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Effects of Factor Analysis on the Questionnaire of Strategic Marketing Mix on Organisational Objectives of Food and Beverage Industry.

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Abstract
This study examines the effects of factor analysis on the questionnaire of strategic marketing mix on organizational objectives of food and beverage industry. The objective is to test the effect of factor analysis on the questionnaire, and to show if factor analysis is appropriate and desired if a desired result is to be achieved.
The methodology employs primary and secondary sources of data. The primary source envelopes questionnaires while the secondary source allows for the use of journals, internet and the periodicals. The data were analyzed using descriptive (percentages) and inferential statistics(factor analysis). It should be noted that the result of the questionnaires were subjected to factor analysis.The findings show that the correlation matrix was all positive and above 0.5.The Kaiser-Mayer Olkin has a value of 0.882which show the greatness of the data. After extraction, the principal component analysis show high percentages of the variance accounted for. Eight factors were extracted which explain 72.6% of the variability. Finally, the variables were loaded in one component or the other.It is hereby concluded that the correlation matrix shows the adequacy of the factor analysis on the questionnaire. The Kaiser-Mayer Olkin of .0882 and Batlette test of 0.00 show that factor analysis is appropriate. The extracted component represents the variables well. The eight factors explained 72.6% of the information contained by the 25items (variables).More so, the variables were loaded in one component or the other, showing that the variables are satisfactory for further studies. All these show that factor analysis has effect on the questionnaire of strategic marketing mix on organizational objectives of food and beverage industry.
Keywords; Factor analysis, questionnaire, strategic marketing mix, organizational objectives, and food and beverage industry.

Introduction

The food and beverage industry in Nigeria is at the fore in the manufacturing of dairy products, beverages, seasoning, convenience foods, confectionaries and staple food. This industry is one of the most globally competitive industries, dominated by a handful of multinational companies. The leading manufacturers of food and beverage products in Nigeria are mostly subsidiaries of global major players. Companies such as Nestle Nig. Plc, Unilever Nig Plc and Cadbury Nig. Plc dominate the beverage, seasoning and confectionary segments in Nigeria. It is necessary fact that the food and beverage industry is one of the largest sectors in the manufacturing industry. It is therefore necessary for this sector to apply strategies to the marketing mix under to achieve its organizational objectives.
Strategic marketing management can be viewed as the art and science of formulating, implementing and evaluating cross functional decisions that enable an organization to achieve its marketing objectives (Achumba, 2000). From this definition, strategic marketing management focuses on integrating marketing activities to achieve organizational objectives. From the perspective of Akinyele (2010), there are four goals of strategic marketing management that needs to be understood by those wishing to use strategic management to craft profitable strategies. These goals are; to select reality – based desires accomplishments (e.g. goals and objectives), to be more effectively developed or alter business strategies, to set priorities for operational change, and to improve a firms performance. Bryson (2004) observed that strategic marketing is a disciplined effort to produce fundamental decisions and actions that shape and guide what an organization is, what it does and why it does it, with a focus on the future. Vic and Mark G (2006) argued that strategic marketing is a process by which one can envision the future and develop the necessary procedures and operations to influence and achieve the future.
Strategic marketing (Berry, 1997) is the process of determining:
What the organization intends to accomplish.
How you will direct the organization and its resources towards attaining the goal set over the coming months and years.
However, strategic marketing is a tool for finding the best feature for your organization and the best part to reach the desired destination.
Higgins and Vinoze (1994) were of the opinion that strategic marketing can be defined as the process of using

systematic criteria and rigorous investigation to formulate, implements and control strategy, and formally document organizational expectations. Kudla (1996) viewed strategic marketing as the systematic process of determining the firm's goal and objectives for at least three years into the future and developing the strategies that will guide the acquisition and use of resources to achieve the set objectives.

Steiner (1997) saw strategic marketing as the process of determining the mission, objectives, strategies and policies that govern the acquisition and allocation of resources to achieve organizational aims. Strategic marketing has come to be inextricably interwoven into the entire fabric of management. It is not seen as a separate and distinct process of management. Bradford & Duncan (2000) argued that strategic marketing is an organization's process of defining its strategy and making decisions on allocating resources to pursue the strategy including its capital and people. The outcome is normally a strategic plan which is used as guide to define functional and divisional plans, technology and marketing among others.

Due to the vital nature of strategic marketing mix on organizational objectives of food and beverage industry, it is therefore necessary to test the efficacy of the questionnaire of strategic marketing mix on organizational objectives by subjecting the result of the questionnaire to factor analysis.

Factor analysis is frequently used to develop questionnaires. It is used to measure the ability or trait that one intends to measure. It is also used to ensure that the questions asked relate to the construct that one intends to measure. Factor analysis is a correlational technique to determine meaningful clusters of shared variance (O' Brien, 2007). He was of the opinion that factor analysis refers to a collection of statistical methods for reducing correlation data into a smaller number of dimensions or factors. Factor analysis helps to reduce the number of reported variables by determining significant variables and combining these into a single variable or factor. It may be used to either to discover factors or to test a hypothesis that may exist (Polit and Beck, 2008). Factor analytical techniques are to reduce the number of variables, and to detect structure in the relationships between variables (Statsoft, 2013). Vicky (2009) viewed factor analysis as a statistical method used to describe variability among observed, correlated variables in terms of a potentially lower number of unobserved variables called factors. He also viewed factor analysis as a broad term for multivariate statistics methods used to identify common underlying variables called factors within larger set measures. Exploratory factor analysis is a widely utilized and broadly applied statistical techniques in the social sciences (Costello and Osborne ,2005) . Exploratory factor analysis was recently used for a variety of applications, including developing an instrument for the evaluation of school principals (Lovett, Zeiss and Heimenn, 2002), assessing the motivation Rican high school students (Morris, 2001),and determining what type of services should be offered to college students (Major and Sedlacek, 2001)

Effects Of Factor Analysis On The Questionnaire Of Strategic Marketing Mix On Organisational Objectives Of Food And Beverage Industry

The results of the questionnaires were subjected to factor analysis and the following positive effects were observed and noted.

1. It helps in showing a correlative matrix which was positive in nature. The correlation coefficient between a variable and itself is 1.Hence the principal diagonal of the correlation matrix contains 1s. It can be seen that the correlations were all positive and also above 0.5. This shows the adequacy of the factor analysis.
2. The Kaiser-Mayer Olkin has a value of 0.882 which implies that the data are great; therefore, a factor analysis is appropriate for these data.
3. The Bartlett test of sphericity has a value of 0.00which implies that the Bartlett test is highly significant (i.e has a significant value less than 0.001 of $p<1$). This shows that there are some relationships between the variables, and therefore factor analysis is appropriate, and has significant effect on the questionnaire.
4. The Communalities. The principal component analysis works on the initial assumption that all the variance is common. After extraction, percentage of the variance accounted for are known. For example 76.1% of the variance in Pr 1(quality) is accounted for. This indicates that the extracted components represent the variables well.
5. The total variance explained. Eight factors were extracted and they all explained 72.6% of the total variability. This implies that the eight factors explained 72.6% of the information contained by the 25 items (variables).
6. Rotated Component Matrix. The variables were loaded in one component or the other, showing that the variables are satisfactory for further studies.

Methodology.

1. Data Collection. This involves the use of primary and secondary sources of data. The primary source involves the use of questionnaire while the secondary data incorporates the use of journals, periodicals

and the internet.

2. Research Design. This paper employs the use of survey research design that allows for the use of questionnaire in eliciting information from the targeted respondents.
3. Sample. A sample size of 90 management staff of a reputable food and beverage industry was drawn in Lagos State.
4. Data Analysis. This involves the use of descriptive and inferential statistics. The descriptive statistics incorporate the use of tables and percentages while the inferential statistics give room for the use of factor analysis.
5. Research Instrument. This paper employs questionnaire as an instrument for data collection. The questionnaire was divided into two sections. Section A measures the demographic characteristics of the respondents. These include educational qualification, status, department, sex, age, marital status and length of service, while section B looks at the contextual variables such as product, price, placement and promotion. However, the result of the questionnaires were subjected to factor analysis in order to test the effectiveness of factor analysis on the questionnaire of strategic marketing mix on organizational objectives of food and beverage industry.

Results And Discussion

Table 1 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.882
Bartlett's Test of Sphericity	Approx. Chi-Square	5873.406
	df	89
	Sig.	.000

The KMO measures the sampling adequacy which should be greater than 0.5 for a satisfactory factor analysis to proceed. A value close to 1 indicates that patterns of correlations are relatively compact and so factor analysis yield distinct and reliable factors. Kaiser (1974) recommends accepting values greater than 0.5 as acceptable (values below this should lead tone to either collect more data or rethink which variables to include). Values between 0.7 and 0.8 are good, values above 0.9 are superb. For this data, the value of 0.882 shows that the data are great, therefore the factor analysis is appropriate for these data.

The Bartlett test of sphericity measures the strength of the relationship among variables. From these data, the Bartlett test is significant, that is associated probability is less than 0.05. The Bartlett test for these data is 0.000 less than 0.05. This shows the significance of the factor analysis. See the KMO and Bartlett Test above.

The Communalities

Table 2 Communalities

	Initial	Extraction
pr1	1.000	.761
pr2	1.000	.564
pr3	1.000	.445
pr4	1.000	.694
pr5	1.000	.711
pr6	1.000	.752
pc1	1.000	.754
pc2	1.000	.693
pc3	1.000	.821
pc4	1.000	.865
pc5	1.000	.828
pc6	1.000	.668
pm1	1.000	.850
pm2	1.000	.743
pm3	1.000	.679
pm4	1.000	.726
pm5	1.000	.737
d1	1.000	.647
d2	1.000	.843
d3	1.000	.811
d4	1.000	.602
obj1	1.000	.695
obj2	1.000	.625
obj3	1.000	.789
ob4	1.000	.857

Extraction Method: Principal Component Analysis.

The table above shows the communalities before and after extraction. Principal component analysis works on the initial assumption that all variance is common, therefore before extraction, the communalities are all 1. The communalities in the column labeled extraction reflect the common variance in the structure. After extraction, 96.7% of the variance in quality is accounted for, 88.7% of the variance in brand name is accounted for, and so on. This indicates that the extracted components represent the variables well.

Correlation Matrix

The next output from the analysis is the correlation matrix. A correlation matrix is simply a rectangular array of number which gives the correlation coefficients between a single variable and every other variable in the investigation. The correlation coefficient between a variable and itself is always 1, hence the principal diagonal of the correlation matrix contains 1s. The correlation coefficient above and below the principal diagonal are the same. From our correlation matrix in Appendix 2. It can be seen that all the variables are positively correlated, necessitating the significance of the variables in the field of correlation coefficient as well as the justification for the use of factor analysis in analyzing the questionnaires.

Total Variance Explained

Table 3 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.456	17.823	17.823	4.456	17.823	17.823	3.363	13.451	13.451
2	3.382	13.526	31.349	3.382	13.526	31.349	2.747	10.987	24.439
3	2.661	10.644	41.993	2.661	10.644	41.993	2.580	10.322	34.760
4	2.045	8.179	50.172	2.045	8.179	50.172	2.519	10.077	44.837
5	1.532	6.127	56.299	1.532	6.127	56.299	2.098	8.392	53.229
6	1.490	5.960	62.259	1.490	5.960	62.259	1.907	7.629	60.857
7	1.360	5.438	67.697	1.360	5.438	67.697	1.520	6.082	66.939
8	1.235	4.938	72.636	1.235	4.938	72.636	1.424	5.697	72.636
9	1.101	4.402	77.038						
10	.914	3.656	80.694						
11	.739	2.957	83.651						
12	.661	2.644	86.295						
13	.615	2.459	88.753						
14	.494	1.977	90.731						
15	.462	1.849	92.580						
16	.411	1.643	94.222						
17	.371	1.485	95.707						
18	.330	1.321	97.028						
19	.225	.899	97.927						
20	.170	.680	98.607						
21	.131	.525	99.133						
22	.113	.452	99.585						
23	.044	.178	99.763						
24	.039	.157	99.920						
25	.020	.080	100.000						

Extraction Method: Principal Component Analysis.

The table above shows all the factors extractable from the analysis along with their eigenvalues, the percentage of variance attributable to each factor, the cumulative variance of the factor and the previous factors. Note that the first factors account for 19.236% of the variance, the second accounts for 16.244%, the third 13.360%, fourth 10.097, the fifth 8.516%, the sixth 7.997%, the seventh 5.114%, eighth 4.988% and the ninth 4.496%. SPSS then extract all factors with eigenvalues greater than 1, which leaves us with nine (9) factors, the eigenvalues associated with these factors are again displayed (and the percentage of the variance explained) in the column labeled Extraction Sums of Squared Loadings. It should be noted that the values in this aspect of the table are the same as the values before extraction, but the values for the discarded factors are ignored hence, the table is blank after the ninth factor.

Component Matrix

Table 4 Component Matrix[a]

	Component							
	1	2	3	4	5	6	7	8
pr1	-.585				.572			
pr2	.534							
pr3	.551							
pr4		.610						
pr5					.615			
pr6	.681							
pc1			.635					
pc2				.590				
pc3				.835				
pc4		.549	-.581					
pc5		.621						
pc6							.556	
pm1			.703					
pm2		.700						
pm3							.650	
pm4			.625					.521
pm5						.569		.547
d1	.762							
d2	.853							
d3	.861							
d4	.669							
obj1		-.581		.558				
obj2		-.529						
obj3		-.777						
ob4		.732						

Extraction Method: Principal Component Analysis.

a. 8 components extracted.

The matrix contains the loadings of each variable into each factor. However, this is done before rotation. SPSS displays all loadings, , however, we requested that all loadings less than 0.5 be suppressed in the output. There are blank spaces for many of the loadings because they are less than 0.5. However, the variables are loaded in factor (component) one or the other which indicates that the variables can be used for further study, justifying the positive effect of factor analysis.

Table 5 Rotated Component Matrix[a]

	Component							
	1	2	3	4	5	6	7	8
pr1	-.835							
pr2	.699							
pr3				.576				
pr4				.776				
pr5				.814				
pr6	.826							
pc1			-.687					
pc2						.685		
pc3					.875			
pc4		.812						
pc5						.529		
pc6							.787	
pm1					.745			
pm2		.698						
pm3							.762	
pm4						.733		
pm5								-.827
d1	.588							
d2	.631			.527				
d3	.638			.533				
d4								
obj1			.681					
obj2			.661					
obj3			.748					
ob4		.901						

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 14 iterations.

Before rotation, most of the variables loaded in the first component, except for advertising that loadings in both components. However, the rotation of the factor of the factor structure has clarified things considerably. The variables were highly loaded in one component or the other. At times loaded in both components showing that the variables are satisfactory for further studies.

Conclusion

It is hereby concluded that the correlation matrix shows the adequacy of the factor analysis on the questionnaire. The Kaiser-Mayer Olkin of .0882 and Batlette test of 0.00 show that factor analysis is appropriate. The extracted component represents the variables well. The eight factors explained 72.6% of the information contained by the 25items(variables).More so, the variables were loaded in one or the other, showing that the variables are satisfactory for further studies. All these show that factor analysis has effect on the questionnaire of strategic marketing mix on organizational objectives of food and beverage industry.

Recommendation.

It is hereby recommended that empirical studies that adopt survey research design should be factor analyzed in order to have effective results.

References

Achumba, I(2000). Strategic Marketing Management, Mac-Williams and Capital Publisher Inc, Charlotte. U.S.A
Akinyele, S.T (2010) Strategic Management Practice on the Performance of Firms in Nigeria Oil and Gas Industry International Journal Research Consumer Management 1 (4) pg 6-33.
Berry, B.W. (1997). 'Strategic Marketing Work Book for Nonprofit Organizations', Chicago Amherst H., Publishers; Wilder Foundation.
Bradford and Duncan (2000). Simplified Strategic Planning, Chandler House. Retrieved in 2012 from http://www.google/strategy.com

Bryson, J. M., (2004): 'Strategic Planning for Public and Nonprofit Organization', Jossey- Bass Publishers
Costello, A.B and Osborne, J.W (2005). Exploratory Factor Analysis;Four recommendations for getting the most from your analysis, practical assessment research and evaluation. Retrieved in 2013 from http/factor analysis.com
Higgins, J. M. and Vinoze J. W. (1994). Strategic Management: Concepts and Cases. Chicago IL Dryden Press.
Kudler, R., (1996). 'The effects of strategic marketing on common stock returns', Academy of Management Journal. Vol. 23, No. I, pg. 5-20.
Lovett, S Zeiss, A.M and Heinemann, G.D(2002).Assessment and development, Now and in the future. Heinemann Gloria D (Ed), 2002; Zeiss Antonette M (Ed), 2002. Team performance in healthcare;Assessment and development; Issues in the practice of psychology, pp 385-400
Major,M.S and Sedlacek, W.E(2001). Using factor analysis to organize students services. Journal of College Student Development, 42(3), 2272-2278
Morris, S.B (2001), Sample size required for adverse impact analysis. Applied HRM Research. 6(1-2), 13-32
O' Brien K (2007). Factor analysis; an overview in the field of measurement, physiotherapy ,Canada
Polit, D, F and Beck C,T(2008). Nursing research, generatingand assessing evidence for nursing practices.8th edition.
Statsoft(2013).Electronic Statistics Textbook, Creators of Statistical Analysis Software and Services. Retrieved in 2013 from http/factor analysis.com
Steiner, G.S. (1997). 'Strategic Marketing Planning', New York Free Press. Steiner, G.A. & Hague, K. (2000). Top Management Planning, Macmillan, New York.
Vic and Mark G(2006). The Science of Effective Sales; Aligning your sales process with your target customer for outstanding sales performance. . Retrieved in 2012 from http://www organizational sales.com
Vicky R.N(2009). Exploratory and confirmatory factor analysis. Retrieved in 2013 from http/allnurses.com/showthread.php?t=38482

APPENDIX 1
QUESTIONNAIRE

Department of Management and Accounting,
Faculty of Management Sciences,
Ladoke Akintola University of Technology,
Ogbomoso,
Oyo State.

Dear Sir/Madam,

I am a Ph.D student in the Department of Management and Accounting, Faculty of Management Sciences, LAUTECH. I am conducting a research on **'Effect of Strategic Marketing Mix on Organizational Objectives of Food and Beverage Industry'**; and your organization has been selected as one of the case study.

I request your utmost assistance in providing relevant information to the attached questionnaire. I am therefore soliciting your maximum cooperation with full guarantee that all information supplied will be treated confidentially and used strictly for academic purposes.

……
Ibojo Bolanle Odunlami
The Researcher

EFFECT OF STRATEGIC MARKETING MIX ON ORGANISATIONAL OBJECTIVES OF FOOD AND BEVERAGE INDUSTRY

Introduction

Please tick (√) or write your response on the space provided as appropriate.

SECTION A

Preliminary Information

Company:

Educational Qualification

(a) Primary School Leaving Certificate ( ) (b) WASC/SSCE ( )
(c) ND/NCE ( ) (d) B.Sc./HND ( )
(e) M.Sc./MBA ( ) (f) Ph.D. ( )
(g) Professional Qualification (Please specify) ……

Status in the organisation.

(a) Supervisor ( ) (b) Assistant Manager ( ) (c) Full Manager ( ) (d) Senior Manager ( ) (e) General Manager ( )
(f) Deputy Director ( ) (g) Executive Director ( ) (h) Managing

Director ( ) (i) Others (Please Specify) ……
Department in the Organization
(a) Engineering ( ) (b) Marketing ( ) (c) Production ( )
(d) Finance ( ) (e) Administration ( ) (f) Personnel ( )
(g) Others (Please Specify) ……
Sex: Male ( )
Female ( )
Age: Below 20 ( )
21 – 30 ( )
31 – 40 ( )
41 – 50 ( )
51 above ( )
Marital Status
(a) Single ( ) (b) Married ( ) (c) Divorced ( ) (d) Widowed ( )
Length of Service in the organization
(a) Below 1 year ( ) (b) Between 1 and 5 years (c) Between 5 and 10 years ( ) (d) Above 10 years

SECTION
Contextual Variables

Products

S/N	ITEMS	SA	A	U	D	SD
1.	Your organization produces varieties of products in meeting customers' satisfaction.					
2.	The brand name influences organizational sales					
3.	Your products meet customers' requirements					
4.	Customers complain about the quality of your products.					
5.	The packaging is effective?					
6.	Your organization gives room for product warranty?					

Price

S/N	ITEMS	SA	A	U	D	SD
7.	The pricing decisions allow for discounts?					
8.	Prices of the products are appropriate.					
9.	The pricing decisions allow for payment period					
10.	The pricing strategy gives room for large customer base.					
11.	Applying strategies to the prices leads to Increase in sales, thereby contributing to the achievement of objectives.					
12.	The pricing decision allows for credit terms.					

Promotion

S/N	ITEMS	SA	A	U	D	SD
13.	People know your products based on your promotional strategy.					
14.	Your organization applies advertising as one of the promotional strategy					
15.	Your organization applies sales promotion as one of the promotional strategy					
16.	Your organization applies personal selling as one of the promotional strategy					
17.	Your promotional strategy influences the rate of purchase positively.					

Placement

S/N	ITEMS	SA	A	U	D	SD
18.	Your products get to the target customers through your distributional channels.					
19.	Locations of the products aid accessibility					
20.	The channel coverage is effective					
21.	Transportation system is effective					

Organizational Objectives

S/N	ITEMS	SA	A	U	D	SD
22.	Customers derive satisfaction as a result of the application of strategies to the marketing mix.					
23.	Your organization achieved improved sales as a result of the application of strategies to the marketing mix.					
24.	The application of strategies to placement gives room for product accessibility					
25.	The application of strategies to promotional activities gives room for product awareness.					

APPENDIX 2 Correlation Matrix

Correlation Matrix[a,b]

		pr1	pr2	pr3	pr4	pr5	pr6	pc1	pc2	pc3	pc4	pc5	pc6
Correlation	pr1	1.000	.781	.884	.851	.948	.967	.890	.959	.899	.890	.959	.899
	pr2	.781	1.000	.868	.960	.718	.714	.647	.769	.716	.647	.769	.716
	pr3	.884	.868	1.000	.938	.748	.836	.689	.811	.748	.689	.811	.748
	pr4	.851	.960	.938	1.000	.733	.805	.711	.808	.771	.711	.808	.771
	pr5	.948	.718	.748	.733	1.000	.939	.900	.936	.859	.900	.936	.859
	pr6	.967	.714	.836	.805	.939	1.000	.934	.945	.876	.934	.945	.876
	pc1	.890	.647	.689	.711	.900	.934	1.000	.942	.925	1.000	.942	.925
	pc2	.959	.769	.811	.808	.936	.945	.942	1.000	.961	.942	1.000	.961
	pc3	.899	.716	.748	.771	.859	.876	.925	.961	1.000	.925	.961	1.000
	pc4	.890	.647	.689	.711	.900	.934	1.000	.942	.925	1.000	.942	.925
	pc5	.959	.769	.811	.808	.936	.945	.942	1.000	.961	.942	1.000	.961
	pc6	.899	.716	.748	.771	.859	.876	.925	.961	1.000	.925	.961	1.000
	pm1	.940	.794	.827	.839	.889	.906	.909	.979	.978	.909	.979	.978
	pm2	.785	.883	.943	.897	.855	.686	.509	.699	.639	.509	.699	.639
	pm3	.966	.739	.933	.834	.869	.942	.829	.917	.849	.829	.917	.849
	pm4	.781	1.000	.868	.960	.718	.714	.647	.769	.716	.647	.769	.716
	pm5	.884	.868	1.000	.938	.748	.836	.689	.811	.748	.689	.811	.748
	d1	.851	.960	.938	1.000	.733	.805	.711	.808	.771	.711	.808	.771
	d2	.967	.714	.836	.805	.939	1.000	.934	.945	.876	.934	.945	.876
	d3	.864	.619	.647	.692	.856	.891	.971	.912	.905	.971	.912	.905
	d4	.930	.693	.721	.731	.943	.923	.969	.966	.944	.969	.966	.944
	obj1	.884	.651	.673	.683	.876	.853	.917	.926	.918	.917	.926	.918
	obj2	.924	.690	.713	.717	.928	.888	.921	.957	.945	.921	.957	.945
	obj3	.872	.727	.761	.718	.892	.785	.851	.789	.720	.851	.789	.720
	ob4	.964	.774	.952	.866	.856	.913	.781	.886	.829	.781	.886	.829

Page 1

Correlation Matrix[a,b]

		pm1	pm2	pm3	pm4	pm5	d1	d2	d3	d4	obj1	obj2	obj3
Correlation	pr1	.940	.785	.966	.781	.984	.851	.967	.864	.930	.884	.924	.872
	pr2	.794	.883	.739	1.000	.868	.980	.714	.619	.693	.651	.690	.727
	pr3	.827	.943	.933	.868	1.000	.938	.836	.647	.721	.673	.713	.761
	pr4	.839	.897	.834	.960	.938	1.000	.805	.692	.731	.683	.717	.718
	pr5	.889	.656	.869	.718	.748	.733	.939	.856	.943	.876	.928	.892
	pr6	.906	.686	.942	.714	.836	.805	1.000	.891	.923	.853	.888	.785
	pc1	.909	.509	.829	.647	.689	.711	.934	.971	.969	.917	.921	.651
	pc2	.979	.699	.917	.769	.811	.808	.945	.912	.966	.926	.957	.789
	pc3	.978	.639	.849	.716	.748	.771	.876	.905	.944	.918	.945	.720
	pc4	.909	.509	.829	.647	.689	.711	.934	.971	.969	.917	.921	.651
	pc5	.979	.699	.917	.769	.811	.808	.945	.912	.966	.926	.957	.789
	pc6	.978	.639	.849	.716	.748	.771	.876	.905	.944	.918	.945	.720
	pm1	1.000	.733	.902	.794	.827	.839	.906	.885	.935	.902	.929	.783
	pm2	.733	1.000	.827	.883	.943	.897	.686	.451	.598	.561	.621	.798
	pm3	.902	.827	1.000	.739	.933	.834	.942	.784	.856	.810	.847	.808
	pm4	.794	.883	.739	1.000	.868	.960	.714	.619	.693	.651	.690	.727
	pm5	.827	.943	.933	.868	1.000	.938	.836	.647	.721	.673	.713	.761
	d1	.839	.897	.834	.960	.938	1.000	.805	.692	.731	.683	.717	.718
	d2	.906	.686	.942	.714	.836	.805	1.000	.891	.923	.853	.888	.785
	d3	.885	.451	.784	.619	.647	.692	.891	1.000	.944	.926	.910	.598
	d4	.935	.598	.856	.693	.721	.731	.923	.944	1.000	.968	.982	.771
	obj1	.902	.561	.810	.651	.673	.683	.853	.926	.968	1.000	.981	.727
	obj2	.929	.621	.847	.690	.713	.717	.888	.910	.982	.981	1.000	.805
	obj3	.783	.798	.808	.727	.761	.716	.785	.598	.771	.727	.805	1.000
	ob4	.887	.879	.986	.774	.952	.866	.913	.734	.829	.782	.829	.854

Correlation Matrix[a,b]

		ob4
Correlation	pr1	.964
	pr2	.774
	pr3	.952
	pr4	.866
	pr5	.856
	pr6	.913
	pc1	.781
	pc2	.886
	pc3	.829
	pc4	.781
	pc5	.886
	pc6	.829
	pm1	.887
	pm2	.879
	pm3	.986
	pm4	.774
	pm5	.952
	d1	.866
	d2	.913
	d3	.734
	d4	.829
	obj1	.782
	obj2	.829
	obj3	.854
	ob4	1.000

a. Determinant = .000

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