

# Quantification of Leadership Change: A Case Study on the Gujarat State

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**ABSTRACT**--*In this technocratic age the difference between management and leadership is narrowed down to zero now both are easily interchangeable. This paper is mainly focused to measure leadership effectiveness in the political arena with respect to economic development. This paper is contemplated to quantify the leadership effectiveness after leadership change which is purely subjective in nature.*

**Key words**-- *Leadership, Management, Multiple Regression, Change, GDP, Inflation, Capital Expenditure.*

## I. INTRODUCTION

According to Chanakya: “A man is great by deeds, not by birth.”. Now the world is in democratic type of leadership and life where acceptance is key element to become a leader. It reflects in every sphere of life and organizations irrespective of type of entity it is. It paves the way to accept the participative leadership in place of autocratic leadership. Now autocratic type of leadership becomes obsolete. To evolve from a leader to a good leader, one should have self discipline and self administration is also has vital role. Accordingly his self-disciplined attitude will become the ideal of his subordinates and peers in some cases.

Here are the top six qualities of a good leader should possess according to Chanakya:

1. Energetic and hardworking: “People who work sincerely are the happiest”.
2. Effective Communication: Communication should be clear and definite, should not be ambiguous.
3. Fear of Failure & Stress Management: “Once you start a working on something, don’t be afraid of failure and don’t abandon it.” Regarding fear, Chanakya echoed that “As soon as the fear approaches near, attack and destroy it”.
4. Decision Making: Regarding the decision making, Chanakya writes “All urgent calls he shall hear at once, but never put off; for when postponed, they will prove too hard or impossible to accomplish”.
5. Succession Planning: A good leader should be a visionary. He has to plan a great succession to him.
6. Keeping employees Happy: According to Chanakya “In the happiness of his subjects lies his happiness; in their welfare, his welfare; whatever pleases himself, he shall not consider as good, but whatever pleases his subjects he shall consider as good.”

This paper is focuses on evaluation of the Leadership Change Management or succession planning

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## **II. ABOUT GUJARAT**

Gujarat is a state on the western coast of India with a coastline of 1,600 km. It is the fifth largest Indian state by area and the ninth largest state by population. Its capital city is Gandhinagar, while its largest city is Ahmedabad. The Gujarati is the official language of the state. Gujarat is one of the three Indian states to prohibit the sale of alcohol.

## **III. ABOUT NARENDRA MODI**

Narendra Damodardas Modi is an Indian politician serving as the 14th and current Prime Minister of India since 2014. He was the Chief Minister of Gujarat from 2001 to 2014 and is the Member of Parliament for Varanasi. Modi is a member of the Bharatiya Janata Party (BJP) and of the Rashtriya Swayamsevak Sangh (RSS). His name is very popular and needs no introduction in the global political leadership. He is a great orator and visionary. During the 2014 election, Modi has relied upon his reputation as a politician and leader able to bring about economic growth and development.

## **IV. GROSS DOMESTIC PRODUCT (GDP)**

Gross Domestic Product (GDP) is the total monetary or market value of all the finished goods and services produced within a country's borders in a specific time period. GDP growth is considered as a comprehensive scorecard of the country's economic health. GDP size and growth rate are key areas where policymakers, investors, businesses, houses and various stakeholders rely in strategic decision making. It has an impact on consumer confidence also. Consumer confidence has a very significant impact on economic growth. A high confidence level indicates that consumers are willing to spend more, while a low confidence level reflects uncertainty about the future and an unwillingness to spend leads to spending less.

## **V. CAUSES OF INFLATION**

Rising prices are the main cause of inflation; inflation can be attributed to different factors and causes such as environmental, political and other issues.

## **VI. CAPITAL EXPENDITURE**

Capital expenditures are expenses a business/Government makes to generate financial benefits over a period of years. A capital expense is the cost of an asset that has usefulness, helping create profits for a period longer than the current tax year. Capital expenditure has a direct impact on the development of the state and GDP growth. Inflation also greatly impacts the development of the nation and state as well. Moderate inflation is desirable and a good sign of development activity. Higher values of inflation rate hamper the development and deflation also wounds the development process.

## **VII. MULTIVARIATE REGRESSION**

Regression analysis is basically used for two conceptually different purposes. Primarily, regression analysis is widely used for prediction and forecasting. Secondly, in certain scenario regression analysis can be used to find causal relationships between the independent and dependent variables. Regression Analysis is a statistical method is used to estimate the relationships between independent and dependent Variables apart from that it is used to predict the future values of dependent variables based on the past values of given independent variable values. In simple words dependent variables are called outcome variable and independent variables are called predictors. There are several forms of Regression models among those Ordinary Least Square (OLE) is most popular one.

## **VIII. NEED AND OBJECTIVE OF THE STUDY**

Leadership and Managerial qualities are mostly subjective in nature; this paper is an attempt to quantify the subjective matter which is inherently a tough one.

## **IX. RESEARCH METHODOLOGY**

Base for this paper is quote given by W. Edwards Deming, Data Scientist "Without data, you're just another person with an opinion". Multiple regression is a statistical method to use predict future values. We can compare and evaluated the performance based on predicted value and actual value. In this multiple regression calculator based on least squares method is used to predict values. We constructed a simple index to evaluate the effectiveness of leadership after change of leadership. In the Managerial parlance, succession planning is key element and has long lasting impact on the organizational existence and growth. For the study of mentioned index we divide the time line 2004 to 2019 into two data sets, each set contains three variables those are namely GDP growth, Inflation, Capital expenditure. Our Honorable Prime Minister Shri Narendra Modi Ji was Chief Minister for the Gujarat State from 2002 to 2014, for the purpose of research we treat the chief Minister ship of Shri Modi Ji term is used for regression analysis and prediction. First set is from 2004 to 2014 and second one 2015 to 2018. First set of Data is used to predict and second one is for comparative evaluation and to calculate Index. This paper is more concerned about to quantify effectiveness of the leadership change management and Succession planning.

## **X. DATA**

The Study is based on secondary data extracted from the various government websites. The extracted data is reliable and authenticated apart from cost effective. Independent variables are inflation, Capital expenditure of Gujarat State Budget. Dependent variable is GDP growth of the Gujarat State.

## XI. DATA ANALYSIS AND INTERPRETATION

| S No   | Year    | Capital Expenditure In Rs. Crores (X1) | Inflation (%) (X2) | GDP growth (%) (Y)      |                          |
|--|---------|--|--------------------|-------------------------|--------------------------|
| 1  | 2005-06 | 11046                                  | 4.25               | 14.95                   |                          |
| 2  | 2006-07 | 10181                                  | 5.80               | 13.10                   |                          |
| 3  | 2007-08 | 9502                                   | 6.37               | 17.17                   |                          |
| 4  | 2008-09 | 13408                                  | 8.35               | 10.58                   |                          |
| 5  | 2009-10 | 11719                                  | 10.88              | 17.56                   |                          |
| 6  | 2010-11 | 14523                                  | 11.99              | 15.63                   |                          |
| 7  | 2011-12 | 19763                                  | 8.86               | 11.96                   |                          |
| 8  | 2012-13 | 28847                                  | 9.31               | 12.43                   |                          |
| 9  | 2013-14 | 32118                                  | 10.91              | 7.56                    |                          |
| Leadership Change or Regime Change Or Succession Beginning |         |  |                    |                         |                          |
| S No   | Year    | Capital Expenditure In Rs. Crores (X1) | Inflation (%) (X2) | GDP growth (%) (Actual) | Predicted GDP Growth (%) |
| 1  | 2014-15 | 32915                                  | 9.91               | 10.51                   | 8.60                     |
| 2  | 2015-16 | 32298                                  | 9.16               | 10.23                   | 8.57                     |
| 3  | 2016-17 | 37695                                  | 7.71               | 9.64                    | 6.35                     |
| 4  | 2017-18 | 42036                                  | 3.88               | 11.17                   | 3.72                     |

### Calculation Summary

Sum of  $X_1 = 151107$

Sum of  $X_2 = 76.72$

Sum of  $Y = 120.94$

Mean  $X_1 = 16789.6667$

Mean  $X_2 = 8.5244$

Mean  $Y = 13.4378$

Sum of squares ( $SS_{X_1}$ ) = 561237176

Sum of squares ( $SS_{X_2}$ ) = 54.3448

Sum of products ( $SP_{X_1Y}$ ) = -156501.6067

Sum of products ( $SP_{X_2Y}$ ) = -11.0879

Sum of products ( $SP_{X_1X_2}$ ) = 86083.2333

Regression Equation =  $\hat{y} = b_1X_1 + b_2X_2 + a$

$b_1 = ((SP_{X_1Y}) * (SS_{X_2}) - (SP_{X_1X_2}) * (SP_{X_2Y})) / ((SS_{X_1}) * (SS_{X_2}) - (SP_{X_1X_2}) * (SP_{X_1X_2})) = -7550568.75 / 23090011493.1 = -$

0.00033

$$b_2 = ((SP_{X_2Y}) * (SS_{X_1}) - (SP_{X_1X_2}) * (SP_{X_1Y})) / ((SS_{X_1}) * (SS_{X_2}) - (SP_{X_1X_2}) * (SP_{X_1X_2})) = 7249216403.99 / 23090011493.1 = 0.31395$$

$$a = M_Y - b_1M_{X_1} - b_2M_{X_2} = 13.44 - (0 * 16789.67) - (0.31 * 8.52) = 16.25181$$

$$\hat{y} = -0.00033X_1 + 0.31395X_2 + 16.25181$$

$$\text{Effectiveness of leadership after change} = \left\{ \frac{\sum (\text{Actual value}_{1 \text{ to } n} / \text{Predicted value}_{1 \text{ to } n}) - n}{n} * 100 \right\}$$

The above formula will give index of efficiency in leadership change management. It is reliable and effective when range is between -100 to 100 and self-explanatory. Negative value indicates poor succession management and Positive value reflects the efficient succession leadership.

Effectiveness of leadership (Index) after change calculated is 73.50% for the mentioned data.

## XII. LIMITATIONS

1. Inflation (Nation Wide) and Capital expenditure (Budget of Gujarat State) are considered for the purpose remaining all internal and external factors are excluded.
2. Limited data available for the purpose

## XIII. THE CONCLUSION

Index of efficiency in leadership change management is 73.50 % which highly positive. It is concluded that Successors of the Sri Narendra Modi Ji were continued his legacy of development in the Gurarat state successfully.

Scope for further research: This study can be extended to any state or country with several factors/variables.

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