevertheless, the public in these nation states tends to acknowledge the authority of the governing elite as representing and wielding the nation's sovereignty. The EU democratic deficit may never be overcome until a prevailing self-identification with a EU/European demos attains primacy, i.e. European nationhood. It would need to supersede the currently prevailing respective national community self-identifications of the EU national publics. Until that distant time, perceptions of an EU democratic deficit will remain prevalent and even desirable. Care is necessary to avoid making salient intense but generally latent traditional nationalist suspicions that the EU is a cloak for the neo-colonial interests of a particular nation state or group of states. The Brexit vote indicates that they may not remain latent under certain conditions, albeit unique to the multitudinous circumstances of each nation state.

In sum, freedom or liberty or democracy, whatever the term, derives from individual and collective self-determination, i.e. opportunities to achieve social mobility and creativity. Failure to provide such opportunities can lead to social competition. European regional social creativity, in sum, is an expression of community identity construction and reconstruction, which may incorporate component national defense or expansion. "European citizenship can be perceived as an ideal of solidarity and union of European peoples and of a more inclusive form of political and social membership in Europe" (Ivic, 2016, 6-7). The construction of a European identity requires the creation and promotion of social creativity options, i.e. all national groups are contributing their own to the construction of Europe. Germany's preeminence economically is a powerful factor in its favor for perceived social primacy. Other national groups play their role, but economic and technological prowess is a major advantage. European border security and luxury consumption offered by southern European nation states provide some social creativity compensation. EU member state France possesses continental Europe's nuclear military force. Perceiving self and other as different but equal in status is the essence of social creativity strategy. The imperative is to avoid the EU appearing to serve disguised particular national neo-colonialist intentions as so perceived. This obligation indicates that imperialism has an essential connection to national identity sovereignty concerns of self vis-a-vis other. Russian concern over EU influence over neighboring Ukraine and Slavic polities in southeastern Europe as well as over Russian politics and policy itself has its basis in Russian nationalism. The EU is not a nation state, but the prevailing view in Moscow, correctly or not, is that it is an unstable "vassal" of Washington (Duleba, 2016, 125).

The EU-US Relationship and European Identity

One political strategy by which to generate social creativity in the perception of a relationship is to mobilize around perception of a common adversary. The adage, the enemy of my enemy is my friend, captures this dynamic. Image simplifications can be positive, in the form of the ally stereotype (Cottam and Cottam 2001, 97-98). European peoples with a history of difficult relations can more readily put aside those psychological obstacles to integration by focusing on a common enemy. The Cold War-era national security establishment which NATO represents is a challenge to the European Union as a European peace strategy. It is also a test of the extent to which European integration is dependent upon the Cold War and its vast legacy in the form of Euro-Atlantic bureaucratic instruments, public and private, for containment of Moscow. The European Union undergoes additional stresses and strains as represented by Brexit. Reemphasizing the common challenge from Moscow can be a tempting route to generate countervailing pressures to these oppose centripetal tendencies. Perhaps not surprisingly, Estonia, holding the presidency of the Council of the European Union for the second half of 2017, emphasized NATO-EU security cooperation (Raik and Järvenpää, 2017).

To avoid this perceptual dynamic, the EU's Common Security and Defense Policy (CSDP, previously the European Security and Defense Policy (ESDP)) needs to establish a credible delineation from US-led NATO. This prerequisite, however, is unlikely to materialize, although the EU's reaction to the US Trump administration may instill greater urgency to do so. Despite its rhetoric, the Trump administration is likely to be politically constrained in its decisional latitude by the vast array of vested interests in the US national security establishment. The rise of three US generals to stabilize the chaotic, new administration illustrates the political influence of these interests within the US polity. Among these 3 individuals: US Secretary of Defense James Mattis, US National Security Adviser H.R. McMaster and Trump's chief of staff, John Kelly, the latter two replaced their predecessors. These predecessors were seen as either enabling, or at least were unable to manage, populist political pressures that threatened the vested interests of this national security establishment. These same vested interests dominate the security aspects of the European Union due to their emergence and development during the Cold War.

Their compatriot forces include the private economic interests that emerged around them, to supply and support them, interests which are essential to European Union integration. The European Union allows for social creativity in thinking but it exists within subordination to US hegemonic leadership (Layne 2008). It is vulnerable to this perceived social role in global affairs including engagement in social competition with nation states such as Russia. The prevailing view in Moscow today is that the EU is the civilian power handmaiden of US-led NATO (Roberts, 2017). The Roman Catholic Church endorsed the founding of the EU and west European Christian democratic party leaders predominated among the founders (Murdov, 2014 509-10). Protestant Christian European institutions, however, preceded the Catholic Church in publicly supporting immediate postwar west European integration initiatives (Leustean 2011, 298). The Vatican's request for an explicit reference to "Christian roots" of Europe to be included in the draft EU Constitution treaty was rebuffed (Maillard, 2015, 7). The EU Constitutional Convention decided that the draft EU Constitution would not include a reference to God in the preamble (ten Napel 2014, 131). The perception that the EU is a civilizational political project for Euro-Atlantic hegemony expansion remains a danger. The successful Trump US presidential campaign advocated US détente with Russia to provide "Judeo-Christian" civilizational leadership against the shared, stereotyped threat from political Islam (Foster, 2017, 24). The EU's efficacy in circumventing national social competition in European frontier zones has been problematic before the election of Donald J. Trump as US president. It may be impelled to increase its capability following Trump's inauguration and subsequent behavior.

Reinforcing a European identity community is necessary in order to create amenable political conditions to allow for sufficiently pervasive opportunities for public social mobility and social creativity. Resort to social mobility, creativity or competition policies is "context dependent" (Wohlforth, 2009, 36). Generating the appropriate context equates with constructing this new identity through the European integration project. Its normative objective is to avoid or circumvent the emergence of social competition internally. Europe is a liberal community in that it may not rely upon coercion as a significant mechanism for control, as was critical in the old multinational USSR and Yugoslavia. When the coercive control apparatus disintegrated in these two states, democratic elections produced elected leaders supporting national self-determination. Competitive electoral politics also resurrected heretofore suppressed stereotypes, fears and hatreds regarding the other, resentments which constitutional provisions particularly of the old Yugoslavia had exacerbated.

The liberal ideological necessity to avoid reliance upon coercion as a control mechanism mandates that the EU not claim and enforce sovereignty over its member nation states. In the old USSR, the Russian community constituted the de facto foundational core community that provided the leadership personnel for the coercive bureaucratic control mechanism. No such community can or may play such a role in the EU, i.e. it must remain confederal in the foreseeable future. This necessity applies except insofar as the EU acquires narrow technocratic authority in a particular policy area, indicating a move towards de facto EU sovereignty in that area (Story and Saltmarsh, 2011). This authority may imply de facto EU federal sovereignty constraining a particular member state's national policy option range, for example, over the parameters of fiscal policy (Spiegel, 2014). Meanwhile de facto confederalism prevails in EU relations with its member states in other policy areas (McCormick, 2015). The ongoing EU supervision over the Greek national budget does not imply the legal constitutional right of the EU to use coercive force to enforce its sovereign authority. With the satisfaction of this prerequisite, the construction of a new, nascent self-identity can conceivably be built to support social mobility and social creativity. In contrast, in the prewar past, the globally ambitious citizen of a small Balkan country, for example, faced pressure to choose a de facto great power allegiance. Acquiring an international career often required a commitment to the influence and policies of one of the European Great Powers, intensively competing with each other in the Balkans.

Vladimir Putin's Moscow responses include its own social creativity strategies to the challenge of Europe's attraction and influence. Moscow has assumed a position as standard bearer of traditional nationalist conservative positions. These include hostility to gender minority rights, promotion of the influence of a state-affiliated church, and endorsement of traditional patriarchal family roles (Roberts, 2017, 38). The European Union in promoting the advocacy of the rights of minorities may not focus only on national minority rights; it aims to promote intersectionality. The aim is to encourage social creativity, i.e. developing and promoting new identities, if the individual is receptive, but heretofore suppressed, thereby deemphasizing national identity. It appears to be most successful insofar as it appeals to youth. Putin's Russia is a reaction against it, appealing to conservative nationalists perceiving a threat from the EU and globalization.

DISCUSSION

Diasporas and Minorities

Cottam and Cottam note that diasporas are an important factor for understanding the influence of "public opinion" on the policy of the "international community" towards various regional conflicts. "Diasporas comprise members of minority communities who have emigrated to one or several host states for commercial or political reasons but who continue to grant a first-intensity loyalty to the parent community." They are somewhat resistant to full integration within the host territorial community because they wish to share a common life with the other members of their community (2001, 23). Diasporas are important for understanding the foreign and domestic policies of particular states of southeastern Europe, and they are an explicit target and instrument of foreign policy. Aside from economic migrants, a major diaspora category consists of members of a national community who are in political exile. These exiles are likely to display a consuming interest in the developments within the homeland because they fled the country for political reasons. They will display a tendency to behave nationalistically with a focus on that homeland. Diaspora members however may see their role as a lobby group for the interests of the home country in the policy making process of the host country. Group members cooperating with twentieth-century German invaders to secede from Moscow or Belgrade who then emigrated with the German retreat would be in this category. An example would include elements of the Ukrainian Catholic diaspora.

Aside from government policy, the concept of soft power may have its foundations in perceived polity influence. A polity encompasses more than the government, i.e. the polity includes the broader set of constituencies in which government representatives have their respective political base supporters. Civil society may be conceptualized as the societal component of the polity. Soft power lies in the appeal of the polity as a model of development. The polity of an initiator state insofar as a target polity perceives it as a neo-colonizing challenge to the target may be viewed as a source of threat to the target government and its constituencies. Those constituencies within the target polity that other constituencies in the target view as collaborating with the initiator state are likely to be stereotyped as foreign agents, even quislings. This tendency may confront those Catholic minorities within Ukraine as they tend to be perceived by Russophile constituencies. Neo-colonialism emphasizes means of control focusing on the broader polity to polity influence, rather than on the blunt coercion of an occupying imperial force (Marks, 2003, 451). Postwar Ukrainian Catholic pastoral leaders obtained support from the Vatican to maintain the church in diaspora (Matuszak, 2015). The exiled head of the Ukrainian Catholic Church, Archbiship Josyf Slipyj, established a "prototype" of the Ukrainian Catholic University in Rome in 1964 preparing the groundwork for the 1994 (re)opening of the Lviv Theological Academy (Ibid. para. 8). It has developed into today's Ukrainian Catholic University ("Ukrainian Catholic University," n.d.).

The Ukrainian Catholic University in Lviv is today a recipient of Euro-Atlantic polity support as an aid project contributing to European nation and state building in Ukraine ("Ukrainian Catholic Education Foundation," n.d.). For example, this writer presented at the Association for Slavic, East European and Eurasian Studies-International Association for the Humanities convention in Lviv, Ukraine, June 26-28, 2016, entitled "Images of the Other," at the Ukrainian Catholic University ("2016 ASEEES-MAG Summer Convention, Lviv," n.d.). Program-listed financial donors included a Ukrainian non-governmental organization, the International Renaissance Foundation, that receives funding from George Soros' Open Society Foundations ("International Renaissance Foundation," n.d.).

If the parent community with which a minority identifies is the community of a nation state, then interstate political interaction can exacerbate this diaspora identity polarity (Cottam and Cottam, 2001, 23). If the members of the majority in the host state view this parent state of the minority as a threat to the security of the host state, then the tendency towards exacerbation of this polarity will be greater. Catholic minorities in post-Communist eastern Europe do not have Catholic parent states per se, but they do have ethno-sectarian patron states and Catholic lobbies in EU core states. *Frankfurter Allgemeine Zeitung* was an assertive conduit for German Catholic public opinion's support for Croat and Slovene independence aspirations in disintegrating Yugoslavia (Touval, 1996, 410-11). In the prelude to Germany's late 1991 unilateral recognition of Croatia and Slovenia, *Frankfurter Allgemeine Zeitung* editorial positions "relentlessly" portrayed Croatia as committed to "European" values, while the Serbs were "hardly European at all" (Crawford, 1995, 9). Italian Catholic nationalist public opinion would later come to regard Croatia "as one of the last remaining Catholic strongholds" (Favretto, 2004, 181). Catholic constituencies also have the European Union, born during the Cold War and part of the Western alliance as a component of US led containment of the USSR. At the height of the Cold War in 1953, the US Roman Catholic bishops conference condemned the loss of religious freedom in Communist Eastern Europe. Colecchi cites the US bishops' statement against

> *the "war against all those who believe in God" that rages in Communist countries "from Korea to China and to Indochina; from Russia to the Baltic lands; from Poland and Lithuania to Yugoslavia; from the Ukraine to Albania; from Czechoslovakia to Hungary, to Romania and Bulgaria" and "in the eastern parts of Austria and Germany" (2012, 82).*

Colecchi notes that Pope Benedict quoted John Paul II in his 2011 World Day of Peace Message that "religious freedom ... is an essential element of a constitutional state; it cannot be denied without at the same time encroaching on all fundamental rights and freedoms, since it is their synthesis and keystone. It is 'the litmus test for the respect of all the other human rights'" (2012, 87, citing Pope Benedict XVI (2011)). A standard account of the end of the Cold War includes the 1978 election and policies of Poland's Karol Wojtyła as Pope John Paul II being pivotal in the disintegration of European Communism (Bernstein, 2005). Russian influence, along with competition with the Euro-Atlantic alliance, has revived since the remarkably peaceful collapse of the Soviet Union. Consequently, these Catholic minorities risk being caught up in the post-Cold War clash of civilizations forecast by Samuel Huntington (1993).

Cottam and Cottam elaborate on the condition in which members of the minority community may identify with both the parent community state and the host state. To reconcile their identities, they will tend to see a situation, as a result of the cognitive balance process, in which the interests of the two communities are reconcilable (2001, 23-24). Such an interpretation is likely to result in a reciprocal interpretation by the host community suggesting disloyalty on the part of the minority community. Meanwhile, a steady, rapid outmigration of Catholic Croats in Bosnia-Herzegovina is ongoing (Mihailova, 2017). Despite NATO's enforcement of the inviolability of Tito-era Yugoslav republic boundaries, over half of the registered population of Bosnia-Herzegovina now resides outside this state (Kovacevic, 2017). In Republika Srpska, discontent with Bosnia-Herzegovina takes the form of discussion of irredentist separation to join neighboring Serbia, which unlike Croatia is not yet an EU member (MacDowall, 2017). Such dynamics threaten the stability that the Euro-Atlantic community claims to seek. A recurrence of this dynamic may readily occur in the Soviet successor states which have large ethnic Russophile minority populations, as the Ukraine case illustrates.

<u>The Discourse of a Spiral Conflict: Westernizers/Europeanists versus Slavophiles/Eurasianists</u>

Contemporary Russian foreign policy shares a continuity with the traditional Russian internal attitudinal schism between Slavophiles and Westernizers. A contemporary phrasing for the current geopolitical competitive context may be Europeanists versus Eurasianists (Turkina, 2015, 192). Europeanists/Westernizers today see Europe in the form of the European Union and Euro-Atlantic structures by which the Russian polity should comparatively evaluate its public policy. Eurasianists/Slavophiles see in post-Soviet space opportunities for reassertion of Russian national prestige that had been subsumed under the international Communist movement. Doing so, however, requires exploitation of alternative, non-Euro-Atlantic forms of integration. Hence, the Russian authorities have displayed social creativity in their proposed alternative Eurasian Union (Lomagin, 2012). Perceiving challenge from the European Union, the Russian authorities presently assert an alternative form of policy and polity integration based upon a "Russian World" concept of Moscow's hegemony extending into Soviet-era areas of control (Laruelle, 2015, 94–95). Drawing upon the legacy of the pan-Soviet identity community, it imposes its own form of public representation. The staunch support of the Russian public for Putin's quasi-authoritarian regime is evidence of its appeal in the Russian national community. The soft authoritarian post-Soviet traditional regimes remaining in Belarus and the Central Asian states for now serve subaltern, state building roles while stabilizing Russian regional leadership. In Central Asia, greater Russian hegemony motivations would presumably not use a pan-Slavic symbol system (Higgins, 2018). The Eurasian Union implies national status equality. Whether it is believed as so by the respective publics of the Central Asian states is difficult to discern in these authoritarian regimes.

Post-Soviet states such as Ukraine are closer to post-Tito Yugoslavia than they are to the post-1989 Polish nation state in terms of the domestic political challenges they face in economic policy. Unlike the several recognized national groups in socialist Yugoslavia, two relatively large groups are a primary focus in Ukraine: Russian and Ukrainian national self-identifiers (Wydra, 2013). In the case of Ukraine, Russian nationalists would evidently not dispute that a Ukrainian national identity exists, albeit based in the western regions. The Ukrainian national community will be the core of a state, albeit Moscow's policy aims to prevent these boundaries from being definitively determined. Russian policy seems at present to have acquiesced to the region centered on Lviv as being a distinct national community that Moscow may not forcibly again re-annex (Stratfor, 2016). Whether or not Moscow is willing to cede this area to the West through its accession to Euro-Atlantic structures is another question. The ever-present danger of escalation to a direct confrontation between nuclear powers provides a bargaining leverage incentive to both sides. They confront inducements to continue to acquiesce to the exceptional fluidity in de facto great power sphere of influence boundaries which first emerged during the Cold War.

The economic reforms that Western international creditors are placing as conditionality for loans require the allocation of austerity by the central Ukrainian government. Russian self-identifiers are concentrated in the heavily industrialized east of the country among Soviet-era manufacturing enterprises (Roth, 2013). Their employees are likely to experience great economic dislocation in the creation of the Ukrainian national political economy as the successor to the Soviet era. This new political economy may be EU-focused. Yet, the EU still has at its foundation the political capacity of established nation states to influence their respective publics to accommodate change. The likelihood that the Kiev central authorities will have this peaceful capacity to implement far-reaching political economic change is questionable. The Russophile population concentrated in the east is more likely to act in parallel to the patterns demonstrated by the Serb population in disintegrating Yugoslavia. The one-third of the Serb ethnos located outside of the Titoist republic boundaries tended to be intensely attracted to joining neighboring Serbia through a redrawing of the Titoist borders (Silber and Little, 1996). Nuclear armed Moscow has much more bargaining leverage than Belgrade to incentivize the international community to acquiesce to a redrawing of Soviet-era republic borders. Fossil fuel and other international commodity prices have fallen dramatically, but they are rising again, along with Moscow's international diplomatic bargaining leverage. So, also will grow the appeal of many Russophile citizens of Ukraine to join their self-determination objective with Moscow rather than Kiev.

The European Union and Competitive Interference in Ukraine

The appeal of European Union association is important. The social mobility attraction of visa-free travel throughout the EU for Ukraine citizens to go into diaspora would seem to be strong ("EU Approves Visa-Free Travel for Ukrainians," 2017). The possibility of EU member state public political resistance and impediment to provision of economic opportunities to Ukrainians is a complicating factor. Although legally nonbinding, the 2016 rejection by the Dutch electorate of the EU association agreement with Ukraine highlights this resistance ("Dutch referendum," 2016). The EU responded by adopting a "provisional" application of the free-trade agreement in 2016, which was finally approved by the Dutch Senate with stipulations in May 2017 (Kanter, 2017a). Moscow may seek to undermine the EU's appeal by portraying EU policy as a mask for Western imperialism, claiming Ukrainian nationalist aspirations are reminiscent of Nazi-era collaborationist designs ("Putin Says," 2014, Cunningham, 2016). One interpretation of the Russian authorities' public encouragement of this characterization in the midst of the violence is that it increases Moscow's influence capability. Influence capability would increase over actual and potential supporters of Russophile separatism. It would thereby increase influence over the Kiev authorities. It would also increase Moscow's social competition bargaining leverage over Euro-Atlantic authorities as well.

The European Union has arguably succeeded in supporting a prevailing view in Kiev as well as within the EU member states that the EU is not a cover mask for German neo-colonialism. Germany economically has benefitted greatly from European integration (Lankowski, 2015). Germany accounts for slightly more than 20% of the EU GDP, and 29% of the Eurozone GDP (Ibid., 38). Taming German power has been one of the aims of the European integration process since it started after the Second World War (Ibid., 51). West European-centered European integration may be conceptualized as a strategy shaping relations between Russia and the Euro-Atlantic alliance, i.e. the international system. The existence of the European Union pools member state capabilities. Underpinning the Euro-Atlantic alliance is the incremental, de facto collective assumption that a diminished, post-Soviet Moscow will attempt to reassert hegemony over the former Soviet space (Larivé and Kanet, 2013). Whether NATO expansion created in effect a self-fulfilling prophecy is not an issue seriously investigated by the proponents of the prevailing political views in Western capitals. What is self-evident, however, is that a vast array of organizational and economic vested interests emerged to implement the 45-year containment strategy towards Moscow. Those political interests continue to advocate for a collective worldview that justifies their continued existence, including receipt of government and private budget allocations (Ikenberry, 2004, 610–11, Carpenter 1994). It manifests itself in a policy thrust supporting containment of a resurgent Russia, encouraging nationalism vis-à-vis Russia at least in Ukraine.

A PATH FORWARD

Preventive Diplomacy in the EU CSDP: National Self-Determination and Human Rights in the Balkans

The 1999 Treaty of Amsterdam specifically incorporated the "Petersberg tasks" in the new Article 17 of the EU Treaty, i.e. the military capabilities of EU member states are to be employed in: 1) humanitarian and rescue tasks; 2) peace-keeping tasks; 3) tasks of combat forces in crisis management, including peacemaking. These tasks are in addition to contributing to the common defense under Article 5 of the Washington Treaty establishing the North Atlantic Treaty Organization and Article V of the Brussels Treaty, upon which the Washington Treaty was founded (Austrian Institute for European Security Policy, 1999, 2,18). Note that peacemaking requires assigning blame/responsibility to one or more of the parties in the conflict. It requires taking sides in the conflict. The June 19, 1992 Petersberg Declaration formally launched the EU treaty evolution of the Western European Union (WEU) into what is now the Common Security and Defense Policy of the EU. The declaration also states that what is now the CSDP may support, on a case-by-case basis and in accordance with its own procedures, the effective implementation of conflict-prevention and crisis-management measures, including peacekeeping activities of the CSCE/OSCE and the UN Security Council. The Petersberg Declaration underlined support for a solid transatlantic partnership (Western European Union, 1992, 1,2).

The EU focus on human rights concerns exists within this framework. Protection of human rights under the rule of law is necessary for state stabilization. European Union minority policies impact the Balkans through the accession process including satisfaction of the so-called Copenhagen criteria (Olsen and McCormick, 2017, 76). The Copenhagen criteria require maintenance of a liberal democratic regime along with political economic capability requirements for implementing the EU single market. As the EU engages in state stabilization strategies in southeastern Europe, it works with the leadership of titular communities that tend to culturally prevail within these states. Yet, a national minority existing in a state, typically bordering on a patron state, is predisposed to demonstrate irredentist patterns of collective political behavior. Ethno-sectarian national minorities are prone to stereotyping and being stereotyped as an outgroup. The affiliation of Catholic minorities with Western Europe traditionally has led to them being perceived as agents of European great powers with imperial intentions in Eastern Europe. Recent historical events as well served to affirm this view. For example, the role of the Roman Catholic Church and Pope John Paul II in the end of European Communism was an argument for inclusion of a reference to Christianity in the draft European Constitutional Treaty (Menendez, 2005, 200). During intense conflicts, this stereotyping in social competition for state resources intensifies to pathological levels.

Historically, this Catholic association with the West can also be a source of bargaining leverage. For example, in Bulgaria, the Catholic minority is small, numbering about 50,000 (Altanov, 2012, 13). Yet, one Bulgarian historian at USAID-supported American University in Bulgaria related to this writer that Bulgarian Catholics played a significant role in political dynamics that led to secession from Ottoman Turkey in 1877. The reference may be to the threat by Bulgarian nationalist figures in the Orthodox clergy in the mid-nineteenth century to convert to Catholicism. Bulgarian hostility to continued subordination of the Bulgarian ecclesiastic community to the jurisdiction of the Greek Orthodox Ecumenical Patriarch in Constantinople motivated this threat. According to Naxidou, the threat provoked the Ottoman government as well as the Ecumenical Patriarch and the Russian government to respond to their demands. In 1870, the Ottoman Sultan recognized the autonomy of the Bulgarian clergy over the objections of the Ecumenical Patriarch, ultimately strengthening Bulgarian nationalism. The vast majority of Bulgarians who had converted to Roman Catholicism reconverted back to Orthodoxy following the intervention of Russia against their clergy leadership (2012, 34-36).

This psychological underpinning may provide part of the explanation for Moscow's dismemberment of Ukraine. Social mobility by joining the core community, one favored by the North Atlantic alliance, supports Ukrainian nationalism. A core component of it will include the Ukrainian Catholic national constituent element. At present, Ukraine is not a cohesive nation state, although it does have a core ethnic national Ukrainian community with the Ukrainian Greek Catholic community as a crucial element. The absence of nation state behavior is evident in the relative lack of relative consensus on norms of behavior in Ukraine. For example, despite definitive media exposure of individual cases high level corruption, guilty parties are not removed from their position (Higgins and Kramer, 2017). European integration boosts the diplomatic bargaining leverage of its individual member states in their bilateral negotiations with Moscow regarding Ukraine and other issues. One highlight of the June 2001 Gothenburg European Council was the formal approval of the "EU Programme for the Prevention of Violent Conflicts" ("Presidency Report," 2001). Its focus was on preventive diplomacy including the integration of civilian and military functions under the evolving Common Security and Defense Policy. Conflict prevention has been a prominent theme in the formal statements of European Council conclusions, as well as in the proposals at the EU Constitutional Convention. Implementation of the so-called rule of law in conflict-vulnerable areas is part of the mantra of the prerequisites for conflict prevention, alongside prevention of human rights abuses.

Nationalism is a challenge to current trends in the development of the CSDP as part of a peace strategy. Strategies develop in response to interaction with the political environment. Nationalistic values are an essential feature of the southeastern European political environment today since the increase in the pace of disintegration of the Cold War in the 1980s._The perception that the central political authority is unbiased in resolving conflicts is necessary for the emergence of a prevailing public attitude supporting behavior comporting with the rule of law. In a democratizing multi-national/multi-ethnic state, this attitude among ethno-religious national groups will tend to disintegrate in the Balkans or elsewhere (e.g. Iraq), if it ever existed. If under international mandate, then irredentist tendencies emerge among national minority components of Balkan national groups (Serbs, Albanians, Croats). They will also tend towards collective prevailing views that the international mandate authorities (NATO/EU/UN) retain a prejudice against them while favoring the other. _The international mandate authorities rely on neo-imperial mechanisms to resist the human rights norm of self-determination. Stabilization efforts have confronted the forces of ethno-national self-determination in Kosovo ["United Nations Mission in Kosovo" (UNMIK) since 1999 together with "European Union Rule of Law Mission in Kosovo" (EULEX) since 2008] (Hopkins, 2017). The long-term viability of Bosnia-Herzegovina (under EURFOR Althea) is questionable; one 2014 report concluded that it is "slowly spiraling towards disintegration" (International Crisis Group, 2014, i). Under supervision by EURFOR Concordia/EUPOL Proxima, ineffectiveness characterizes implementation of EU-mandated reforms in Macedonia (International Crisis Group, 2015). Communities collectively may recognize that they have submarginal power capability for viable national self-determination among hostile neighboring national groups, e.g. Bosnian Muslims/Bosniaks. They will submit to the international mandate for protection (Cottam and Cottam, 2001, 262). Macedonians are likely in this category as well.

A necessary, but not sufficient facet of peacebuilding is that the EU's CSDP commitment to conflict prevention satisfies the tactical requirement to coordinate national government policies. Unilateral conflict intervention by a great power will be vulnerable to an emerging perception among the target public that expressions of universal human rights justifications are a guise. EU coordination in principle lessens the options for the focus to manipulate governments into competing against each other, e.g. on issues of trade benefit. As a consequence, the target state's bargaining position should significantly decrease relative to the initiator. The June 2001 Sweden-chaired Gothenburg European Council affirmed the ESDP/CSDP's commitment to fulfillment of the Petersberg tasks:

> *"3. Conflict prevention calls for a co-operative approach to facilitate peaceful solutions to disputes and implies addressing the root-causes of conflicts. It is an important element of all aspects of the external relations of the European Union. The development of ESDP [renamed CSDP in the 2009 Lisbon Treaty (BD)] has, since the outset, been intended to strengthen the EU's capacity for action in the crucial field of conflict prevention" (emphasis BD) ["Draft European Union Programme for the Prevention of Violent Conflicts," 2001, para. 3, (adopted by European Council, "Presidency Conclusions," 2001, para. 52)].*

The "EU Programme for the Prevention of Violent Conflicts" is a peace strategy through a diplomacy of human rights, broadly understood:

> *"1. The international community has a political and moral responsibility to act to avoid the human suffering and the destruction of resources caused by violent conflicts. The European Union is a successful example of conflict prevention, based on democratic values and respect for human rights, justice and solidarity, economic prosperity and sustainable development. The process of enlargement will extend this community of peace and progress to a wider circle of European states" (emphasis BD) ["Draft European Union Programme for the Prevention of Violent Conflicts," 2001, para. 1, (adopted by European Council, "Presidency Conclusions," 2001, para. 52)].*

The Swedish Presidency's report to the Gothenburg European Council on the ESDP/CSDP emphasized imposition of the "rule of law" to prevent violent conflict through human rights protection:

> *"I. RULE OF LAW" "2. The EU attaches great importance to the strengthening of the rule of law as a tool for both conflict prevention and crisis management. Experience shows that strengthening the rule of law is a pre-condition for consolidation of peace and security. International efforts to strengthen, and where necessary re-establish, credible local police forces cannot be fully successful if the police are not complemented by a functioning judicial and penal system" ("Presidency Report," 2001, para. 2). […] "6. […] In such a situation, the re-establishment of local judicial and penal systems should be initiated as soon as possible. While rule of law missions would usually be deployed as a complement to a police component, they could also be undertaken without such a component. In any given mission, rapid build-up of local capacity and subsequent hand-over to local ownership is essential" (emphasis BD) ("Presidency Report," 2001, para. 6).*

However, note that the European Parliament's Committee on Foreign Affairs, Human Rights, Common Security and Defence Policy publicly rejected the creation of new national sovereignties in the Balkans:

> *[The Committee] Believes, however, that the presence of state-like entities could undermine the future stability of the region [Balkans]; urges the Council and the Commission, in this regard, to start an in-depth reflection with a view to defining a strategy for the future of Kosovo, revitalising regional cooperation and integrating it fully and effectively in EU policies (emphasis BD) (Committee on Foreign Affairs, 2002, para. 2).*

The June 2016 EU Global Strategy declares responsible external action means investing in the EU Conflict Early Warning System, and making "all our external engagement conflict- and rights-sensitive" (European Policy Centre 2016, 48). A challenge is that the political demand for national self-determination will not go away by ignoring it. Conceptualizing it as a human need/right is necessary, superseding the heretofore primacy of stabilization of existing state borders.

Cottam and Cottam note that the problems which peace strategists associate with advocacy of the right to self-determination are daunting. They parallel those problems which associate with the advocacy of human rights in general: the need politically to reconcile conflicting rights-claims. The support, however, which a community generates for the human right of self-determination will demonstrate a major behavioral difference from most other human rights. When people perceive a serious possibility of achieving self-determination, then the nationalistic demands for achieving it are likely to be at a higher level of intensity. These demands are as well expected to be much more socially pervasive in comparison with the intensity and pervasiveness of the demands for other human rights. For groups to which people have a strong attachment, the achievement of important group goals will involve individual psychological processes of much stronger intensity. They will be stronger than the psychological processes which engage in the pursuit of the goals of other forms of human rights promotion which are more abstract and have an individual basis. The latter include personal safety from abuse by state agents (2001, 264).

EU State-Building

State building through development is the perspective on security the EU's Common Foreign and Security Policy (CFSP)/CSDP emphasizes. Development cooperation allows for reliance upon the European Community's extensive diplomatic bargaining leverage capabilities with their basis in economic resources and trade. Merket characterizes this policy direction as the reciprocal "securitization" of development and the "developmentalization" of EU security policies. An example of this blurring of the borderline between the two areas is the 2001 movement of demining operations from the CFSP policy-making mechanism to the European Community. It thereby joined the EU's efforts to combat the spread of small arms and light weapons in the same framework. The European Commission and Parliament have an institutional interest in defining initiatives under development thereby to fall under the Community framework. CFSP initiatives, in contrast, favor the member states (2012, 634-35).-According to Merket, the development of the EU's conflict prevention strategy is basically a state stabilization strategy. In the field of development cooperation, the EU disposes of three long-term geographical assistance instruments (the European Neighborhood and Partnership Instrument (ENPI), the European Development Fund (EDF) and the Development Cooperation Instrument (DCI)) and two sectoral instruments (the European Instrument for Democracy and Human Rights (EIDHR) and the *Instrument for Stability* (IfS)) (emphasis BD) to deal with various aspects of the "security-development nexus" (2012, 630).

The security-development nexus is Merket's characterization of the EU's effort to intertwine its foreign aid development and European security policies. The EU thereby aims to promote more effectively its CFSP objectives. In Merket's portrayal, the creation of the European External Action Service under the 2009 Treaty of Lisbon is the institutional embodiment of this effort. Merket further notes that "the ENPI offers co-funding for the promotion of good governance and social and economic development to the EU's partner countries of the European Neighborhood Policy (ENP)" (Ibid.) Merket's study came out well before the outbreak of the ongoing Ukrainian crisis on November 21, 2013. The trigger was popular protest against then-Ukrainian President Viktor Yanukovych's suspension of negotiations to sign a long-heralded EU Association Agreement. Subsequent events include covert intervention to dismember post-Soviet Ukraine, leading first to Russian annexation of Crimea, with civil war in the Donbass region quickly following. As of mid-2017, thousands are dead, hundreds of thousands are refugees, and hostility between the US and Russia risks escalation, despite the election of Donald J. Trump as US president. The European Union authorities portray European integration as a strategy for European peace:

> *The notion of the EU as a peace process is an important strand in the EU's identity in dealing with the rest of the world. The European Council has declared that conflict prevention is a primary objective of the EU's external action (Davis, Habbida and Penfrat, 2017, 4).*

The 2011 Luxembourg Foreign Affairs Council meeting reaffirmed the EU's commitment to "conflict prevention" (Council of the European Union, 2011, para. 1-4). It recalled that ten years earlier the 2001 European Council in Gothenburg, Sweden adopted the "EU Programme for the Prevention of Violent Conflicts" (Ibid. para. 2). For the claim that Euro-Atlantic enlargement is a peace project to be valid, it would require particular assumptions regarding the foreign policy motivations of Putin's Russia. It implies that Russia today is an imperialistic, aggressive actor that is the guilty party for the tragedy that continues to unfold in eastern Ukraine. On the other hand, Moscow's motivation for intervention may be ultimately defensive as John Mearsheimer (2014) and Stephen Cohen (2014) argue. They claim that Moscow sees the expansion of the EU's influence into Ukraine as ultimately an American-instigated imperialist threat to Russian national security. If the latter is true, then the European Union authorities may be committing a major strategic mistake. The Davis, Habbida and Penfrat study does note that EU policies may make a potentially violent conflict worse (Davis, Habbida and Penfrat 2017, 11 fn. 27). It notes that "a general lack of evidence on the EU's impact on populations in non-EU countries" characterizes analyses of the EU's positive or negative impact (Ibid. 11). Proof of the EU's contribution is typically counterfactual, and EU "conflict prevention" behavior becomes "a matter of faith" and "fuzzy" (Ibid., quoting an EEAS official interviewed on August 10, 2016). Studies note the importance of the perception of EU motivation as a critical factor in determining the perceived legitimacy of EU demands, phrased as normative arguments. In relation to a different part of southeastern Europe, Noutcheva states,

> *It may well be that the conditions in the Western Balkan countries are not very conducive to the socialisation of their political elites to European ways of governance and state behaviour. Such an analysis, however, misses an important aspect of the dynamics of EU conditionality – Balkan compliance, namely the perceptions of the political elites in these countries of the motivation behind the EU's policy and the related impact on compliance decisions (emphasis BD) (2009, 11).*

Target political actors at times suspect that norms of liberal democratic regional cooperation that the EU espouses are a disguise for the EU's pursuit of "its own security interests." Consequently, compliance with EU conditionality in the Western Balkans has often been "fake or partial or imposed" (Ibid., 12). This analysis characterizes the EU's security interests towards the former Yugoslavia manifested themselves in an ill-fated stabilization strategy. For example, as Noutcheva notes, in order not to encourage separatist sentiment in the Balkans and elsewhere, the EU favored maintenance of the "State Union of Serbia and Montenegro." The popular demands of the people of Montenegro to separate from Serbia in a 2006 referendum with 55% in support forced the EU to acquiesce to what it did not favor (2009 3, 9-10). The EU deployed legal arguments for this acquiescence to former Yugoslav republic self-determination. Various EU member states, but not Spain, deployed different legal arguments for the recognition of the former Yugoslav autonomous province of Kosovo as a sovereign state in 2008. The EU has been unwilling to recognize significant separatist local sentiments in Abkhazia, South Ossetia, and Crimea on behalf of stability. Davis, Habbida and Penfrat critique current EU conflict prevention directives for continuing to display a reactive orientation to conflict (2017, 15). Nevertheless, Davis, Habbida and Penfrat portray the EU's current mediation efforts in the Belgrade/Pristina processes to be, along with the Iran nuclear agreement, successes (2017, 18).

The analysis in this paper suggests that the Western alliance desultorily opposed Yugoslavia's disintegration. It then acquiesced as the political costs of opposing secessionist movements surpassed a low tolerance level. The vast resources the US spent in the Korean and Vietnam Wars indicates that this level was much higher in resisting Cold War-era disruptive national self-determination movements. In late 1971, the US militarily threatened India for intervening to enable the separation of what became Bangladesh in rebellion from US-allied Pakistan (Widmaier 2005, 431-32, 445). A quarter century after the Cold War's collapse, the Western alliance has formally recognized the disintegration of Czechoslovakia and the numerous former Yugoslav and Soviet republics. After violent struggle in which the globally-engaged US was to varying degrees an involved actor, the Western alliance has also recognized Eritrea, East Timor, South Sudan and Kosovo. The Western alliance has not recognized Moscow-allied Abkhazia and South Ossetia in seceding from Georgia. It also opposes Russian irredentism towards southeastern Ukraine with its Soviet-imposed boundaries.

The US-allied EU functionally pursues a subdued stabilization strategy in responding to ethno-sectarian conflict in southeastern Europe. It is a post-Cold War default strategy for the Cold War containment coalition that no longer perceives an intense, global threat from Moscow, i.e. the original imperative behind the alliance. The US and its European allies accepted postwar decolonization in Africa and Asia partly because resistance would push nationalists to seek additional Soviet support. Formal imperial control on the basis of presumption of racial superiority and inferiority would likely have collapsed without the Cold War. The Cold War provided an incentive to accelerate this process. The Western alliance did intervene against national independence movements if Western governments viewed them as under the control, or vulnerable to control, by pro-Moscow local allies. This intervention was in some cases open, e.g. in Korea and Vietnam. In other cases, the intervention was covert, e.g. the 1953 overthrow of Mohammed Mossadegh in Iran by the UK's MI-5 and the CIA. The attempt to conceal these interventions aimed to avoid intensifying nationalist hostilities, which risked making the feared alliance with Moscow a reality.

Post-Cold War reactions to nationalist disruption of recognized borders reflects the Western alliance's comparatively low level of intensity of concern with the international political environment. Stabilization is a strategy to achieve desired strategic objectives; stability is not a strategic goal in its own right. Stabilization of southeastern Europe today aims to prevent a reassertion of Russian influence in the area. Stability does not necessarily equate with peace; nationalist self-determination movements continue. E.g. aside from the Balkans, enforcement of borders has been a crucial factor in decades of communal violence since the 1919 Versailles Conference sanctioned the partition of upper Mesopotamia (Cottam and Cottam, 2001, 40-42). An effective peace strategy would include an awareness of the conditions under which national self-determination movements emerge. It would also include the commitment of the necessary international community resources to intervene to accommodate and regulate inevitable political change in response. Stabilization insists on the maintenance of often problematic international borders. Disregarding nationalism until the political cost of the consequent human misery becomes too great to discount its cause can be the result.

CONCLUDING COMMENTS

The goal of this paper has been to critique European integration noting political psychological dynamics relative to current policy trends that shape the EU's effectiveness as a peace strategy. It deductively applied the theoretical analytical framework of Cottam and Cottam (2001) for nationalism. This framework approaches nationalism as a political psychological and collective behavioral phenomenon that can drive foreign and domestic policy. The paper used this framework to evaluate key EU policies and their reported consequences both in the scholarly literature and in news reports of record. This analysis focused on the effects of these policies in terms of intensifying or defusing the salience and intensity of nationalist political behavior among southeastern European national communities. Social psychology offers insights into comprehending national identity conflict in terms of social competition, social mobility and social creativity. Propagation of a perception of zero-sum social competition among national member-groups is the political dynamic to avoid. The EU offers substantive opportunities for individual social mobility, particularly for those with more education. The construction of Europe requires inputs from the contributing member states. National self-identifiers can engage in social creativity by adopting a wide range of evaluation criteria to maintain a positive self-image. For example, Germany has the best national European economic performance, while Italy excels in offering regional security and luxury recreational opportunities and consumption goods to Europe. Social mobility and creativity incentives are deployed to southeastern Europe, where different national groups have a history of traditional alliances with respective European major powers. Post-Cold War Croatian and Slovenian sympathy among Catholic German and Italian public opinion has been politically salient. Serbia's historical affiliation with France and Russia is problematic because of Russia's portrayal as an adversary to the European Union. Nevertheless, the EU's diplomatic bargaining leverage appears substantively to outweigh that of Moscow in influencing Belgrade and Kiev. Pan-Slavism may not be able to compete successfully with Euro-Atlanticism on a soft power level. Yet, this escalating clash of civilizations risks increasing the likelihood of more violence in Europe as the Ukrainian case illustrates.

This study's limitations lie in the policy prescriptions that the analysis implies. Greater autonomous EU capabilities to intervene proactively in a disintegrating state to reconcile conflicting internal national self-determination demands requires a commitment of voluminous resources. The political capacity to mobilize such resources typically emerges when the polity collectively perceives a sustained, intense external challenge. As Touval highlights, the violent disintegration of Yugoslavia was not unanticipated (1996). But the commitment of large scale intervention resources emerged in response to the media-broadcast war misery and public scorn of the apparent impotency of the post-Cold War Western alliance (Burg and Shoup, 1999, 290). As the fighting escalated, contestants' stereotypes and emotions intensified concurrently, rapidly diminishing the potential for mediated compromises on an array of complex issues. Mutually reinforcing communal fear, hatred and rage amidst mounting violence and chaos rapidly pushed contestants towards maximalist objectives, e.g. so-called ethnic cleansing (Cottam and Cottam, 2001, 108). External intervention focused on humanitarian aid to refugees and in 1995 abetted ethnic cleansing against rebellious Serb populations in Croatia and Bosnia to allow a ceasefire (Silber and Little, 1996, 30, 350).

After the humiliation of Paris and Berlin's isolated resistance within the EU to the ill-fated 2003 US-led Iraq invasion, the EU CFSP and CSDP have remained subordinate and dependent on the US and NATO (Macleod, 2004, 380, Chappell and Petrov, 2014, 6, 19-20). The EU's ability to develop an independent capacity to intervene with the requisite resources before the outbreak of large-scale fighting in a multinational or multiethnic state remains doubtful. Brexit and the US Trump administration may provide a crisis inflexion point for the development of EU intervention capabilities. Research is necessary on the nature of EU CSDP neo-functional bureaucratic incremental spill-over as it relates to developing greater CSDP component capacities to support an EU peace strategy (Gavrilescu 2004, Osica 2010, 93, Erlanger, 2017). They would mobilize EU resources for the perceived neutral provision of the security foundations for European social mobility and social creativity capacities for all mobilized national groups. These capacities should develop and strengthen concurrently in both the EU and the target communities. In sum, an EU peace strategy would promote effectively European responses to circumvent national social competition in mobilized national group perception and behavior. Thereby, the EU may aim to become a more effective security actor in a multipolar nuclear world setting. Independence from Washington, particularly as so perceived in Moscow and Beijing, is a necessary prerequisite to develop the EU's potential to play a more effective role as a peace strategy for Eurasia.

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ACKNOWLEDGEMENTS

This paper was produced with the support of the Research Fund of the Catholic University of Korea. Walden University provided additional research resources. The author would like to thank the journal editors, Terrance and Mercedes Jalbert, as well as two anonymous reviewers for their helpful critiques. The writer also thanks his former students at the American University in Bulgaria and those at the Catholic University of Korea. Any mistakes and omissions are solely the responsibility of the author.

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Review of Business & Finance Studies
Vol. 9, No. 1, 2018, pp. 77-84
ISSN: 2150-3338 (print)
ISSN: 2156-8081 (online)

IBFR
www.theIBFR.com

BEST PRACTICES IN SYSTEMS DEVELOPMENT LIFECYCLE: AN ANALYSES BASED ON THE WATERFALL MODEL

Mitch Kramer

ABSTRACT

This paper discusses best practices for the Systems Development Lifecycle (SDLC) based on the Waterfall Model. Topics covered include an introduction to the Systems Development Lifecycle and the Waterfall Model including advantages and disadvantages. It also discusses the six stages of SDLC 1) Requirements Gathering and Analysis, 2) Systems Development, 3) Systems Implementation and Coding, 4) Testing, 5) Deployment, 6) Systems Operations and Maintenance.

JEL: L86, M15

KEYWORDS: Systems Development Lifecycle, SDLC, Waterfall Model, Requirements Gathering and Analysis, Systems Development, Systems Implementation and Coding, Testing, Deployment, Systems Operation and Maintenance

INTRODUCTION

In this paper, the discussion will be based on best practices and deliverables for the Systems Development Lifecycle; analyses based on the Waterfall Model. I have completed numerous development projects and used different methodologies in the past. From small businesses to Fortune 1000 companies, many use some sort of Systems Development Lifecycle for their projects, whether it was for an Enterprise Resource Planning (ERP) system, Customer Relationship Management (CRM) system, or a custom application. The Global ERP Software Market is expected to garner $41.69 billion by 2020, registering a Compound Annual Growth Rate (CAGR) of 7.2% during the forecast period 2014 to 2020 (Chaudhari & Ghone, 2015). Saying this, there will be many opportunities for using the Systems Development Lifecycle for these projects. The Systems Development Lifecycle is not exclusive to the ERP software market. The current literature discusses the theory behind the Systems Development Lifecycle. While this paper adds to the current body of literature through practical knowledge and experience it also demonstrates best practices and the deliverables for each stage. Herein, I discuss what the Waterfall Model is and the advantages and disadvantages.

As well as data and methodology based on an analyses of the six different stages of the Systems Development Lifecycle 1) Requirements Gathering and Analysis, 2) Systems Development, 3) Systems Implementation and Coding, 4) Testing, 5) Deployment, 6) Systems Operations and Maintenance. Creating, implementing or upgrading a system can be stressful for all Stakeholders. In many cases, these projects can be extremely difficult, but the process can be made easier. All Stakeholders want a smooth project, whether it was for an Enterprise Resource Planning (ERP) system, Customer Relationship Management (CRM) system, or a custom application. There is a process known as Systems Development Lifecycle (SDLC), which can make the process both simpler and less stressful. All six stages must be completed to achieve a positive outcome. The six stages of the Waterfall model are shown in Figure 1 in the Appendix Section. There are different methodologies for the Systems Development Lifecycle, the way systems are developed and placed into production. The most commonly used methods include the following; Waterfall Model; V-Shaped Model, Interactive Model, Big Bang Model, and Agile Model. There are additional models, however; these five are the most commonly used. This paper briefly discusses the Waterfall Model while describing best practices for each stage of the Systems Development Lifecycle.

LITERATURE REVIEW

Meir "Manny" Lehman discussed one of the first approaches to the Systems Development Lifecycle in 1969. "The basic approach recognizes the futility of separating design, evaluation, and documentation processes in software-system design. An expanding model seeded by a formal definition of the system, which provides a first, executable, functional model, structures the design process. It is tested and further expanded through a sequence of models that develop an increasing amount of function and an increasing amount of detail as to how that function is to be executed. Ultimately, the model becomes the system."
In addition, Winston W. Royce first described the Systems Development Lifecycle based on the Waterfall Model in 1970. He did not actually state that it was called the Waterfall Model; however, he implies it by showing each step as preceding and succeeding stages. He discusses the stages and shows the importance of doing it systematically. "The Systems Development Lifecycle (SDLC) is perceived as the timeframe that spans from the development of a new system to its eventual retirement. It is a process that starts with the emergence of an idea, goes through its implementation, and ends with its termination, moving across all the intermediate stages in which its viability and usability are prioritized." (Pedro Isaias and Tomayess Issa 2015) Projects need to be properly planned and executed. There have been cases when the Systems Development Lifecycle was not planned and executed properly.

A few instances of this include the implementation of Enterprise Resource Planning (ERP) systems, which essentially all Fortune 1000 companies rely on for their routine transaction processing. Contemporary ERP systems such as SAP take years to implement and cost several millions of dollars when properly executed. Mistakes in one or more stages of the SDLC process can be devastating for companies. Hershey's was in the midst of its ERP implementation in the summer of 1999. Unfortunately, due to problems in the configuration of Hershey's SAP system; it was unable to deliver Hershey's Kisses to stores during Halloween that year. Hershey has had a net result of $100 million in lost sales; their stock fell by 8 percent consequently. Similar difficulties were faced by Nike, which spent $400 million to upgrade its supply chain and ERP systems. Nike also lost about $100 million in sales and the stock price fell 20 percent. Even college students have been negatively affected by problems in systems implementation. Students at the University of Massachusetts, Indiana University, and Stanford University experienced problems with their course schedules and even their financial aid checks due to glitches in the newly implemented ERP systems at these schools. These accounts highlight the meaning of employing a planned approach to systems development, paying close attention to detail at every step. (Uday S. Murthy 2000) "The Waterfall Model is the oldest and most straightforward of the structured methodologies. The waterfall process originated during the 1960s in firms building large-scale software systems for the U.S. defense and space industry as well as for commercial applications. These companies worked on multi-year projects and designed software for large computer (mainframe and minicomputer) systems that evolved relatively slowly.

They modeled the waterfall process after hardware design projects, where engineers could more easily (though not always completely) predict how pieces of a system would interact" (Michael A. Cusumano and Stanley Smith 1995) This method consists of completing a stage then moving on to the next stage. Generally, projects do not go back a stage after completing the current one. Projects continue to move forward. Each stage depends on information from the previous stage. This model allows the opportunity to return to an earlier stage, however, going back to a previous stage involves costly rewrites for both documentation and developing the application. If delays happen, then the entire project and timeline will change. The Waterfall Model is simple to understand and manage throughout the Systems Development Lifecycle. Waterfall Model – Advantages The Waterfall Model is simple, methodical, and easy to understand and to implement. It works well and yields the correct results. It is extensively used and recognized in the industry. Since the stages are rigid and precise, each stage is executed one at a time, making it easy to maintain. The start and finish criteria are well defined, alleviating stress. It ensures quality and identifies deliverables and milestones. The focus is on documentation.

"The major advantage of the Waterfall Model for the SDLC is that it provides a structure for organizing and controlling a software development project. The single most important methodological need in this approach, however, is to identify user requirements accurately." (Andrew P. Sage and James D. Palmer 1990) Waterfall Model – Disadvantages A major defect with this method is that you cannot adopt major changes in requirements in the middle of the project. If the application has moved on to the Testing stage and a requirement has been changed (at the direction of the project sponsor), it becomes difficult to go back and change it. Another issue can be the lengthy delivery of the final product. One cause might be there was not a prototype previously available for comparison to the application being developed. Without a prototype, there is a higher risk of error. Since the testing is performed at a later stage, it does not allow for identifying the challenges and risks in an earlier stage. This makes the risk mitigation strategy difficult to predict. Making changes to documents can be costly, as all stages need to be changed. This happens with major and minor issues. If it were known before beginning the project that there might be a number of changes, my recommendation would be to use a different model, as the Waterfall Model does not handle change well or cost-effectively.

"Disadvantages associated with the Waterfall Model include problems that occur if there is no iteration and feedback among stages, beginning with the need to define the system requirements specifications accurately. Unless there is iteration and feedback, there may be no way to improve initial imperfections in one of the later stages. Realistic life-cycle development processes are, therefore, iterative and interactive, and a company's software development process needs to accommodate this fact." (Andrew P. Sage and James D. Palmer 1990) With the Waterfall Model, it is important to get the approved sign-offs for all deliverables of each stage. The bigger and more complex projects-today are moving towards Agile and Sprint Models. I do notice that the Waterfall Model still holds up well for smaller projects like system process improvements or if requirements are straightforward and testable. The Waterfall Model yields the best results for these scenarios. This paper will discuss the necessary steps based on a process improvement for a custom application.

DATA AND METHODOLOGY

After the thought process has occurred and the process improvements have been identified, the project sponsor defines the objectives, scope, and purpose. A solution needs a scope document to get started. There are additional documents that can be utilized if the solution, scope and size call for it. These include the following: Systems Boundary, Cost-Benefit Analysis, Risk Management Plan and Feasibility Study. For larger projects, some companies get Request for Proposals (RFP) if they do not have either the knowledge or workforce to implement a particular solution. Once the process has been officially approved, the Project Manager develops a Project Plan that includes Project Charter, Project Scope, Project Schedule and Project Timeline. This plan helps define the basis for acquiring the necessary resources to achieve the solution. The Project Manager needs to have all six stages included in the Project Plan. Below is a look at all six stages of the Systems Development Lifecycle: analyses based on the Waterfall Model. Each stage shows what should happen during each stage and best practices.

Requirements Gathering and Analysis

The first stage: Requirements Gathering and Analysis. The Project Manager begins planning the project. The requirements of the organization are gathered, and analysis begins to determine the approach of the project, deliverables, and anticipated outcomes; these are the functional and non-functional requirements.

The Business Analyst ensures the business and functional requirements meet the Stakeholder's expectations. Business requirements are gathered to determine who will use the software and how they will use it. The Business Analyst then performs a needs analysis. Part of the needs analysis will include collaboration with end users of the system. They are key at this stage of the process. They know which results they expect and how to identify them in the system. They also have ideas about which results and information they would like to get from the system. In this stage, the users are providing best practices, their needs and wants. Capture all the requirements during this stage, either with the use of flowcharts, user or test cases, and current documentation.

"The evolution of software that satisfies its user expectations is a necessary goal of a successful software development organization. To achieve this goal, software engineering practices must be applied throughout the evolution of the software product. Most of these software engineering practices attempt to create and modify software in a manner that maximizes the probability of satisfying its user expectations. Other practices, addressed in this module, actually attempt to insure that the product will meet these user expectations." (James S. Collofello, 1998) Some best practices of needs analysis are accomplished with the following: meeting with Stakeholders as a group or one-on-one to find out their requirements, discussing their current challenges and retrieving any documents containing current processes. If there are no documents, process mapping should occur. Work with the group or individual to create a document outlining each process. Record a complete understanding of their needs, for example, "must haves" and "wish list" items. When gathering information for the documents, use visuals like screenshots, use cases, flowcharts, and diagrams. The documents should include a purpose, current processes, details of expected accomplishments and expectations.

Another best practice is to brainstorm and perform walkthroughs to understand the requirements. Do a Feasibility Test to ensure whether the requirements are testable or not. Remember that the process improvements help the business increase quality and efficiency. Process improvements can include the following: a better process to complete a task, the ability to retrieve data to improve efficiency by creating an automated report, the creation of a new application, or the creation of an interface to upload transactions from another system into the current system. Functional requirements should describe how the business would like a software system to work, or the steps they currently take to perform a manual process. With the analysis stage, the requirements are to collect and analyze the information provided. Projects are not successful when requirements are missing or Developers miss an important piece of information. This happens many times when there is a lack of communication between Stakeholders. The expected outcome will not happen when the Architects or Developers do not truly understand the issue. This is the most important step in the Systems Development Lifecycle for the Waterfall Model. If the project fails, it is usually because of this step not being fully utilized.

Deliverables: RUD (Requirements Understanding Document), Functional and Business Requirements
Systems Development

The second stage: Systems Development. In this stage, the detailed requirements are converted into completed detailed systems design. This design describes the key components and the interface of those components. It focuses on how to deliver the required functionality (must-haves and wish-list items) to the system. The Business Architects use the requirements gathered from the first stage to produce several designs of the product. The Business Architects know if a Developer can deliver the designs. Various internal Stakeholders review each design in a design document. Stakeholders approve the best design. Once selected the Architect creates the design, captures the hardware/software requirements, and documents the designs. In other words, he or she creates the blueprint for the design with the necessary specifications for the hardware, software, people and data resources. He or she also add additional information for the coding and debugging of the application.

Best practices include having high-level design and low-level design documents to describe the characteristics of the system and operations in detail. Design elements should be detailed and describe the desired characteristics of the software. These include functional hierarchy diagrams, screen format maps, tables, business rules; business processes diagrams, pseudo-code and an entity relationship diagram of the data dictionary. The design elements assist the Developers with the development of the software with limited additional input required. The result of this stage is to describe how the application needs to be created. Be sure to include the sign-off of all documents from the Stakeholders; this is another best practice.

Deliverables: HLD (High-Level Design Document) & LLD (Low-Level Design Document)

<u>Systems Implementation and Coding</u>

The third stage: Systems Implementation and Coding. Convert the Requirements Gathering and Analysis to the System Development into the Systems Implementation and Coding. Thorough and detailed documentation and mapping are necessary for the Developers to implement the design and develop the application. This stage can be the longest part of the Systems Development Lifecycle process. This is where the Developers create the code from the two other stages and from the approved design. Developers can use different tools such as compilers, interpreters, and debuggers to generate code. Different programming languages can be used to code the application. Some examples of these include C++, Java, JavaScript, SQL, Pascal, ProvideX, PHP, VBA, and XML. The best programming language, for each project, depends on the Developer and on the application that is being developed. This paper is specific to systems implementation and coding of a custom application based on Waterfall Model in the Systems Development Lifecycle. A future paper will explore the Software Development Lifecycle based on the implementation of an Enterprise Resource Planning (ERP) system. A best practice that a Developer should employ is to verify that the application works as per the design specifications.

Deliverables: Application, Unit Test cases and Results from the Developer

<u>Testing</u>

The fourth stage: Testing. After the application has been developed, testing can begin. The application will be tested based on the requirements to ensure that the code works according to the specifications. Integration testing is needed to confirm that the application works as expected. This is another best practice that should be followed. The Business Architect or Analyst who provided the design specs should be the one to verify the changes to the application. The Business Architect or Analyst is looking to confirm that the application gives the expected and intended results. This verification process confirms all applications are working as designed. If expectations have not been met, then it will need to go back to the Developer so any issues can be corrected.

There are many methods of testing including prototype, workflow diagram, use test cases, a story map, a stress test and module unit testing. When testing, track progress, report testing activities and report all issues that arise before going to the next stage. If issues do arise, make notes and take screenshots so the Developer and Business Architect or Analyst can review these aspects in detail. State what the issue is and restate what the expectations are. Another important step in this phase is to create an issues log. The details in the log should include Creation Date, Issue Number, Priority, Description and any additional details that provide further information. Once an issue has been resolved, log the issues as closed and the date completed. Confirm no critical and high-level issues exist before going to deployment. The issues log needs to be shared with the Project Manager and all Stakeholders throughout the process.

Deliverables: Test Cases, Test Reports, Defect Reports, Issues Log

Deployment

The fifth stage: Deployment. After the testing stage, when the application has been fully tested and verified, the application is now ready for deployment. A best practice utilizes a test system to load the application before placing it into production. With this, an exit strategy is needed in case something goes wrong with the data conversion or the application. This may affect other systems and cause issues. Have a backup or be able to back out the application. The end user needs to ensure that the product actually meets their needs and that the specifications were correct in the first place. In other words, demonstrate that the product fulfills its intended use when placed in its intended environment. This would be the validation part of the application. This is called User Acceptance Testing (UAT). If the users cannot validate, then the back out strategy needs to take place. This will alleviate some of the pressure when deploying the application to the production environment. Confirm the environment setup matches the testing stage. This will help determine if it is an issue in the environment or if there is something wrong with the application itself.

Part of the deployment includes training the users on the new application. User manuals will be useful to assist with training. The user can utilize the manual for further clarification and future reference on how to use the application. An issues log is also needed at this stage. It is acceptable to have outstanding issues; however, none of the issues should be critical or high-level defects. If there are minor issues, confirm they will be completed in the sixth stage, which is the Systems Operations and Maintenance Stage. Once the application has been approved, in the Stakeholder's test environment, place the application in the production environment. Perform a stability check in the production environment after the application is deployed to ensure the application does not break. Once again, have the Stakeholders validate that the system works. It is entirely possible that a product passes when verified but fails when validated.

Deliverables: User Manual, Environment Definition/Specification, Issues Log

Systems Operation and Maintenance

The final stage: System Operations and Maintenance. This is when the process improvement has come to together and the application is ready for use. The Stakeholder may experience technical issues, and maintenance of the software is conducted at this time. There will be questions from the end users; make sure that there are technical and procedural experts available to answer any additional questions. Keep an issues log open for any outstanding issues. If there were any non-critical defects remaining, this is the time to correct them. Ensure these issues are not enhancements that need the approval of the Project Owner. User manuals will be very beneficial at this stage as a reference guide for the users. Resolving all issues on the open issues log is another best practice. If an issue has been corrected in the production environment, ensure the code has been updated in both the development environment and coded environment. The application will evolve over time, so it is important to incorporate these changes to all environments.

Deliverables: User Manual, List of Production Tickets (Resolved), List of New Features Implemented

RESULTS

With following the six stages of the System Development Lifecycle, the results will be a smooth transition into the new custom application that has developed. All deliverables from the six stages include the following for each stage, 1) RUD (Requirements Understanding Document), Functional and Business Requirements. 2) HLD (High-Level Design Document) & LLD (Low-Level Design Document). 3) Application, Unit Test cases and Results from the Developer. 4) Test Cases, Test Reports, Defect Reports, Issues Log. 5) User Manual, Environment Definition/Specification, Issues Log. 6) User Manual, List of Production Tickets (Resolved), List of New Features Implemented.

A Path Forward

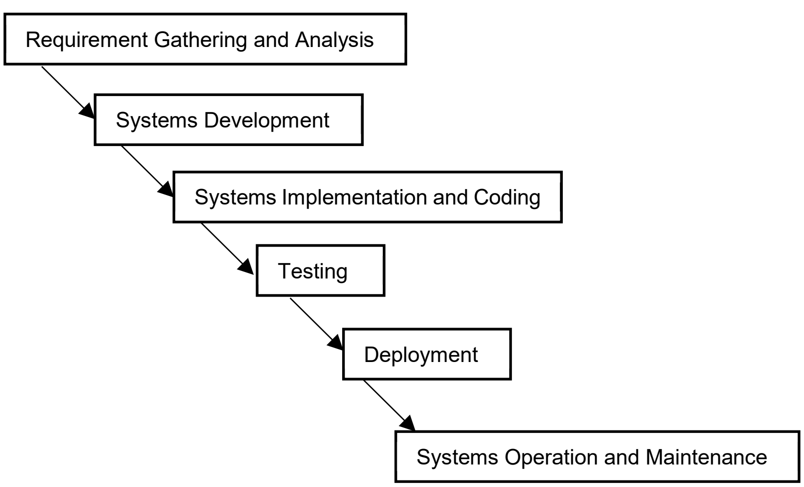
The Systems Development Lifecycle will continually be part of the implementation of any type of system. The methodologies that assist with implementations of all projects have evolved over time. In the past, there have been additional methodologies; however, I do think the Waterfall Model can withstand time. As discussed the Waterfall Model is simple, methodical, and easy to understand and to implement. It works well and yields the correct results. As new methodologies develop, academics and professionals need to work together through teaching the theory and using real-world experience to help educate students and young professionals. This will aid the learning process and help facilitate the next methodology.

CONCLUDING COMMENTS

This paper analyzes the history, theory and best practices for the Systems Development Lifecycle based on the Waterfall Model. There are many actions that must be executed and best practices that all parties should follow. All the requirements in one stage must be completed before moving on to the next stage, and ensure all sign-offs are received from all Stakeholders. This will show that the milestones for each stage happened. Remember to understand the true issue or business need (business requirement). This will ensure that you are delivering the highest value to your Stakeholders. Once you understand the business needs, start determining the best way to approach building a solution. Have a precise implementation strategy with thorough critical success factors: develop a comprehensive project design and plan. Collaborate with all users: create small working groups of key users to outline goals and follow progress. Communicate promptly: organize effective communication at all stages. Develop and conduct user training: Add additional training as required, this includes discussions on processes and systems. Confirm users know the best way to communicate during and after the implementation. It will be interesting to see the result of academics and professionals working together to develop a new methodology through the discussion of theory and practical experience. This concludes the best practices for the System Development Lifecycle based on the Waterfall Model.

APPENDIX

Figure 1: Systems Development Lifecycle



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ACKNOWLEDGEMENT

I would like to thank the journal editors, Terrance Jalbert and Mercedes Jalbert, two anonymous reviewers, for their insightful comments.

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Review of Business & Finance Studies
Vol. 9, No. 1, 2018, pp. 85-94
ISSN: 2150-3338 (print)
ISSN: 2156-8081 (online)

IBFR
www.theIBFR.com

STRATEGIC SME SUCCESSION PLANNING: ENHANCING VALUE & WEALTH VIS-À-VIS ORGANIZATIONAL DIAGNOSIS

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ABSTRACT

Baby Boomers and other business owners are divesting their Small and Mid-Sized Enterprises (SME) for several reasons. Absent a well-planned Business Succession Plan, decades of knowledge, innovation, and wealth can be lost both to stakeholders and society alike. Although Succession Planning has been a strategic management part for many years, only recently has it become recognized for its importance, particularly as it relates to the creation of value that makes mergers, acquisitions, and strategic alliances possible, thus resulting in the continuation of an SME's past and current efforts. Only since 1991 has Intellectual Capital (IC) / Intangible Assets (IA) of SMEs start to become recognized as a trove of untapped wealth that could enhance the value and continuation of any organization. Notwithstanding the current difficulty in quantifying IC/IA, we propose that through the combination of strategic succession planning with organizational diagnosis may a forthcoming exit stakeholder find internal business assets that may be improved upon to maximize value and wealth for the SME, while simultaneously improving the chance of transition success at the time of exit execution. Exploration of this subject matter may serve to give Scholars and Practitioners fodder for theoretical/empirical research and practical application.

JEL: A12; L22; L25; M10; O34

KEYWORDS: Baby-Boomers, Intangible Assets, Intellectual Capital; Organizational Diagnosis, SME, Strategic Succession Planning, Wealth

INTRODUCTION

Value is created when organizations develop innovative ways of doing things using new methods, modern technologies, and/or new forms of raw material (Porter, 1985). However, it is difficult to find literature consensus as to what value creation is; the process by which value is created and the mechanisms to create, capture and retain value. We propose that creation, capture, retention, and liquidation are four progressive and distinct processes. Alternatively, failure to maintain what value that had been created is 'valuation depreciation'. Each of the four processes (creation, capture, retention, and liquidation) may be examined from an individual, organizational and societal perspective. It is the individuals' effort in developing or performing a task, product or process; the organizations' efforts are usually directed to the introduction of a new or redeveloped product or process while society controls the nation's industrial infrastructure and the 'will' of competitive marketplaces in either accepting or rejecting the creation and capture of value (Porter, 1990).

It is a well-established, if not a generally accepted belief that innovative organizations create new value when they use their individualistic collective knowledge to introduce new products, processes, practices, and services. Ironically, innovation tends to occur during times when enterprises face uncertain environments (Brown & Eisenhardt, 1997). As value is created and captured, the gap between market value and book value increases in multiples. This gap is commonly and often interchangeably referred to as Intellectual Capital (IC) and Intangible Assets (IA). There is no one universally accepted definition of IC/IA. We believe Edvinnson's definition of IC is a good description that continues to remain strong which "is the possession of knowledge, applied experience, organizational technology, customer relationships, and professional skills" that serves to provide an organization with a competitive position in a specific marketplace (Edvinsson & Malone, 1997). Despite the number of definitions available, almost all involve some element of profit and value creation. Accordingly, IC/IA may be viewed as a driver of future earnings, thus the forefront of research and practice.

As an example of the growing accumulation of IC/IA value, it is estimated that the total value of U.S. intellectual capital runs between $5.0 trillion to $5.5 trillion for the year ending 2005. For the year ending 2011, it is estimated that the value of the intellectual capital in the U.S. economy has increased to between $8.1 trillion and $9.2 trillion. If one includes economic competencies along with intellectual capital, the U.S. economy totals an estimated $14.5 trillion in 2011 (Cuganesan *et al*., 2006). Innovation, a component of IC/IA, unquestionably drives economic growth. Such a position appears to be considered one of the most consistent findings in macroeconomics, and has been very true since the Industrial Revolution. The contribution of technological innovation to national economic growth has been well established in the economic literature, both theoretically (Solow, 1956; Romer, 1986) as well as empirically (Mansfield, 1972; Nadiri, 1993). There is an expansive litany of literature supported by a dearth of evidence that postulates a direct correlation of technological innovation (IC/IA) being directly correlated to growth, productivity, and increasing incomes of modern economies. More than any other single factor, macro-economists have calculated that up to 50% of the U.S. annual GDP growth is attributed to increases in innovation (IC/IA).

Cuganesan, Petty & Finch examined the average intensity of intangible assets in 24 industries. In 2006, it was discovered that an industry's value as a share of an industry's total market value, was more than 79 percent. For the period from 1975 through 2015, the percent of intellectual capital has significantly increased. Accordingly, this study among others provides increasing evidence that the drivers of value creation in modern competitive environments lie in an organization's intellectual capital rather than in its physical and financial capital (*Id*). Acknowledging that there is an increasing amount of value being created, logically it would be reasonable to express that there is an increasing amount of 'value depreciation', particularly since there could be more than five million business owners either dying or retiring over the course of the next 15 – 20 years. For it was only in 2011 that the first baby-boomer reached the age of 65. At an approximate rate of 10,000 workers per day, it will take until 2030 before the baby-boomer generation will be fully retired (U.S. Census, 2012). Therefore, an issue that appears to be ripe for review and to partially address in this paper is the process of orderly transference of enterprise 'created value' (wealth) from one generation of stakeholders to an ensuing generation of stakeholders.

The remainder of this paper intends identify the consistency of definition and agreement for succession planning, consensus in research for the terms intellectual capital and intangible assets, present a case study to illustrate succession planning, organizational diagnosis, intellectual capital/intangible assets, concluding with a discussion concerning the benefit to orderly transition and succession planning utilizing an organizational diagnosis process and model while encouraging further practical and scholarly research to further develop the means to create, capture, retain and liquidate business value.

LITERATURE REVIEW

Strategic Succession Planning

SME Succession (250 employees or less) first appeared in the context of general business management under the auspices of leadership planning and change management in the early 1950s (Christensen, 1953; Gouldner, 1954). William Rothwell defined succession planning as the "deliberate and systematic effort by an organization to ensure leadership continuity in key positions, retain and develop intellectual and knowledge capital for the future, and encourage individual advancement" (Rothwell, 2001). Succession planning is an important component of business management. The implementation of planned succession is important simply because the orderly transfer of leadership, whether internally or externally, determines the enterprise's future strategic direction and performance. Broadly speaking and from the perspective of the entrepreneurs who seek to exit from his or her business, they essentially have three broad categories to choose from: (1) decide to sell their organization (Wennberg, *et al*. 2010); (2) turn over the organization to those closely related to the existing owner(s) (Sharma, 2003) or (3) decide (or be forced) to cease operations of their organization (Shepherd, *et al*., 2009).

Evidence regarding organizational succession has been mixed in both management, economic and organization literature. Some researchers argue that the tensions and instabilities associated with leadership change will precipitate a decline of performance and enterprise value (Beatty & Zajac, 1987; Grusky, 1960 & 1963). Other researchers have found little or no difference in organizational performance substantiating the 'scapegoating' view of succession (Brown, 1982; Gamson & Scotch, 1964; Lieberson & O'Connor, 1972), while others have found that leadership turnover and succession will lead to improved organizational performance (Guest, 1962). Although the mixed reviews concerning organizational succession have not changed much over the past 50 years, the concept of Intellectual Capital/Intangible Assets has added a new dimension as to how organizational succession is now viewed. Succession planning is presently deemed as an important organizational resource that sets the path for the enterprise's strategic direction by focusing on the unique knowledge, skills, abilities, perspectives, and experience that an owner and other senior management may bring to the succession process. (Strober, 1990; Finkelstein & Hambrick 1996; Hambrick & Mason, 1984).

Intellectual Capital (IC) / Intangible Assets (IA)

As society ventures into a 'knowledge-based' economy, IC/IA commences the replacement of financial capital with the headspring of value creation and enhancement for modern enterprises. Traditionally, economists have examined physical and financial capital as key resources for the organization that facilitates productive and economic activity. However, knowledge, too, has been recognized and is becoming accepted as a valuable resource by economists and others in the management field. Although the concept of IC was first proposed by economist James K. Galbraith in 1969, its first notable appearance occurred in the early 1990s when the subject matter was addressed by Fortune Magazine in 1991 and the first book by William Hudson titled Intellectual Capital: How to Build It, Enhance It and Use It which appeared in 1993 (Masoulas, 1998). In reviewing the bulk of IC/IA literature, one cannot but notice an impressive array of conceptual work on the nature and constituent elements of IC/IA (*e.g.*, Edvinsson & Malone, 1997; Sveiby, 1997).

Defining the concept of IC/IA is not an easy task given the amount of scholarly literature that exists. Given the context of the paper, we will distinguish our proffered definition from the perspective of an accountant and non-accountant perspective. To accounting researchers (Ohlson, 1995; Feltham & Ohlson, 1996; Holthausen & Watts, 2001), the difference between the market value of the entity and the book value of the entity's *identifiable* assets is defined as "goodwill" which is slowly becoming equated with IC/IA. Non-accounting researchers define "intellectual capital" as the "difference between the firm's market value and its book value of entity" (Edvinsson & Malone, 1997; Stewart, 1997; Sveiby, 1997; Mouritsen *et al*., 2001). We tend to concur with The Economics Institute of Washington, D.C., when it expressed its understanding of IC/IA as "the economic value of the nation's productivity [as dependent] more upon employee skills and knowledge and business problem-solving aptitude than it does the market value of the firm's commercial output." (Nuryaman, 2015). Many case-based and large sample empirical studies on the relationship of IC/IA and its performance implications in various contexts has been and continues to be undertaken worldwide. Based on numerous qualitative and quantitative studies, it appears that the possession of IC/IA leads to superior organizational performance, that is, a significant portion of IC/IA is correlated with high performance (Hsu & Sabherwal, 2012). From a performance aspect, while the level of IC/IA and how it impacts on performance has been thoroughly researched, only a handful of studies have empirically examined how the strategic management of intangibles impacts value creation.

It appears that there have been numerous attempts to categorize intangibles in a general convergence towards a three-grouped framework consisting of: (1) human capital; (2) organizational (structural) capital; and (3) customer (relational) capital. This framework has been extensively studied thus withstanding the test of time (1997- 2017) with little variation and is considered a staple of Intellectual Capital. However, Annie Brooking (1997) opined that a fourth category titled "Intellectual Property Assets" should be added to the Intellectual Capital genre developed by Sveiby (1997), Steward (1997), Edvinsson (1997) and Bontis (1998).

DATA AND METHODOLOGY

To express our proposition in a succinct manner, we have chosen to use the hybrid of a Commentary and Case Study to illustrate that strategic succession planning and organizational diagnosis creates and enhances value. In 2008, the Owner, a 60-year-old male, of Company ABC contacted Rutherford Advisors, Inc. doing business as The Executive Suite (TES) concerning his 20-year-old marine repair company located in the U.S. Northeast. The information initially provided reflected that ABC was a ten-month seasonal business comprising of seven full-time employees (four Diesel Mechanics/Service Technicians, one Bookkeeper, and one Customer Service Manager). The Owner's justification to develop a transition and succession plan was due to the amount of time and energy that was needed to manage the enterprise at his age.

At the time of engagement, ABC generated approximately \$525,000 in annual revenue and incurred approximately \$590,000 in annual operating expenses leaving no discretionary earnings for the Owner. The company did not own any real estate and owned approximately \$150,000 in tools and equipment. Competition within the local geographic region was moderate. As with many small enterprises, ABC had neither a budget nor a business plan. At first blush, it appeared that ABC was the classic case "of the Owner working in, not on, the business". Over the course of the preceding 7-8 years prior to engagement, the Owner made a few poor to bad business decisions which required \$400,000 of funding for ABC. This \$400,000 was drawn on a personal home equity loan. Ultimately, it was the Owner's objective to develop, with the assistance of professionals, a transition & succession planning strategy that allowed the Owner to sell the business and retire. In the interim, TES was requested to assist in the preparation of that transition and succession plan and preserve, if not improve ABC during the time that a comprehensive transition & succession strategy was implemented and executed.

RESULTS AND DISCUSSION

To use a rather over-simplified analogy, for one to know how to get somewhere, they must first need to know where they are presently at. It is our humble proposition that to enhance and retain company value with the hope of transference (in this case to the Owner on a personal basis) without significant 'capital depreciation', an assessment of the organization must first occur. Organizational diagnosis is a method used for analyzing an organization to identify organizational shortcomings so that the shortcomings would be neutralized through organizational change. Organizational diagnosis is a parallel concept related to the concept of organizational analysis, to which there is a distinction between the two concepts. Organizational analysis is in many ways like organizational diagnosis, but there are some notable differences. The main resemblance between organizational analysis and organizational diagnosis lies in the fact that both methods focus on understanding the organizational content, *i.e.* on identifying the elements of an organization and its nature, as well as the relationships between the two methods. Both methods start with certain organizational models and use similar techniques for data collection and processing. The key difference between organizational analysis and organizational diagnosis is each method's purpose: the aim of organizational analysis is to understand the organization for its exploration, while the aim of organizational diagnosis is to understand the organization to change the organization. It could be said that Organizational Diagnosis is a specific form of organizational analysis – a form focused on undertaking organizational change for improving organizational performance and valuation (Janicijevic, 2010).

The main task of diagnostic models is to simplify reality. Many consultants and researchers working with organizations are unable to treat the organization in all its diversity and multidimensionality. Thus, the predominant role of a robust diagnostic model is to explain an understanding of the organization along with its strengths and weaknesses within the organization. Ironically, the main advantage of diagnostic models is, at the same time, also its main disadvantage. By simplifying reality, the diagnostic model makes it easier to understand the organization, but by doing so, the model places consultants and senior management in a situation where the consultant and senior management understands the multidimensional reality and accordingly acts in a one-dimensional manner. By overlooking other important dimensions of the organization, except the one addressed by a specific diagnostic model, all become "prisoners" of each specific diagnostic model used, and thereby of just one perspective.

This is precisely the same issue that consultants must address when approached by senior management to assist in resolving organizational issues. Often Senior Management will approach a Consultant with what they may believe, in accordance with their perspective, as to what the problem may be and select the most qualified Consultant to resolve the specific problem. It has been the experience of these authors that what is initially defined as the "problem" eventually is nothing more than an outward symptom and not the "root problem". One's perception leads to the interpretation of a problem to be resolved and action undertaken by the Consultant which only serves to temporarily resolve the problem and with the passage of time erosion will undoubtedly occur thus undoing all that was done. For this reason, a deeper dive may need to be commenced to inform all parties concerned of the true issue to be addressed, thus saving valuable resources and time. Given the intricacies of the organization, a systematic means of diagnosis must be the endeavor prior to any action. TES did indeed undertake a deeper dive into the inner-workings of ABC to best craft a Transition & Succession strategy. In the context of seeking a company Bookkeeper/Comptroller and although ABC owned a cutting-edge accounting software program, technology was not being fully utilized.

Clearly, replacement of the company's Bookkeeper/Comptroller falls squarely within the sphere of 'human capital' and perhaps 'relational capital'. What *processes* that may or may not exist falls within the sphere of 'structural capital'. In this instance, ABC's IC/IA needs to be addressed along with the creation of a Transition & Succession strategy. The transition and succession strategy included both a personal transition and business transition strategy. The former focused on the personal plans for physical health, intellectual stimulation, recreational/creative, activities with partner and family, residence, social connections, spirituality/faith, income producing work, and volunteer/philanthropic lifestyle choices. The latter focused on legacy, finding the best new owner, and identifying the why and how-to ways to increase company value. In utilizing an Organizational Diagnosis/Assessment systematic course of action, customer service, sales, marketing and financial review processes had to be developed and implemented. Within weeks of engaging TES to search for and subsequently find the most appropriate person for ABC's Bookkeeper/Comptroller position, communications and relations both internally and externally showed a noticeable improvement. Enough that some of the Owner's burden had been lifted.

The Organizational Assessment reflected that the Mechanic's billing rate did not contemplate for time off, overhead or profit (Financial Capital). Accordingly, hourly billing rates were increased from $90 to $120 per hour with a policy being implemented to review and ensure that the billing rates were both competitive and reflective of company standards. A process was developed that allowed for the company's accounts receivable more than 120 days old to be addressed by implementing a mail and call procedure to late/not-paying customers. Within 60 days, the company's accounts receivable improved to 30 days, thus significantly improving cash flow. Since ABC did not have a developed budget, unnecessary expenses were 40% greater than what they should have been. Within 9 months following implementation, net profit grew by 10%. Customer service (Rational Capital) procedures were non-existent, as were marketing upsell activities to existing customers. Another process was designed, developed, and instituted to transmit "slow season" mailers, inviting customers to receive notifications by email of special promotions. With this process implemented, it was evident that an advanced scheduling process could be developed for spring and fall decommissioning to ensure work performed prior to Memorial Day (Last Monday of May) and after Thanksgiving Day (3rd Thursday in November). With the establishment of a controlled work schedule, it was possible for ABC to schedule winter work for larger jobs. Within 60 days of implementation, work orders increased by 200%, resulting in additional \$100,000 of revenue for a 2-month period.

Under the auspices of customer service (Relational Capital), work was often performed late. There were numerous instances of change orders resulting in not only an increase in billing but, more importantly, an increase in the frustration of existing customers that the Mechanics/Technicians were not attentive to the customer's needs. This is particularly important in that boaters want their boats operating at peak efficiency and in the water at the season's first available opportunity. These weekend boaters had expensive boats and tastes, yet lacked much-needed quality service that they were accustomed to. As an outcome to diagnosing the ineffective processes of customer service, a customer care program was developed and implemented. Assigned to the specific task of meeting the process goals, the Customer Service Manager responsibility made it a priority to ensure work was completed on time, on budget, and to the customer's satisfaction, which would often include the Mechanics/Technicians in helping the boater to "pre-launch" their boat prior to the first day of the season, all fully functional and worry free. It was also the Customer Service Manager who took responsibility for implementing a "monthly check-up" program during the boating season (*e.g.*, upsell service). For all practical purposes, Marketing (Human & Relational Capital) did not exist. New customers came by referral from existing customers. While effective, it did not increase the customer base sufficiently to grow the business. As a result, a new customer incentive program was developed offering a 10% discount on service to existing customers for each new prospect who was referred.

Additionally, a 10% discount was offered on 'season-opening services' to all new customers. Within 6 months of implementation, the client list doubled, increasing revenues from new customers \$80,000 to \$90,000 including accounting for discounts. In the Management arena (Relational Capital), the Owner indicated he could not locate and retain staff to complete a job on time and within the service quote. Additionally, staff was regularly absent from work. Upon further investigation, it was identified that the Owner managed, as he was taught, essentially practicing "yelling and telling." The Owner was coached as to the practice of "ask and task." Thirty days' after implementing a modified method of managing staff, the Owner disclosed that staff absenteeism had disappeared and the staff was performing work within the service quote. Unexpected was that staff embraced asking customers for additional service work through a developed upsell process. When and only when the company's shortcomings were identified and steps were taken to rectify all outstanding issues was it possible to undertake the very purpose of the consulting engagement *i.e.*, development of a Transition & Succession Plan which eventually was to sell ABC in 8 years (the last 3 years showing no debt and a continued increase in tangible and intangible assets). Contemplating what the Owner desired to do post-ownership of a marine repair company (relocate to a beach house in North Carolina amongst other personal plan choices), the Owner's business transition plan focused on an internal sale to a motivated and inspired technician, and continued development, implementation, and expansion of the processes described above.

By implementing readily available business recovery actions, ABC at the close of 2009, reflected approximately \$625,000 (vs. \$525,000) in sales with a net profit of \$90,000 (vs. -\$65,000) for the first year of post-recovery. The second and subsequent years, net profit was near \$100,000 adjusted for increased cost of doing business and not the initial \$155,000 increase (\$90,000 + -\$65,000). In 2016 (8 years later), the Owner, as planned, sold ABC to his senior technician for approximately \$450,000 including the lease and tools/equipment, thus permitting the Owner to exit the business with $525,000 of IC/IA value captured. Although the Owner sold the business for the net amount necessary to pay off his personal home equity loan, the Owner retained on an average approximately $75,000 per year over a 7-year period ($525,000 which happened to be 1 year of the company's initial annual sales revenue). In turn, the successor (senior technician) acquired a solid and growing base of customers along with a team of highly skilled and motivated service technicians and staff who valued their customer first, provided excellent repair, maintenance, and upsell services.

CONCLUDING COMMENTS

At the outset of our paper, we "proposed that through the combination of strategic succession planning with an organizational diagnosis may a forthcoming exit stakeholder identify internal business assets that may be improved upon to maximize value and wealth for the SME, while simultaneously improving the chance of transition success at the time of exit execution." Using a client company to illustrate strategic succession planning and organization diagnosis where emphasis is placed on enhancement of various intangible assets to improve value and wealth demonstrates the benefit this model can have on a successful and profitable stakeholder exit. Our findings primarily indicate the benefit of integrating a transition and business succession plan with an organizational diagnosis and assessment process such that prominence is placed on enhancing intangible asset appreciation, as further discussed below.

This actual illustration happens to reflect an instance when a Transition and Business Succession Plan in conjunction with Organizational Diagnosis/Assessment served to retain a business's value (*e.g.*, no 'value depreciation') but also served to prevent the potential loss of personal wealth (*e.g.*, equity in the home of the Owner). Succession Planning is not a new concept; Organizational Diagnosis is not a new concept and Intellectual Capital/Intangible Assets is not a new concept. What we are attempting to propose is a new way of looking at how value can be created, captured, retained and liquidated. In this paper, we hope to have demonstrated that by using Succession Planning and Organizational Diagnosis/Assessment (two of many management tools) with the perspective of exploiting non-tangible assets (IC/IA), the business value may be converted into a liquid asset upon transference of the very entity that created the liquidated asset.

A secondary effect of this illustration is the issue of timing. In the cited case history, the ABC Owner was 60 years old when a decision was made to consider developing a transition and succession strategy. Although it took until he was about 68 years of age, the Owner continued to create value even just prior to liquidating the value created. Naturally, commencing execution of a strategic succession plan years earlier would only have served to provide for an earlier exit from the organization or greater value capture and liquidation. For larger companies with a greater number of contingencies, an earlier exit process would certainly ensure the orderly transition of a going-concern. Retrospective application of the methodology can appear to allow the data to fit the method. We believe the further application of the methodology will yield more comprehensive and measured results when there is a conscious effort to apply the methodology to an existing or future business client. In such an instance, it will be important to establish, with greater specificity, data and metrics to be analyzed, benchmarks to establish, and results measured. Of course, as noted below, further research should focus on the various categories of IC/IA.

It is possible and we encourage our fellow colleagues to identify, contemplate, research and publish other means to create, capture, retain and liquidate business value. This research process may be accomplished by considering the various categories of IC/IA (*e.g.*, Human, Structural and Relational) and their respective sub-categories (Structural Capital: Marketplace; Organizational; Business Processes & Development Human Capital: Competence; Attitude & Intellectual Agility Relational Capital: Owners; Investors; Management; Employees; Customers; Board of Directors & Strategic Alliances). The scope of examination may be enlarged when existing management tools are applied as we have done in the context of this paper. We opine that by shifting the paradigm in which we envision business value and personal wealth, the inter and intra-relationships between the various categories and sub-categories of IC/IA will only serve to provide a fertile field for 'value' research and subsequent implementation of means and methods to the individual, organizational and societal value.

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Review of Business & Finance Studies
Vol. 9, No. 1, 2018, pp. 95-101
ISSN: 2150-3338 (print)
ISSN: 2156-8081 (online)

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CONFIGURATION ELEMENTS FOR RESTRUCTURING MANUFACTURING AND ASSEMBLY AREAS

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ABSTRACT

This article introduces the fundamentals of factory planning and restructuring projects, before reviewing the current state of techniques and research gaps. Following that, we outline the goal and procedure for developing a model for configuring restructuring projects. Next, we explain the procedure we followed to identify relevant configuration elements when restructuring manufacturing and assembly areas and present our results. We refer to relevant factory planning approaches found in already published research. Moreover, we analyzed and evaluated 22 restructuring projects. The identified elements were verified via expert interviews with seven cooperation partners from different industrial companies. Through this process, 62 configuration elements were identified.

JEL: L23, L60

KEYWORDS: Factory Planning**,** Restructuring Planning, Project Configuration

INTRODUCTION

Due to a turbulent environment, factory planning projects are increasingly required. Consequently, they are being initiated in shorter and shorter intervals, becoming a continual task for enterprises (Nyhuis et al., 2004, Pawellek, 2008). For factory planning projects with constructional changes, enterprises generally contract external planners (e.g., factory planners, logistics planner, architects). In comparison, projects that do not require constructional changes are frequently conducted under internal direction, so that costs related to a specialized, external planning team can be saved and because the complexity of re-planning is underestimated (Koebler and Pleuler, 2011). With smaller projects, such as integrating a new machine in an existing manufacturing or assembly structure, it is usually not necessary to hire an external planner. Due to the numerous links between production areas and equipment however, more extensive projects require more extensive planning. For example, increasing factory output by introducing industry 4.0 technology or lean principles, can reach a planning complexity similar to new building projects (Wiendahl et al., 2015, Snow, 2002).

Corporations, with their larger workforces, can employ and integrate workers with an array of competencies. SMEs must concentrate their workforce on their key expertise (Wirth et al., 1999). Consequently, the majority of tasks in planning the restructuring of SMEs are conducted by ‘non-experts’ as an addition to their day-to-day business roles (Koebler and Pleuler, 2011, Snow, 2002). SMEs often reach their limits in terms of capacities as well as content-wise and organizationally. As a result, improvements seldom reach the desired extent. In this article, we examine the fundamentals of factory planning and the problem of limited success in factory planning in general. We focus specifically on restructuring projects. We review current techniques and research gaps before introducing the goals and procedure of this research project and presenting the initial results. The paper then concludes with a summary.

Fundamentals of Factory Planning and Configuring Projects

"Factory planning is the systematic, target-oriented process of planning a factory, implemented in progressive stages and with the aid of various methods and tools" (VDI, 2011). Publications differentiate projects into *new*, *expansion* and *restructuring* plans. A new plan corresponds to building a new factory on a so-called greenfield, while an expansion plan refers to extending an already existing building. A restructuring plan represents modification of the production sequence and utilization of space without any constructional changes. Restructuring plans are by far the most frequent projects (Ireson, 1961, Lübkemann et al., 2015) and since the already existing premises might only be changed minimally. They are also projects with the greatest restrictions (Tompkins et al., 2010).

Depending on the business strategy and given conditions, factory planning projects can be oriented on different goals e.g., changeability, supporting communication, sustainability (Eversheim and Schuh, 1999). The overall success of a factory planning project is measured by, among other things, the degree to which it fulfills the factory goals derived from the business strategy (VDI, 2011). Since the cost of changes in the proposed plan climbs exponentially over the course of the project, the initial phase of the project should already be oriented on the goals set for the factory and structured accordingly (Tompkins et al., 2010). Further factors that signal the success of a factory planning project include schedule compliance and quality at the agreed upon costs. Factory planning projects today usually meet these targets only partially. According to REINEMA (Reinema et al., 2013), an empirical study showed that completion dates are not met in 60 % of factory planning projects, quality is insufficient in 12 % and cost goals are exceeded in 72 % of projects.

According to a survey of enterprises, the top five most frequent problems in projects are insufficiently defined goals, incomplete project resources plans as well as poorly defined roles and interfaces between the internal organization and external project partners (Rietiker et al., 2013). Another survey finds that the short comings and incomplete configuration of projects have a strongly negative influence on the success of a project. Among the factors that negate the success of a planning project are changes in project goals, unrealistic structural plans, inadequately cast teams and project teams that lack required competencies (Gasco, 2013). One key lever for successfully conducting a factory planning project lays in the initial configuration of the project. This involves clearly defining all planning objects and areas relevant to attaining the project goal along with the manifold dependencies between them (Hyer and Wemmerloev, 2002). Moreover, the right planning tasks including suitable methods and tools to be identified and the necessary responsibilities and resources for planning the factory have to be determined (Litke, 1993).

LITERATURE REVIEW

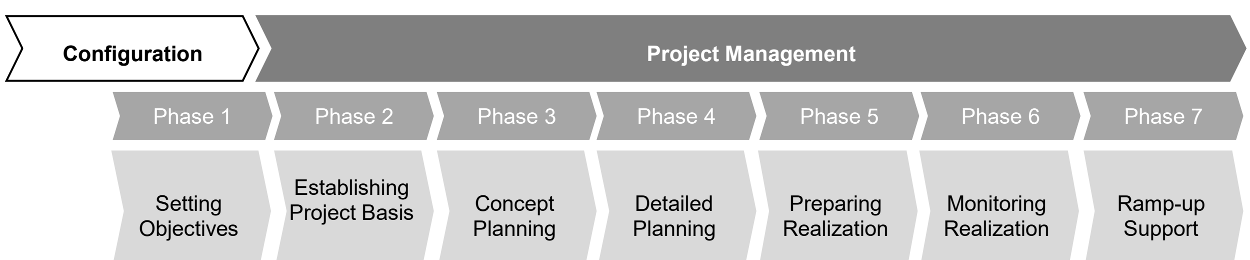
Numerous procedures for planning factory projects are described in existing research (Hilchner, 2012). Most notable are traditional approaches such as the factory planning stage model, developed in collaboration with the Institute of Factory Planning and Logistics (IFA) in accordance with the guidelines VDI 5200 (VDI, 2011). The VDI guideline outlines a factory planning project in seven phases, which are conducted sequentially and partially iteratively. The completion of each phase is marked by a milestone, at which the results of the respective phase need to be available. The project manager can then approve the start of the next phase. Depending on the content and extent of the plan, all seven planning phases can be conducted or only a number of them (VDI, 2011). The phase model is advantageous in that it is reproducible and transferrable to any planning situation. However, since the phase model according to VDI does not stipulate any standardized model for configuring projects, there is still the possibility for serious errors to be made before the project starts. Further approaches can be divided into *methods for designing changeable systems* (e.g., fractal factories, Warnecke et al., 1999), *cooperative factory planning methods* (e.g., synergetic factory planning, Nyhuis et al., 2004), *digital factory approaches* (e.g., PL@NET, Aslanidis et al., 2003) and *configurable factory planning methods* (e.g., state based factory planning, Nöcker, 2012, and type-oriented planning with solution space management, Hilchner, 2012). Configurable factory planning methods were the first to consider project configuration as a discrete success factor. However, they lack a consistent systematization of the configuration and too strongly limit the solution space.

Nöcker (2012) developed a procedural model that focuses on configuring factory planning tasks. With the specification of project goals and the selection and structuring of so-called planning modules, key elements of the project configuration are already identified. Nevertheless, the selection of planning modules is not systematized and lacks a detailed description of the planning tasks involved in the modules and methods and competencies required. Based on Nöcker's (2012) planning modules, Hilchner (2012) introduced a procedural model for type-oriented planning with solution space management in factory planning. The relevance, sequence and solution space is determined for each planning module and transferred to a project plan. The methods and competencies required for conducting the planning tasks are however not depicted in the model. Furthermore, the procedural model limits the overall solution space to four types of reference models for factories, whose subsections strongly resemble each other. For example, all four factory types represent complete factories with a medium degree of processing technology. Planning a factory or individual factory sections with more simple or complex processing technology can not be represented using this approach. An extensive review of research has shown that existing procedures do not yet allow factory planning projects to be holistically configured (Bussemer et al., 2017). In summary, the problem of how to configure a process for factory planning projects in SME producers is not yet resolved. This lack of a corresponding model poses a gap in application-based research. In addition to the holistic nature, the challenge is to ensure universal applicability in terms of transferability to all planning situations (in particular the most frequent planning case i.e., restructuring) and suitability for SMEs.

METHODOLOGY

To close this research gap, we developed a project configuration model for restructuring manufacturing and assembly divisions. The model allows SMEs to properly define the project goals of the restructuring right from the start without the support of expert planners. It also allows firms to determine the planning tasks needed for attaining these goals. The model should result in a project plan which, depending on the selected project goals, represents all the planning tasks incurred in restructuring a manufacturing and assembly division. To do so, the proven and universal guideline VDI 5200 (VDI, 2011) is expanded to include a preceding *project configuration* phase, which is closely connected to the *target definition* phase and whose results ensure the basis for successfully conducting the project, see Figure 1.

Figure 1: Project Configuration Phase Extended Phase Model (Acc. VDI, 2011, Bussemer et al., 2017)



This figure depicts the seven phases of factory planning according to VDI 5200 (VDI, 2011), which are conducted sequentially and to some degree iteratively. After completing each phase, a milestone is attained at which the results of the respective phase must be available. Parallel to the seven technical factory planning phases, there are related organizational tasks which project management needs to conduct. The model being developed should support these project management tasks.

The model will be developed in four progressive steps. First, the knowledge base for describing the complete system of restructuring manufacturing and assembly divisions will be compiled. To do so, catalogues containing all relevant configuration elements (restructuring goals, planning tasks; responsibilities and planning methods), will be developed. Subsequently, the acquired catalogues will be linked. This will be accomplished by identifying and describing the subsystems' internal and overarching dependencies between the configuration elements. The results of the preceding work package will then be transferred to a procedural model, which will then lead users step-by-step in the proper sequence through the project configuration. Following that the functionality and applicability of the demonstrator will be tested by applying it in SMEs using actual restructuring projects and if required, it will be modified once more.

RESULTS

To identify the fundamental configuration elements when restructuring manufacturing and assembly areas, we introduce the framework of the analysis before describing the procedure and results. To limit the realm of investigation, Nyhuis et al. (2005) and Wiendahl (2005) provide a factory framework using a matrix which comprises both the factory design fields such as technology, organization and space (horizontally) and factory levels such as plant, factory, division, workstation (vertically). Taking the factory framework into account, a literature search was carried out and restructuring goals, planning tasks, responsibilities and planning methods were collected and catalogued using existing factory planning approaches. In addition, 22 documentations of restructuring projects were analyzed and the catalogue entries were examined according to their practical relevance. These project documentations were based on individual consultations conducted by the Institute of Production Systems and Logistics, in which factories were successfully reorganized. The projects were realized together with industrial production enterprises of varying size (number of employees, sales and machinery) and from different branches (e.g., metalworking, process industry, mechanical engineering) during the last 10 years. The examined project documentations included the spectrum of services offered in the project contract as well as the analyses, project meetings and result presentations. We first analyzed the project documentations with regard to frequency distribution of configuration elements. In the project documentation, we were able to identify a total of 14 different objectives for the configuration element restructuring goals. In 16 projects the goal pursued was changeability, following that was profitability (14 mentions), communication (13 mentions) and transparency (12 mentions). Table 1 lists the objectives identified for the 'restructuring goals' element.

Table 1: Analysis of the Project Documentation concerning Restructuring Goals

Restructuring Goal	Number of Mentions
Changeability	16
Profitability	14
Communication	13
Transparency	12
Employee Orientation	8
Product and Process Quality	7
Material Flow Orientation	3
Organizational Compatibility	3
Ecology	3
Expandability	2
Flexibility	2
Sustainability	2
Aesthetics	1
Interconnectivity	1

This table outlines the analysis of 22 project documentations with regard to their reorganization goals, sorted in decreasing frequency. In the left column are the identified reorganization goals and in the right column the respective number of mentions. As can be seen, in almost 75% of all projects, the restructuring goal 'changeability' was pursued.

Subsequently, an expert interview was conducted with seven employees from different industrial companies SMEs: Buenemann & Collegen GmbH, GREAN GmbH, Andreas Schlueter Maschinenbau GmbH, Laserworking Garbsen GmbH, Intorq GmbH & Co, KG along with corporations: Heinz Schwarz GmbH & Co. KG, Sartorius AG. Catalogue entries collected were verified with regard to their relevance for successfully implementing restructuring measures. The interview was conducted in a joint workshop on May 24, 2017 at Laserworking Garbsen GmbH. Those questioned from the participating enterprises included business and production managers, employees from the planning department and architects. During the interview they were asked to estimate the practical relevance of the identified restructuring goals. The relevance was assessed using qualitative evaluation criteria (low, medium, high). Afterwards, the identified restructuring goals were condensed to those highly relevant for SMEs. The seven main restructuring goals were catalogued as *changeability*, *profitability, communication, transparency, compliance with standards,* *sustainability and organizational compatibility*. Each were described with corresponding criteria. In the subsequent course of the project, the criteria serves as a benchmark for the degree of goal achievement. For example, the restructuring goal 'communication' is described as "reducing the length of communication distance between the single *compliance* departments". A similar procedure to the one described above for identifying and defining the restructuring goals was applied to the other configuration elements. The results are listed below:

The 15 main planning tasks were catalogued as designing workplaces, dimensioning, planning communication concept, planning storage equipment, planning the layout, planning the logistics concept, planning special equipment, planning the production concept, planning production equipment, planning quality assurance concept, organizational planning, planning transportation equipment, planning of technical installations (distribution), planning information technology and project management The eight main responsibilities were catalogued as production equipment planner, factory planner, facility manager, information technology planner, storage equipment planner, logistics planner, production planner and quality planner. The catalogue planning methods contains 32 methods (e.g. material flow matrix, value stream design).

CONCLUDING COMMENTS

This paper shed light on the problem of limited success when planning factories and in particular, restructuring projects, while demonstrating the corresponding need for research. Following that, the initial results of the research project were presented. The developed catalogues (restructuring goals, planning tasks, responsibilities and planning methods) represent an important basis for configuring restructuring projects. In the course of future research, the elements of the catalogues will be described further (e.g. input and output information for the planning tasks). This allows data to be easily and systematically compiled. Moreover, by depicting input and output information, dependencies between the individual planning tasks can be shown. Furthermore, the dependencies between the catalogues will be described. This will make it possible to determine necessary planning tasks, methods and responsibilities according to the selected restructuring goal. Based on that, a procedural method will be developed and the practicality will be verified.

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ACKNOWLEDGEMENTS

The IGF project 19304 N of the German Research Association for Transportation Management and Logistics e. V. (GVB, Wiesenweg 2, 93352 Rohr) was financially supported by the Federal Ministry for Economic Affairs and Energy by the Program to Support Industrial Collective Research (IGF) based on a decision by the German Federal Parliament (duration 02/2017 – 10/2018).

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