Analysis of Macro Environment for Strategy Implementation: What is important to Handicraft Export Organisations in Ghana?

Stephen Banahene[1], Eric Ahudey[2] , Charles Mensah[3]
Christian Service University College[1]
Christian Service University College[2]
Accra Polytechnic[3],Ghana

Abstract
The environment can be described as what separates surface from substance and what provides meaning in the form of terrain, shelters, water, fire, objects, and tools for survival. This means that business environment contribute immensely to strategic success and its analysis becomes necessary for management action. Studies in business environment have concentrated largely on theory development, the use of qualitative approach, and less on what managers do with business environment in the decision making process. This study has investigated the environmental analysis done by managers of handicraft export organisations. The study has indicated that, political, economic and international factors serves as enable and challenging factors to strategy implementation but are less analysed. The situation appears to be inconsistent with cognitive psychology of rationality and reasoning.
Structured questionnaire was used to collect data from managers of handicraft export organisations. In conclusion, managers of handicraft export organisations should be rationally interested in macro environment analysis as it afford business strategy implementation.

Keywords: environment; enabling factor; challenging factor; strategic management; and implementation.

1.0 INTRODUCTION
There are myriads of cleverly, intuitively designed things including strategy that we do correctly without thinking, even if we are doing so for the first time. Crafting of business strategy (analysis, formulation and implementation) is not exactly intuitive and unfortunately poor strategy is not that uncommon. Poor strategy can even have far-reaching business consequences. One key area of business strategy is the analysis of the environment. The discussion on business environment as key determinant of strategic implementation success is ongoing among scholars. Barker (1968) in his classical work "Ecological Psychology" argued that human behaviour is radically situated in a way that predictions can be possible when the environment of the person is understood. Gibson has also stressed the importance of the environment and how it affords various actions to the organism. Thus, an appropriate analysis of the environment is crucial for the explanation of perceptually guided behaviour. Like Barker and Gibson, many scholars have helped to explain the psychological issues in the analysis of environment. It is also important to investigate how and the rate of environment usage in the implementation of strategy by managers in businesses that have wider environmental factors to deal.

 What then is the environment? The environment can be described as what separates surface from substance. It can also be defined as what provides meaning in the form of terrain, shelter, water, fire, objects, tools and others for survival. By these indications, environment can be made up of the composition and layout of surfaces that provides survival. This implies that the "values" and "meanings" of things in the environment can be directly perceived as the determinant of the outcome of business strategy. Hence, the perception on the business environment is crucial for the explanation of a guided behaviour for business strategy. This study has sought the perception of handicraft export managers to determine how often they analyse business macro environment and the degree to which these macro environment factors pose opportunities and threats to strategic implementation.

2.0 METHODOLOGY
In this study, the researcher used questionnaire on 46 managers of Handicraft Export Organisations in Ghana who have been consistently exporting at least in the last five years within the handicraft product line as allowed by the American Growth and Opportunity Act (AGOA). In line with Cochran (1963) and Yamane (1967) studies, the researcher used 90% confidence level to calculate the sample size of the studied population. Multi method sampling technique was used to select those handicraft export organisations in the following handicraft areas; kente (traditional textiles), statuettes (wood), brass ware, ceramics, jewelry, basket wares and other assorted handicraft products. Descriptive statistics, graph and Mauchly's Test of Sphericity were used for action on the data.

3.0 REVIEW OF CURRENT THINKING IN BUSINESS ENVIRONMENT

As cited by Collins, ecological view of strategy is about the process of matching what an organisation can do within the universe of what it might do to a formulation of behaviour representing what it should best do (Andrew, 1980). Andrew's position on environmental analysis is about how to relate environmental conditions and trends to opportunities and risks to determine the best match to markets and products. Aguilar's (1967) work on PESTLE analysis defined the structured nature of business environment and proposed the logic of casual relationships between the external industry conditions and the implications and consequences for business and management attention. In order to be useful to the structured nature of PESTLE and its causal relationships in logical consequences, it is equally important to know the extent to which managers consciously or otherwise use macro environment in their strategic implementations. To be productive in strategy, we need to move along side with abstract analysis, the specific usage of business environment by industry. Barney (1991) has studied the complementarities between environmental models of competitive advantage and resource-based models and concluded on the importance of macro environment to strategy implementation.

Drucker has concerned himself with matters of micro environment and identified that an organisation's inability to match its behaviour to the changing environment is a sign of stagnation (Drucker, 1994). Notwithstanding, Drucker still emphasised that organisations are anchored in dynamic context and its managers are required to consider the extended context in an intelligent and purposeful way. This therefore means that, managers of organisation must undertake environmental analysis to monitor the forces that may have an adverse effect on their organisations (Albright, 2014). This further supports Astley and Fombrun's view that, organisations are active part within the environment and need to respond dynamically to and affect the evolution of the environment (Astley and Fombrun, 1983; Astley, 1984).

In this changing business environment, strategy implementation has to do with capabilities to analyse what is important to the business in order to be effective and purposeful. The capabilities being suggested here is the everyday activities that organisations do to achieve new ways of doing things (Horton, 2010). When business environment is ambiguous and complex, strategy must seek to explore in details the cognitive and practice behaviour of managers. The managerial behaviour in strategy implementation should include problem sensing and cognitive processes of identifying environmental forces likely to affect the activities of their businesses (Kiesler and Sproull, 1982 cited by Collins). This suggests that, to be able to implement strategy successfully, one must understand the environmental context to sense out which environmental force has the capacity to affect the strategy. The strength in knowledge to deal with high-value and relevant information in strategy is known as 'high-order capabilities' which is an asset in competition (Pandza and Thorpe, 2009). What is important here is that, effective environmental analysis to identify what force is significant to strategy is part of the meta-cognitive skill required to gain competitive advantage. This skillful analysis creates purposefulness and responsiveness to the environment dynamics. It is for this reason why environmental analysis is recognised as an important part of entrepreneurial behaviour (McEwen, 2008).

There is available research to indicate that, environmental analysis is either poorly done or inadequately carried out to achieve its purpose. For instance, a study on 140 corporate strategists indicated that more than 65% of them were surprise of the high impact of external events in their proceeding five years (Fuld, 2003). In another study, less than 20% of global organisations have adequate capacities to notice, interpret and act on the weak signals of an emerging threats and opportunities (Schoemaker and Day, 2009). These later authors' new study shown that, 97% of the respondents reported that their organisations have insufficient formal process to deal with future surprises presented by the external environment. There is another study to suggest that when managers do engaged in environmental analysis, they sometimes fail to draw correct insights and inferences from the data. This situation is compounded by poor communication of the environmental issues to key stakeholders for comprehensive strategic implementation appreciation (Albright, 2004). In order for organisations to align its strategy implementation, it is important for stakeholders to build consensus in the 'world view of its leaders (Kaplan and Norton, 1992; 1993; 1996; and 2004). Managers may have different mental view of the competitive business environment and when no clear consensus is built on the environment, strategy may be more emergent in approach. The essence of environmental analysis is to equip managers with the information to implement strategy that is adaptive to its environment. But its success depends on the managers' understanding and confidence they have in the environment as analysed (Barr and Hough, 1997). It is also argued that, communication of environment analysis can be better understood when is in the form of graphics rather than language expression. Graphics use elements and relations in space to convey elements and relations in real or metaphoric space. This allows inference based on the visuospatial processing to allow people to interact with space. As a cognitive tool, graphics facilitates reasoning to map spatial comparisons and transformations (Tversky, 2005). These points emphasised that, the use of business environment should take into account different aspects of cognitive psychology. This is about the need to encourage and support

remembering, thinking (Craik and Lockhart, 2008) and acting to the use of business environmental. Remembering has to do with absorbing and recalling information quickly and efficiently. Thinking is about logical and rational reasoning across dataset to allow deep insight and useful deductions to be made. And acting is also on taking steps to use information that has been rationally processed. Collins has also developed PESTLEWeb model to aid the use of business environment. The PESTLEWeb model encodes the discrete items in business environment and also explores the rich web relationships among them through graphical notations (Collins, 1997). The model largely looks at the complex systems engineering and psychology of business environment to strategy development.

From these perspectives, studies done in business environment are categorised into the following;

i.   Describe the nature and form of the business environment as can be seen in PESTLE.
ii.   Graphically showing the network of relationships among the elements of business environment as offered by PESTLEWeb model.
iii.   The awareness level of business environment in the decision making process.

Important as all these study are, it is equally significant to look at the practical use of business environment and what goes into the practice. As the adage says 'practice makes a man perfect', it is so only when good practice is ensued. If wrong practice is undertaken or nothing is done on essential area of business, it may not qualify as the practice that makes perfection. Managers of organisations are to see business environment as important to their strategy. The failure to undertake environmental analysis can have considerable damage on business performance. Pearce et al (1982) have indicated that poor usage of environmental issues is a major contributor to the demise of many small and growing businesses.

Gibson's Affordance Theory emphasizes the usefulness of business environment and the need to analyse. The Affordance Theory claims that the air affords breathing, ground affords standing and manipulation of a rope allows knitting, binding and knotting. The business environment affords organisations' strategy whether or not mangers perceive them to be so. The aphorism that "Ask not what's inside your head, but what your head's inside of" succinctly captures the point to consider business environment in strategy implementation. Nightingale's environmental theory about the relationship between patient and the environment is similar to organisation and its business environment. As the nurse role is to ensure good environment specific to the patient's condition, so do managers to their organisations. The question is do managers understand specific environment necessary to the health of their organisation? Do managers work on 'good' environment as required by their organisations? Answers to these questions are what this paper has explored.

4.0 DESCRIPTIVE STATISTICS ON FREQUENCY OF ANALYSIS, RATING AS ENABLER, AND RATING AS CHALLENGER FACTORS OF THE MACRO ENVIRONMENTAL FACTORS

The macro environmental factors are made up of Political, Economic, Socioculture, Technological, International and Ecological. These factors affect strategic implementation actions. Respondents were asked to rate how frequent they analyse these factors, and how they consider the same factors in terms of scale as enabler and challenger to strategic management implementation practices. Using the scale of 4 (as the highest frequency) and 1 (as the least frequency'), the respondents gave the following information;

Table 1: Summary of the Descriptive Statistics of the Environmental Factors Analysis

Environmental Factor	Mean			Standard Deviation			Coefficient of Variation			Number
	FA	RE	RC	FA	RE	RC	FA	RE	RC	
Political	3.00	3.17	1.87	0.897	0.996	1.087	29.80	31.42	58.13	46
Economic	3.67	3.63	1.35	0.56	0.878	0.482	15.26	24.19	35.70	46
Socioculture	3.24	3.04	2.24	0.673	0.698	0.874	20.77	22.96	39.02	46
Technological	3.15	3.22	2.59	0.729	0.917	1.127	23.14	28.48	43.51	46
International	3.17	3.48	1.63	0.677	0.888	0.951	21.36	25.52	58.34	46
Ecological	3.28	2.83	2.30	0.834	0.677	0.662	25.43	23.92	28.78	46

Note:
FA = Frequency of Analysis
RE = Rating as Enabling Factor
RC = Rating as Challenging Factor

4.1 Political Environment Factor

Respondents were asked to rate their frequency of analysis on the political environment as part of their strategic management implementation practices. The mean rate of analysis was 3 meaning that they

sometimes do when implementing their strategic management actions. This may be different from doing so for partisan objectives. The standard deviation of the rating of their analysis was high when compared with similar results. The coefficient of variation of 29.80 being the highest indicates that the rating of the frequency of analysis on political environment was dispersed. The rating of Political Environment as a business enabling factor was little above good on average. The standard deviation of 0.996 and coefficient of variation of 31.42 shows that the ratings were quiet dispersed compared to other factors. The mean rating of Political Environment as a business challenging factor of 1.87 indicates that respondents considered it as challenging to strategic management implementation actions. The standard deviation of 1.087 and coefficient of variation of 58.13 indicates high disperse of the rating.   This suggest that Political factor is relatively analysed when undertaking strategic management implementation, it is also considered as good business enabler and poses challenge to strategic implementation practices.

4.2 Economic Environment Factor
On average, the economic factor was indicated as most analysed macroeconomic factor with mean score of 3.67 in terms of strategic management implementation practices. The standard deviation and coefficient of variation scores of 0.56 and 15.26 respectively shows how close were the ratings to the mean compared to the other factors. The economic factor was considered as very good business environment enabler with a mean score of 3.63. The standard deviation of 0.878 and coefficient of variation of 24.19 also shows how relatively disperse respondents were in their ratings. The mean rating of 1.35 as business challenging factor explains that, economic factor is considered to be a very challenging factor to strategic management implementation practices. The standard deviation score of 0.482 shows that the ratings were close to the mean but the score of 35.70 as the coefficient of variation suggest that there were some extremes of the ratings. However, the ratings can generally be considered as closed to the mean score.

4.3 Socioculture Environment Factor
The Respondents' mean rating of their frequency of analysis on Socioculture factor was 3.24 indicating as something they do sometimes. The standard deviation of the rating of Socioculture analysis of 0.673 being the second among the factors shows that the ratings were disperse around the mean.   The coefficient of variation of 20.77 is the next to economic factor in terms of variability in the rating. The Socioculture factor has a mean rate of 3.04 representing the last but one business enabler in comparative terms. As regards rating it as business challenging factor, respondents had a mean rating of 2.24 to indicate it as challenging. The standard deviation of 0.874 and coefficient of variation of 39.02 shows how the ratings were relatively dispersed around the mean score.

4.4 Technological Environment Factor
The Technological factor has a mean rate of frequency of analysis of 3.15 suggesting that respondents sometimes do when implementing strategic management decisions. The standard deviation of 0.729 and coefficient of variation of 23.14 also indicate that the spread of the rating were relatively similar to others apart from the Economic factor. With regards to the rating as business enabler and challenger, Respondents gave a mean value of 3.22 and 2.59 respectively. This means that the factor is a good business enabler and poses average challenge to strategic management implementation. The standard deviations of 0.729, 0917 and 1.127 for frequency of analysis, rating as business enabler and rating as business challenger respectively show the relatively spread of the rating around the mean.

4.5 International Environmental Factor
The mean rating of International factor analysis in strategic management implementation was 3.17 indicating that they sometimes do. On the rating of the factor as business enabler and challenger, respondents had a mean rating of 3.48 and 1.63 respectively to indicate that the factor is a very good business enabler and also challenging to strategic management implementation which is next to Economic factor. The standard deviation scores of the areas of ratings show similar results to the other factors.

4.6 Ecological Environmental Factor
The Respondents mean rating of frequency of analysis was second but has the lowest rating as a business enabler. The factor also had the lowest mean rate value of 2.83 in the business enabler scores which is considered to be an average. On the rating of the factor as business challenging factor, the obtained score of 2.30 means that it is a challenging factor to strategic management implementation. The standard deviations for rating of analysis, rating as business enabler and rating as business challenger scores of 0.834, 0.677 and 0.662 respectively also communicate relative similar spread of rating around the mean as compared to the other factors.

The study also aimed at the significance of the educational background of the respondents on the rating of frequency of analysis, rating as business enabler and rating as business challenger. The Mauchly's Test of Sphericity was used to determine the homogeneity of covariance among the respondents in terms of their educational background. The hypothesis tested was;

H_0: Manager's educational level does not affect analysis of macroeconomic factors.

H_1: Manager's educational level affects analysis of macroeconomic factors.

Table 2: Summary of Mauchly's Tests of Sphericity

Within subjects effects	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse Geisser	Huynh-Feldt	Lower-bound
Political	0.865	6.368	2	0.410	0.881	0.914	0.5
Economic	0.955	2.024	2	0.363	0.957	0.998	0.5
Socioculture	0.988	0.543	2	0.762	0.988	1.000	0.5
Technological	0.701	15.638	2	0.000	0.770	0.792	0.5
International	0.802	9.711	2	0.008	0.835	0.863	0.5
Ecological	0.912	4.060	2	0.131	0.919	0.956	0.5

From the summary of the Mauchly's Tests of Sphericity, the p-values Political, Economic, Socioculture and Ecological were more than 0.05. The p-values of Technological and International were 0 and 0.008 respectively indicating a lower value below 0.05. Therefore, for those environmental factors with p-values greater than 0.05 there is no evidence of heterogeneity of covariance among the respondents. For the two factors with p-values lesser than or equal to 0.05, the researcher took a more conservative test such as Greenhouse-Geisser tests.

Table 3: Tests of Within Subjects Effects

Factor	Df Sphericity Assumed	Df Sphericity Assumed (error)	F	Sig.
Technological	2	90	5.595	0.050
International	2	90	50.151	0.000

The p-values for the Technological and International factors are significant beyond 5% level. The researcher can therefore conclude that the knowledge gained in technology and international affairs does affect the rating of that macroeconomic analysis. Thus:

(i)   Technology $F(2,90) = 5.595; p \leq 0.05$

(ii)   International $F(2,90) = 50.151; p < 0.00$

The researcher therefore concludes that the rating of frequency of analysis made by respondents, their rating of the macroeconomic factors as business enabler and challenging factors are not connected to the level of education.

From the discussions, it can be concluded that three factors need attention in strategic management implementation: Political, Economic and International. The Political factor is the least analysed on average but has been rated high among others as business enabler and challenging in terms of strategic management implementation. The Economic factor registered the highest mean score in terms of frequency of analysis and business enabler. In addition, it has been rated as the factor that poses as high challenge to strategic management implementation. The International factor is also noted for good frequency of analysis and serves as business enabler. It also poses itself as challenge to strategic management implementation practices. The graphical view on the rating of frequency of analysis, and rating as business enabler and challenger was discussed.
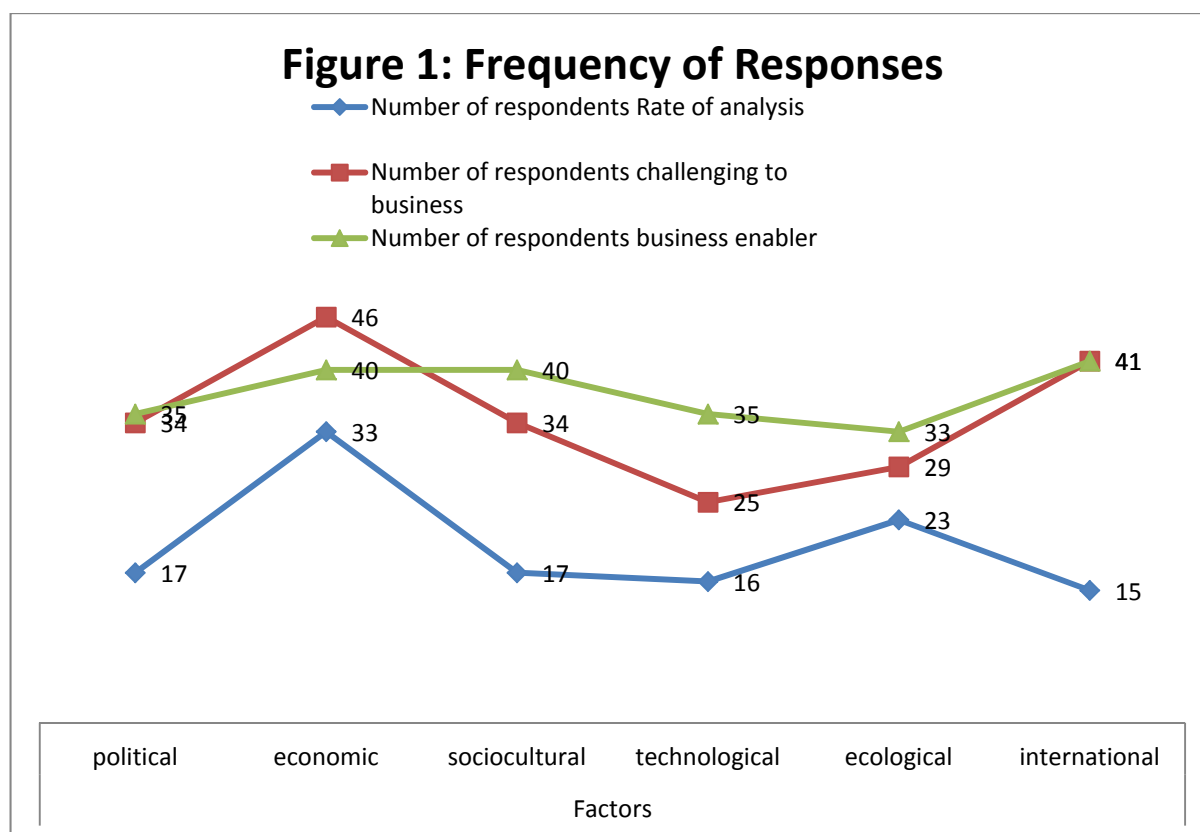
Figure 1: Frequency of Responses

Figure 1: Frequency of Responses

From the figure 1 above, the numbers of the respondents who do macroeconomic analysis were below those numbers for the rating as business enabler and challenger. The first two factors analysed most by respondents were economic and ecological. Another set of three factors considered by respondents as enablers were economic, Socioculture and international. The two leading factors rated by most respondents as challenger were economic and international.

Apparently, more respondents accept that macro environment factors provide support and challenge to strategic implementation practices. However, less respondents do analysed them irrespective of their educational background. The worst gab exists in the international factor where 41 respondents rated the factor as both enabler and challenging but 15 do analysis during their strategic implementation practice. A close look at the economic factor reveals that, it scores highest in analysis and ratings in terms of business enabler and challenger. What then is the motivation? Perhaps, the economic factor provides what is needed and also serves as substance for strategic implementation success. The ecological factor also provides and interesting revelation. The question here is, do some managers apply the cognitive approach to business as emphasised by Craik and Lockhart (2008)? The cognitive psychology focus on 'rationality' which in this case may be based on business decisions on environmental factors that have greatest effect on organisations is a challenge in this context. Perhaps, the cause may be that business environmental analysis is less keen to such managers or are sleeping over the importance to gain in undertaking such valuable business activity. As small businesses hold promising opportunity to most economies, managers must be encourage on the use of business environmental lessons to gain competitive advantage in the global marketplace.

5.0 CONCLUSION

Business environment has been noted to be important to strategy implementation success. Considerable studies have been done to give prescriptive elements of macro environmental factors, consciousness of the macro environment effect on business success and the interrelationships and networking effects among macro environmental factors. As to whether managers are good at the usage of the macro factors in their strategy development remains less researched. This paper has statistically analysis the behaviour of managers on macro environment factors, hitherto, has been done qualitatively. The results have indicated political, economic and international factors as important to small organisations whose customers are in the export market. But analysis of these macro factors fall short of expectation. The continued scanning and analysis of macro environment remains important to small organisations such as those in handicraft exporting.

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Appendix 1: Political Environment Statistics

		RATING_OF_ANALYSIS	RATING_AS_ENABLER	RATING_AS_CHALLENGER	EDUCATIONAL_BACKGROUND
N	Valid	46	46	46	46
	Missing	0	0	0	0
Mean		3.00	3.17	1.87	3.09
Std. Deviation		.894	.996	1.087	.865

Appendix 2: Political Environment - Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
factor1	.865	6.368	2	.041	.881	.914	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept Within Subjects Design: factor1

Appendix 3: Political Environment - Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	Df	Mean Square	F	Sig.
factor1	Sphericity Assumed	46.145	2	23.072	17.325	.000
	Greenhouse-Geisser	46.145	1.763	26.182	17.325	.000
	Huynh-Feldt	46.145	1.829	25.232	17.325	.000
	Lower-bound	46.145	1.000	46.145	17.325	.000
Error(factor1)	Sphericity Assumed	119.855	90	1.332		
	Greenhouse-Geisser	119.855	79.313	1.511		
	Huynh-Feldt	119.855	82.298	1.456		
	Lower-bound	119.855	45.000	2.663		

Appendix 4: Economic Environment - Descriptive Statistics

	Mean	Std. Deviation	N
RATING_AS_ANALYSIS	3.67	.560	46
RATE_AS_ENABLER	3.63	.878	46
RATE_AS_CHALLENGER	1.35	.482	46

Appendix 5: Economic Environment - Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
STR_IMPL_PRACTICES	.955	2.024	2	.363	.957	.998	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept Within Subjects Design: STR_IMPL_PRACTICES

Appendix 6: Economic Environment - Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
STR_IMPL_PRAC TICES	Sphericity Assumed	162.884	2	81.442	160.100	.000
	Greenhouse-Geisser	162.884	1.914	85.104	160.100	.000
	Huynh-Feldt	162.884	1.997	81.566	160.100	.000
	Lower-bound	162.884	1.000	162.884	160.100	.000
Error(STR_IMPL_ PRACTICES)	Sphericity Assumed	45.783	90	.509		
	Greenhouse-Geisser	45.783	86.127	.532		
	Huynh-Feldt	45.783	89.863	.509		
	Lower-bound	45.783	45.000	1.017		

Appendix 7: Socioculture Environment - Descriptive Statistics

	Mean	Std. Deviation	N
RATE_OF_ANALYSIS	3.24	.673	46
RATING_AS_ENABLER	3.04	.698	46
RATING_AS_CHALLENGER	2.24	.874	46

Appendix 8: Socioculture Environment - Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	Df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
STR_IMPL_PRACTICE	.988	.543	2	.762	.988	1.000	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept Within Subjects Design: STR_IMPL_PRACTICE

Appendix 9: Socioculture Environment - Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
STR_IMPL_PRAC TICE	Sphericity Assumed	25.841	2	12.920	22.294	.000
	Greenhouse-Geisser	25.841	1.976	13.079	22.294	.000
	Huynh-Feldt	25.841	2.000	12.920	22.294	.000
	Lower-bound	25.841	1.000	25.841	22.294	.000
Error(STR_IMPL_ PRACTICE)	Sphericity Assumed	52.159	90	.580		
	Greenhouse-Geisser	52.159	88.910	.587		
	Huynh-Feldt	52.159	90.000	.580		
	Lower-bound	52.159	45.000	1.159		

Appendix 10: Technological Environment – Descriptive Statistics

	Mean	Std. Deviation	N
RATING_OF_ANALYSIS	3.15	.729	46
RATE_AS_ENABLER	3.22	.917	46
RATE_AS_CHALLENGER	2.59	1.127	46

Appendix 11: Technological Environment - Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
STR_IMPL_PRACTICES	.701	15.638	2	.000	.770	.792	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept Within Subjects Design: STR_IMPL_PRACTICES

Appendix 12: Technological Environment - Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
STR_IMPL_PRACTICES	Sphericity Assumed	11.058	2	5.529	5.595	.005
	Greenhouse-Geisser	11.058	1.540	7.183	5.595	.010
	Huynh-Feldt	11.058	1.583	6.983	5.595	.009
	Lower-bound	11.058	1.000	11.058	5.595	.022
Error(STR_IMPL_PRACTICES)	Sphericity Assumed	88.942	90	.988		
	Greenhouse-Geisser	88.942	69.278	1.284		
	Huynh-Feldt	88.942	71.255	1.248		
	Lower-bound	88.942	45.000	1.976		

Appendix 13: International Environment - Descriptive Statistics

	Mean	Std. Deviation	N
RATING_AS_ANALYSIS	3.17	.677	46
RATE_AS_ENABLER	3.48	.888	46
RATE_AS_CHALLENGER	1.63	.951	46

Appendix 14: International Environment - Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
STR_IMPL_PRACTICES	.802	9.711	2	.008	.835	.863	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept Within Subjects Design: STR_IMPL_PRACTICES

Appendix 15: International Environment - Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
STR_IMPL_PRACTICES	Sphericity Assumed	90.304	2	45.152	50.151	.000
	Greenhouse-Geisser	90.304	1.669	54.094	50.151	.000
	Huynh-Feldt	90.304	1.726	52.318	50.151	.000
	Lower-bound	90.304	1.000	90.304	50.151	.000
Error(STR_IMPL_PRACTICES)	Sphericity Assumed	81.029	90	.900		
	Greenhouse-Geisser	81.029	75.122	1.079		
	Huynh-Feldt	81.029	77.673	1.043		
	Lower-bound	81.029	45.000	1.801		

Appendix 16: Ecological Environment - Descriptive Statistics

	Mean	Std. Deviation	N
RATING_AS_ANALYSIS	3.28	.834	46
RATE_AS_ENABLER	2.83	.677	46
RATE_AS_CHALLENGER	2.30	.662	46

Appendix 17: Ecological Environment - Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	Df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
factor1	.912	4.060	2	.131	.919	.956	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept Within Subjects Design: factor1

Appendix 18: Ecological Environment - Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	Df	Mean Square	F	Sig.
factor1	Sphericity Assumed	22.043	2	11.022	16.921	.000
	Greenhouse-Geisser	22.043	1.838	11.993	16.921	.000
	Huynh-Feldt	22.043	1.912	11.526	16.921	.000
	Lower-bound	22.043	1.000	22.043	16.921	.000
Error(factor1	Sphericity Assumed)	58.623	90	.651		
	Greenhouse-Geisser	58.623	82.709	.709		
	Huynh-Feldt	58.623	86.062	.681		
	Lower-bound	58.623	45.000	1.303		