



**JAIPURIA**  
SCHOOL OF BUSINESS

**EMPOWER • ENTHUSE • EXCEL**

INDIRAPURAM, GHAZIABAD  
(Approved by All India Council for Technical Education)

# O J A S

## EXPANDING KNOWLEDGE HORIZON

ISSN : 2279-0373  
Online-ISSN : 2321-726X

---

Issue  
January - July 2019

---

An International Journal  
of Research in Management

O J A S  
EXPANDING  
KNOWLEDGE  
HORIZON

# OJAS

Expanding Knowledge Horizon

AN INTERNATIONAL JOURNAL OF RESEARCH IN MANAGEMENT

## Chief Patron

**Sh. Shishir Jaipuria**

*Chairman - SAJES & Chairman Ginni Filaments Ltd*

## Editor in Chief

**Dr Timira Shukla**

*Professor & Dean (Academics),  
Jaipuria School of Business, Ghaziabad*

## Executive Editor

**Dr Ajay Kumar Patel**

*Associate Professor,  
Jaipuria School of Business, Ghaziabad*

## Editorial Team

**Dr. Damayanti Datta**

*Associate Professor, Jaipuria School of Business, Ghaziabad*

**Dr Nitin Saxena**

*Associate Professor, Jaipuria School of Business, Ghaziabad*

**Dr Santosh Kumar**

*Associate Professor, Jaipuria School of Business, Ghaziabad*

**Dr. Vartika Chaturvedi**

*Associate Professor, Jaipuria School of Business, Ghaziabad*

**Dr Parul Tyagi**

*Assistant Professor, Jaipuria School of Business, Ghaziabad*

**Ms. K.P. Kanchana**

*Assistant Professor, Jaipuria School of Business, Ghaziabad*

## Editorial Advisory Board

**Dr. Someshwar Kesh**

*Professor and Chair,  
Department of Computer Information Systems  
and Analytics, Harman College of Business &  
Professional studies University of Central Missouri, USA*

**Prof. Azhar Kazmi**

*Ph.D., Professor of Management,  
King Fahd University of Petroleum & Minerals,  
Dhahran (Saudi Arabia)*

**Prof. RS Pradhan**

*Professor,  
Central Department of Management,  
Tribhuvan University, Kathmandu, Nepal*

**Prof (Dr) N R Bhanumurthy**

*Professor,  
National Institute of Public Finance and Policy,  
An autonomous research institute under  
Ministry of Finance, Government of India.  
New Delhi, India*

**Prof (Dr) U M Amin**

*Professor,  
Jaipuria School of Business, Ghaziabad  
Former Director - Centre of Management Studies,  
Jamia Millia Islamia, New Delhi.*

**Mr. Vinod Malhotra**

*IAS (Retd),  
Author; Corporate Adviser - SAJES*

**Mr. Mayur Ramgir**

*CEO,  
Zonopact Innovation Lab  
International Award winning Author,  
Speaker, Innovator & Entrepreneur,*

**Dr. SK Mahapatra**

*Professor & Director,  
Jaipuria School of Business, Ghaziabad*

*Send your feedback/Enquiry to:*

**The Executive Editor**

**Jaipuria School of Business**

Shakti Khand IV, Indrapuram Ghaziabad

Phone: 0120-488 11 00, 09999686086

Email: [ojas@jaipuria.edu.in](mailto:ojas@jaipuria.edu.in)

**OJAS: Expanding the Knowledge Horizon, an international Journal of research management (ISSN No: 2279-0373 Online-ISSN No: 2321-726X)-** A peer reviewed international journal of Jaipuria School of Business, Ghaziabad, invites original research papers, case studies, perspectives and book reviews on themes/issues of current concern in all areas of management including HR, Marketing, Finance, IB, IT, Retail, Hospitality, Travel & Tourism, Energy Management & Entrepreneurship.

The journal welcomes innovative research based papers, perspectives, case studies and book reviews in functional areas of management. All submissions are reviewed in terms of their contribution to literature, research, empirical evidence and appropriate methodology. For any further query, please contact

**OJAS: [ojas@jaipuria.edu.in](mailto:ojas@jaipuria.edu.in)**

# From the Editor - in - Chief

Dear authors, reviewers and readers

It is with great pleasure and optimism that I announce the publication of this current issue of OJAS, an international journal of research in management with the motto of "Expanding knowledge Horizon". The wide range of topics and perspectives that this issue brings to the table stretch from creative problem solving to critical thinking. This issue comprises of research papers, articles, case studies and book reviews which has been contributed by academicians, industry experts and research scholars.

Prof.(Dr)UM Amin in his research paper "*A Study on Evolution of Models for R&D Management and their application in Pharmaceutical Industry*" has highlighted the need to rethink for innovation in the pharma sector Prof. (Dr.) Timira Shukla and Ms. Navneet Kaur in their research paper "*Partner Satisfaction: An Empirical Study for Shoppers' Stop*" have posited that satisfaction level of vendors is a critical building block of CRM in the retail sector. Dr. Damayanti Datta in her article "*Critical Thinking in Information Technology (IT) Strategy in Organizations*" has endeavoured to highlight the necessity of critical thinking in the IT strategy of an organization in the current era of digital economy.

Dr. Santosh Singhal and Dr. Ajay Kumar Patel in their article "*Prospects and Challenges in Cryptocurrency Transactions: Bitcoins*" have tried to explore the future opportunities and challenges along with different phases of Bitcoin like how to acquire, sources, how to mine, in what ways Bitcoin can be used in financial transactions. Riya Gangwar and Nitin Kumar Saxena in their research work "*Leveraging Analytics for Smart Decision Making: A Sustainable Business Approach*" focused on how Business Analytics can be leveraged to enhance measure and rational decisions, benefits and challenges associated with Big Data. Dr. Parul Tyagi in her research paper "*Comparing the Performance and Volatility of Returns in NIFTY 50 and Shcomp index*" compared the performance and stock market volatility of Indian and Chinese Stock Indices namely Nifty 50 and SHCOMP Index by applying advanced econometric tools to study the volatility pattern.

The case study "*SCM Transformation Journey: A Case of "Dabur India Ltd"*" by Dr Abhishek Jain provides a glimpse into the supply-chain integration adopted by the FMCG major.

The book review "*21 Lessons for the 21st Century by Yuval Noah Harari*" by Dr. Vartika Chaturvedi focuses on the hectic moment between the remote past and the distant future — the present day and tomorrow's world. Ms. K.P. Kanchana in her article titled "*All about Leadership; Be one*" highlighted how there is a paradigm shift in the definition of leadership. Her article also explains how leaders have transformed themselves from being very formal to the person working at the ground level like a common man.

I would like to also thank Executive Editor Dr. Ajay Kumar Patel for his consistent efforts in bringing out this issue. I would like to also thank esteemed members of the Editorial Advisory Board for their valuable inputs.

Our point is to seek after a constant procedure of progress by expanding the article board with specialists of different management functions as well as budding business individuals. We likewise hope to get anomalous state of the commitment of substance as research papers, articles, contextual analysis, case study, interviews and book reviews from around the globe.

We look forward working with all of you and welcome your submissions, as well as feedback as authors, readers, and reviewers of the journal.

**Editor- in- Chief**  
**Dr Timira Shukla**

# *Our Inspiration*



**Dr. Rajaram Jaipuria**  
(1934-2015)  
**Founder, Jaipuria School of Business**

“When one performs his prescribed duty only because it ought to be done, and renounces all material association and all attachment to the fruit, his renunciation is said to be in the mode of goodness”...

Bhagwad Gita

# OJAS

Expanding Knowledge Horizon

AN INTERNATIONAL JOURNAL OF RESEARCH IN MANAGEMENT

Issue - January - July 2019

## Contents

### Research Articles

1. **A Study on Evolution of Models for R&D Management and Their Application in Pharmaceutical Industry** 02  
*Dr. U M Amin*
2. **Partner Satisfaction: An Empirical Study for Shoppers' Stop** 07  
*Prof. (Dr.) Timira Shukla & Ms. Navneet Kaur*
3. **Critical Thinking in Information Technology(IT) Strategy in Organizations** 13  
*Damayanti Datta*
4. **Prospects and Challenges in Cryptocurrency Transactions: Bitcoins** 16  
*Dr. Santosh Singhal & Dr. Ajay Kumar Patel*
5. **Leveraging Analytics for Smart Decision Making: A Sustainable Business Approach** 21  
*Riya Gangwar & Nitin Kumar Saxena*
6. **Comparing the Performance and Volatility of Returns in NIFTY 50 and Shcomp index** 26  
*Dr. Parul Tyagi*

### Case Study

7. **SCM Transformation Journey: A Case of "Dabur India Ltd"** 34  
*Dr Abhishek Jain*

### Book Review

8. **21 Lessons for the 21st Century by Yuval Noah Harari** 43  
*Dr. Vartika Chaturvedi*

### Perspective

9. **All about Leadership; Be one** 45  
*KP Kanchana*

# A Study on Evolution of Models for R&D Management and Their Application in Pharmaceutical Industry

Dr. U M Amin\*

## Abstract

The primary function of R&D is to discover and create new scientific and technological knowledge for the purpose of uncovering and enabling development of valuable new products, processes, and services. (OECD). R&D has been source of growth for various industrial sectors, especially pharmaceutical sector through innovation and creativity. This study was undertaken to gain insights into management of R&D by studying various models.

Six generations of R&D Models provide insights into innovation process. The study attempts to trace evolution of these models and their application in the pharmaceutical industry.

R&D in global pharmaceutical sector has evolved from botanical age in nineteenth century to chemical synthesis later and biotechnology revolution in 1930s & 1940s.

Given the changes in the sector, author decided to study R&D management, evolution of models for R&D Management and their application for pharmaceutical industry. The later day models may help examine innovation process factors that contribute to effectiveness of R&D. Creativity is subset of innovation (Woodman et al, 1993), It seems that creativity inhibitors and enhancers influence innovation process; therefore, the models may help in examining factors associated with it. Personality characteristics of R&D personnel seem to impact creativity; the sixth generation model may provide insights into this aspect also.

**Key Words:** Research and Development (R&D), R&D Models, Innovation, Creativity, Pharmaceutical industry

## Introduction

Business organizations undertake Research and Development (R&D) as it helps them to be in better position to achieve and maintain competitive advantage in an increasingly global market place. It results in valuable inventions, ideas and designs that increase their stock of knowledge which can be a source to gain competitive advantage. Thus getting ahead of competitors requires innovation that often hinges on R&D. Research seeks to make basic discoveries and uncover new principles or facts so far unknown or unrecognized. Innovation is necessity for improving human prosperity and well-being.

The long term success of pharmaceutical industry is dependent on good quality Research and Development (R&D). It is imperative that the pharmaceutical industry invests, engages and manages its resources to ensure that new and value-creating products emerge from its R&D operations. Innovation in the health sector is more important than in many other sectors of the economy, as it stands to provide well-being enhancers (medicines, devices, surgical procedures, nutrition, among others) for people;

powering them to create innovative products in all other sectors. (Bennani, 2011).

Pharmaceutical R&D is a highly regulated activity. Drug discovery and development is a risky, uncertain, complex, capital intensive and time consuming process. It involves an investment of about one billion dollar and may take upto 12-14 years to discover and develop a new drug molecule. With falling productivity of the drug discovery, it is becoming crucial to manage the drug discovery and development process.

This research article attempts to describe evolution of the innovation process models from simple linear models to complex System Integration and Network models. The understanding gained from studying these models helps pharmaceutical firms to improve R&D productivity.

## Research and Development, Innovation and related concepts.

“Basic research is described as the work of scientists and others who pursue their investigations without conscious goals, other

than the desire to unravel the secrets of nature. In modern programs of industrial research and development, basic research (sometimes called pure research) is not entirely “pure”; it is commonly directed towards a generalized goal, such as the investigation of a frontier of technology that promises to address the problems of a given industry.

Applied research carries the findings of basic research to a point where they can be exploited to meet specific need, while the development stage of research and development includes the steps necessary to bring a new or modified product/process into production.

R&D can be viewed as “Discovering new knowledge about products, processes, and services, and then applying that knowledge to create new and improved products, processes, and services that fill market needs.” (Source: InvestorWords.Com).

R&D is “Any creative systematic activity undertaken in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this knowledge to devise new applications. It includes fundamental research, applied research in such fields as agriculture, medicine, industrial chemistry, and experimental development work leading to new devices, products or processes.” (Source: UNESCO Statistical Year book 68 and 65, Chap. 5).

Innovation, on the other hand, is the successful implementation of creative ideas within an organization (Amabile T.M., 1996. pp.1). It can also be described as .... “The commercialisation of technological change”. Freeman and Soete (1997, pp 6) describe innovation stating “an innovation is accomplished only with the

first commercial transaction involving the new product, process, system or device”.

Myers et al (1969) contend that innovation is not a single action but a total process of inter-related sub-processes Kanter (1985) refers to it as the process of bringing any new, problem solving idea into use. Finally, Freeman (1974) while explaining industrial innovation states that industrial innovation includes the technical, design, manufacturing, management and commercial activities involved in the (bringing to market) of a new (or improved) product or the first commercial use of a new (or improved) process or equipment.

#### **Above descriptions of innovation characterize it as follows:**

- Innovation is a process.
  - Innovation is about novelty.
  - Innovation is concerned with exploitation of new possibilities, through the bringing into use of an idea or concept.
- Innovation is a broad concept that includes full range of activities from discovery and invention, through development and commercialisation.

#### **From the synthesis of above definitions, innovation can be expressed as;**

Innovation = R&D + Commercialisation OR

Innovation = R&D + bringing into common usage

### **Models of Innovation**

We now describe various innovation models that have guided the innovation process. These are six generations of innovation process models. Rothwell (1992) describes them as follows:

**Table 1 Innovation Process Models**

S. No.	Model	Generation	Characteristics
1	Linear-Technology push Model	First	Simple linear sequential process, emphasis on R&D and science.
2	Linear- Market pull model	Second	Simple linear sequential process, emphasis on marketing, the market is the source of new ideas for R&D.
3	Coupling model	Third	Recognizing interaction between different elements and feedback loops between them, emphasis on integrating R&D and marketing
4	Interactive model	Fourth	Combination of push and pull models, integration within firm, emphasis on external linkages.
5	Network model	Fifth	Emphasis on knowledge accumulation and external linkages, systems integration and extensive networking.
6	Open Innovation model	Sixth	Internal and external ideas as well as internal and external paths to market can be combined to advance the development of new technologies.

Before giving description of these models, let us briefly consider evolution of R&D over time.

R&D passed through several stages in various organizations (Roussel et al, 1991). The first two stages mentioned in Table 1 comprise of linear models that dominated in 1950s and early 1960s. R&D was an isolated activity in an organization that used to make available its results to the production department. The second stage employed project management techniques to control R&D mostly in private laboratories. Third stage was radically different from earlier stages prevalent in 1970s and 1980s initiated in corporate laboratories. Instead of confining to R&D department, R&D was linked to other areas such as marketing, production and finance. The objective was to produce successful results.

Mid eighties saw fourth stage characterized by cooperative R&D, systemic links between independent research agents and technical alliances between the producers and users. Informational links became inter-organizational. Fifth stage was further refinement of the fourth stage with electronification of the R&D. This was followed by the sixth stage i.e. open innovation.

Let us now describe these models as follows:

### **Linear Models; Need Pull and Technology Push Models**

The first and second generation models are sequential linear models that include 'Science Push' or 'Technology Push' and 'Need-pull Model'. The terms 'technology push' or 'science push' are based on the assumption that successful innovation results from focusing on investing in the scientific and technological means rather than in response to needs of the marketplace.

Most innovations during 1960s and 1970s were need-stimulated; signaling the shift from 'Science/Technology push' to 'Need or Demand pull'.

#### **Third Generation Coupling or Interactive Models**

Third generation also known as 'Coupling or Interactive' Model emerged as a result of influence of key environmental factors due to key resource constraints prevailing in 1970s. This prompted need to search for understanding the basis of success of innovation thereby reducing incidence of failure.

As per the model, the innovation process may be conceptualized as complex network of communication paths, linking together various in-house functions as also the firm to broader scientific and technological community and the marketplace. It represents

matching of technological capabilities and market needs. The linkages between science, technology and marketplace are complex, interactive and multi-directional. However, although the model is based on network perspective, it is essentially sequential process containing feedback loops.

Cooper (1990) proposed a model called Stage-Gate model developed based on this model. It divides the innovation process into stages with defined gates acting as decision points between the succeeding stages. The model ensures better quality and comprehensiveness in the innovation process.

### **The Parallel Line Fourth Generation Model**

The fourth generation model based on interactive approach was developed in late 1980s and 1990s. Innovation process is viewed as parallel activities across different functional areas of the organization. It encompasses introducing knowledge of users, suppliers, competitors and other companies with complementary competencies. With the development of technological alliances, the feedback is more formal, inclusive and complex to manage. Intellectual property is shared with external agents. New routines emerge to cope up with new activities, new flows of knowledge and new type of employees. Flexible R&D is the key characteristic of this model.

An improved version of this model is the well-known Minnesota Innovation Research Programme (MIRP) model developed in 1980s. Each cycle of innovation comprises of three periods viz. initiation, development and implementation periods with no clear cut boundaries between these periods.

### **Systems Integration and Networking (SIN); Fifth Generation Model**

The fifth generation model developed in 1990s is an extension and refinement of fourth generation model. It emphasized vertical relationships and attempts to explain the complexities of the innovation process. Innovation occurs within a network of external and internal players. Learning occurs within and between firms implying that innovation is essentially a distributed networking process. As Rothwell (1993) states "the fifth generation approach was brought about by time pressures on leading edge innovators." It relied on sophisticated electronic tools to increase speed and efficiency of new development across the entire network of innovation, including in-house functions, suppliers, customers and external collaborators. He further explains, "5 G is essentially a development of 4G in which technology of technological change in itself is changing and 5G represents the electronification of innovation.



Trott (2005) proposed a version of the model. A year later, Galanakis (2006) developed a more comprehensive integrated and networked model based on the systems thinking approach. One of the salient features of the model is the influence of and communication with the external environment.

### Salient features of the Fifth generation Model

System Integration and Networking (SIN) Model, postulates fully integrated parallel development. It includes use of expert systems and simulation modeling in R&D, strong linkages with leading edge customers, strategic integration with primary suppliers including co-development of new products and linked CIM systems. It suggests horizontal linkages, including joint ventures, collaborative research groupings, collaborative marketing arrangements, etc. Emphasis is on corporate flexibility and speed of development (time-based strategy). Increased focus on quality. The major aspects include:

- The firm, its suppliers and customers.
- Strategic integration that includes Global markets, R&D Collaboration and Networks.
- Technology integration Linked CIM, technology fusion and Electronic tool kit (ERP etc.).
- Technology Strategy to facilitate all three mentioned above.

As per Galanakis, the fifth generation model can be viewed as comprising of three innovation processes:

- The knowledge creation process.
- The new product development process, which transforms knowledge into a new product.
- The product success in the market which depends on functional and organizational competencies of the firm to produce and distribute the market.
- The process is affected by internal factors of the firm are:
  - Corporate Strategy
  - Risk Taking Policy
  - Technological Capability
  - Organization Structure
  - Organizational Climate
  - Creativity

The external factors in National innovation environment that influence innovation process include:

- Regulations
- National Infrastructure
- Knowledge and Human Resources
- Critical Mass and Physical Resources
- Financial System
- Demand Conditions

### Sixth Generation Open Innovation Model

Chesbrough (2003) coined the term 'Open Innovation'. It calls for new logic that puts openness and collaboration at the centre. Networked or web communities are the open tools to be employed in practice in the open innovation. This gave rise to sixth generation Open Innovation models. These are essentially network models of innovation but instead of focusing only on internal generation and development of ideas, both internal and external paths are combined in the innovation process.

Open Innovation involves four main dimensions of the firm's organization, i.e. inter-organizational networks, organizational structures, evaluation processes and knowledge management systems, along which change could be managed and stimulated. (Davide C., Vittorio C., and Federico F., 2010).

Above description of the innovation process models has following implications:

The innovation can be Science/Technology push or market pull or a blend of the two.

As per the models, innovation comprises of various stages that include idea generation, concept development, concept evaluation and selection, development and implementation.

Integration of various functions of the innovation process is of vital importance.

The later models emphasize a network approach where innovation is not focused internally within the firm but also outside the boundaries of the firm.

The models ignore exploitation of the new innovation in the market place.

### Applications of Innovation Models

Saur-Amaral and Gouvela (2008) have developed a meta-model based on studies of international R&D organizations. The model indicates four categories of variables, viz.: Technology development, Resources, Markets and Networks. They contend that the existing studies have not covered these categories sufficiently and have failed to address aspects related to open innovation. They have applied the model to pharmaceutical industry.

Malek and Breggar (2009) suggest a project management approach to conduct R&D. R&D organizations must learn to capture, process, share and re-use information both internally

and external collaborators. R&D requires regular problem solving and ability to make fast and correct decisions separating winners from losers in this age of information overload. The organizations need to break barriers that prevent effective collaboration, and knowledge sharing and effectively use information management technologies.

Christopher Williams and Soo Hee Lee (2009), explore the realized strategies of six large R&D-intensive firms through a venturing lens, focusing on two industry sectors viz. Pharmaceuticals and high-technology equipment manufacturing. Changes in strategy are examined over a period of six years along two dimensions:

- Focus of venturing i.e. internally versus externally oriented.
- Learning orientation i.e. explorative versus exploitative.

## Conclusion

In the fast changing, dynamic and complex business environment, with emergence of new competitors companies need to rethink their innovation models. The fast paced digital revolution together with development of science based industries, free markets, lesser government support have resulted in companies doing away with linear innovation models. The above models and the applications of later generation models in this research article may serve as the framework for carrying out R&D in the pharmaceutical industry by developing internal and external linkages and flexible new routines. The objective is to reduce lead time, minimize number of unsuccessful R&D projects and reduce costs. These objectives can be achieved by developing feedback mechanisms to ensure that relevant knowledge from both internal and external users and customers enters the R&D process.

With time and resource constraints, new strategies and flexible routines are developing to evaluate the production and distribution of R&D results. Collaborative arrangements with users, customers and competitors not only result in timely evaluation of performance of products and processes but reduces costs and lead time.

The first generation brought the corporate R&D while second generation introduced project management techniques in R&D. The third brought internal collaboration in different business functional areas.. The fourth added the more routines to ensure flexibility by incorporating knowledge of users and competitors. The fifth generation has refined it further through introduction of digital technology followed by open innovation beyond the boundaries of the organization.

The later generation models incorporate earlier effective methods such as project management techniques and business

development groups. These have resulted in reduced costs, say compared to mergers and acquisitions, reduced risk and uncertainty, accelerated innovation, reduced duplication of efforts, improved user-supplier collaboration. These models can be used for targeting of markets effectively through involvement of major users in R&D projects and allows the firm to concentrate on core competencies.

Considering the nature of pharmaceutical industry, these models lend themselves for their effective application in the sector.

## References

- Amabile T.M., 'Creativity and Innovation in Organizations', Harvard Business School Publishing, no. 9-396-239, January 5, 1996, pp. 1-15.
- Bennani Y.L., 'Drug Discovery in the next decade, innovation needed ASAP', *Drug Discovery Today*, 2011, vol. 18, pp. 779-792.
- Chesbrough, H. (2003), *Open Innovation: The New Imperative for Creating and Profiting from Technology*, Harvard Business School Press as cited in [http://Induventions.co.z.attachements132\\_A%20Framework%20for%20managing%innovationMd1111](http://Induventions.co.z.attachements132_A%20Framework%20for%20managing%innovationMd1111) accessed on May 11, 2011.
- Christopher Williams and Soo Hee Lee, *Exploring the internal and external venturing of large R&D-intensive firms*, *R&D Management* 39(3) 2009 pp. 231-246.
- Cooper, RG (1990), *Stage-Gate systems: a new tool for managing new products - conceptual and operational model*, *Business Horizons*, May-June: pp. 44-53 as cited in [http://Induventions.co.z.attachements132\\_A%20Framework%20for%20managing%innovationMd1111](http://Induventions.co.z.attachements132_A%20Framework%20for%20managing%innovationMd1111) accessed on May 11, 2011.
- Davide Chiaroni, Vittorio Chiesa and Federico Frattini, *Unravelling the process from Closed to Open Innovation: evidence from mature, asset-intensive industries*, *R&D Management* volume 40: 3, 2010, pp. 222-245.
- Freeman (1974), as cited in *Managing and shaping innovation* by Convoy S., Steward F., Oxford university press (2009) pp 9.
- Freeman and Soete (1997), as cited in *Managing and shaping innovation* by Convoy S., Steward F., Oxford university press (2009) pp 9.
- Galanakis, K.(2006). *Innovation process: Make sense using systems thinking*, *Technovation*, 26(11), pp. 1222-1232.
- Kanter (1985) as cited in *Managing and shaping innovation* by Convoy S., Steward F., Oxford university press (2009) pp 10.
- Malek J.J., Michael M Breggar M.M., *The new R&D paradigm*, *Pharmaceutical Executive*, 21 (2) pp. 78-82.
- Myers and Marquis (1969) as cited in *Managing and shaping innovation* by Convoy.

- Rothwell, R. (1992). *Successful industrial innovation: critical factors for the 1990s*. *R&D Management*. Vol 22:3. pp. 221 – 239.
- Rothwell R. (1993), as cited in Hobday M. (2005), *Firm-level Innovation Models: Perspectives on Research in Developed and Developing Countries*. *Technology Analysis & Strategic Management* Vol. 17, No. 2, pp. 121-146.
- Roussel et al, 1991, as cited in Niosi J., *Fourth- Generation R&D: From Linear Models to Flexible Innovation*, *Journal of Business Research*, 199, 45, pp 111-117.
- Saur-Amaral I., Gouvela J.J.B. *‘International R&D models applied to pharmaceutical industry: a preliminary outline of results*, *Department of Economics, Management and Industrial Engineering, University of Aveiro, Portugal, paper based on Ph.D. 2008*.
- Trott, P. (2005). *Innovation Management and New Product Development*. 3rd edition. Harlow, England: Pearson Education Limited.

# Partner Satisfaction: An Empirical Study for Shoppers' Stop

Prof. (Dr.) Timira Shukla\*  
Ms. Navneet Kaur\*\*

## Abstract

Partner satisfaction measures how products supplied by a partner to a retail organisation meet customer's expectation. It is an important metric to manage and improve businesses. Shopper Stop(SSL), a large format multi-city stores stock various products and services catering to wide array of customer needs are available. In order to offer the products in diverse categories SSL has a large base of partners from whom it sources merchandise. An empirical investigation has been undertaken to measure partner satisfaction vis-a-vis competitors.

**Keywords:** Partner, Satisfaction, Parameters, Relationship

## Introduction

Partner satisfaction is an important building block of CRM (Customer Relationship Management). As organisational retail has made inroads in India, the organised retailer has to maintain a database of quality vendors/suppliers of products and services. Many of these vendors become qualified partners. In the ladder of customer loyalty a partner is one who is actively involved in the decision-making of the retail organisation and has a sense of ownership with the organisation. This is an important metric for the retail organisation as it provides them with a measure to manage and improve their respective businesses. Relationship in context of institutional markets (Retail Organisations) is significant to build relationship with the end-buyers in the consumer market. In a competitive marketplace where businesses compete for partners; partner satisfaction is seen as a key differentiator. Businesses who succeed in these cut-throat environments are the ones that make customer satisfaction a key element of their business strategy. Organised retailers buy from vendors (they could be partners) and then resell the same to the end buyer. It is a dyadic relationship as a partner satisfaction with the organisation is also important to leverage this relationship and grow together.

Partner satisfaction is the best indicator of how likely a customer will make a purchase in future. By tracking partner satisfaction the organisation can symbiotically design and develop new processes to increase the overall quality of partner service. Not only is it the leading indicator to measure partner loyalty, reduce attrition and increase return on assets; it is also a key point of differentiation that helps you to attract new partners in competitive business environments

## Retail Sector Scenario

The Indian retail industry that has emerged as one of the most dynamic and fast-paced industries accounts for over 10 per cent of the country's Gross Domestic Product (GDP) and around 8 per cent of the employment. India is the world's fifth-largest global destination in the retail space.

As per the report titled 'Retail 2020: Retrospect, Reinvent, Rewrite' published by the Boston consulting Group India's retail market is expected to nearly double to US\$ 1 trillion by 2020 from US\$ 600 billion in 2015, driven by income growth, urbanisation and attitudinal shifts. Retail spending in the top seven Indian cities amounted to Rs 3.58 trillion (US\$ 53.7 billion), with organised retail penetration at 19 per cent as of 2014. The online retail is expected to be at par with the physical stores in the next five years.

Retailers are essentially resellers with considerable buying power. It is important to articulate the nature and type of relationship between vendors/manufacturers to dispel the myth that brands are relevant only to consumer relationships and not reseller relationships. Retail organisations which are essentially resellers purchase products for immediate resale and therefore, they desire that vendors also work in the direction of meeting end-customers' changing expectations. It can be said that it is important to manage the vendor/partner relation to enhance the value of the partner's brand and merchandise.

## Review of Literature

Fairhurst and Fiorito (1990) has posited that reseller purchasing has to incorporate end-customers' needs as an important

\*Professor and Dean –Academics, Jaipuria School of Business, Ghaziabad, dean@jaipuria.edu.in

\*\*Deputy Manager, Aditya Birla Capital

consideration to strengthen the relationship. Ghosh et al., (1995) have stated that a partner/vendor's ability to use end-customer marketing tools through retailers/resellers, such as sampling and point of purchase displays, often requires retailers/reseller cooperation. Many established brands who sell through other formats also have different considerations for building and enhancing relationship with large-format retail chains. Bolton (1989) has shown that leading brands are less price-elastic; in-store and other brands tend to benefit more. Leading brands had the capability to generate store patronage, while other brands and private labels allowed retailers to satisfy niche segments in the market.

Ailawadi and Keller (2004) have posited that partner brands are important to retailers as they help build store traffic and act as cue for other brands.

The value of a brand to the end-customer is a joint result of manufacturer and reseller decision-making (Anderson and Narus, 1999) and is best optimised through a partnership. Resellers deal with many partners and vendors who also supply to the competitors; thus alignment of respective strategic goals becomes the over-riding concern (Kasulis et al., 1999). Resellers endeavour to maintain profitability in the face of consumer demand for better value through larger ranges, larger store formats, competitive pricing and private label brands. However, the reality of retailing is that it involves a network of manufacturers, resellers and end-customers (Anderson et al., 1994). Verbeke et al. (2006) find that a manufacturer's brand strength influences merchandising support and in store placement decisions.

Much of the contemporary literature (Akamp and Müller, 2013) espouses the crucial role of deam-d-chain management as the cornerstone of partner relationship management. Abdollahi et al(2015) has posited that partner selection and purchase /repurchase decisions and partner integration is important to maintain a competitive edge in the market. Thakur and Anbanandam, (2015) have also averred that flexibility, reputation, price-delivery mechanism are important to enhance partner satisfaction.

Much of the research undertaken is focused on the role of a partner as one of support with little recognition being given to the cooperative and partnership aspects of the relationships. It can also be corroborated that research has focused on retailer judgements of the partner and not vice versa. The present study is an attempt to explore partners' evaluation of the retail brand to foster stronger co-operation between the partner and the retail buyer in the organised retail which is growing in India.

## Objective of the Study

Shopper Stop Limited (SSL) a retail chain with pan-India presence offers products in categories as diverse as ethnic wear, western clothing, kids wear, books, jewellery etc. SSL has a large base of partners from whom it sources merchandise.

This study on Partner Satisfaction focuses on Retail Organisations to whom the partner/vendor supplies products and the Retail Organisation that vendors prefer to deal with. The scope of the study aims to collect evidence from 4 broad types of partner organisations described as under:

1. **Consignment/Sale return segment:** The merchandise is supplied on consignment basis to SSL by the partner/vendor organisation, but stocks/merchandise that does not get sold at the SSL are returned to the partner company and not paid for by SSL. SSL pays the partner only for the value of goods that are purchased by the end-customers from its stores. Some examples of consignment partners are TANTRA T-Shirts and Moustache International
2. **Outright Bought Brands:** These brands are owned by the partner and supplied to SSL and sold under brand label of the partner organisation. Examples include goods offered by the brands like Madura Garments, Levi Strauss, Welspun and Mattel Toys.
3. **Private label:** Private Label manufactures are those who manufacture and supply merchandise to SSL that is sold under their brands such as Stop, Life and others.
4. **Concessioner Partners:** These are organisation wherein, the in-store space is operated by personnel who are employees of the partner organisation. SSL charges these companies a percentage commission on sale as fees for allowing use of its stores. Some examples are Revlon, Gitanjali Jewels and others.

The five competitive organisations included in the study for comparisons with SSL include Westside, Globus, Pantaloon, Lifestyle and Central which are large format retail chains.

## Research Methodology

The study is qualitative wherein primary data have been collected from partner organisations of SSL. The study in the area of B2B aims to give an insight into the satisfaction level of practices adopted to build long-term relationship with SSL. The method of purposive sampling was used for the study conducted in Delhi; the total sample size being 32. The primary data using a structured instrument was collected by using CAPI (Computer Aided Personal Interview method).

The attributes considered for the study include partner rating of the direct marketing team, quality of relationship, return on investment that includes overall profitability and earnings. A 5-point scale has been used to measure partner response towards SSL. Some of the parameters pertaining to relationship on which data is collected include the following:

- It would matter a lot if SSL discontinued having me as a partner
- My company is proud to be a partner with SSL
- My company has a strong attachment to SSL
- SSL is a reputed and well known company
- SSL is a financially strong company
- SSL is transparent in its dealing with partners

- SSL has streamlined processes for reconciliation of statements, timeliness of payments and queries related to it
- Accessibility of personnel in store planning, Visual Merchandising

SSL has maintained the database of all their partners and informs/updates them about every detail of their upcoming activities so as to enable partners manage and co-ordinate effectively with the SSL Direct Marketing team

## Findings and Discussion

The summary measures of data collected are displayed in table 1.1 followed by discussion.

**Table 1.1- Summary Measures**

Criteria	Description	Summary Measures
Relation with SSL	Excellent	9
	Good	21
	Fair	2
Relation with others (excluding SSL)	Lifestyle	14
	Central	12
	Globus	03
	Westside	01
Profit/ROI Contribution from SSL	Very high	08
	High	16
	Modertae	06
	Low	02
Performance Review of SSL by partners	Excellent	07
	Good	21
	Fair	02
	Poor	02
Performance Review of competitors rated excellent by partners	Central	15
	Lifestyle	13
	Pantaloons	01
	Westside	01
	Globus	02

Direct Marketing Team (SSL) assistance during events	Excellent	14
	Good	13
	Fair	04
	Poor	01
Merchandising Support by SSL	Excellent	17
	Good	11
	Fair	04
B2B website of SSL	Excellent	10
	Good	17
	Fair	04
	Poor	01
Competitors offering best Profits/ROI excluding SSL	Central	11
	Lifestyle	10
	Pantaloons	04
	Westside	03
	Globus	04
Overall Store planning by SSL	Excellent	11
	Good	19
	Fair	02
Overall Store planning by competitors rated excellent	Central	10
	Lifestyle	13
	Pantaloons	01
	Westside	01
	Globus	02

It can be observed from the above that the merchandising department of SSL is performing as per partners' expectations. This is interesting as it provides empirical evidence about how changing consumer preferences impact a partner. The merchandiser too is required to assume risk to ensure that the product line and items in the line sell.

In the merchandising department the competitors of SSL are Lifestyle and Central. This provides an insight about visual display practices followed by SSL. SSL should introduce more innovative designs for product displays and focus on flexibility to improve internal and external communication.

In respect of Direct Marketing teams it can be seen that SSL as well as their partners are working in tandem to evoke an immediate

response from end-buyers. To stimulate immediate response for the First Citizen (a loyalty card program of SSL for customers) SSL has a database of prospects for specific verticals wherein the partners work with SSL for more profit.

The good rating for B2B website offers an opportunity to increase the brand awareness through an additional channel. It can be leveraged for sales and negotiations.

One-way ANOVA has been used to test the following hypothesis:  
Ho: There is no difference among different competitors for partner rating for ROI. The means have been calculating by aggregating the scores for all statements pertaining to ROI.

Table 1.2 ANOVA

Source of variation	Sum of Squares	Degrees of Freedom	Mean Sum of Squares	F-ratio	p value	F critical
Between Groups	4.16	3	1.39	4.90	0.00	2.68
Within Groups	35.06	124	0.28			
Total	39.22	127				

It can be observed that at 95% confidence level the null hypothesis is rejected as calculated F- value is higher than the critical value. This implies that partner ratings for ROI for the competitors are different. It can impact future business decision of partners for deepening the relation with SSL over other competitors.

## Conclusion and Recommendation

It can be observed that there is threat from Lifestyle and Central retail chains as many partners are also suppliers to the competitors. The overall rating in areas such as Merchandising, Store Planning and Financial aspect shows there is room for improvement. SSL can attempt to work faster with partners with respect to products to enter new categories. SSL has to build more trust among partners to create a win-win situation to enhance partner satisfaction. There is scope for improving the co-ordination in areas such as merchandising, store planning and displays to stay competitive. As per study SSL should strive to strengthen co-ordination between store and category and share marketing plans with the partners to be ahead of the competition.

## Limitation

The study is qualitative and the scope is limited to Delhi. As the data have been collected through CAPI, partners had to invest time in completing the questionnaire. Though the questionnaire was pre-tested many areas were not included for the study. The findings therefore cannot be generalised to a larger population of large-format retail stores. However, it provides insights into how to build a sustainable partner relation for mutual growth.

## References

- Abdollahi, M., Arvan, M., Razmi, J., 2015. An integrated approach for supplier portfolio selection: Lean or agile? *Expert Syst. Appl.* 42, 679–690.
- Ailawadi, K. L. and Keller, K. L. (2004), "Understanding Retail Branding: Conceptual Insights and Research Priorities," *Journal of Retailing*, Vol. 80 No. 4, pp. 331-42.
- Akamp, M., Müller, M., 2013. Supplier management in developing countries. *Sustain. Manag. Corp. Boundaries* 56, 54–62.
- Anderson, J. C., Håkansson, H. and Johanson, J. (1994), "Dyadic business relationships within a business network context", *Journal of Marketing*, Vol. 58 No. 4, pp. 1-15.
- Anderson, J. C. and Narus, J. A. (1999), *Business Market Management: Understanding, Creating and Delivering Value*. Prentice Hall, Upper Saddle River, NJ.
- Bolton, R. N. (1989), "The relationship between market characteristics and promotional price elasticities", *Marketing Science*, Vol. 8 No. 2, pp. 153-169
- Fairhurst, A. E. and Fiorito, S. S. (1990), "Retail buyers' decision-making process: an investigation of contributing variables", *International Review of Retail Distribution and Consumer Research*, Vol 1 No. 1, pp. 87-100
- Ghosh, M. and John, G. (1999), "Governance value analysis and marketing strategy", *Journal of Marketing* Vol. 63 (Special Issue), pp. 131-45.
- Kasulis, J. J., Morgan, F. W., Griffith, D. E. and Kenderdine, J. M. (1999), "Managing trade promotions in the context of market power", *Journal of the Academy of Marketing Science*, Vol. 27 No.3, pp. 320-32.
- Thakur, V., Anbanandam, R., 2015. Supplier selection using grey theory: a case study from Indian banking industry. *J. Enterp. Inf. Manag.* 28, 769–787.
- Verbeke, W., Bagozzi, R. P. and Farris, P. (2006), "The Role of Key Account Programs, Trust, and Brand Strength on Resource Allocation in the Channel of Distribution", *European Journal of Marketing*, Vol. 40 No. 5/6, pp. 502-32.



# Critical Thinking in Information Technology (IT) Strategy in Organizations

Damayanti Datta\*

## Abstract

As Information Technology (IT) pervades every area of an organization, an IT strategy becomes a must have for any organization. However, it is important that the IT strategy be carefully formulated as organizations have become enormously dependent on IT for their present as well as for their future existence and growth. The IT strategy should not be dependent on one person in an organization but on the collective thinking of people in different departments in the organization. It is here that critical thinking becomes important in an organization. In order to encourage critical thinking in the area, we must first understand the necessity of critical thinking in the IT strategy of an organization. In this paper, we endeavour to understand the necessity of critical thinking in the IT strategy of an organization.

## Introduction

"Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. In its exemplary form, it is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness..." ~ A statement by Michael Scriven & Richard Paul, presented at the 8th Annual International Conference on Critical Thinking and Education Reform, 1987.

### A well-cultivated critical thinker:

Raises vital questions and problems, formulating them clearly and precisely;

Gathers and assesses relevant information, using abstract ideas to interpret it effectively;

Comes to well-reasoned conclusions and solutions, testing them against relevant criteria and standards;

Thinks with an open mind within alternative systems of thought, recognizing and assessing, as need be, their assumptions, implications, and practical consequences; and Communicates effectively with others in figuring out solutions to complex problems.

Critical thinking is, in short, self-directed, self-disciplined, self-monitored, and self-corrective thinking. It requires rigorous

standards of excellence and mindful command of their use. It entails effective communication and problem-solving abilities, and a commitment to overcoming our native egocentrism and sociocentrism.[1]

An IT strategy, also called a technology strategy or IT/technology strategic plan, is a comprehensive plan that outlines how technology should be used to meet business goals. First, the organization needs to identify why it needs to use IT and then formalize a nuts and bolts plan on how it needs to leverage IT. For instance, most business processes can be automated and those that cannot or need not be automated along with the practical implementation of the automation forms the decision areas of the IT strategy.

It is often the case that organizations embark on an IT strategy without defining the benefits, the ROI, and without being clear of which business and which corporate function has to be automated. In other words, many organizations roll out an IT strategy without it being consonant with the overall business objectives. This results in a situation where the organizations' IT strategy is clueless and directionless as an absence of an alignment with the corporate goals and objectives and a disconnect between business drivers and the IT strategy can lead the organization nowhere.[2] Critical thinking within a team can help formulate an effective IT strategy.

Though a lot has been written on critical thinking and IT, very less has been written on the topic of role of critical thinking as a part of IT strategy in organizations. It is this area that we wish to address in this paper.

## Literature Review

According to John R Savageau, a management consultant[3], critical thinking “religions” such as Kepner-Fourie (K-F) provide a process and model for solving problems which is ok if you have the time to create and follow heavy processes, or even better can automate much of the process. However, even studying extensive system like K-T and K-F will continue to drive the need for establishing an appropriate system for responding to events. Regardless of the approach you may consider, repeated exposure to critical thinking concepts and practice will force one to intellectually step away from chasing symptoms or over-reliance on tacit knowledge (automatic thinking) when responding to problems and challenges. IT managers need to think of it as continuous improvement cycle, they always need to exercise their brains and thought process. Status quo, or relying on time-honoured solutions to problems will probably not be sufficient to bring IT strategy in organizations into the future.

Mr. RonyZarom, Founder and Chief Executive Officer at Decima Ventures Ltd[4], argues that with accessibility of technology, it’s become increasingly clear that workers these days are less apt to form their own intelligent and independent thoughts. However, in a digital-first world, where millennials obtain all their answers to problems at the click of a mouse or swipe of a finger, the reliance on technology to solve every question confuses people’s perception of their own knowledge and intelligence. This leads to problems in critical thinking when working out a strategy in IT. To solve it, employers should focus on education and culture within the organization.

Dr Arosha K. Bandara, senior lecturer in Computing at The Open University[5], says that the organisation one works for is complex. It is shaped by the nature of individual thinking processes as well as existing technology and business pressures. Any changes will have causes and consequences that may have a much wider impact. Solving a problem will change things, which could lead to other problems. Different people see different priorities. There is sometimes no obvious answer, or many different reasonable answers. But there are also wrong answers, which can be pursued, sometimes at great cost. These often result from a very narrow focus on the problem out of context. It is here that critical thinking in context becomes useful. Critical thinking doesn’t mean ignoring technology, of course. The process can be evolved further by an understanding of different IT tools that can help them simulate, manage and monitor. Using these effectively is part of the skill of good IT planning.

Joseph R. Czarnecki, project management specialist and senior consultant at ESI International[6], identifies six top business skills at which every IT managers needs to excel. Today’s IT professional

is required to do far more than just write code. A whole new set of talents in business competencies, or so-called soft skills, has arisen in the IT industry. IT managers are not only required to sharpen their business acumen and engage in high-impact communications. They also have to meet the increasing demand for critical thinking and problem-solving capabilities.

## Critical Thinking in IT Strategy

In organizations today, creating an IT strategy is a very difficult and complex task. One of the main reasons is that a lot of people from different levels of an organization are involved from the top management to those at the very bottom of the organizational structure. The extent of involvement depends on, to what extent, an organization intends to implement technology. Another important reason is that different departments in an organization are likely to work with different kinds of technology which may be very different from one another and which can range from latest technologies to old technologies. People at different levels in an organization and in different departments have varied proficiencies and different understanding of IT due to the above reason. This may lead to difficulty in getting people to understand and agree to a common IT strategy across the organization.

The above need to be addressed by a varied number of means. Understanding the challenges of implementing an IT strategy is very important. The scale of an organization can make this challenge even more complex. It is here that critical thinking components are important. After talking to one and all in the organization, one can observe, reflect and evaluate the challenges independently to consolidate the key challenges in implementing the strategy. Lack of resources in implementing the strategy may also be a big hurdle. The team who are in charge of implementing the IT strategy must have critical analytical and problem solving skills to understand in what manner the IT strategy may be best implemented given the paucity of resources. The IT strategy needs to be effectively communicated to one and all in the organization. i.e. in a coherent and simplified manner. Given that there are different groups of employees at different proficiency levels and understanding of IT in an organization, communication needs to be adapted to ensure that understanding of the IT strategy is uniform and thorough irrespective of these differences. Any team implementing the strategy must have critical analysing and problem-solving skills to deal with the same. For example, an IT strategist in a manufacturing company was trying to implement a new software system with support from the top management of the company. The new software would be implemented in all departments of the company and provide a cohesive software interface and use. The IT strategist and his team discussed the benefits and uses of the new software with all departments and provided a number of trainings to help promote the understanding and benefits of the new software among all

departments of the company. However two departments proved to be very resistant to the idea and continuously presented negative views of the software implementation to the strategist, his team and the top management. The top management indicated to the IT strategist that the software implementation should have the approval of all departments. The IT strategist was at a loss. However, on an informal one-to-one chat with a friend at home who also worked in the same professional area, the friend pointed out that since the software implementation involved acceptance of all departments, a little more thought was needed to understand the workings/psychology of the employees in the departments. The friend suggested that the IT strategist spend some time doing that though it may delay the software implementation more than he would have liked.

After listening to his friend's suggestion, the IT strategist and his team observed/interacted with the two departments closely. In one department, they observed that the unofficial IT specialist in the department was the secretary of the department manager who was with the company for a long time. The remaining persons in the department had been only there for a short period and hence, were dependent on him for many of the department IT software workings. It was the secretary who was actually resistant to the idea of the new software implementation. After working with the old software for so many years, he was fearful of trying out a new advanced software and was afraid of losing his hold on the department because of his technical expertise. The IT strategist and his team now had identified the crux of the problem which was eluding them this far. All this while they were working with the promoting the new software's benefits and trainings while ignoring the deep human psychology that often accompanies problems in any organization.

In another example, a multi-national IT organization decided to change its strategy from labour outsourcing to automation. However, it was met with enormous resistance from all quarters of the organization. Mid and lower level employees were all afraid of losing their jobs. The organization implemented its change amid a lot of unrest which eventually proved costly. It was the IT strategy team's failure to critically think, understand and communicate the change in an effective way that result in a costly implementation of the IT strategy.

## Conclusions

IT has become pervasive in all departments of every organization. And it is a necessary part of the future of all organizations. However, implementing an IT strategy in an organization is not a straight forward process which involves just communication within organizations and employee/management training. It is important for the IT strategy team to observe, understand and interpret the mind set and skillset of the organization with respect to information technology. This requires deep critical thinking skills. Hence, we would suggest that the IT strategy team of an organization be selected on the basis of their critical thinking skills

among others, and they be subjected to extensive training in the same area before being assigned to formulate and execute any strategy.

## References

- "Critical Thinking: Where to Begin", <http://www.criticalthinking.org/pages/critical-thinking-where-to-begin/796>.
- PrachiJuneja, "Introduction to Information Technology (IT) Strategy", <https://www.managementstudyguide.com/information-technology-strategy.htm>.
- John R Savageau, "Adopting Critical Thinking in Information Technology", February 2015, <https://www.linkedin.com/pulse/adopting-critical-thinking-information-technology-john-r-savageau>.
- RonyZarom, "Why Technology Is Affecting Critical Thought in the Workplace and How to Fix It", September 2015, <https://www.entrepreneur.com/article/248925>.
- Arosha K. Bandara, "The growing importance of critical thinking in IT education", April 2015, <https://www.computerweekly.com/blog/ITWorks/The-growing-importance-of-critical-thinking-in-IT-education>.
- Joseph R. Czarnecki, "Top skills for IT managers - Part 3: Critical Thinking and Problem Solving", <https://www.computerweekly.com/opinion/Top-skills-for-IT-managers-Part-3-Critical-Thinking-and-Problem-Solving>.
- Sam Natale, Frederick Ricci, "Critical thinking in organizations", *Team Performance Management: An International Journal*, Vol. 12 Issue: 7/8, pp.272-277, October 2006.
- Jason Abreu, Susan Baker, Ruth Jayson-Polk, "The Organizational Handbook to Promote Critical Thinking and Decision Making", Nova Southeastern University NSUWorks, 2017.
- Gerald F. Smith, "Beyond Critical Thinking and Decision Making: Teaching Business Students How To Think", *Journal Of Management Education*, Vol. 27 No. 1, February 2003 24-51.
- Frederick A. Ricci, "Cultivating Critical Thinking Within Organizations", *Proceedings of SOCIOINT14-International Conference on Social Sciences and Humanities, Istanbul, Turkey, 8-10 September 2014*.
- Kelly Y. Senter, Austin McClelland, Sr., "Top Ten Workplace Skills for Future Organizations", *International Journal of Business Research and Management (IJBRM)*, Volume (6) : Issue (2) : 2015.
- Mohammad Reza Noruzi, Jose G. Vargas Hernandez, "Critical Thinking in the Workplace: Characteristics, and Some Assessment Tests", *2011 3rd International Conference on Information and Financial Engineering IPEDR vol.12 (2011) © (2011)IACSIT Press, Singapore*.

# Prospects and Challenges in Cryptocurrency Transactions: Bitcoins

Dr. Santosh Singhal\*  
Dr. Ajay Kumar Patel\*\*

## Abstract

With the news of world most anticipated digital currency, Facebook "GlobalCoin", the global market is flooded with vehemence and discussing on its various aspects of the new cryptocurrency's' legality, acceptance, impact on global financial system, etc. The Facebook cryptocurrency has biggest competition from existing 2503 cryptocurrencies, one being the "Bitcoin". Bitcoin is a disseminated currency which has opened an innovative segment in the era of electronic financial transactions. Bitcoins has stopped the mandatory intervention of third party in the financial transactions which has bothered many times due to fraud or in terms of annual/late charges. This article tries to explore the future opportunities and challenges along with different phases of Bitcoin like how to acquire, sources, how to mine, in what ways Bitcoin can be used in financial transactions and also discusses bitter and better side of Bitcoin.

**Keywords:** Cryptocurrency, Bitcoin, Blockchain, Financial Transaction.

## Introduction

Today is the era of web. From the foundation of internet, it has a very large electronic network. As the popularity of the web is increasing day by day, menace of cybercrime also goes on increasing. In last few years India has registered 107% of CAGR (Common Annual Growth Rate) in the number of Cyber Crimes. Security in the financial transactions is a major issue because daily financial transactions take place in bulk. In today's time, cyber criminals are so smart and working in collaborative manner which makes cybercrime as serious issue across the globe. These types of people do several types of crime like online gambling, financial crime, web jacking, cyber pornography, cyber defamation, virus/worm, email spoofing, data diddling etc. Digital transactions become important because people don't want to stand in queue of banks for withdrawal of money; even people don't want to carry cash with them because of the fear of theft in their mind. Day by day people prefer to use electronic cash. People like to buy everything on the internet and try to pay money electronically. Again there is a fear of cyber financial crime. Bitcoins are the way to provide facility to pay electronically. It is system of electronic cash that allows payment from one party to another without intervention of any third party or financial institution.

## Block Chain

A blockchain is an advanced record that is kept and approved at the same time by a system of PCs, practically like a common Excel archive that nobody individual can change without the understanding of the others. Critically, it enables arrangements to be made without the gift of a "confided in mediator, for example, a clearinghouse. Blockchain is making numerous open doors for

business as it is changing the way supporting advances work in associations. In blockchain, exchanges are recorded as computerized squares and contain unchanging properties to safeguard information approval, encryption, and calculations. Digital currencies utilize a common system "Blockchain" for all time, yet work in decentralized mode to verify autonomy among members. The potential utilizations of blockchain are boundless and multiplying albeit a few activities are still being developed. Numerous ventures are as of now profiting by test blockchain ventures. Pioneers in those enterprises are banding together with R&D and new businesses to decide openings.

Blockchain may be used to know about any transaction taken place between any Bitcoin address at any pint on the network. Technology behind Bitcoin Transaction Management and Working of Bitcoin: When a new block of transactions is generated, it will add to the blockchain, hence there exists a long chain of transactions that have been ever taken place in Bitcoin network.

If a person tries to edit the information in any transaction, its hash value will be different. Only information of block is not used to compute hash, but the hash of last block kept in the blockchain is also used to compute the hash. Because hash value of a block is totally related with the current transaction and the previous transaction, it behaves as a security seal of the transaction.

Additionally, research institutions have committed labs to concentrate on new hypothetical ideas or upgrades that can be utilized in human services, worldwide rights the board, and decentralized distributing to give some examples. Blockchain is called as "trustless framework" since it can disturb whole

\*Associate Professor, Jaipuria School of Business, santosh.kumar@jaipuria.edu.in

\*\*Associate Professor, Jaipuria School of Business, ajayk.patel@jaipuria.edu.in

enterprises. Concentrating on Bitcoin is additionally sensible based on information that the attributes of different progressed financial regulations and principles differ from the Bitcoin. For instance, the associating three biggest developed financial norms by market capitalization will be talked about and showed up contrastingly in connection to Bitcoin:

- (1) Ethereum has gotten notoriety because of its capacity to run decentralized applications by and large called shrewd contracts (D'Alfonso et al., 2016; Ethereum Foundation, 2016). In this way, its utilization cases fundamentally vary from the Bitcoin (Hileman and Rauchs, 2017).
- (2) Ripple does not utilize a blockchain, has no excavators and is commonly utilized by huge institutional on-screen characters making it fundamentally novel in association with the Bitcoin which uses diggers to insist exchanges by different refinement people added to a blockchain (Burniske and Tatar, 2017; Hileman and Rauchs, 2017).
- (3) Bitcoin Cash is the most like Bitcoin, yet addresses an ideological state of mind executioner by virtue of contrasts in how the Bitcoin system should work (Horizon Kinetics, 2017; Falcon Private Bank, 2018).

## Protocol that Support Electronic Money

**Electronic Money:** It is a file that the people can use to pay for things over the internet and can receive with the assurance that it is real money. The seller must know that the file is not forged and it is not copied and sent to the seller and the customer retains a copy of the file to spend again.

The file is not forged; it is confirmed by the bank by a cryptography policy. Bank also keeps a database of all the valid money that has been issued so that it can verify to one that the file that it has received represents real money and can be credited to one's account. Main objective is that bank ensures that any unauthorized person should not steal others money or manufactures the money.

**Protocol:** There are three participants the customer, the seller and the bank involved in online transfer of the money. Let us assume that only one "money" file exists. The customer may decide to transfer the money to the seller which will redeem the file from the bank and ships the goods to the customers. The customer may scratch the transaction. i. e. the customer can ask the bank to place money in the customer's account hence bank should make money no longer spendable.

## Problem with E-money and Need of Bitcoin

When we make any electronic payment, there is the need of trustworthy third party that may be bank or any financial

institution. While the system works perfectly for all the situations but there are some weaknesses with the system. For example, customer may try to copy the money file, and use it to pay several times. He can also pay and then cancel the money and can take the goods for free. Financial organizations cannot avoid intervening disputes. The cost of mediation rises the cost of financial transactions. Moreover, there is risk of fraud in this process. There is the need of a payment system which has no mediator bank so that above mentioned problems can be resolved.

There is a strong necessity of proper behavior of the participants otherwise abnormal things may take place. Similarly, the bank must also behave properly. It must make sure that two sellers should not redeem same money file and it should also take care that same money should not be cancelled and redeemed. Bank should also be careful for preventing double spending problem (Spending same money more than once). Seller or Store should also be careful.

It should not deliver the things until it has been given valid money. To overcome the above said problems, crypto currency is used.

**Cryptocurrency:** It is a peer to peer digital exchange system in which cryptography is used to generate and distribute currency units. In this process, distribution, verification and transaction information maintenance is done without central authority. The first fully decentralize cryptocurrency is Bitcoin.

**Bitcoin:** It is a virtual digital currency, which means it exists completely electronically and uses cryptography so as to verify exchanges. Bitcoin was created in 2009 by Satoshi Nakamoto (a pen name), was intended to defeat a large number of the issues that had tormented and much of the time prompted the destruction of-virtual monetary forms that had existed up until that time, including centralization and defenselessness to government guideline.

Bitcoin is digital currency that was released as software in 2009. Bitcoin is a type of currency which is decentralized in nature. It does not depend on any bank or financial institution however it uses cryptographic tools for its creation and management. It is a kind of chain of digital signature.

Bitcoin is held in "wallets." A "wallet" is only a couple of exceptionally long numbers and letters: An "open key" and a "private key." In request to move Bitcoin to another client, the sender educates his Bitcoin programming to send Bitcoin to the beneficiary's open key. The beneficiary just can get to and spend the Bitcoin, be that as it may, by using the private key. Each owner of the coin transfers it to next through digitally signing the hash of the preceding transaction & public key of the succeeding owner

and adding these values to the culmination of the coin. Bitcoins are controlled by no one. It is a distributed virtual money and a peer to peer system in which the coins are produced by miners. The main components are the transactions and blocks.

Block is a data structure containing the transaction data. Blocks are produced by Bitcoin sappers via solving cryptographic puzzles of control hardness (proofs of work). The proof of work consists of finding a cryptographic hash value for a block of transactions which starts with a certain number of leading zero bits (Initially when Bitcoin was introduced it was 32 and currently it is 67 zero bits). Hash of the preceding block is involved into the new block, which result in a chain of blocks or block chain.

## How we can get Bitcoins

- We have to install Bitcoin wallet to our computer or mobile phone.
- As we install Bitcoin wallet, it generates first Bitcoin address and we can generate more whenever we need it.
- We can share our Bitcoin address within our networks so that they can pay us or receive payment from us.
- Bitcoin address should be used only once.

What is Wallet and its classification?

Wallets are used to store essential credentials used for the Bitcoins. For the transaction of Bitcoin, public key cryptography is used.

Wallets are the application used to preserve digital information like public/private key and so on. Broadly wallets are classified into two categories:

**Software Wallets:** They help in network connection, spending Bitcoins, and to verify possession by the stored credentials of the Bitcoin. They further classified into two categories:

- Full Clients:** Verification on the native replica of the block chain is used to be done by Full Clients.
- Lightweight Clients:** Instead of having a native replica of the block chain, Lightweight Clients refer to Full Clients for sending and receiving transaction. This makes the lightweight Clients faster and would be able to work in less power, low bandwidth devices. One of the best examples is smart phones.

**Online Wallets:** These wallets are very much similar to the software wallets but for storage of the credentials. Instead of storing credentials in the native system which is used for retrieving funds, they are deposited in the online wallets.

There are an amount of exchanges and wallets which provide Bitcoins. Some are developed exchanges for institutional traders, while others are simpler wallet services with a more limited buying and selling capabilities. Following is a list of exchanges which provide Bitcoins.

## Working of Bitcoin

When a Bitcoin is sent, it generates a transaction message and assigns new owner's public ECDSA key. Each Bitcoin is associated with public ECDSA key of its current owner. A new transaction is broadcasted over Bitcoin network to inform everyone that new owner of these coins is the owner of the new key. Bitcoin kiosks are the machines which are connected to the internet and allow depositing cash in the exchange of Bitcoins given as paper receipts or by moving money to a public key on the blockchain. Whenever a Bitcoin is sent, it attaches the new owner's public key and signs it with the sender's private key.

The sender's signature on the message authenticates that the message is trustworthy and transaction history is kept by everybody so it can be easily verified. It uses Public Key Cryptography to encrypt and decrypt the data. If a message is encrypted by public key (Pk), then the private key (Sk) will be used to decrypt it.

Or if a message is encrypted using the private key (Sk), then the public key (Pk) will be used to decrypt it. Public Key can be shared with everyone but private key needs to be kept secret.

## Bitcoin Mining:

Bitcoins exist because it gets mined into existence. Bitcoin Mining helps to add transactions to the block and to release new Bitcoin.

This process includes compiling current transactions into the block and trying to solve a computationally difficult puzzle. The first participant that solves the puzzle takes chance to solve next puzzle and claim the reward. The reward contains transaction fees and newly released Bitcoin.

The verification of transactions which confirms transaction amounts and whether the payer owns the currency they are trying to spend while ensuring that the currency units are not spent twice is called mining. In the Bitcoin mining process, users create new Bitcoin currency and transaction is broadcasted over the network. All the computers running the software in the network compete to solve cryptographic puzzles which contain data from several transactions.

The difficulty level of the puzzle is directly proportional to the number of Bitcoin miners are present.

**Who are Bitcoin Miners:** Anyone who has internet connection and have appropriate hardware can join into mining. Bitcoin mining is decentralizing, so, if there is a difference about whether a block should be involved or not in block chain, the conclusion is effectively made through simple majority consensus, i.e. more than half of the mining power agree.

If a person or an organization has control of greater than half of the Bitcoin network's mining power, then they have power to corrupt the blockchain, this is called 51% attack.

**Why do people mine the Bitcoins:** Every time a person creates hash, he gets reward of 25 Bitcoins in today's scenario. That's why the people are interested to mine the Bitcoins. The blockchain is updated and the transactions keep on working. Minors cannot interfere with the transaction data in a block. But they must change the data that they are using to create a different hash. This is done by using a random piece of data which is called 'nonce'. If the hash computed is not in the required format, the nonce is changed and the whole thing is hashed again. It may take many attempts to find a nonce that works fine.

**Block Reward:** Block reward is the amount of new Bitcoin released with each mined block. This reward is halved every 2,10,000 blocks. The block reward was 50 Bitcoin in 2009 and 25 Bitcoin in 2014.

**Transaction Fees:** As block reward halve after a certain period, they are approaching to zero, the miners will not be interested to mine Bitcoin for the block reward. So block rewards are replaced by transaction fees.

## Advantages of Bitcoins

Bitcoins can be considered as international currency so that there is no need of conversion of currency. · These are directly managed by software programs. · Bitcoins can solve problem of black money. · Bitcoins are used for paying money electronically. · People can buy Bitcoins. · People can purchase goods against Bitcoins.

## Dark Side of Bitcoin

**Ransom through Bitcoins:** On Friday, 12th May 2017 WannaCry ransomware attack was started and affected more than 230,000 computers in over 150 countries. The worst-hit countries are reported to be Russia, Ukraine, India and Taiwan, but parts of

Britain's National Health Service (NHS), Spain's Telefónica, FedEx, Deutsche Bahn, and LATAM Airlines were hit along with many others countries & companies worldwide. Basically ransomware is a category of cyber ware which is deliberately designed to extract money from a victim. Intension of this cyber-attack is to ransom money from the patsy (victim) to undo the changes made by the Trojan virus in victim's computer. These changes include:"

To stop access of the victim to his/her data, data will be encrypted by the Trojan virus

Stopping normal access of the victim in his/her computer.

RBI on June 09, 2019, notified that anybody in India dealing in cryptocurrencies will be sent to jail for 10 years. This splashes any expectations that cryptocurrency will be ultimately be regularized in India.

Basic problem in Bitcoin system is that there is no track record of the people who commits crimes which can be perceived strongly by WannaCry ransomware attack

**Theft or Loss of Bitcoins:** Bitcoin can be spent only in the custody of associated private key. Bitcoin will be considered as lost in the case of stealing, damaging of private keys or signature forgeries.

**Malware Attacks:** Malware attack on the Bitcoin is growing day by day through stealing private keys. The online wallet service myBitcoin.com recently lost \$1.3 million worth of users' coins due to malware. However, several solutions like threshold cryptography and super wallet are introduced for the malware attack.

**Inadvertent (accidental) Loss:** Bitcoins can be lost because of the loss of wallet file due to system failure or human error. For example, bitomat, the third largest Bitcoin exchange, recently lost about \$200K worth of Bitcoins (at the exchange rate at the time) due to the loss of its private wallet. The cause was later identified to be human error, as the developer hosted the wallet on non-persistent cloud storage. Backups, Pseudo-random keys, Encryption, Offline (single-)password-based encryption, Online (multi-)password-based encryption, and trusted paths are certain mechanism which can be used in the case of accidental loss.

**Scalability:** Bitcoin suffers from several scalability issues, among which we note the following: Data Retention and Communication Failures, Linear Transaction History, Delayed Transaction Confirmation and Dynamically Growing Private Key Storage.

Of late, Bitcoin has been enduring developing nuisances. Its system is too moderate to even think about handling the quantity of exchanges individuals are endeavoring to process, compelling clients to pay expenses in the event that they need their installments to experience. Just five to eight blockchain exchanges can be prepared every second, while creditcard systems process 10,000 fold the number, as per a Goldman Sachs report. Missing a noteworthy change to the hidden Bitcoin code, the subject of a wild discussion among followers, the digital money will be too illiquid to use for every day buys, and will for the most part be a store of significant worth a bar of gold rather than a Visa card.

In the meantime, business visionaries have turned out with other advanced coins that copy Bitcoin's structure, with certain distinctions. The estimation of the most prominent branch, a digital currency called Ethereum, has ascended to \$300 from about \$10 toward the beginning of the year—a 3,000% ascent. (Its fairly estimated worth is about \$27 billion, versus \$42 billion for Bitcoin.) Like Bitcoin, it's amazingly unpredictable, and even had a "streak crash" a month ago, when it quickly exchanged for 10 pennies. The Ethereum operation is useful to the point that JPMorgan Chase, Microsoft (MSFT), and many different organizations have framed an Enterprise Ethereum Alliance—indeed, it sounds like something out of DC Comics—to investigate its potential.

## Conclusion

In today's time digital currency has been transforming into Bitcoins to a certain extent. Researchers have been working on how to make financial transactions more secure through Bitcoin but still working of Bitcoins are beneath the surface. It is well understood that working with Bitcoins is meek (simple), flexible then too without intervention of third party but not ready to subvert the digital money. Although life will become simpler but needs to be more cautious while using Bitcoins.

This depiction is essentially streamlined from the real world. In any case, it ought to give a comprehension of how the blockchain capacities adequate for lawyers specializing in legal matters in this developing region. Satoshi Nakamoto's innovation was a very

smart approach to verify a digital currency. These equivalent highlights additionally make blockchain-based innovation, essentially, impervious to government guideline. As controllers ponder how to direct the unregulatable, lawyers who have an essential comprehension of how this innovation functions will be at a favorable position.

## References

- Satoshi Nakamoto "Bitcoin: A Peer-to-Peer Electronic Cash System", October, 2008
- Nikola Bozic+,\*, Guy Pujolle\*, Stefano Secci "A Tutorial on Blockchain and Applications to Secure Network Control-Planes"
- S. Singh, N. Singh "Blockchain: Future of Financial and Cyber Security"
- <https://dazeinfo.com/2015/01/06/cyber-crimes-in-india-growth-2011-2015-study/>
- P.Sharma, D. Doshi, M.M.Prajapati "Cybercrime: Internal Security threat"
- S. Quamara, A.K.Singh, "Bitcoins and Secure Financial Transaction Processing, Recent Advances"
- F. Tshorsh, B. Scheuermann, "Bitcoin and Beyond: A Technical Survey on decentralized Digital Currencies" <https://Bitcoin.org/en/how-it-works>
- <http://www.coindesk.com/information/how-Bitcoin-mining-works/>
- <http://www.investopedia.com/articles/investing/043014/what-Bitcoin-mining.asp>
- <http://www.coindesk.com/information/how-can-i-buy-Bitcoins/>
- Simon Barber 1, Xavier Boyen 1, Elaine Shi 2?, and Ersin Uzun "Bitter to Better— How to Make Bitcoin a Better Currency".
- <https://www.kaspersky.com/resource-enter/threats/ransomware?ignoreredirects=true&gclid>
- Cyber Crime costs projected to reach \$2 trillion by 2019. <http://www.forbes.com/sites/stevemorgan/2016/01/17/cyber-crime-cost-projected-to-reach-2-trillion-by-2019/#768e4f293bb0>



# Leveraging Analytics for Smart Decision Making: A Sustainable Business Approach

Riya Gangwar\*  
Nitin Kumar Saxena\*\*

## Abstract

Digitization, is driving down costs and causing commoditization. Intangibles enable a business to differentiate from its competitors. They are already the main drivers of the value that a business can create. The quality of the decision making enables a business to adapt more swiftly than its competitors to the opportunities and threats presented by the digital age and the developments in the markets. It is also the key intangible that unlocks the potential to develop other intangibles within the business, such as its competitive position, its brand's reputation, the quality of its people, its intellectual capital and how well it implements its decisions. Business must, therefore, focus on measured and rational decision making. There should also be accountability and transparency in decision making to encourage a culture of mutual trust and shared objectives. This paper focuses on how Business Analytics can be leveraged to enhance measure and rational decisions. The paper also discusses the benefits and challenges associated with big data. The outcome of the paper will be helpful to all the practitioners who play the role of key decision-makers in their company.

**Keywords:** Business Analytics, Big Data, Decision Making, Descriptive Analysis, Predictive Analysis, Prescriptive Analysis

*"In God we trust; all others must bring data."*

## Introduction

The information has always been the key factor that influences the performance of the decision-makers, and to be more precise the quality of all those decisions. Data is considered to be the raw material of the 21st-century, and abundance is assumed when today's 15 million devices (a.k.a. things!) already connected to the Internet. Subsequently, we need solutions for handling and extracting knowledge and value from this data. Furthermore, decision-makers need to be able to attain meaningful and valuable inside from data of such high volume, variety, velocity, and veracity.

Business analytics is a progression of a practice that in the early 1970s was called decision support systems [DSS] (Gorry and Scott-Morton, 1978). Business analytics is used interchangeably with business intelligence (BI). Other terms also overlap with analytics – here are a few of them:

**Business Performance Management (BPM):** an approach that allows the monitoring, measurement, and comparison of key performance indicators (KPIs). **Data mining:** a computational process of discovering patterns in large data sets. It includes using methods at the intersection of machine learning, artificial intelligence, database systems and statistics.

**Data Science:** an interdisciplinary field concerned with the processes and systems used to extract insights from data. It is a

continuation of other data-analysis fields including data mining, statistics, and predictive analytics.

**Data Warehouse:** a large repository of organized data.

**Extract Transform Load (ETL):** a process in data warehousing responsible for extracting data from the source systems and placing it into a data warehouse.

**Machine Learning:** a method of data analysis that automates the analytical model-building process. Applying algorithms that iteratively learn from data, machine learning allows computers to find hidden insights without being explicitly programmed on where to look.

**Meta Data:** the tagging of data, providing describing the purposes of management and analysis.

**Online Analytical Processing (OLAP):** the multidimensional analysis of business data, providing the capability for trend analysis, complex calculations, and sophisticated data modeling. It is frequently seen as part of the wider category of business intelligence, which also incorporates the relational database, report writing, and data mining.

Accordingly, the use of the design science methodology, "Big-Data, Analytics, and Decisions" (B-DAD) framework was developed to map big data tools, architectures, and analytics to

\*Sales Manager, Mahindra Holidays and Resorts India Ltd, Delhi

\*\*Associate Professor, Jaipuria School of Business, Ghaziabad

the different decision-making phases. The ultimate objective and contribution of the framework are using big data analytics to enhance and support decision-making in organizations, by integrating big data analytics into the decision-making process. With the integration of today's complex world, huge data proliferation and the deep burning desire to be on the top has led the organizations to drive did business decisions more constructively. The term business analytics by definition means allowing managers to understand the dynamics of their business forecast the shift of the market and manage the incoming risks. Marketers can use big data and analytics to help predict customer behavior, determine the return on investment of the marketing efforts and help businesses make the best possible decisions across many different business functions.

As per the current status, 38% off the organizations report big data analytics is one of the top five issues; another 26% report it as an important challenge while 21% support it is the single most important way to gain a competitive advantage. However, 72% report that understanding Digital media is an increasingly important skill. 78% report that understanding marketing technology is an increasingly important skill for their positions; and a Complete 100% off the United States marketers feel that data and analytics will play a crucial in the future.

## Levels of Analytics

### Descriptive Analytics – What Happened

Tech authority Gartner defines descriptive analytics as to the examination of the data or content, usually manually performed, to answer the question, "what happened?" It is one of the most common forms of analytics, offering the analyst a more comprehensive viewpoint of the key metrics and the measures fir within the organization. It focuses on analyzing the available data in real-time and also the historical data to derive meaningful and valuable insights considering the future of the organization. The prime objective of this type of analytics is to find the reasons behind the success and the failures in the past, as such, it is also known as 'reporting bedrock.'

As people learn from their past mistakes, organizations learn from their behaviours in the past and draw inceptions from these observations for the future and their outcomes. The best example to understand this would be a simple profit and loss statement. Analysts have data for a huge customer base-using it to dive deeper into mastering the demographic traits of these consumers; can be classified as 'descriptive analytics.'

Such analytics use techniques such as:

- Business intelligence
- Visualizations

### Predictive Analytics – When Might it Happened

A form of advanced analytics that examines data or content to answer the question, "what is going to happen?"; or to be more precise, "what is likely to happen?". In simpler words, it tends to analyze the past behaviours, or the trends in the data to forecast the future outcomes for the organizations.

This form of analytics helps the organization in setting realistic goals and effective implementation for the needed measures, by manipulating the findings from descriptive analytics. With the help of predictive analytics, it is easier to identify clusters, tendencies, and exceptions, while predicting the trends in the future all of which make analytics an exceptionally important tool of help.

Big organizations such as Amazon and Wal-Mart take advantage of this high-in-value form of analytics to decode the sales future trends.

Such analytics makes use of techniques like:

- Regression analysis
- Forecasting
- Predictive modeling

### Prescriptive Analytics – How I can make it Happen

A form of advanced analytics that examines data or content to answer the question, "work should be done?" The primary objective of prescriptive analytics is to prescribe the best method to cope up with a problem. It helps the business to understand the underlying reasons that cause risks and problems and advice the best course of action.

Prescriptive analytics works by combining various business rules, data, and mathematical models. The data used in perspective and analytics can either be internal or external, while the business rules are of course boundaries or preferences, the best practices, and constraints. A few examples of mathematical models could be Machine learning, operations research and statistics area or Machine learning or natural language processing.

It may indeed seem that prescriptive analytics is complex but when used by companies it can have a huge impact on future business growth. A traffic application is one of the best examples of this type of analytics, which enables you to find the easiest way to your home, just like Google maps.

It uses techniques like:

- Complex event processing
- Simulation
- Recommendation engines

## Rational Decision Making

Decision making is often presented as a rational process, in which persons make decisions by collecting, integrating and analyzing data in a callously rational, mechanistic way. Decision making is a dynamic, contextual and personal/group activity in which previous knowledge and experience are recalled and combined with information. Utmost organizations rely on individuals to make rational judgments that are based on data. Yet outcomes from psychological experiments exploring the said area recommend that people will frequently fail to do so. What is interesting is that they fail to do so in systematic, directional ways that are predictable (Ariely, 2008).

Besides, evidence has been accumulating since the 1950s that the individual's ability to handle large volumes of data is limited (Simon, 1957 and Axelrod, 1976). Therefore it is by no means guaranteed that providing large amounts of information enables better decisions to be made or generates insight. One study found that decision-makers may not use IT tools to increase their use of information and so improve the quality of their decisions (Todd

and Benbasat, 1992). As an alternative, decision-makers may use technology to lessen the amount of mental effort needed to make decisions. Other studies contended that managers often lack awareness of the existence and relevance of the numerous diverse and often dispersed data sources available to them. They have also pointed to the social aspects of decision making as reasons why information and IT are not always used in 'rational' ways (Vandenbosch and Huff, 1997).

## Bias in Decision Making

People also have individual biases. As well as carrying their assumptions that influence their thinking processes, they have cognitive filters that shape how they interpret information and respond to cues (Kahneman, 2011). Furthermore, people's responsiveness to environmental signals means that their decision making, particularly at senior management level, tends to be more driven by events and issues than systematic and evidence-based. 'Gut feel' often replaces any rigorous analysis and managers tend to revert to familiar reasoning when making decisions, particularly when under pressure (Hodgkinson, 2008).

### Role of big data in making decisions

Big Data Source	Big Data-Driven Insights	Actionable Decisions
Google search for a product or ad	Customer intention to buy a particular product Identify customer preference for a particular brand	Predicting demand for a product
Google search by specific Keywords	What particular information citizens are looking for or are concerned about	Predict search of flu by geography by regions
Amazon search	Customer intention to buy a Particular product	Customer intention to buy a Particular product
Amazon purchase history	Using association rules mined from millions of records, identify which different products are bought by the customer	Product recommendation (customer who bought this also bought)
Wal-Mart POS data	Using association rules mined from billions of records, identify which products customers buy together (market basket analysis) Using association rules mined from billions of records, identify which products customers buy together (market basket analysis)	Store layouts redesign to place such products together Inventory planning based on buying patterns before disasters such as hurricanes

Source: CGMA Report: Business Analytics and Decision Making

The summarization of the table comes up to the following ways in which data analytics can help in effective decision making:

- Competitive intelligence from social media
- Comparative analysis between competing goals
- Plan product strategy
- Redesign routes leading to saving millions of gallons of fuel
- Design future strategies for improved customer service
- Create a complete profile for the customer journey
- Call center logs, online usage of accounts
- Data from telemetric sensors used by UPS vehicles
- Information about speed, routes, direction, braking, drive train performance.

### Using data to drive performance

In the current market scenario organizations primarily focused the majority of the time on analyzing the consumer data and to get the front liners to monetize it. However, they miss the point that it is equally imperative to focus on improving productivity and performance. Data and analytics can play a huge role in being using inefficiency and streamlining business operations.

For example, allergies can be used to measure the key performance metrics across that are departments, such as product innovation, workforce planning, and operational excellence can give valuable insights to solve business scenarios. Business analytics can also internalize the way organizations attract, retain and develop their human resources. Another area where analytics can provide a value-added proposition is supply-chain. Supply chains ugly places to look for strategic opportunities and advantages, primarily because of their integrated nature and the remaining because of the significant contribution to a company's cost structure.

### Managing risk through analytics

Managers need to understand risk analytics as an organization-wide approach and need to come up with different ways to bring in data across different organization levels and functions into one central platform. By marking a standard baseline for managing risks, organizations would be able to incorporate the risk considerations into their core strategic decision-making process and predict future scenarios.

### Benefits of using big data and analytics

The benefits reported by US executives for businesses bit big data initiatives are:

- Improve decision-making
- Improve collaboration/ information sharing
- Improve customer satisfaction/ retention

“72% of CMOs reported increased competition for customers; businesses are looking for any edge they can find.”

Achieving these types of benefits is vital for businesses to gain a competitive advantage and stay successful in today's digital space.

10 tips for enhanced decision making by using data analytics

Guard against your biases

Define objectives

Gather data

Analyze and understand

Find unresolved question

Find the data needed to solve these questions

Revisit and reevaluate

Present the data

Set measurable goals

Continue to evolve

### Challenges of using Big Data and Analytics

One of the main challenges of using big data analytics circulates integrating complex interfaces for accessing data. Only 26% of the marketers believe the diff systems are properly set up to work seamlessly together. The second key challenge articulates to the user's ability to employ analytics data effectively. On this front, only 28% of marketers said that they were able to do this. The third challenge beans with data verification and validation. And particularly, outdated, inconsistent and irrelevant data poses a big problem to 59% of the businesses.

The current trends highlight a seemingly increase in the number of companies that appreciate big data solutions and implement data analytics in their business decisions. However, it is just that they need to select the right type of analytics solutions to enhance their return on investment, reduce the operational costs and increase the service quality.

### References:

- A. Gorry and M.S. Scott-Morton, (1978). *A Framework for Information Systems*, Sloan Management Review, 13 (1), 56-79.
- B. Vandenbosch and S.L. Huff, (1997). *Searching and scanning: how executives obtain information from executive information systems*, MIS Quarterly, 21 (1) 81-107.
- D. Ariely (2008). *Predictably Irrational: The Hidden Forces that Shape our Decisions*, Harper Collins, Press
- D. Kahneman (2011). *Thinking, Fast and Slow*, Farrar, Strauss and Giroux, New York

- *G. Hodgkinson (2008). The Oxford Handbook of Organizational Decision Making, Oxford New York: Oxford University Press*
- *H.A. Simon (1959). Theories of decision-making in economics and behavioral science, American Economic Review 49. 253-283*
- *P. G. W. Keen (1978). Decision Support Systems: An Organizational Perspective, Reading, Mass., Addison-Wesley*
- *P. Todd and I. Benbasat (1992). The use of information in decision making: An experimental investigation of the impact of computer based decision aids, MIS Quarterly, 16 (3), 373-393.*
- *R. Axelrod (1976), Structure of Decision: The Cognitive Map of Political Elites, Princeton University Press*

# Comparing the Performance and Volatility of Returns in NIFTY 50 and Shcomp index

Dr. Parul Tyagi\*

## Abstract

The growth in Indian and Chinese economies has been attributed to major reforms in the modus operandi of the capital market of the two economies. The stock market performance of the two leading economies of Asia has been a topic of discussion globally especially after 2008. In the present research, the researcher compared the performance and stock market volatility of Indian and Chinese Stock Indices namely Nifty 50 and SHCOMP (Shanghai Composite) Index respectively during 2016 to 2018 i.e. two years. Advanced econometric tools were used in the study, like ADF Test to study stationarity, Statistical tools to compare performance and Garch (1,1) model to study the volatility pattern of the stock indices of the two economies. The results were calculated on E-Views 8 software. The results showed that Nifty 50 is more volatile as compared to SHCOMP Index.

**Key Words:** ADF Test, Stationarity, Volatility, Garch (1, 1), E-Views 8.

**JEL Classification:** G1, G4, C5

## Introduction

“The love of economy is the root of all virtue”: George Bernard Shaw

The two major fastest growing Asian economies i.e. India and China are becoming the area of interest among researchers. Few questions which arise in this context are related to the performance of these economies over time, movements in their stock indices and the volatility spillover mechanism of their stock indices including the sectoral diversification. Analyzing the volatility of stocks, sectors and index as a whole has been one of the popular areas of research. However the researcher finds that no study has been conducted at the doctoral level comparing the volatility of returns of the two significant developing economies of the world namely India and China. With global diversification of equity investment and emergence of global mindset in investing fueled by removal of restrictions on capital account, it is obviously both of academic and corporate interest to conduct such study. India and China has witnessed a remarkable growth rate since 1980 coupled with poverty reduction. One third of the world population is covered by both of these economies. In the past many significant developments took place. One among them is emergence of China and India as major economic forces in the international economy. The growth in these economies has been attributed to major reforms in the modus operandi of the capital market of the two economies. The reforms in the capital markets brought about in 1980's and 1990's in the two economies have revolutionized the performance of their capital markets. The

stock market performance of the two leading economies of Asia has been a topic of discussion globally especially after 2008. The present study seeks to objectives of comparing the Indian and Chinese regulatory framework of Stock market, their volatility in major stock market index and sectoral indices as well as identifying the structural breakpoints in the data. The research investigates the comparison of volatility and stock market performance of India and China from April 2014 to March 2018 using advance econometric tools. To start understanding of Stock market performance and Volatility structure of India and China, it's important to understand the Economic Environment of both the economies along with their Capital Market Structure.

It has been found in previous researches that the relation which exists between the stock market returns and their volatility is usually “non-linear and dynamic” in nature. It has always created a keen interest among researchers. It is being identified that is a “strong positive relationship between stock market returns and volatilities but the strength of such relationship varies from country to country”. Volatility refers to “how for the current price of an asset deviates from its average past value”. Merton Miller (1991) who won Nobel Prize in Economics said in his book “Financial Innovation and Stock Market Volatility”... “By volatility public seems to mean days when large market movements, particularly down moves, occur. These precipitous market wide price drops cannot always traced to a specific news event. Nor should this lack of smoking gun be seen as in any way anomalous in market for assets like common stock whose value depends on subjective judgment about cash flow and resale prices in highly

uncertain future. The public takes a more deterministic view of stock prices; if the market crashes, there must be a specific reason". The popular measures of volatility are Standard Deviation, Skewness, Kurtosis, Beta, VaR (Volatility at risk) etc. According to the previous literatures it was found that the emerging markets are characterized by high volatility. Our mind recalls the two competing giants of Asia i.e. India and China whenever emerging markets are talked about. As the two markets grew rapidly, many investors find it convenient to invest in these markets rather than in the advanced or developed markets. India and China two of the Asian giants have planned to give cut throat competition to each other for becoming world superpower. Together having population of 2.5 billion India and China are the most actively growing economies in this rapid economic transformation of global economy. "Both India and China rank among the front runners of global economy and are among the world's most diversified nations". (Business maps of India).

## Literature Review

Raju and Ghosh (2004) have made comparison of stock market volatility in India markets with several countries at international level which the authors finds important to be studied as it decides the pricing of securities. They have taken both the mature economies like UK and US as well as emerging economies of Asia like India and China. The mature economies exhibited high volatility returns but the emerging economies exhibited lower as well as negative returns. Along with this Indian equity markets exhibit less skewness and kurtosis and are moving faster towards information technology.

Mobarak (2005) studied how the growth & development & democracy of an economy are related to volatility of stock prices. He took volatility and average growth as 'two equation system'. Through this the author found that volatility decreases at high level of democracy & diversification in country especially Muslim countries and at high volatility economic growth reduces. Author tried to identify an alternative link between development and democracy in a country through studying volatility in equity markets.

Andersen, Bollerslev and Diebold (2007) have worked upon the jumps in equity share prices, bond yields and exchange rate fluctuations by using newly developed 'bipower variation measures' and accordingly corresponding non parametric tests. They found that jumps in the above instruments are due to 'macro-economic new announcements'. They also indicated if the rough jump moves in these avenues are separated from smooth moves, then significant volatility forecasting is obtained.

The research paper of Deb and Mukherjee (2008) investigates how economic growth of India is directly related to Indian capital

markets. The methodology used here is Granger non-causality test. The authors have performed the test on real GDP growth rate of country and the stock markets. The results obtained showed strong relation between the economic growth of India and development of capital markets in the economy. Along with this they also found a 'bi directional causal' relationship between the two economic variables as mentioned above.

The working paper of Yilmaz (2009) studies contagion effect and state of interdependence between the equity markets of East Asia since 1990 by comparing them with economic crises during those periods as well as periods before. The methodology used to capture volatility spillover here is vector autoregression to forecast error variance. The results showed increasing patterns of interdependency among the equity markets of East Asia. They also found bubble bursts experience in volatility spillover during crises.

The research paper of Birău and Trivedi (2013) shows how volatility of capital markets is studied widely in the field of finance especially during the period of economic crises in these markets. These economies are a source of attraction for investors as well as possess higher growth prospects. They have done a deep inspection in these economies by using GARCH models and studying cointegration in the markets as a result of diversification of portfolio and becoming financially globalized.

Sharma, Mahendru & Singh (2013) studied the interlinkages between stock markets of Brazil, Russia, India, China and South Africa (BRICS) with the help of benchmark indices of these stock exchanges. Daily closing levels of the benchmark indices in the five countries were taken for a period from April 1, 2005 to March 31, 2010. Line charts and unit-root tests were applied to check the stationary nature of the series; Regression Analysis, Granger's Causality Model, Vector Auto Regression (VAR) Model, and Variance Decomposition Analysis were performed to find out the linkages between the markets under study. The analysis revealed that the stock markets under study were influenced by each other, but not to a great extent. It implies that there exists opportunities for diversification of the investors among the stock exchanges of BRICS. The paper also observed that there are domestic factors (macro-economic variables) that influence the stock markets.

Maheshchandra (2014) studied that there exists long term volatility in the stock markets of India and China. The daily time series data of the stock exchanges BSE (Bombay Stock Exchange) and SSE (Shanghai Stock Exchange) were collected for a period of five years. To provide the evidence for the same FIGARCH models were used which proved out well fitted in the research and thus provided a strong evidence for the existence of FIGARCH. However the property of long term volatility mechanism for found stronger in BSE as compared to SSE.

Bhattacharjee & Swaminathan(2016) worked to investigate the market integration among the four selected BRIC economies namely Brazil, Russia, India, and China from January 2008 to August 2015. Johansen cointegration test was used to study the long term relationship between the four stock markets. Further, to ascertain the short term association, vector error correction model and impulse response function was used. The results showed that there existed one long run cointegrating relationship between the four stock markets under study. Although there was no long run causality among the four stock markets, but there existed short term causality running from Russian, Chinese, and Brazilian stock markets to the Indian stock market.

**Research Methodology**

**Objectives of Study**

To compare the Performance of Nifty 50 and SHCOMP stock indices during April 2016 to March 2018.

To compare the Volatility of Nifty 50 and SHCOMP stock indices during April 2016 to March 2018.

**Hypothesis:**

Ho1: There is no significant difference in the performance of Nifty 50 and SHCOMP index during April 2016 to March 2018.

Ho2: There is no significant difference in the volatility of Nifty 50 and SHCOMP index during April 2016 to March 2018.

**Period of Study:**

The data was collected on daily basis using the index values of India and China for the time period of two years i.e. from April 2016 to March 2018. The data includes 474 observations from Indian Nifty 50 and 483 from SHCOMP Index depending upon their trading days during the period of study. The period has been chosen to capture the volatility effects in stock markets of the two economies accurately.

**Data Collection:**

Table 1.: Source Of Data Collection for China	
Parameters	Internet Source
Nifty 50	Yahoo Finance
SHCOMP	Yahoo Finance

The first Objective was achieved by initially calculating the daily returns in the index series using the equation:

$$R_t = ((R_t - R_{t-1}) / R_{t-1}) * 100$$

Where Ri= Return for the day t

R<sub>t</sub>= Closing value of the Index on the trading day t

R<sub>t-1</sub>= Closing value of the Index on trading day t-1 i.e. immediately preceding the day t.

Then afterwards, In order to check the stationarity in the returns data series, Augmented Dickey Fuller (ADF) unit root test is being applied and the results were obtained through E-Views 8 software.

The first objective of measuring the performance was duly accomplished by using certain statistical tools like Mean, Median, Standard Deviation, Coefficient of Variation, Skewness, Kurtosis as well as the probability to check the significance of these statistical parameters of performance of stock price index. The

output window has been obtained through E-Views 2008.

For the second objective, In order to compute and analyze the volatility of Nifty 50 and SHCOMP Index, Generalized Autoregressive Heteroscedastic, GARCH (1, 1) model is being used.

GARCH(1,1) has two parts:

- 1) Mean Equation
- 2) Variance Equation

The mean equation is as follows:

$$r_t = c_1 + c_2 (r_{t-1}) + e_t \dots (eq1)$$

Here the variables are (Return of Index on day t)

r<sub>t-1</sub> Return of Index on day t-1)

r<sub>t</sub> is the dependent variable and is the independent variable

c<sub>1</sub> is constant

c<sub>2</sub> is coefficient

e is the residual



Returns are calculated taking the daily data of two years starting from 1st April, 2016 to 31st March, 2018.

The objective behind developing the Model is to check whether the return on day t is affected by return on day t-1 i.e. measuring volatility.

Above regression equation or model (eq1) is being run on E-Views 8 using least square method.

Residual derived from mean equation (1) is used in making variance equation (2).

$$GARCH = C3 + RESID(-1)^2 + C5 * GARCH(-1) \quad (eq2)$$

Here **GARCH** = Variance of the residual (error term) derived from eq (1). It is also known as current day's variance or volatility of index.

C3 is the constant

RESID (-1)<sup>2</sup> is previous day's squared residual derived from eq (1). It is also known as previous day's index information about volatility. It is the ARCH term.

GARCH (-1) is the previous day's residual variance. It is called the GARCH term.

C4 & C5 are coefficients of ARCH & GARCH terms respectively.

Above GARCH (1, 1) variance equation or model (eq2) is being run on E-Views 8 using normal distribution.

## Data Analysis and Interpretation

### Comparing the performance of Nifty 50 and SHCOMP Index

The performance of Indian and Chinese stock indices have been measured with the help of descriptive statistics applied on two years daily returns i.e. from (1st April, 2016 to 31st March, 2018) of CNX Nifty and Shanghai Composite Index as shown in following table:

**Table 2: Performance Statistics of Nifty and SHCOMP**

Basic Statistics	NIFTY 50	SHCOMP
Mean	0.06575	0.019619
Median	0.107362	0.010152
Maximum	17.74407	9.454912
Minimum	-12.2377	-8.84069
Std. Dev.	1.624015	1.651442
Coefficient of Variation	2469.985	8417.565
Skewness	0.036539	-0.13215
Kurtosis	13.39572	6.681806
Jarque-Bera	11230.93	1429.548
Probability	0	0
Sum	163.9808	49.40004
Sum Sq. Dev.	6575.099	6864.512
Observations	2494	2518

*Note: Calculations were done on E-VIEWS 8; Values are significant at 1% level.*

Both the Indices showed positive mean returns during the study period but Nifty 50 showed highest mean return of (0.06575) as compared to SHCOMP (0.019619). Nifty 50 showed maximum return of 17.74407 units as compared to SHCOMP, depicting a maximum return of 9.4549 units which is almost half of Nifty 50 return.

The variation in terms of mean returns was measured through Standard Deviation which was higher in SHCOMP Index (1.651) as

compared to Nifty 50 (1.6240). This depicts that the stock returns vary more in case of SHCOMP i.e. the index is more volatile.

'Higher the risk, Higher would be the return' is the basic principle of Finance. But this principle does not work well in many emerging stock markets. This risk per unit of return is measured through Coefficient of Variation (CV). CV was found maximum in SHCOMP Index(8417.56) percent as compared to Nifty 50 showing

(2469.98) percent. So it is crystal clear that trading in SHCOMP is much riskier than Nifty.

The skewness in both the Indices was found different from zero thus showing that the return distribution series of both the Indices is not Symmetric.

The value of kurtosis was greater than three in both the indices thus indicating that the return series of both the indices when diagrammatically shown will have heavier tails and both the series are leptokurtic in nature.

The computed values of JB (Jarque-Bera) statistics is significant at one percent level, thus null hypothesis is rejected i.e. there is no normality found in Nifty 50 and SHCOMP index return series.

Hence from the investor's point of view, those who have invested in Nifty 50 would have witnessed high profitable returns and low risk as compared to those who have invested in SHCOMP index. And as whole the results also reject the null hypothesis as the corresponding p-values are less than one percent significance level, showing that there is significant difference between the performance of Nifty 50 and SHCOMP index.

Null Hypothesis: Nifty and SHCOMP Index have a unit root

ADF Test	Nifty 50	SHCOMP
T-stat Value	-20.20901	-19.66798
Critical Values of ADF		
Significance Level	Nifty 50	SHCOMP
1%	-3.432779	-3.432779
5%	-2.862499	-2.862499
10%	-2.567326	-2.567326

Note: Values are significant at 1% level

Since the t-stat values are greater than all the critical values, hence the null hypothesis is rejected i.e. Nifty 50 and SHCOMP Index do not have a unit root and thus the data series is stationary. Now the next step in the study was to model the volatility of Nifty 50 and SHCOMP Index. For this purpose GARCH (1, 1) model was being applied to the data series of returns of Nifty 50 and SHCOMP index. Since the GARCH (1, 1) model was being developed, it has two parts:

Mean Equation

Variance Equation

First the Mean Equation was developed.

Mean Equation:

The mean equation is as follows:

$$r_t = c_1 + c_2(r_{t-1}) + e_t \text{ (eq1)}$$

Here the variables are  $r_t$  (Return of Nifty 50 /SHCOMP index on day t-1)

$r_{t-1}$  Return of Nifty 50 / SHCOMP index on day t-1)

$r_t$  is the dependent variable and  $r_{t-1}$  is the independent variable

$c_1$  is constant

$c_2$  is coefficient

$e_t$  is the residual

Returns were calculated taking the daily data of two years starting from 1st April, 2016 to 31st March, 2018 covering Nifty 50 and SHCOMP index making total 474 observations in Nifty index and 483 observations in SHCOMP index.

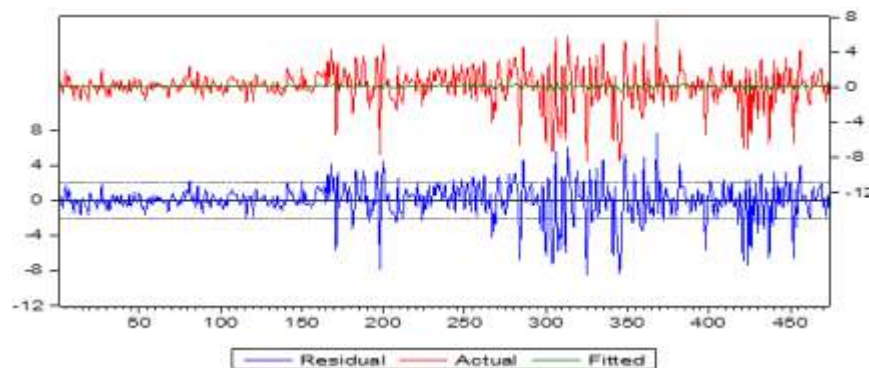
The objective behind developing the Model was to check whether the return on day t is affected by return on day t-1 i.e. measuring volatility.

Above regression equation or model (eq1) was being run on E-Views 8 using least square method. The output window showed the following table:

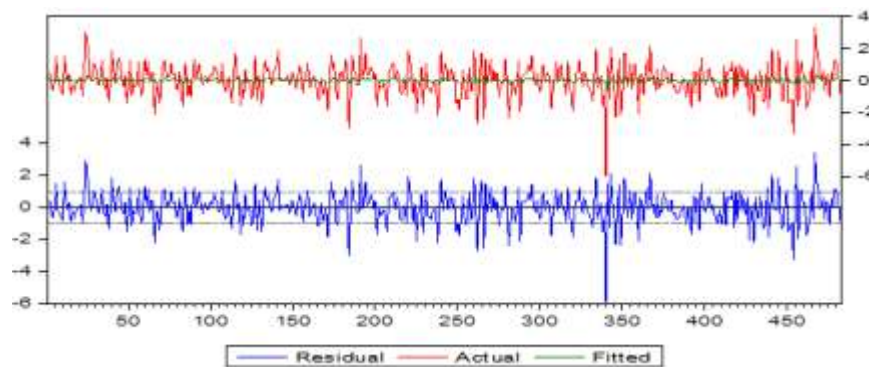
Index Descriptive Statistics	NIFTY 50		SHCOMP	
	c	rt-1	c	rt-1
Coefficient	0.093561	0.071118	0.027894	0.105958
t-value	0.972636	1.548789	0.623252	2.332689
p-value	0.3312	0.1221	0.5334	0.0201
standard error	0.096194	0.045919	0.044756	0.045423

Residuals can be plotted on the graph with the help of the above outputs obtained.

Graph 1: Residual Distribution Graph of Nifty 50 Index



Graph 2: Residual Distribution Graph of SHCOMP Index



During 1st April, 2016 to 31st March, 2018 the residuals are fluctuating in Nifty and SHCOMP index. From the above two graphs it can be seen that in Nifty index, during April 2016 to mid of 2017 the fluctuation is small for a long time period of over one year and in SHCOMP index the fluctuation is small during April, 2016 to end of 2017. That means small fluctuation is creating another small fluctuation for a long time which derives that small volatility is causing another small volatility for a long time.

Again from 2017 till mid of 2018 the volatility is peak in Nifty index covering almost about one year and in SHCOMP index the

volatility is peak after the end of 2017 till March, 2018 covering six months. So, high volatility is creating another high volatility for a long period. In other words periods of low volatility are followed by periods of low volatility and periods of high volatility are followed by periods of high volatility. This suggests that residual or error term is conditionally heteroscedastic and it can be represented by ARCH & GARCH model.

Residual derived from mean equation (1) was used in making variance equation (2).

$$\text{GARCH} = C3 + C4 * \text{RESID}(-1)^2 + C5 * \text{GARCH}(-1) \quad (\text{eq 2})$$

Here GARCH = Variance of the residual (error term) derived from eq (1). It is also known as current day's variance or volatility of Nifty 50 and SHCOMP index.

C3 is the constant

RESID (-1)<sup>2</sup> is previous day's squared residual derived from eq(1). It is also known as previous day's Nifty and SHCOMP index information about volatility. It is the ARCH term.

GARCH (-1) is the previous day's residual variance. It is called the

GARCH term.

C4 & C5 are coefficients of ARCH & GARCH terms respectively.

Above GARCH (1, 1) variance equation or model (eq2) is being run on E-Views 8 using normal distribution. The output window showed the following table:

Null Hypothesis

HO: ARCH term is not significant to explain the GARCH term.

Index		Nifty 50	SHCOMP
C	<i>Coefficient</i>	0.012573	0.039378
	<i>Standard Error</i>	0.008396	0.044891
	<i>Z-stat</i>	1.497465	0.877181
	<i>P-stat</i>	0.1343	0.3804
ARCH [RESID(-1) <sup>2</sup> ]	<i>Coefficient</i>	0.087567	0.045792
	<i>Standard Error</i>	0.013793	0.028246
	<i>Z-stat</i>	6.348823	1.621186
	<i>P-stat</i>	0.0000	0.1050
GARCH [GARCH(-1)]	<i>Coefficient</i>	0.918695	0.865956
	<i>Standard Error</i>	0.010001	0.070728
	<i>Z-stat</i>	91.86097	12.24350
	<i>P-stat</i>	0.0000	0.0000

The (coefficient of ARCH +coefficient of GARCH) in both the indices are non-zero and very close to but smaller than unity, therefore it can be interpreted that the model is valid that is mean returns on index will revert back to their previous values slowly. These ARCH and GARCH term represents the impact of recent and historical news/information respectively. The corresponding p-values of both ARCH and GARCH term are significant at 1% level in both Nifty 50 and SHCOMP Index. Hence null hypothesis is rejected i.e. the ARCH term is significant to explain the volatility of GARCH term. Thus it can be concluded that returns in both Nifty 50 and SHCOMP Index are conditionally heteroscedastic. But the coefficient of GARCH term is significantly higher in both the indices thus explaining that the index returns are more affected by historical news specifically more in case of Nifty 50 Index.

## Conclusion & Recommendations

The common philosophy of Stock Markets is "High Risk High Return". But during the research the author found the totally contrasting results. The results are based on the statistical parameters including mean, median, standard deviation, skewness, kurtosis, and t-test for the test of significance.

The Nifty 50 returns were found more profitable as compared to SHCOMP thus for an investor, investing in Nifty will be much profitable and less risky too as compared to investing in SHCOMP index

After analyzing the volatility in the stock markets of India and China by using GARCH (1, 1) model following interpretations were derived:

Returns in both NIFTY/SHCOMP index are conditionally heteroscedastic. But the coefficient of GARCH term is significantly higher in both the indices thus explaining that the index returns are more affected by historical news specifically more in case of SHCOMP index.

“The higher level of volatility that comes with bear markets has a direct impact on portfolios. It also adds to the level of concern and worry on the part of investors as they watch the value of their portfolios move more violently and decrease in value. This causes irrational responses which can increase investors' losses. As an investor's portfolio of stocks declines, it will likely cause them to "rebalance" the weighting between stocks and bonds by buying more stocks as the price falls. Investors can use volatility to help them buy lower than they might have otherwise.”

## Recommendations for Investor

For those investors whose investment portfolio includes NIFTY/SHCOMP stocks the results of present study indicates following recommendations:

Both the indexes are yielding positive returns but NIFTY has given higher as compared to SHCOMP index. So, it is a green signal for investors of NIFTY stocks. It is suggested to the investors that investing in NIFTY stocks will yield high returns. The investment will be less risky too. This suggestion came out true when data was analyzed for 2016-2018 period.

The probable reason of growth in NIFTY returns in the past two years is the change in government as BJP came into power with introduction of Narendra Modi as Prime Minister. The expectations of people rose and it spread as positive good news in the market. Make-In-India scheme also attracted many foreign investors thus making investment business strong in the country. It boosted up the index returns.

At the same time in past two years a major crash took place in the stock markets of China, which is considered as the biggest stock market crash. The A-Share market of Shanghai Stock exchange lost its one third values and the situation is still not under the control despite of government various measures to curb the largest fall in the stock market since after 2007.

As far as volatility in the indices is concerned, the NIFTY 50 index returns are more volatile as compared to SHCOMP returns. When markets are volatile there is lot of price fluctuation and heavy trading. Volatility is required in stock indices which assure that there is scope for better returns too. If markets are not volatile, the indices will give constant returns and hence the investor won't be benefited with the scope of higher returns. But that does not mean that there should be huge volatility, which may even be sometimes in the negative direction too. An investor should plan investment accordingly by taking rational decision. Those who

have invested in NIFTY/SHCOMP stocks should hold their investment for a long time. They may curb the volatility by ignoring short term volatility and thinking about future long term returns say for a period and 20-30 years.

During volatility period in above stocks an Investor can adopt Buy-and-Hold strategy but it requires lots of homework too because it depends on corporate fundamentals. If investment is made in a company having strong financial position and profitability then short term volatility will not hinder long term returns.

But in this strategy of Buy-and-Hold, one thing should be kept in mind that if few best days of a year are missed, it will reduce the returns significantly i.e. a watch should be kept. Similarly missing worst days will increase the portfolio returns. So, trade can be done during volatile markets.

Investors should keep a regular watch on the potential risks of investment during volatility. A rational investor should be confident enough on the strategy to be adopted. Thus, if the investor decides to trade during volatility, market conditions should not be avoided.

## Bibliography

- Andersen, T. G., Bollerslev, T., & Diebold, F. X. (2007). *Roughing It up: Including Jump Components in the Measurement, Modeling, and Forecasting of Return Volatility*. *The Review of Economics and Statistics*, 89(4), 701-720.
- Bhattacharjee, S., & Swaminathan, A. M. (2016). *Stock market integration of India with rest of the world : An empirical study*. *Indian Journal of Finance*, 10(5), 22–32
- Birău, R., & Trivedi, J. (2013). *Modeling Return Volatility of Bric Emerging Stock Markets Using Garch Family Models*. *Indian Journal of Applied Research*, 3(11), 119-121.
- Deb, S. G., & Mukherjee, J. (2008). *Does Stock Market Development Cause Economic Growth? A Time Series Analysis for Indian Economy*. *International Research Journal of Finance and Economics*(21), 142-149.
- Maheshchandra, J. P. (2014). *Long Memory Volatility of Stock Markets of India and Chin*. *International Journal of Science and Research*, 3(7), 1198-1200.
- Mobarak, A. M. (2005). *Democracy, Volatility, and Economic Development*. *The Review of Economics and Statistics*, 87(2), 348-361.
- Raju, M. T., & Ghosh, A. (2004). *Stock Market Volatility – An International Comparison*. *Securities and Exchange Board of India*.
- Sharma, G.D., Mahendru, M., & Singh, S. (2013). *Are the stock exchanges of emerging economies interlinked ? : Evidence from BRICS*. *Indian Journal of Finance*, 7(1), 26–37.
- Yilmaz, K. (2007). *Return and Volatility Spillovers among the East Asian Equity Markets*. *Journal of Asian Economics*, 1-24.

# SCM Transformation Journey: A Case of “Dabur India Ltd”

Dr Abhishek Jain\*

## Abstract

Supply chain management is all about providing the right products, at the right time, to the right customers at optimum cost. Today's supply chains are demand driven supply chains as customers of today have the upper hand. Gone are the days when customers had to buy whatever is being offered. Not just product but also price and timing of the product is expected as per requirement of the customer. In current globalized world, customer is not bounded by geographies of any country and has access to the globe. So the competition is no longer with regional players only; it is with global players. In order for the enterprises to remain globally competitive they have to rethink their supply chain strategy and manage them differently. The benefits of a well-crafted and executed supply chain strategy can be described as increased customer satisfaction by improved product availability, optimum inventory levels, Fresh product, and reduced cost. The experiences of global leaders, suggests that achieving supply chain excellence is not easy, but it is worth putting so much effort in terms of the global benefits that can result from it.

This case study provides a brief review of supply chain transformation methodology followed by one of the leading Indian company in FMCG space, benefits extracted from this transformation and future plans.

**Key Words:** Supply chain management, FMCG, Benchmarking, KPIs, Inventory

## Introduction

Lateral meaning of Transformation is “Change for Betterment”. In organizations transformation could be in any of the department(s) in one of the following ways:

- Process Transformation
- People Transformation
- Technology Transformation

In various departments, Transformation may lead to different desirable results. For example:

In Sales and Marketing transformation, Transformation could be in terms of having higher range of products, Presence in more geographies or Presence in wider range of distribution channels.

In HR, Transformation could be in terms of better process of recruitment, the way training is imparted to employees and the way overall policies are defined to retain and attract best of the talents. In SCM, transformation may result in better product availability, better forecast accuracy, Inventory optimization or better planning tools.

Transforming a supply chain operation and bringing it up to date involves fundamental review of SCM processes, Defining KPI along

with measurement methodology and implementation of new generation planning tools. Though there is no single ‘right’ approach, almost every successful SCM transformation is about aligning the supply chain function with the company's overall goals.

This Case Study describes SCM transformation journey of one of the leading Indian FMCG company named as Dabur India Ltd. This organization is the largest Ayurvedic Product Company of the world.

SCM Transformation Journey in Dabur India Ltd: This journey started in May 2018 with the collaboration with one of the leading Management Consulting Firms of the world with the objectives of improving product availability with lower inventories and better forecast accuracy. Entire journey can be described in following steps:

- Benchmarking Existing Sales & Operations planning process (Current S&OP Process Vs Best in Class S&OP Process)
- Define To Be S&OP Process
- Define new KPIs
- Re-designing of Supply Network (Changing the Way Production Planning was being done)
- Define Inventory Norms Statistically (Changing the way Dispatch planning was being done)

\*Visiting Faculty Jaipuria School of Business, Ghaziabad

- Having system in place to measure KPIs
- Automation of Planning Process using best in class IT tools

depends on maturity of S&OP process. 1st step followed during this transformation journey was to benchmark existing S&O process against Best In Class S&OP Process in India. Following five factors were considered to benchmark.

### Benchmarking Existing S&OP process (Current S&OP Process Vs Best in Class S&OP Process)

S&OP process is heart of any planning system. It exists in every organization in one or other way. Overall planning efficiency

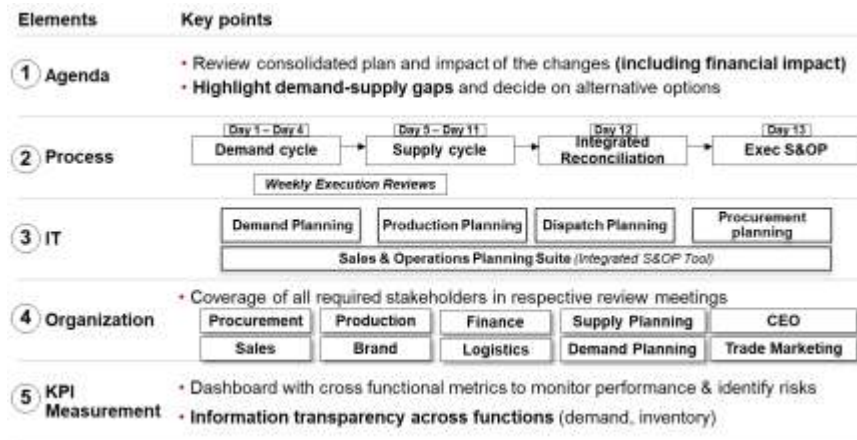


Fig 1: S&OP Process Key Elements

Various FMCG companies in India stand on different level of maturity on each of above elements. An exercise was performed to compare existing practices of Dabur with Best in Class (BIC) FMCG

companies on that element and Results of benchmarking exercise are given below in the Fig 2.

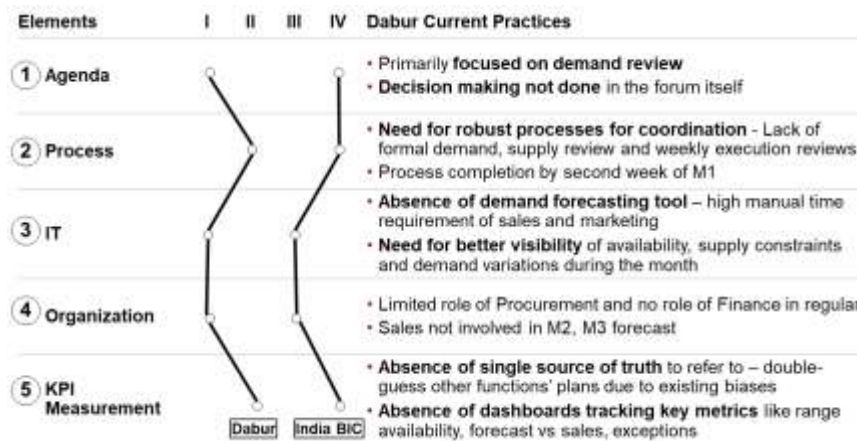


Fig 2 : Dabur S&OP- As Is Assessment

As shown in Fig 2, there is certainly a strong case for improvement of Dabur S&OP across all the dimensions.

### To be S&OP Process

Basis Benchmarking results, areas of improvements were identified for each of the elements on which comparison was performed.

Basis above gap analysis To Be S&OP process was defined as shown in Fig 3

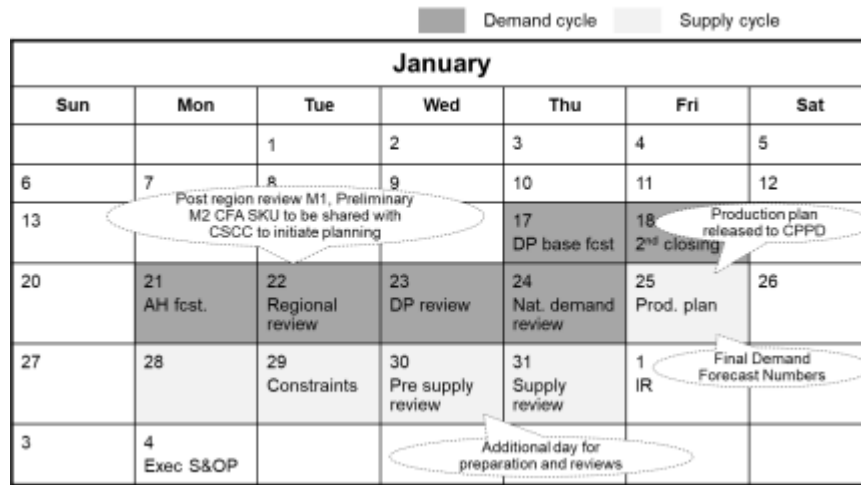


Fig3 :Sample S&OP calendar

For each of activities shown above in the Fig 3, Agenda and Attendees were defined.

Below table summarizes defined Agenda and List of departments for each of above activities..

Sub-Process	Agenda	Attendees	Outputs
Demand Review	<ul style="list-style-type: none"> <li>Summary of Statistical demand. Highlight exceptions basis lifts, trends &amp; sales plan</li> <li>Review past performance</li> </ul>	<ul style="list-style-type: none"> <li>Regional sales teams, Trade marketing teams, Finance</li> </ul>	<ul style="list-style-type: none"> <li>Agreed Demand forecast (Reduction/increment in forecast)</li> <li>SKU introduction/ deletion and obsolescence management</li> </ul>
Supply Review	<ul style="list-style-type: none"> <li>Assess impact of the latest supply plan on capacity requirements, inventory plan and space requirements</li> <li>New product update (integration of input from Mfg. development)</li> <li>Evaluate risks and alternative and take decisions on alternatives</li> <li>Discuss status of capex initiatives</li> </ul>	<ul style="list-style-type: none"> <li>Manufacturing Team, Production planners, Procurement Team, 3P team, Packaging team</li> </ul>	<ul style="list-style-type: none"> <li>Agreed supply plan (with risks and opportunities from the supply side)</li> <li>Summary of RM/PM procurement plan &amp; constraints</li> <li>Inventory projections reviewed and agreed</li> <li>Supply issues reviewed and actions agreed (accountability and timelines) to address the issues</li> <li>List of issues for decision in Integrated Reconciliation with proposed solutions</li> </ul>



Integrated Reconciliation	<p>Review past month's performance on KPIs</p> <p>Compile Demand-Supply Issues and Gaps</p> <p>Review consolidated plan and the impact of the changes</p>	<p>Marketing Team, Demand Planner, Production planners, Finance, Trade marketing, Procurement head</p>	<p>Financial projection including risks &amp; opportunities</p> <p>Discussion of Supply constraints and respective corrective measures</p> <p>Decision on capex requirements</p> <p>Assessment of category wise SLOB and mitigation plan</p>
Exec S&OP	<p>Performance Review – Executive Dashboard</p> <p>Presentation of S&amp;OP Plan Summary – Sales versus forecast and plan, Production adherence, Inventory versus plan, etc.</p> <p>Current issues / opportunities</p> <p>Decisions required from Management committee e.g. Trade-offs in case of supply constraint</p> <p>Summary of SLOB liquidation plans</p>	<p>CXOs, Marketing Team, Demand Planner, Finance, Trade marketing, Procurement head</p>	<p>Clear agreement on the S&amp;OP and actions to be taken</p> <p>Feedback to Sales, marketing and production</p>

**Table 1 : Agenda, Attendee List and expected output for each of S&OP Sub Processes**

### Defining KPIs

Existing KPIs have been more in line with monthly requirement of sales and meeting this requirement by end of the month. Problem with this kind of approach as highlighted by Sales team was that many SKUs were stocked out throughout the month and availability was made only during last week of the month. While SCM KPIs were met with this approach but whole purpose of delivering material to customer as and when it is needed was

defeated. Under the purview of this project, new KPIs were defined and also methodology was changed the way few of existing KPIs were measured.

Following KPIs were finalized. Also, Targets were defined for each of these KPIs in a scientific way by measuring baseline performance and applying certain improvement percentage on top of this baseline.

Metric	Baseline	Target	Definition
Depot RA(Range Availability) Overall	82%	90%	RA is 100% for Every CFA -SKU combination where 3 days for stocks is available for each forecasted SKU else RA is 0%. Weightage average of RA each CFA -SKU combination is overall RA
Depot RA Priority SKUs	84%	95%	RA of identified class A SKUs which contribute 80% of overall Sales
MT Fill loss (stockouts)	8%	2%	Overall PO value which couldn't be serviced before PO expiry date as a % of overall PO Values
Forecast Accuracy	69%	75%	Accuracy of forecast at CFA-SKU combination
Forecast Bias	15%	<7%	Magnitude of Over-forecasting Or Under-forecasting
Company DoI @ Forecast	NA	NA	Inventory as days of forward cover
Company DoI @ Sales	38 d	34 d	Inventory as days of current months sales
SLOB Inventory	5.4%	2.7%	More than 6 months old Inventory as a % of overall Inventory

### Re-designing of Supply Network (Changing the Way Production Planning was done):

Before starting of this transformation project, all SKUs which could be produced at multiple factories were being produced basis consideration of transportation cost of Finished Goods from

factory to CFAs. Other important and dominating cost factors like Input RM/PM costs, Manufacturing costs, Fiscal benefits (If any) were not taken actively into consideration. Under this project Total Cost of Ownership (TCO) was calculated to arrive at SKU mix of each factory. Not just short-term planning but also long term planning decisions for New Products were taken basis TCO. TCP was calculated using a model called FSD (Factory-SKU-Depot).

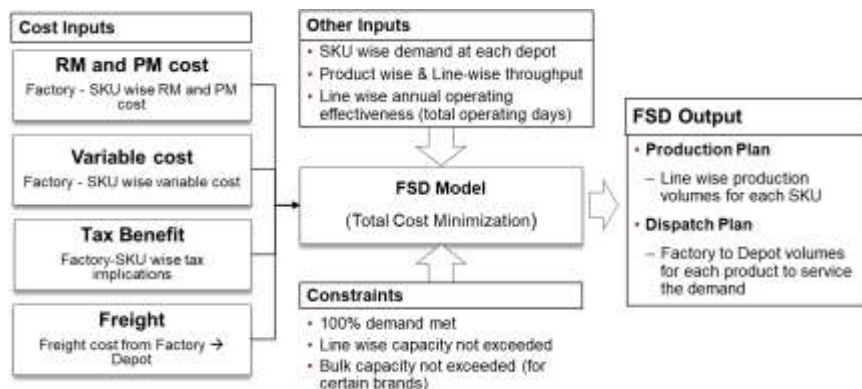


Fig 4 : FSD Data Elements

Fig 4 represents all critical factors considered while redesigning supply network. It yielded huge cost savings.

### Define Inventory Norms Statistically (Changing the way Dispatch Planning was done)

As described in one of the above sections, in existing practice just monthly demand was being delivered by month end to each CFA for each demanded SKU. During transformation project this approach was challenged and changed. Rational was that the Depots needing more quantity for a SKU than demanded quantity in month beginning were not supported and CFAs which were not able to sell demanded quantity were still given full qty. Decision was taken that inventory norms to be defined for each SKU CFA combination basis historical sales pattern, production pattern,

delivery pattern etc. Daily dispatch planning will take place just to replenish the quantity sold yesterday and ensure that inventory for each CFA-SKU level reaches to defined inventory norms.

Min and Max norms for each SKU were defined statistically for each CFA. As soon as stock reaches a minimum level, dispatch order will be generated on upstream node and material will be dispatched to take available at that CFA to defined max level.

To summarize, inventory norms were defined based on key criteria such as replenishment, lead times and variability

- How frequently is the node serviced- Daily, Weekly, Monthly?
- What is the total lead time between order and supply?
- How much is the demand variance (Std. Deviation as % of average demand)?
- How much is the supply lead time variance (Std. deviation of dispatches)?
- What is the service level we want to target?

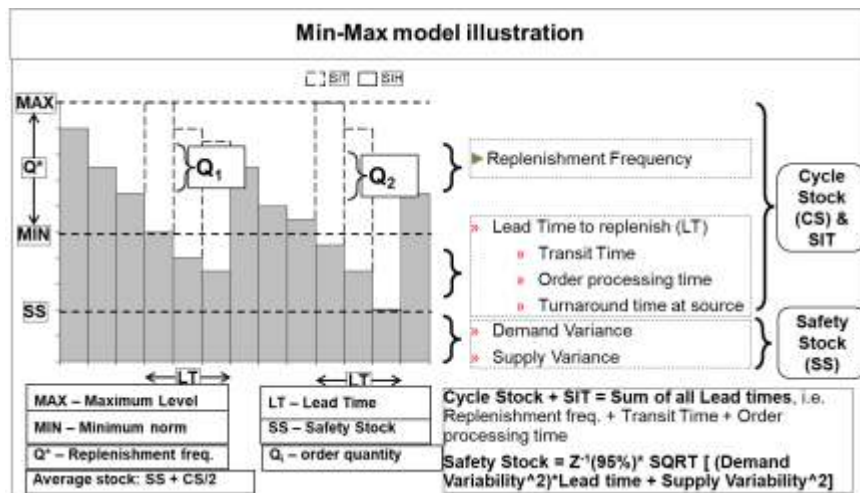


Fig5 : Min-Max Model Illustration

### Having system in place to measure KPIs

In the existing way of working, KPIs were measured only once in the month when month was completed. This doesn't leave any window open for taking corrective actions in case KPIs are off-targets also all KPIs were calculated manually. During transformation project, an automation was decided for all KPIs. It will help following 2 ways:

- KPIs will be measure daily and corrective actions can be triggered
- It will not be manual system rather an automated system

A tool called as Tableau was finalized for this purpose. Fig 6, 7 and 8 shows screenshots of Tableau.



Fig 6 : Screenshot of RA Dashboard



Fig 7 : Screenshot of Inventory Dashboard



Fig 8 : Screenshot of SLOB Dashboard

## Results

Location	Metric	Baseline	Target	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Depot Service level	Depot RA – Overall	82%	90%	88%	89%	91%	93%	94%	92%	91%	90%
	Depot RA – Priority SKUs	84%	95%	91%	93%	96%	97%	98%	94%	93%	92%
	MT Fill loss (stockouts)	8%	2%	6.9%	5.7%	4.0%	5.4%	3.7%	3.4%	3.4%	2.7%
	Forecast Accuracy	69%	75%	74%	74%	72%	73%	75%	74%	73%	77%
	Forecast Bias	15%	<7%	12%	16%	13%	11%	9%	11%	14%	5%
	Fcst. Fidelity (Nat-SKU)	NA	85%	87%	87%	87%	87%	89%	88%	89%	89%
Inventory	Company DoI @ Forecast	NA	NA	37	34	40	38	33	40	35	28.5
	Company DoI @ Sales	38 d	34 d	39.8	39.4	44.5	41.5	36.8	43	39	31
Others	SLOB Inventory	5.4%	2.7%	4.4%	3.5%	3.2%	2.5%	2.9%	3.0%	2.7%	2.9%
	SLOB value (INR Lakh)	2,828	NA	2,464	2,107	1,907	1,666	1,815	1,756	1,585	1,439

**Table 2 : Executive KPI Dashboard**

Table 2 shows result of all defined KPIs for a time horizon of 8 months mapped against Baseline and Target values. A huge improvement is experienced for all KPIs as illustrated in Table 2.

### Automation of Planning Process using best in class IT tools

Above results have been achieved and transformation took place with planning working only on excel spreadsheets. It consumes lots of time, prone to error and many more actions identified during transformation projects were not feasible to implement using excel sheets. Hence, it was decided that one IT tool will be

implemented to support planning team for planning in much more efficient way.

### Conclusion

#### Supply chains are being transformed and are delivering:

- Better visibility of Stocks, Stocks in transit, and supply chain
- A higher degree of control
- Greater integration of operations, processes and technology with business goals

Above transformation project yielded all desired results and was accepted as successful project by management.

Following are the few things to be ensured before you start your supply chain transformation project:

- Define what you want to achieve and then closely track those KPIs.
- Continuous and ongoing fine tuning of measurement system. Again, keep watching the KPIs.
- Master data to be up to date. Responsibility for the task needs to be clearly identified.

A lot of the really important things are actually quite simple. There's not much mystery involved, it's more about focus on the essentials. Focus on the things that actually matter.

Understands the 'why' of the project by Top Management Steering group

Good organizations become great by transformation in right direction. Above study is an illustration of how an Indian company became much leaner, thinner and still delivering material to customers at the right time and right qty. All departments came together to meet a single goal of satisfying customers by improving product availability, Now need is to transform towards a greater organization as they say "Room for Improvement will always be there"

# Book Review

## 21 Lessons for the 21st Century by Yuval Noah Harari

Dr. Vartika Chaturvedi\*

### Abstract

Yuval Noah Harari has a PhD in History from the University of Oxford and now lectures at the Hebrew University of Jerusalem, specializing in world History. His two books, *Sapiens A Brief History of Humankind* and *Homo Deus: A Brief History of Tomorrow*, have become global Phenomenon's. With *21 Lessons for the 21st Century*, Harari focuses on the hectic moment between the remote past and the distant future — the present day and tomorrow's world. The book is with a visionary investigation into the uncharted territory of the future that has technological advances. These changes take place at a rate that is faster than our ability to understand and adapt.

**Key Words:** Technological Changes, Human Civilisation, Does God Exist, Algorithm.

"21 Lessons for the 21st Century" is prorated in five parts. First part consists of four chapters. Starting with the stories about liberalism and communism. Since the 1990's the internet has changed the world probably more than any other factor. The democratic systems are still struggling to understand what hit it, and is barely equipped to deal with next shocks, such as the rise of AI and the block chain revolution. The revolutions in biotech and InfoTech will control the world inside humans.

The coming technological changes, "Most people in Birmingham, Istanbul, St Petersburg and Mumbai are only dimly aware, if at all, of the rise of artificial intelligence and its potential impact on their lives. It is undoubtable, however, that the technological revolutions will gather momentum in the next few decades and will confront humankind with the hardest trials we have ever encountered."

His bold and blunt predictions about the possibility of loss of many traditional jobs in everything from art to health care, seems to be daunting. the job market of 2050 might well be characterized by human AI Cooperation. The author is more particular in the second part where he debates upon offline Versus online. Facebook and twitter revolutions where people spend more and more time online where people estranged from their bodies, senses and physical environment. Indeed, the online reactions are becoming important.

The author tries to find the connectivity between people across the globe through the medium of sports, where to make this more authentic he talked about 2016 Rio Olympics where athletes were grouped into delegations by nationality rather than by, religion, class or language. And he argues that this is a very good thing: "For all the national pride people feel when their delegation wins a

gold medal and their flag is raised, there is far greater reason to feel pride that humankind is capable of organising such an event."

Harari reminded of the question raised by Johnson in the daisy advertisement which is more pertinent today than it was in 1964. "will we make a world in which all human can live together, or will go into the dark?" He seems to be threatened about the future of human civilisation with the three challenges Nuclear war, Ecological collapse and technological disruption.

Few pages of the book precisely talk about traditional religions their beliefs and interpretations. He writes religion has no answers to any of life's important questions. "there is just no such things as Christian Economics, Muslim Economics, or Hindu Economics. He is not in favour of religious traditions according to him some traditions and religions make people behave meanly and cruelly. "No matter how technology will develop, rituals will continue to influence the use of technologies, and might well retain the power to set the world ablaze."

He debates on the safety and security issues for immigrants, especially in a globalised world, where all humans have moral obligations towards all other humans. The two key issues of the debate were the disagreement about immigrant intolerance and the disagreement about identity. Humankind is still facing the problems of racism and individuals often become extremely intolerant. Concern about terrorism varies significantly around the world, with the highest levels found in the Middle East, South Asia, and Western Europe—all regions that have suffered significant terrorist attacks. Despite 9/11, Americans are only average in their level of concern. "Since 11 September 2001, every year terrorists have killed about fifty people in the European Union, about ten people in the USA, about seven people in China,

and up to 25,000 people globally (mostly in Iraq, Afghanistan, Pakistan, Nigeria and Syria). In contrast, each year traffic accidents kill about 80,000 Europeans, 40,000 Americans, 270,000 Chinese, and 1.25 million people altogether.”

Danger is fuelled not just by terrorism but fear of Third World War is just round the corner. As in 1914, in 2018 rising tensions between the great powers of the world coupled with global problems seeming to dragging us towards a global war. Author summarizes in few of his chapters about Jewish religion its impact on other religions, and its immense contribution to human history. “doesn’t Judaism at least deserve special praise for pioneering the belief in a single god, which was unparalleled anywhere else in the world?”

Harari questioned for God’s existence. “Does god Exist?” he questioned the preaching’s of all holy books. According to him these books are just stories invented by our ancestors in order to legitimise social norms and political structures. He attempts to make readers understand the importance of ethics and morality, peace and harmony instead of enormous religious belief. “We don’t need to invoke god’s name in order to live a moral life. Secularism can provide us with all the values we need.” Every religion, ideology and creed has its shadow on the mankind.

The Chapters in the fourth part raised some of the important problems and developments of the present. Not only rationality, but individuality too is a myth. “The power of groupthink is so pervasive that it’s difficult to break its hold even when its views seem to be rather arbitrary.” (Harari, 2018) Humans are not able to understand the difference between right and wrong, justice and injustice. The post truth era is a challenge for all economies of the world. Some fake news lasts forever. the truth of truth is it is never so high on the agenda of Humans. It’s our responsibility to invest time and effort in verifying the sources of information rather being biased. (<https://www.financialexpress.com> , n.d.).

The author in the fifth and final part gathers together the different threads and take a more specific look at life and its challenges. How can we prepare ourselves and our children for a world of transformations and uncertainties? “yet since we have no idea how the world and the job market will look like in 2050, we don’t really know what particular skills people need.” Education system should comprise of four C’S Critical thinking, communication, collaboration and creativity. Humans will (Harari, 2018) require lot of mental flexibility and great reserves of emotional balance to survive in such type of environment. This is the era of Hacking Humans, where we are watched by algorithms and all minute details are being recorded and monitored.

The last two chapters of the book where the author tries to understand the true meaning of life. He emphasized on the learnings of Hindu epic Bhagwat Gita. The circle of life represents stories of eternal love, struggles, sacrifices. “while a good story must give a role beyond Horizons “in order to understand our own self a crucial step is to be acknowledged that the self is a fictional story of our minds that constantly manufacture, update and rewrite thought, goals and objectives.

The book could be said as collection of essays depicting work, war, nationalism, religion, immigration, education, and other important issues relating to Big data analytics, artificial intelligence. Some chapters of the book are not in connection to the theme as they are more of historical and philosophical perspective.

## References

- <https://www.financialexpress.com> : <https://www.financialexpress.com/lifestyle/book-review-21-lessons-for-the-21st-century-describes-the-global-challenges/1299790/>
- Harari, Y. N. (2018). *21 Lessons for the 21st Century*. Spiegel & Grau, Jonathan Cape.



# All about Leadership; Be one

KP Kanchana\*

## Abstract

In the recent years there is a paradigm shift in the definition of leadership. Over the years, the definition of leadership has changed. The leaders have transformed themselves from being very formal to the person working at the ground level like a common man. But then what makes a leader? Then what is special about being a leader? What special journey they go through to become a great leader? They follow a different and tough journey that makes the ordinary person, extraordinary. There are few classic transformational leaders of the past and present like Steve Jobs, Jack Ma, Bill Gates who have reflected some common traits and inspired the world to be one like them and create their own niche.

**Key words:** Transformational, leadership, traits

## Introduction

Leadership is a quality hidden in the personality of a human being. Human personality is very complex and it is very difficult to grade individuals according to one's personality. Leadership, on the other hand, depends on the organic structure of the personality which includes experience, skill, responsibility, intelligence, power of organizing people and social interaction. Leadership is an indispensable activity, which every leader has to perform for directing the people, working under him. It is the ability of the Leader to induce subordinates to work with confidence and zeal.

In other words "Leadership is the process by which a leader imaginatively directs, guides and influence the work of others in choosing and attaining specified goals by mediating between the individuals and the organization in such as manner, that both will obtain maximum satisfaction."

Leadership means transforming life of people intentionally or transforming situations which ultimately transforms organization.

Leadership here can be correlated with a story Flock of Geese, by Angeles Arrien. In the fall Geese head towards south for the winter flying, they fly in along in the "V" formation. When each bird flaps its wings, it creates uplift for the bird immediately following. By flying in a "V" formation, the whole flock adds at least 71% greater flying range than if each bird flew on its own. The flock shares a common direction similar to a Team headed by a leader. Whenever a Goose falls out of formation, it suddenly feels the drag and resistance of trying to go through it alone and quickly gets back into formation to take advantage of the power of

the flock. When the lead Goose gets tired, he rotates back in the wing and another Goose takes over. The Geese honk from behind to encourage those up front to keep their speed. Words of support and inspiration help energize those on the front line, helping them to keep pace in spite of the day-to-day pressures and fatigue. It is important that our honking be encouraging. Otherwise it's just - well honking!

Finally, when a Goose gets sick or is wounded by a gunshot and falls out, two Geese fall out of the formation and follow the injured one down to help and protect him. They stay with him until he is either able to fly or until he is dead, and then they launch out with another formation to catch up with their group. When one of us is down, it's up to the others to stand by us in our time of trouble. If we have the sense of a Goose, we will stand by each other when things get rough. We will stay in formation with those headed where we want to go.

The flock of Geese sends us a simple message that "IT IS INDEED A REWARD, A CHALLENGE AND A PRIVILEGE TO BE A CONTRIBUTING MEMBER OF A TEAM HEADED BY AN ABLE LEADER".

Leadership is an attribute which cannot be limited to a type of personality. Leadership also varies from one instance to another. It also does not depend on a person's physical appearance. Leadership comes from within, it is an inborn quality, it exists in the mind of the person, it depends on the nature of work one is involved in and in the ability to perceive and handle situations and actions.

## Shift in leadership traits

Martin Luther King and Cesar Chavez, were leaders having a common vision but different styles of execution. Both of them raised their voices against racism in America. The perception of both Chavez and King varies to a large extent. Chavez does not appreciate the efforts put in by his fellow white country men in the fight for equality and freedom while King is grateful to the "white brothers" who supported him to achieve equality and freedom.

With the advent of Globalization, a drastic change has come in the thinking and values of people across the world. It is important to find a leader with a head and also with a heart. Head refers to the intelligence and competency of the person to perform where as Heart refers to the emotions, empathy and consideration of the person for one another.

Jack Welch chairman and CEO of General Electric between 1981 and 2001, described the traits of an ideal leader in greater depth than any previous model or formula. These are:

1. Strong leaders lead with character/ integrity. They are trustworthy
2. Strong leaders have business competence/ acumen. They know that they have to do. They have strong feelings and they guide them well.
3. Strong leaders think global. They have wider vision.
4. Strong leaders are customer centric. They know that only the customers can define what they have to do.
5. Strong leaders bring change and disdain bureaucracy. They believe that change is continuous and is inevitable
6. Good leaders are strong communicators and are empathetic. Good leaders are not only a very good orator but also are very good listeners. They are empathetic and give patient listening to the people. They do not just bounce them with the orders.
7. Authentic leaders build effective team. They are the team players; they seek and give cooperation and support to every members of the team. They believe in sailing the boat together.
8. The best leaders focus on achieving the objectives of the organization. Every individual should work for the achievement of the organization. The individual's contribution is meaningful only when it is for the achievement of the goals for the organization.
9. The best leaders have great energy and spark others to perform. Effective are those leaders who articulate vision and propagate it to others to carry out.
10. Strong leaders have an "infectious enthusiasm. They influence people to imitate their enthusiasm and excel in their endeavors.

11. Great leaders achieve and deliver. They not only dream but plan effectively, execute optimally and deliver keeping in mind the financial goals but also other key objectives.
12. The best leaders love what they do. To them what they do is a passion. They love their work, they enjoy and hence they excel.

Leaders take the power from people and give them back to earn back more power. Leadership is the most valuable commodity of the planet and the rarest that we have. It's done without ego. Herbert David Kelleher was the co-founder, later CEO, and chairman emeritus of Southwest Airlines until his death in 2019 would go out and work one day in a month with the baggage handling team in the ground. One needs to be in touch with the people you work and one need to be there in their shoes to understand them. In our society we promote the managers and expect them to be great leaders and they fail miserably.

Leaders are the ordinary people who do extraordinary things in life. They channel their energy and imagination in the right direction, direction of change, direction of development of organization and life of the people as a whole. Great leaders have purpose. Purpose builds up passion, passion to do something big, something different and they propagate it to the entire people of the organization. They make it the culture of the organization. Mark Zukerberg, co-founder and leading Facebook as its chairman and chief executive officer, said that there are 3 ways in which leaders can contribute to the world where everyone has a sense of purpose;

1. By taking on big meaningful projects together. Ideas do not come at once. It builds by working. So build up the ideas without getting scared of the criticism faced later.
2. By redefining quality so that everyone has the freedom to pursue their purpose. Thrive on the number of ideas. The greatest successes come from the freedom to fail. Everyone should have cushion to try new ideas.
3. By building community all across the world by not only giving money but also time. Give them hand to pursue their dreams. Progress requires coming together as a global community. It gives the sense that we are together, it makes us stronger.

"Leadership is hard to define and good leadership even harder. But if you can get people to follow you to the ends of the earth, you are a great leader. As a leader, I am tough on myself and I raise the standard for everybody; however, I am very caring because I want people to excel at what they are doing so that they can aspire to be me in the future." – Indra Nooyi in an interview with CNBC, June 2008.

Leaders are the distinctive personality with distinctive traits. They have the ability to look at the things with altogether different perspectives. People always debate whether leaders are born or made but what so ever may be the situation but the leaders are different, they are unique. A leader has a vision which is very clear and vivid picture of what to do in the life. Jack Welch, former chairman and CEO of General Electric Co., said, "Good business leaders create a vision, articulate the vision, passionately own the vision and relentlessly drive it to completion." They are the unusual people with unusual traits.

Steve Jobs in one of his commencement speech in Stanford in 2005 said that there are 3 things that made him successful:

Connecting the dots. This can be connected only looking backward. With the trust and confidence from the heart that this will fabricate my future.

Do the thing which is you love to do. Things that you love will lead to success because you are emotionally attached to it. You own it. Even the failure will give you the courage to start again with more zeal and enthusiasm. Only thing that makes one keep going is the love for the work that one does. Only thing that gives you success is to love and believe that what you are doing is a great work.

Live as it's the last day of your life. Do what you are about to do in future. Its a great change agent. One has nothing to lose so you will listen to your heart. Every great leader is very intuitive and go by their gut feelings.

The best and effective leaders are boundary-less. They are more open, have candid approach to leadership. Jack Welch believes that boundary-less leaders take the change with the courage, embrace them, take risk, will lead the team with examples, they touch the heart of the people, are very energetic and have lots of potential.

Being an effective leader is not a one day affair. It takes lots of efforts, lots of thinking, lots of doing and lots of learning, learning from self, learning from society and of course learning from ones mistake.

Success comes with the efforts and beliefs of leaders. Great leaders are always optimistic. They believe in themselves. They are positive and never complain. They have different views on everything they look at unlike normal people. They ensure that everybody is happy. Leadership is a nature, where one has to change and learn. Leadership is about responsibility. Responsibility makes them accountable, take the onus and have determination.

It is also believed that leaders are very flexible. They experiment with lot of things. Explore what they want to do before committing. They know what to do next. They give themselves the foundation to fail first as it give them lots of knowledge and experience how to face and overcome failures. It's the way they think they bring changes. They have always the passion to learn. It's an era of exponential era and not the linear era. It's highly competitive. It's accelerating very fast. So it is important to accept the technology. And hence the leaders find a big problem and try to solve it. They seek problems as opportunities. They are perennial optimistic.

Jack Ma is the founder of Alibaba.com a growing e-commerce business. It is giving a strong competition to the other players in the market. He gave 10 mantras to become successful in the market and as leader. His mantras are:

1. Learn from other people's mistakes not from the success stories so that if such cases come to you, you know how to deal with it.
2. Focus on quality not size. Judge the company by the profit not by the size, judge it by how happy the employees are. If they are happy company will be happy.
3. Don't try to be the "best", be the first. Be the first to change, be the first to take the challenge and overcome the difficulties. Be yourself as it's the only key to success.
4. Prepared for future. Have vision. Vision for future. Look for opportunities and try to exploit those with creativity, with imagination and technology.
5. Respect your competitors. Enable everybody to grow. Learn for them.
6. See challenges as opportunities. It depends on how you look at. Opportunities always lie in the challenges.
7. Believe. If you believe in your idea continue to do it and improve it every day. Be optimistic.
8. Surround yourself with great people, people with positive attitude. This makes the culture of the company. Good leaders lay the example by giving respect, trust appreciation and correct heartfelt advice.
9. Live healthy. If one is not healthy he won't be happy.
10. Have fun. Live a bunch of crazy and live in life.

Leaders put in the efforts and try to do the best where everyone fails. They pursue their dreams. They know how to sort out the problem. They become the captain of the problem and try to defeat it. Those who dare to imagine break are one who breaks all human limitation, irrespective of any fields and change the world. They have creative minds that are constantly working. He should be able to see things that others are not able to see and put together for a common purpose.

Action is the mark of a leader. Leaders are disciplined to work toward his vision. A leader does not suffer “analysis paralysis” but is always doing something in pursuit of the vision, inspiring others to do the same. Intrinsic traits such as intelligence, good looks, height and so on are not necessary to become a leader. What is important is his ambition, confidence, modesty, agreeableness and his amiable behavior. When we look at the traits of a leader like Barack Obama we find that he is ambitious and confident; he prefers for mediation and compromise over force or coercion as a strategy for resolving conflict, modestly dominant and self-asserting; accommodating, cooperative and agreeable; somewhat outgoing and congenial; and relatively conscientious. The combination of ambitious and accommodating patterns in Obama’s personality proposes a “confident conciliator” personality composite.

It is being said that a good leader always keeps quite in a controversial topic and speaks less. When dealing with members of Congress, President Obama generally prefers to avoid unnecessary conflict by trying to remain above the fray in heated, highly divisive debates

Leaders with this personality archetype, though self-assured and ambitious, are characteristically gracious, considerate, and benevolent. They are energetic, charming, and agreeable, with a special talent for settling differences and a preference for mediation and compromise over force or coercion as a strategy for resolving conflict. They are driven primarily by a need for achievement, but also have substantial affiliation needs and a modest need for power.

## Conclusion

Introspection into the lives of the leaders helps us to understand why these personalities from the past and from today are and will be remembered for the remarkable work that they have done. They were and are extraordinary people and their extraordinary efforts have set an example for many generations to come. By studying these personalities we do not say that any one leader was the best but they all were the best in their times and their

fields. It is often argued that leadership is situational and what worked 50 years back may not hold true today and thus, it’s the learning that is more important than just copying the styles.

The learning must be in terms of how far reaching the thinking of these people were, what led them to think out of the box and what led these people to grow positive from the troubles that life threw in front of them. It is very important to understand their leadership in context, because the philosophies that these people held were the best ways of tackling the situation at that time but when we take into consideration today’s ideologies and today’s environments their ideologies may seem obsolete. A self-sufficient India was the vision that the first Prime Minister of India held but today with the advent of globalization this concept is unrealistic as the world has become a Global Village and the one who does not participate loses.

Leadership is neither born nor taught but it evolves from the experiences that a person faces and the outcomes of those experiences, thus, we say that no one style is the best but learning from the ever changing world and evolving of your own style is important.

## References

- *Jack Ma- Do what is right*, <https://www.youtube.com/watch?v=OyGVCI8bMmE&list>
- *Take risks, follow passions: Sundar Pichai*, <http://timesof-india.indiatimes.com/articleshow/>
- *Ritesh Agarwal, “3 things that every startup must do to find success”*, <https://www.cnbctv18.com/entrepreneurship/oyos-ritesh-agarwal-3-things-that-every-startup-must-do-to-find-success>
- *Interview with Arundhati Roy | We have to endure*, [www.indiatoday.in/magazine/up-front/story/20190715-interview-with-arundhati-roy-we-have-to-endure](http://www.indiatoday.in/magazine/up-front/story/20190715-interview-with-arundhati-roy-we-have-to-endure)
- *Steve Jobs' famous Stanford commencement speech*, <https://www.businessinsider.in/Heres-the-full-text-of-Steve-Jobs-famous-Stanford-commencement-speech>

# OJAS

Expanding Knowledge Horizon

## SUBSCRIPTION FORM

Please accept the enclosed cheque/demand draft No \_\_\_\_\_ dated \_\_\_\_\_ drawn on \_\_\_\_\_ bank favouring Jaipuria School of Business Ghaziabad for (Rs. \_\_\_\_\_ / US \$ \_\_\_\_\_) towards subscription of OJAS for one/two/three years (Please Tick).

Name: \_\_\_\_\_

Organisation: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City \_\_\_\_\_ Pin/Zip \_\_\_\_\_ Country \_\_\_\_\_

E-mail: \_\_\_\_\_

### SUBSCRIPTION RATE

#### One Year

##### Print

Institutions: Rs. 1000/-

Individuals: Rs. 750/-

Overseas: 150 USD

#### Two Year

##### Print

Institutions: Rs. 1800/-

Individuals: Rs. 1300/-

Overseas: 200 USD

#### Three Year

##### Print

Institutions: Rs. 2600/-

Individuals: Rs. 2000/-

Overseas: 250 USD

### Send your Feedback Enquiry to:

The Executive Editor

### OJAS

Jaipuria School of Business

Shakti Khand IV, Indirapuram, Ghaziabad

Ph: 0120-488 11 00, 09999686086

e-mail: [ojas@jaipuria.edu.in](mailto:ojas@jaipuria.edu.in)

Website: [www.jaipuria.edu.in/pgdm](http://www.jaipuria.edu.in/pgdm)

#### Please Note:-

1. The subscription will be from January to December, i.e. for complete set of volumes for one year.
2. Please send Rs. 50 extra for outstation cheque.
3. Any change in address should be informed immediately.
4. The subscription should be sent on the given address.



# OJAS

Expanding Knowledge Horizon

AN INTERNATIONAL JOURNAL OF RESEARCH IN MANAGEMENT

ISSN: 2279-0373, Online-ISSN: 2321-726X

## Call for Papers

OJAS Expanding Knowledge Horizon welcomes original manuscripts for its forthcoming issue. The objective of OJAS is to feature multidisciplinary contemporary concepts, methodologies and latest practices in the every changing business environment in India and world.

The Journal focuses on publishing original research papers and articles from academicians, analysts, and administrators. OJAS commits to offer unique learning and experience sharing to and from academicians, researchers, industry experts, business consultants and students.

Manuscripts have to be submitted by email to [ojas@jaipuria.edu.in](mailto:ojas@jaipuria.edu.in). Submissions through any other mail or e-mail will not be processed for review

The manuscript should be attached along with following details:

1. An abstract of 150–250 words with five key words
2. A brief profile (50–80 words) of author/s with current designation and organisation.

The details for guidelines for authors can be referred from <https://jaipuria.edu.in/pgdm/research/about-ojas/>

## Guidelines for Authors

The contributors are requested to adhere to the following guidelines.

- The selection of papers for publication is based on their originality, knowledge content and application. The journal endeavors to maintain balance between purely research oriented papers and those derived mainly from the experiences of practitioners involved in different areas of management.
- Authors are encouraged to contribute the empirical and analytical research or case research. In case of case studies, contributors are required to provide the teaching notes of the case along with brief description of the real life situation faced and the decision or action taken by the manager or organization. The perspectives need to be based on emerging issues and ideas. The journal encourages the contributors to review the current management books.
- The manuscript should normally not exceed 20 double spaced, single sided typed pages, 12 font size in Times New Roman font, leaving 1.5 inches margin on all sides of A-4 size paper.
- All manuscripts and related correspondence should be mailed to OJAS@jaipuria.edu.in The contributions received will be acknowledged within 2-3 working days by e-mail. The manuscripts not considered for publication will not be sent back. The acceptance or rejection of the contributions will be informed to the contributors through email only.
- The journal follows a policy of blind peer review.
- The contributors are required to attach a separate title page which should include the title of the paper, name(s) of the author(s) and relevant biographical information. The second page should carry the title of the paper and 100 to 150 word- single paragraph abstract of the paper.
- All tables, charts, and graphs should be black, not in color. Authors must acknowledge all the sources they have drawn upon and the sources should be indicated at bottom.
- References should be complete in all respects and arranged in alphabetical order as per the standard pattern of research.
- The authors should provide a declaration along with the manuscripts, stating that the article is an original work of author(s) and the same has not been published earlier in any other publication.
- The main author will receive a complimentary copy of the journal in which their articles are published.

### References:

Place the references at the end of the manuscript following the footnotes. The list should mention only those sources actually cited in the text or notes. Authors name should be same as in the original source. For more than one publication by the same author, list them in chronological order, with the older item first. For more than one publication in one year by the same author, use small lower case) letters to distinguish them (e.g. 1980a, 1980b). Following are some examples:

- Books - Diwan Parag (2000) E-Commerce. New Delhi Excel Publication.
- Ph.D. Thesis - Pant, RC (2000) 'Performance Appraisal Techniques: A Tool or a Threat' Ph.D. thesis, BHU, Varanasi.
- Journal - Luftman, J., and Kempaiah, R., " An Update on Business-IT Alignment: "A Line" Has Been Drawn, MIS Quarterly Executive (6,3) September 2007, PP. 165-175











# JAIPURIA SCHOOL OF BUSINESS

**EMPOWER • ENTHUSE • EXCEL**

**INDIRAPURAM, GHAZIABAD**

(Approved by All India Council for Technical Education)

**Address :** Shakti Khand-IV, Indirapuram, Ghaziabad, PIN-201014

**Contact No:** 0120-4881100, 09313334232, 08860852754, 09717001962, 09717335551, 09971402159, 09810194237, 09560164917

**Toll Free No:** 18001033488 | **Website:** [www.jaipuria.edu.in](http://www.jaipuria.edu.in)