AN ANALYTICAL FRAMEWORK ON LEADERSHIP EFFECTIVENESS WITH SPECIAL REFERNCE TO INDIAN TELLECOMMUNICATION INDUSTRY

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ABSTRACT

India is currently the 2nd largest telecommunication market, with the 3rd highest number of internet users in the world and India's telephone subscriber base, extended at a CAGR of 19.16 %, reaching 1188.5 million, during the next financial year. Stiff competition in the Indian telecommunication industry, boosts the organizations operating in this industry to be effectively managed. This is because, effective leadership guarantees competitive advantage for those organizations. It is, therefore, necessary for telecommunication companies acquire effective leadership skills. The present study is undertaken for organizations, from Indian telecommunication industry. Descriptive research design is used, on the basis of the Leadership Effectiveness Questionnaire (LEQ) (flamholtz, 1986). 312 followers were interviewed from BSNL, Airtel, Vodafone and Reliance across the country, during tenure of 6 months of research. After the collection of data, Factor Analysis is used to identify major factors, considering those significant variables ANOVA, Two Way MANOVA and Multiple Regression have been performed, to study their influence and association with leadership effectiveness. On the basis of the above findings, Bayesian Probabilistic Network is applied, along with Scenario Analysis and Causal Analysis, which may help analyze and make policy intervention, regarding leadership effectiveness. This research lays the foundation for future investigation in a very promising, but highly complex world telecommunication industry. One probable step may be, to enhance the scope of research by expanding the target area, through including international market of telecommunication industry, to evaluate and benchmark their Leadership Effectiveness

KEYWORDS: Inspiring Skills, Risk Taking Ability, Leadership Effectiveness, Scenario and Causal Analysis

INTRODUCTION

Of late, in corporate houses, leadership is inspiring a desire to set a SMART (Specific, Measurable Attainable, Realistic Timely) common goal within the company, where they should feel inalienably integrated with. This mostly involves a situation of regular learning and an aspiration to acquire knowledge, for knowledge's sake. These are the qualities any company, large or small, should instil in their employees, and this is a responsibility that falls squarely on corporate leadership, even if by proxy, through department heads or subordinate leadership individuals. The concept of the Effectiveness of Leadership in organizations may differ from one researcher to another like the definitions of leadership. The standard selected to evaluate leadership effectiveness, reflects a researcher's explicit or implicit conception of leadership. In general, most researchers appraise leadership effectiveness, in terms of the consequences of influence on a single individual, a team or group, or an organization.

Stiff competition in the Indian telecommunication industry, boosts the organizations operating in this industry to

be effectively managed. This is because, effective leadership guarantees competitive advantage for those organizations. It is, therefore, necessary for telecommunication companies acquire effective leadership skills.

In this regard, for current research four organizations, from Indian telecommunication industry are taken into consideration. Here, it should be noted that, India is currently the 2nd largest telecommunication market with the 3rd highest number of internet users in the world and India's telephone subscriber base extended at a CAGR of 19.16 %, reaching 1188.5 million during the next financial year.

The present study has performed, on the basis of the responds of 312 followers of the aforesaid industry and these data has been analyzed, with the help of factor analysis, Anova, two ways Manova, Multiple Regression and Bayesian probabilistic network. A model has been established, on the basis of above findings, which may lead to future policy implementation, regarding effective management through effective leaders.

LITERATURE REVIEW

In the earlier times, leadership effectiveness depended on the personal characteristics of the leader. But, research emphasized that, leadership effectiveness not only depends on the personal inherent characteristics of leaders, but also on the personal characteristics of the group members **(Sogunro, 1999)**. From early literatures, it was found out that, leadership effectiveness is dependent on a leader's self-confidence. In this paper, a new approach of leadership is being studied in Bandura's cognitive theory that, self-capability is an important factor for leadership effectiveness, in a changing environment **(Mc Michael J, 2001)**. A study was conducted, to test the effectiveness of leadership by Hersey and Blanchard Situation Leadership Theory (SLT) and its effect of the match, on the styles acquired by the leaders and their impact on the readiness of the employees. It was observed that, the theory did not support the effective leadership styles, on the employee's job satisfaction, employee retention, job stress and it did not have any effect on job performance **(Chen and Colin, 2005)**. To analyze the effect of leadership on the organizational changes, a study was performed. The study showed that, the leader's ability to communicate with people, motivate them to work in teams and influence the organizational change **(Ann et. al., 2009)**. In a successful organization, both organizational culture and effective leadership are the necessary and sufficient conditions. The study showed that, these two factors are dependent on each other. The founder of the organization, shape the organization's culture and this cultural influence the leader and his activities elucidated for, **Maria, 2012**. To analyze the difference between management and leadership, a study was conducted. By the analysis, it can be said that, these both differ in terms of definition and on the skill set **(Christine R.,2014)**. A study to investigate, if there exist any gender difference regarding the leadership effectiveness was initiated and it was observed that, when all the aspects of leadership are taken together, there is no difference between the effectiveness of women and men. When the ratings of followers were considered, women were proved to be the most efficient leader than the men. When self-rating questions were considered, men rated them more superior than their women's counterpart. This research also tells us, how the congruity theory can be applied to both men and women **(Paustian C., Slattery and David J., 2014)**. A study was conducted to ascertain the effectiveness of leadership, keeping in view non-western prospective. Personality characteristics of the leaders, leadership strategies are applied by the leaders. They are very well aware of the challenges they are facing, to become a good leader and to learn about various cultural diversities that prevails in the organization **(KoH Ching, 2015)**. A study was performed on the effectiveness of authentic leadership. From the study, it can be analyzed that, the authentic leadership effects performance of the organization, follower's satisfaction and the quality of

work life improved, decreases the negativity like absenteeism, dissatisfaction and hostility, towards the organization and increases respect towards the leader, committed to obey leader's order, increase in the problem solving skills and to face change and crises (**Datta B., 2015**). A study was conducted, to examine the impact of leadership traits like integrity, flexibility and conformity on leadership effectiveness. It was analyzed that, Integrity and Flexibility have a significant impact on leadership effectiveness (**H. Robert, 2005**). **A** study was performed on the initiative taken by the organizations, to increase the leadership effectiveness, by increasing the leadership quality and it was depicted that, Leadership development should be thoroughly and efficiently implemented (**A. Francis᾽ 2009**). The need of global leaders was evaluated, to understand the cross cultural, environmental differences in the organization. These types of leaders trained the employees, to adjust themselves in these types of dynamic and multi-cultural work environment (**C. Fang, 2013**).

RESEARCH METHODOLOGY

Descriptive research design is used, to obtain information concerning the current status of the phenomena and to describe the relation between the variables. On the basis of the Leadership Effectiveness Questionnaire (LEQ) (flamholtz, 1986), 312 followers were interviewed from BSNL, Airtel, Vodafone and Reliance across the country, during a tenure of 6 months of research. After the collection of data, Factor Analysis is used to identify the most important factors, Considering those significant variables ANOVA, TWO WAY MANOVA and Multiple Regression have been performed, to study their influence and association with leadership effectiveness. On the basis of the above findings, Bayesian Probabilistic Network is applied to depict a different scenario and causal analysis, which may lead to

Table 1: Reliability Analysis

Reliability Statistics	
Cronbach's Alpha	**N of Items**
.644	6

The value of Cronbach's alpha is more than .5, which provides adequate consistency among the data

Factor Analysis

Table 2: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.768**
Bartlett's Test of Sphericity	Approx. Chi-Square	86.042
	Df	10
	Sig.	.000

The KMO results show the sample adequacy, for performing the analysis. The value of more than .5 is acceptable. Here, the value of .768 shows the adequacy of the sample, to perform the analysis. The significant value of Bartlett's test of equality confirms that, the given matrix is not an identity matrix. From the total variance explained table, it can be analyzed that, the total variance experienced is 87.54%. The scree plot is showing that, two factors are extracted. The rotation component matrix shows that, two factors i.e. risk taking and inspiration are mainly affecting the quality of leadership effectiveness.

ANOVA OF EFFECTIVENESS ON EMOTION STABILITY

Table 3: Levene's Test of Equality of Error Variances[a]

Dependent Variable: EFFECTIVENESS			
F	**df1**	**df2**	**Sig.**
4.340	1	112	.039
Tests the null hypothesis that the error variance of the dependent variable is equal across groups.			
a. Design: Intercept + EMOTION			

Table 4: Tests of Between-Subjects Effects

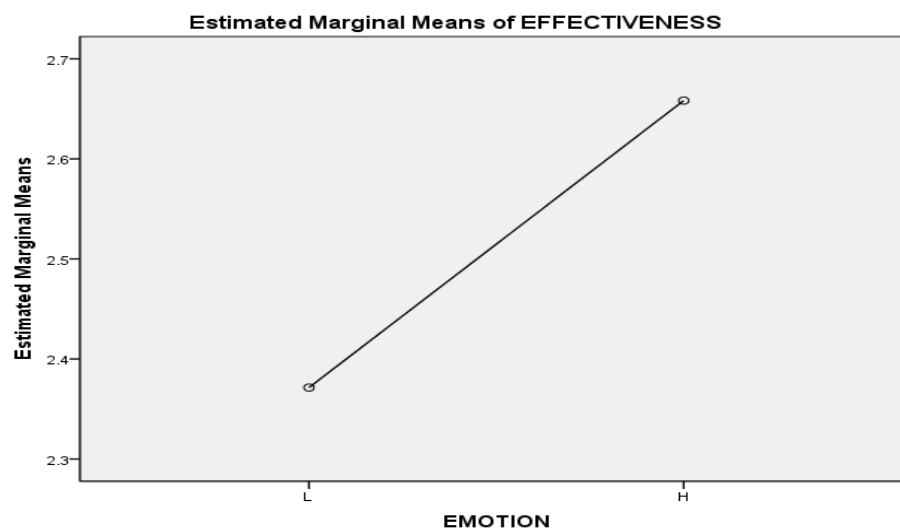| Dependent Variable: EFFECTIVENESS					
Source	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Corrected Model	1.995[a]	1	1.995	3.289	.052
Intercept	613.574	1	613.574	1011.432	.000
EMOTION	1.995	1	1.995	3.289	.072
Error	67.944	112	.607		
Total	823.000	114			
Corrected Total	69.939	113			
a. R Squared =.029 (Adjusted R Squared =.020)					

Figure 1

The above value of Levene's test, shows an F ratio of 4.340 is statistically significant, when calculated with 1 and 112 degrees of freedom. Thus, it can be concluded that, the assumption of homogeneity of variances has been violated. From the above analysis, it can be interpreted that, F ratio with 1 and 112 degrees of freedom, for the effect of the independent variable of 3.289 is statistically significant. Since, the effect of the independent variable is statistically significant, the two group means differ from each other. The graph shows that, with the increase in emotional stability led to increase in the leadership effectiveness.

ANOVA OF EFFECTIVENESS ON RISK TAKING ABILITY

Table 5: Levene's Test of Equality of Error Variances[a]

Dependent Variable: EFFECTIVENESS			
F	**df1**	**df2**	**Sig.**
35.062	1	112	.000
Tests the null hypothesis that the error variance of the dependent variable is equal across groups.			
a. Design: Intercept + RISKTAKING			

Table 6: Tests of Between-Subjects Effects

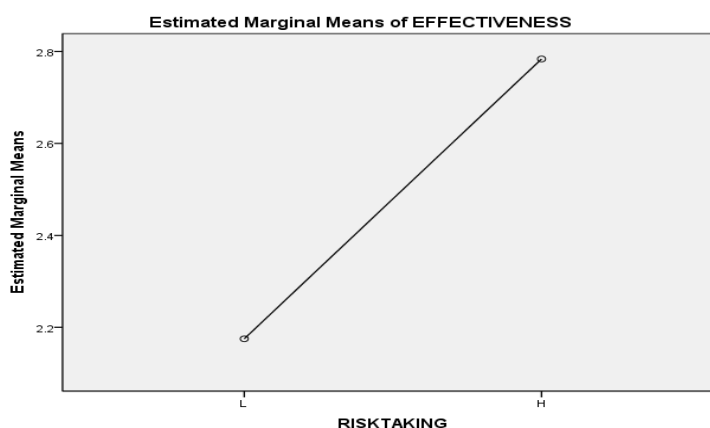| Dependent Variable: EFFECTIVENESS					
Source	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Corrected Model	9.623[a]	1	9.623	17.869	.000
Intercept	638.465	1	638.465	1185.567	.000
RISKTAKING	9.623	1	9.623	17.869	.000
Error	60.316	112	.539		
Total	823.000	114			
Corrected Total	69.939	113			
a. R Squared = .138 (Adjusted R Squared = .130)					

Figure 2

The above value of levene's test, shows F ratio of 35.062 is statistically significant, when calculated with 1 and 112 df . Thus, it can be concluded that, the assumption of homogeneity of variances have been violated. From the above analysis, it can be interpreted that, F ratio with 1 and 112 df for the effect of the independent variable of 17.869 is statistically significant. Since, the effect of independent variable is statistically significant, the two group means differ from each other .The graph shows that, with the increase in risk taking attitude, it led to increase in the leadership effectiveness.

ANOVA OF EFFECTIVENESS ON INSPIRATION

Table 7: Levene's Test of Equality of Error Variances[a]

Dependent Variable: EFFECTIVENESS			
F	**df1**	**df2**	**Sig.**
22.185	2	111	.000
Tests the null hypothesis that the error variance of the dependent variable is equal across groups.			
a. Design: Intercept + INSPIRING			

Table 8: Tests of Between-Subjects Effects

Dependent Variable: EFFECTIVENESS					
Source	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Corrected Model	11.520[a]	2	5.760	10.945	.000
Intercept	58.717	1	58.717	111.567	.000
INSPIRING	11.520	2	5.760	10.945	.000
Error	58.418	111	.526		
Total	823.000	114			
Corrected Total	69.939	113			
a. R Squared = .165 (Adjusted R Squared = .150)					

The above value of levene's test, shows F ratio of 22.185 is statistically significant, when calculated with 1 and 112 df . Thus, it can be concluded that, the assumption of homogeneity of variances have been violated. From the above analysis, it can be interpreted that, F ratio with 1 and 112 df for the effect of the independent variable of 10.945 is statistically significant. Since, the effect of independent variable is statistically significant, the two group means differ from each other.

ANOVA OF EFFECTIVENESS ON EMPATHY

**Table 9: Levene's Test of Equality of Error Variances[a]**

Dependent Variable: EFFECTIVENESS			
F	**df1**	**df2**	**Sig.**
54.700	1	112	.000
Tests the null hypothesis that the error variance of the dependent variable is equal across groups.			
a. Design: Intercept + EMPATHY			

Table 10: Tests of Between-Subjects Effects

Dependent Variable: EFFECTIVENESS					
Source	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Corrected Model	7.971[a]	1	7.971	14.407	.000
Intercept	755.550	1	755.550	1365.584	.000
EMPATHY	7.971	1	7.971	14.407	.000
Error	61.967	112	.553		
Total	823.000	114			
Corrected Total	69.939	113			
a. R Squared = .114 (Adjusted R Squared = .106)					
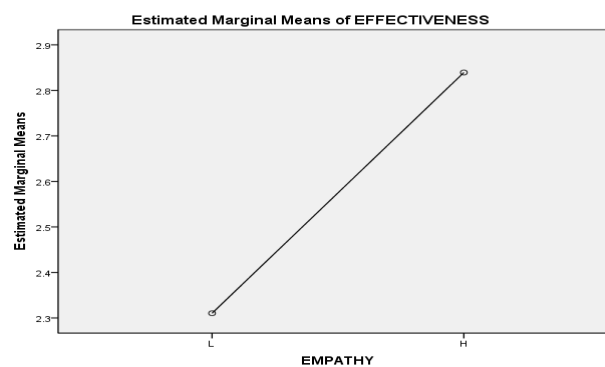
Figure 3

The above value of levene's test, shows F ratio of 54.7 is statistically significant, when calculated with 1 and 112 df . Thus, it can be concluded that, the assumption of homogeneity of variances have been violated. From the above analysis it can be interpreted that, F ratio with 1 and 112 df for the effect of the independent variable of 14.407 is statistically significant. Since, the effect of independent variable is statistically significant, the two group means differ from each other level, also increases. The graph shows that, with the increase in empathy led to increase in the leadership effectiveness.

TWO WAY MANOVA

Table 11: Box's Test of Equality of Covariance Matrices[a]

Box's Test of Equality of Covariance Matrices[a]	
Box's M	31.543
F	3.359
df1	9
df2	23006.074
Sig.	.000

Table 12: Multivariate Tests[b]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.931	737.516[a]	2.000	109.000	.000
	Wilks' Lambda	.069	737.516[a]	2.000	109.000	.000
	Hotelling's Trace	13.532	737.516[a]	2.000	109.000	.000
	Roy's Largest Root	13.532	737.516[a]	2.000	109.000	.000
EMOTION	Pillai's Trace	.123	7.628[a]	2.000	109.000	.001
	Wilks' Lambda	.877	7.628[a]	2.000	109.000	.001
	Hotelling's Trace	.140	7.628[a]	2.000	109.000	.001
	Roy's Largest Root	.140	7.628[a]	2.000	109.000	.001
HONESTY	Pillai's Trace	.335	27.421[a]	2.000	109.000	.000
	Wilks' Lambda	.665	27.421[a]	2.000	109.000	.000
	Hotelling's Trace	.503	27.421[a]	2.000	109.000	.000
	Roy's Largest Root	.503	27.421[a]	2.000	109.000	.000
EMOTION *HONESTY	Pillai's Trace	.150	9.654[a]	2.000	109.000	.000
	Wilks' Lambda	.850	9.654[a]	2.000	109.000	.000
	Hotelling's Trace	.177	9.654[a]	2.000	109.000	.000
	Roy's Largest Root	.177	9.654[a]	2.000	109.000	.000
a. Exact statistic						
b. Design: Intercept + EMOTION + HONESTY + EMOTION * HONESTY						

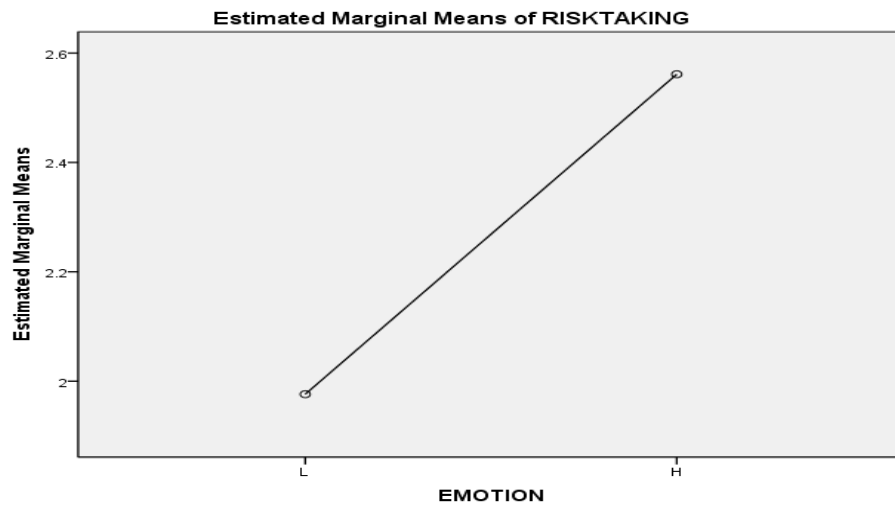| Levene's Test of Equality of Error Variances[a]				
	F	df1	df2	Sig.
RISKTAKING	24.555	3	110	.000
INSPIRING	4.185	3	110	.008
Tests the null hypothesis that the error variance of the dependent variable is equal across groups.				
a. Design: Intercept + EMOTION + HONESTY + EMOTION * HONESTY				

Estimated Marginal Means of RISKTAKING

Figure 4

Estimated Marginal Means of RISKTAKING

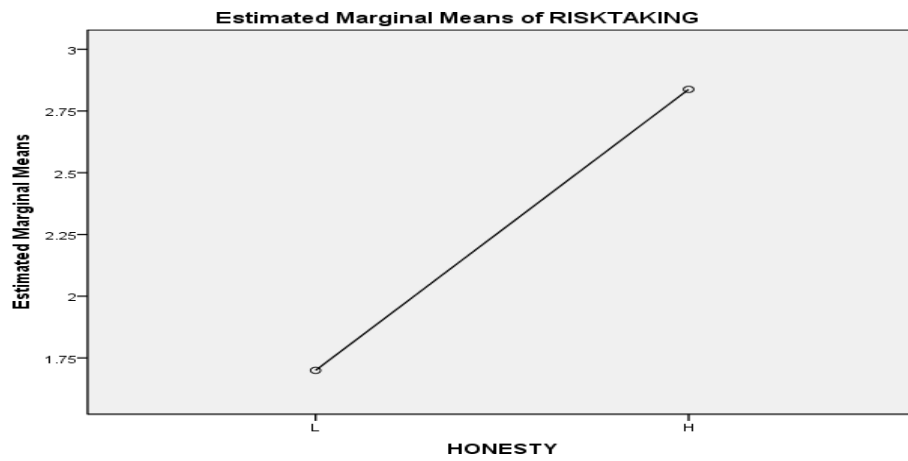**Figure 5**
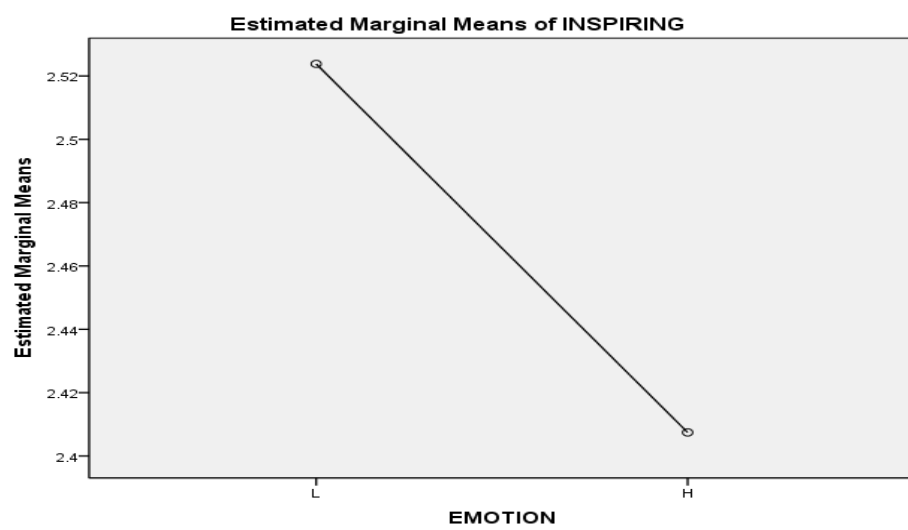
Estimated Marginal Means of INSPIRING
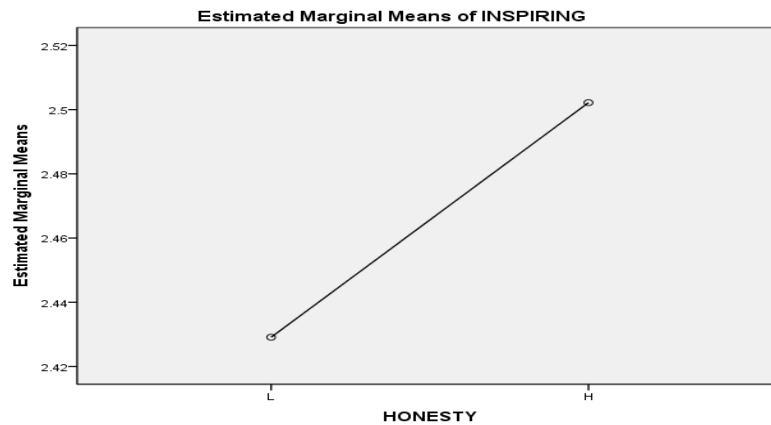

Figure 6

Figure 7

From the multivariate analysis table, we can interpret that, Wilks' Lambda row (highlighted in red) by looking at the significance level, it can be said that, honesty and emotion has a significant impact on risk taking attitude and inspiration, as the sig value is $p < .05$. The Levene's Test of equality showed statistically significant result. The Bartlett's Test of Sphericity determines that, correlations between dependent variables are sufficiently strong, to support MANOVA From this result it can be predicted that, there is a statistically significant difference in emotional and honesty scores, based on risk taking attitude and honesty $F_{(2, 109)} = 9.64$, $p < .05$; Wilk's $\Lambda = 0.850$. The strength of the relationship is $1-.850 = .150$, and so it appears that, risk taking and inspiration explains 15% of the variance. By the graph, it can be seen that, as emotion and honesty increases, risk taking attitude also increases. As for Inspiration, as the emotional factor increases, the inspiration decreases and as the inspiration increases, emotion of a person decreases.

REGRESSION TO PREDICT EFFECTIVENESS OF LEADERSHIP

Table 13: Model Summary[b]

Model		R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
						R Square Change	F Change	df1	df2	Sig. F Change	
dimension0	1	.539[a]	.290	.278	.669	.290	22.712	2	111	.000	2.156

a. Predictors: (Constant), INSPIRING, RISKTAKING
b. Dependent Variable: EFFECTIVENESS

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Co linearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.060	.233		4.555	.000					
	RISKTAKING	.297	.066	.361	4.519	.000	.371	.394	.361	.999	1.001
	INSPIRING	.341	.070	.391	4.889	.000	.400	.421	.391	.999	1.001

a. Dependent Variable: EFFECTIVENESS

From the factor analysis, the main factors (inspiring others and risk taking attitude) are regressed to find out their impact on the effectiveness of the leadership. The value of R is more than 0.5, which indicates a good correlation. R square denotes that, 29% change in effectiveness is due to the main factors influencing the effectiveness of leadership. Beta value indicates that, inspiring others has the maximum impact on effectiveness of leadership. Since, the value of Durbin Watson

is more than 2, so it can be predicted that, there exists a negative correlation between the residuals. So, Multi co linearity can be checked, by using VIF factor. Values of the VIF factors are more than 1, so it can be said that, regression is biased.
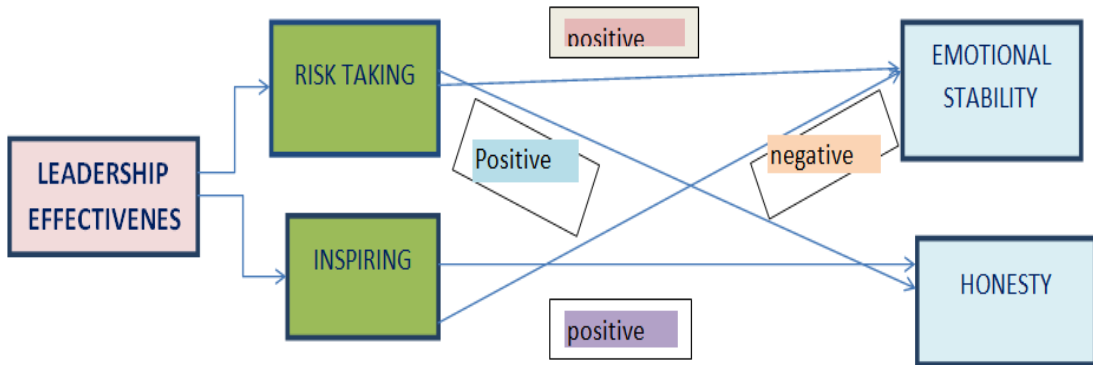

Figure 8

A model is framed on the basis of whole analysis, considering the significant factors effecting leadership effectiveness. From the factor analysis, two main factors, i.e. risk taking and inspiration are extracted. Then, by performing multivariate analysis it is seen that, risk taking ability has a positive impact on emotion and honesty, whereas inspiration has positive effect on honesty and negative impact on emotion.

Further, Bayesian probabilistic Network may be established, on the basis of the above analysis. Huginlite soft ware is used in this regard and following framework has been framed:

BAYESIAN FRAMEWORK: HUGIN LITE OUTPUT
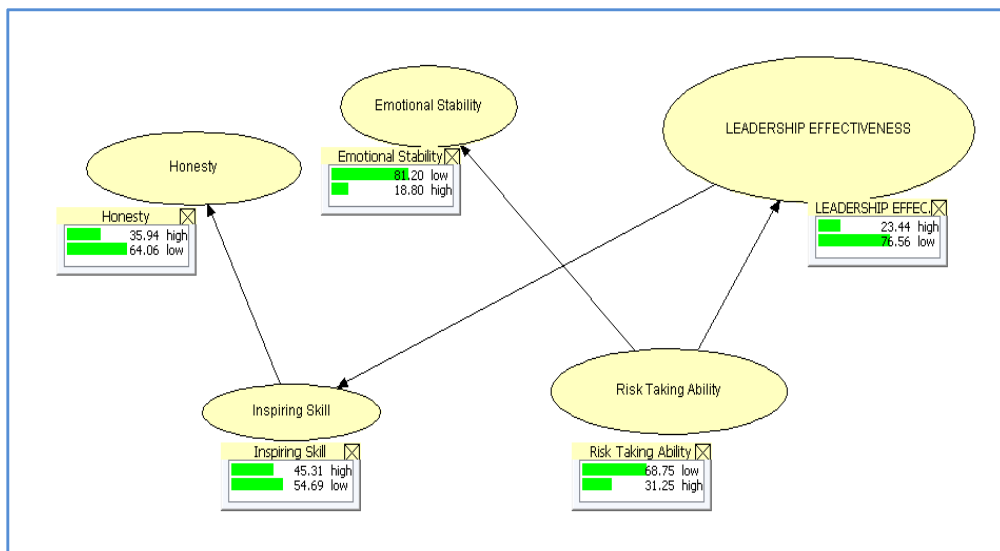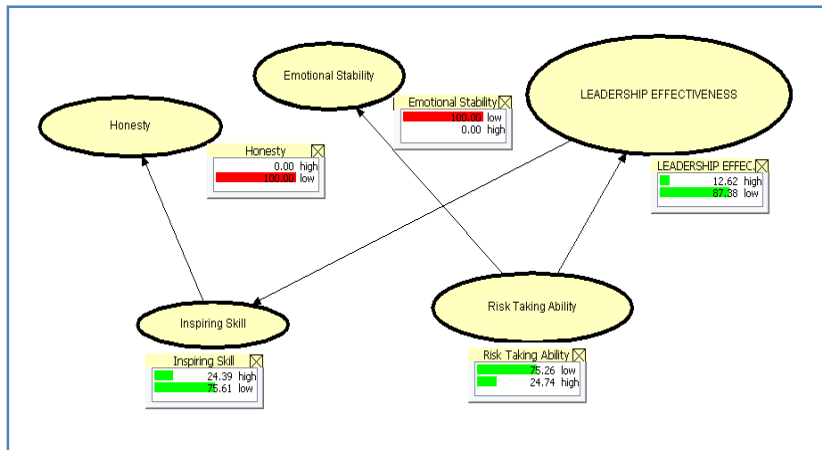

Figure 9

SCENARIO ANALYSIS 1
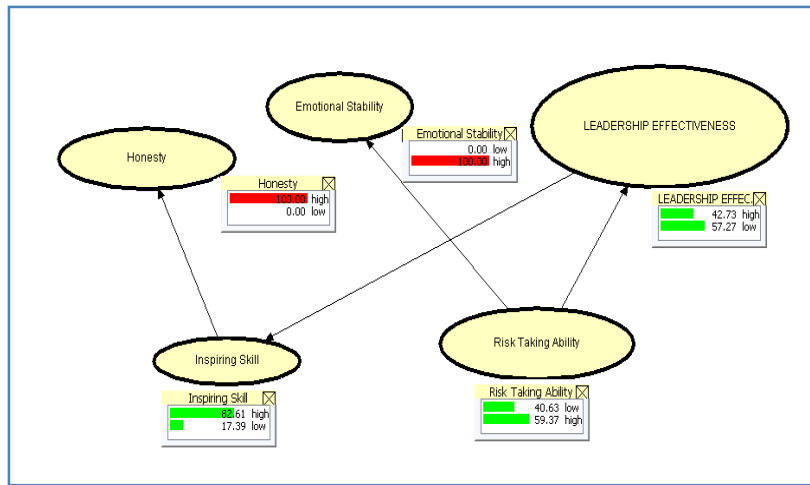
Figure 10

SCENARIO ANALYSIS 2

Figure 11

SCENARIO ANALYSIS 3
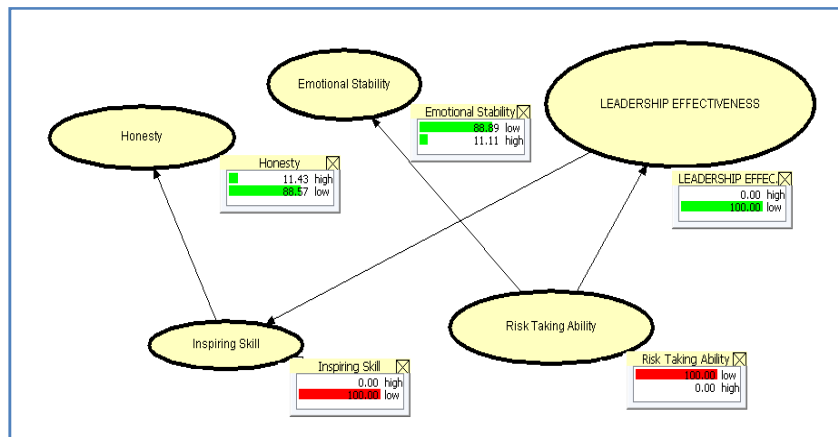
Figure 12

SCENARIO ANALYSIS 4
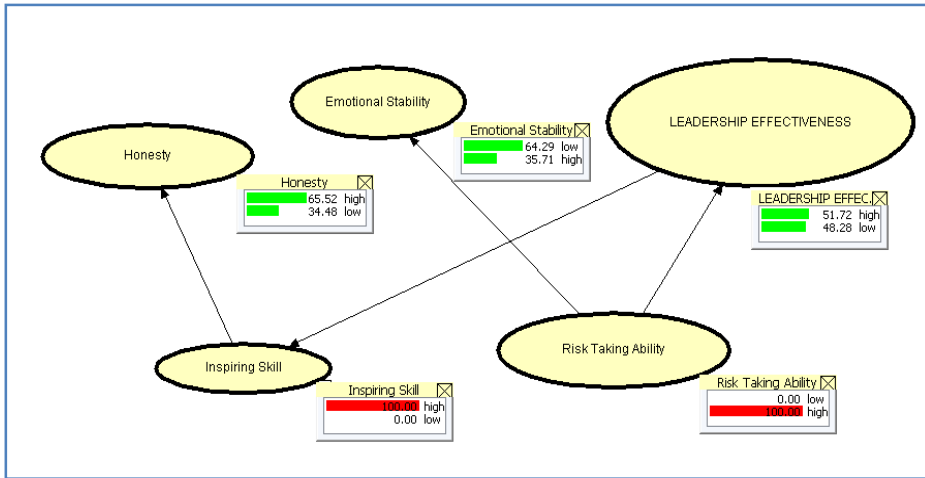
Figure 13

CAUSAL ANALYSIS 1
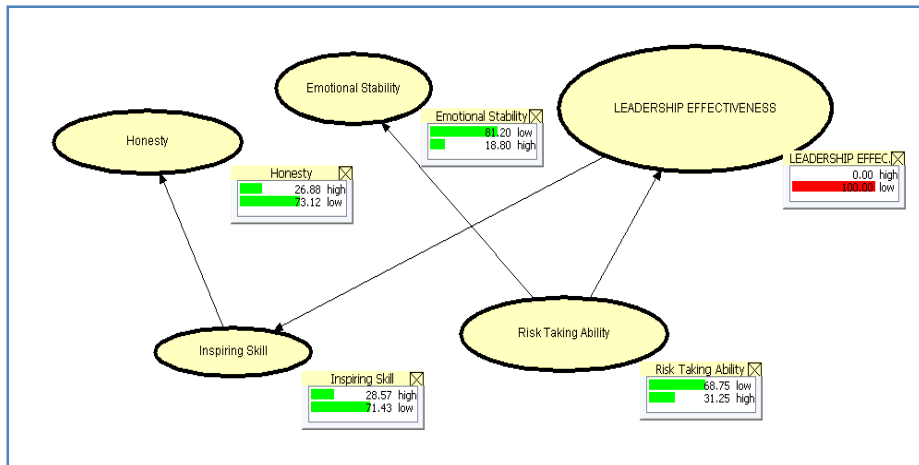
Figure 14
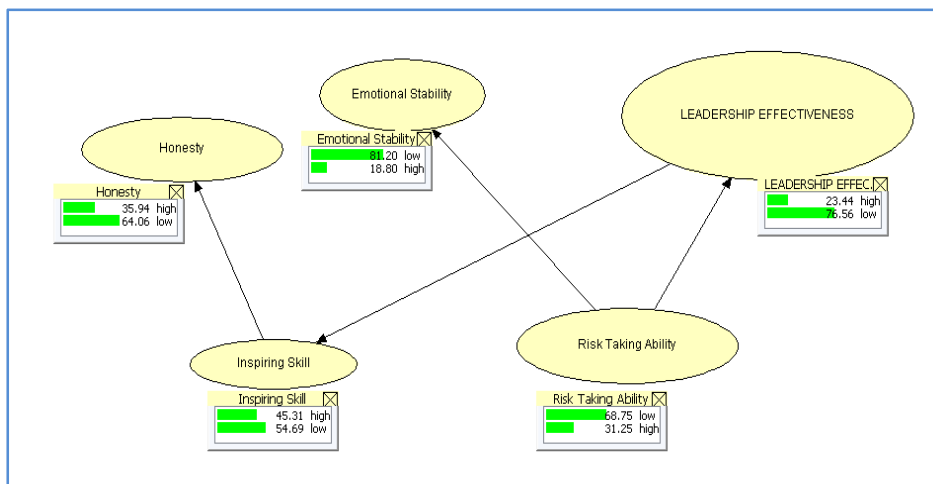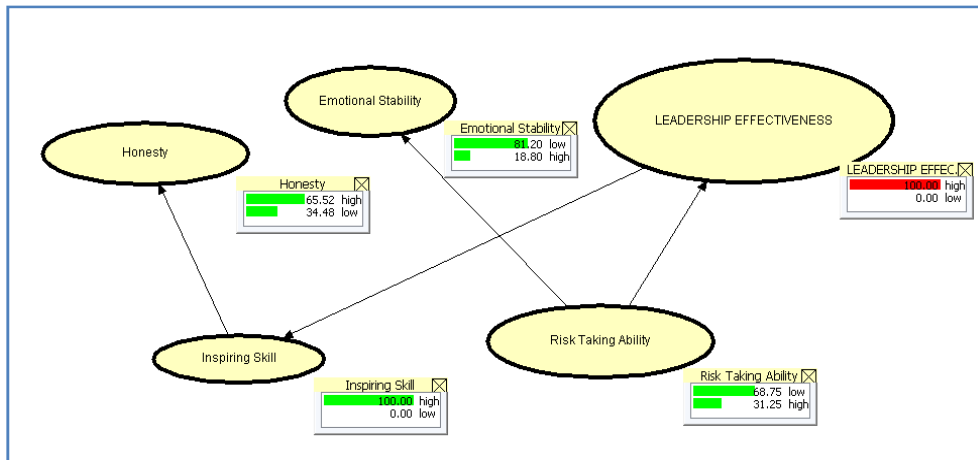

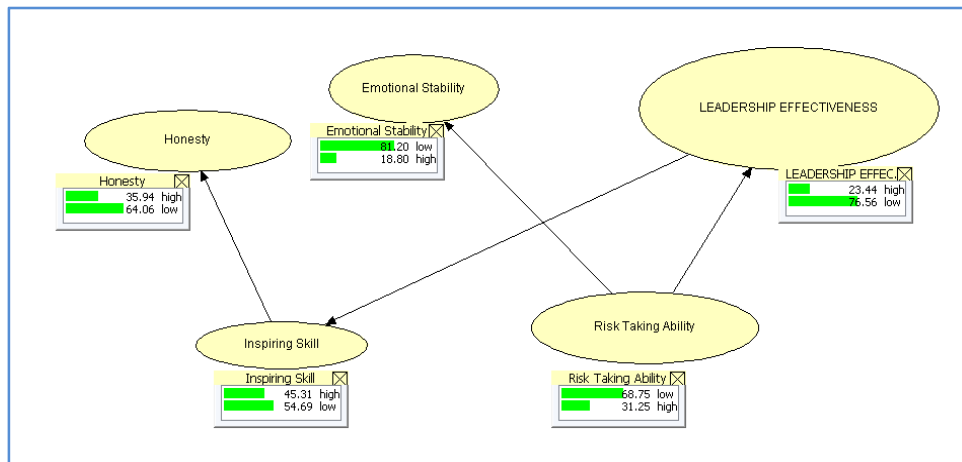**Figure 15**

CAUSAL ANALYSIS 2

Figure 16

Figure 17

SCENARIO AND CAUSAL ANALYSIS

Scenario Analysis and Causal Analysis helps analyse and make policy intervention, regarding leadership effectiveness.

Scenario Analysis**:** If, for example, when 100 percent high Honesty and Emotional stability is there, it shows positive changes in other variable i.e. inspiring skills and risk taking ability, which capture changes in the dependent variable Leadership Effectiveness and the simultaneity. On the contrary, 100 percent low Honesty and Emotional stability results in low inspiring skills and risk taking ability, and ultimately low Leadership Effectiveness. Similarly, there is direct impact of high and low Honesty and Emotional stability, on the dependent variable. This is just a framework on Leadership Effectiveness, with respect to telecommunication industry.

Causal Analysis: Causal analysis is evidence based. It reverses the whole thing. It is evident that, actual acceptability is low. This information is propagated to the causal variables.

CONCLUSIONS

Factor Analysis demonstrates Honesty and Emotional stability are the most significant factor, influencing Leadership Effectiveness in Indian telecommunication industry. With the help of Anova and Two ways Manova, the significance and associations of independent variables are shown, whereas multiple regressions corroborates with the findings of factor analysis. A model was framed and an equation was established in this regard.

Scenario Analysis develops a Bayesian Probability Network to model, on the causal variables extracted from the first phase, whereas Causal Analysis calculates updated probabilities of all the causal factors and as such, gives us information on likely values of these causal opinion/perception variables, that may generate desired Leadership Effectiveness, with respect to Indian telecommunication industry. The causal variable has, definitely taken on the value, which has resulted in low/ high inspiring skills and risk taking ability, which capture changes in the dependent variable. The model combines independent or causal variables, leading to this outcome. It can also be utilised to construct some kind of policy intervention or conjecture. This means, if the industry wants medium effectiveness of leadership, then it must be ensured that, the causal variables take on appropriate values or if marketer wants high effectiveness of leadership, then it must be ensured that, the causal variables similarly take on appropriate values.

Thus, this research lays the foundation for future investigation in a very promising, but highly complex world of telecommunication industry. One probable step may be, to enhance the scope of research, by expanding the target area through including international market of telecommunication industry, to evaluate and benchmark their Leadership Effectiveness, with the help of multivariate analysis (i.e. Confirmatory Factor Analysis, Discriminant and Cluster Analysis) and Efficiency- Productivity study.

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